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December 26, 2014

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Subject: Annual Report
July 1, 2013 through June 30, 2014
Civil Action No. 3:08-cv-00608-CRS
DOJ Case No. 90-5-1-1-08254

Attention Chief:

Please find attached our Annual Report, prepared in accordance with Paragraph 30 of our Amended Consent Decree. This report is for the period July 1, 2013, through June 30, 2014.

I certify under penalty of law that this document and all attachments were prepared under our 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.

If you have questions or need additional information, please contact me at (502) 540-6136.

Sincerely,

Angela Akridge, PE
Infrastructure Planning and Environmental Compliance Director

FY14 AR transmittal letter.doc

cc: Greg Heitzman Paula Purifoy



Beneficial Use of Louisville's Biosolids
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Louisville and Jefferson County Wet Weather Consent Decree Annual Report



Reporting Period:

July 1, 2013 through June 30, 2014

Submitted To:

Kentucky Department of Environmental Protection
United States Environmental Protection Agency
United States Department of Justice

Submitted By:

Louisville and Jefferson County Metropolitan Sewer District
700 W. Liberty Street
Louisville, Kentucky 40203-1911

Submittal Date:

December 26, 2014

TABLE OF CONTENTS

INTRODUCTION..... 5

SECTION 1: Project WIN Performance Overview 7

1.1 FY14 Rainfall7

1.2 FY14 Unauthorized Discharges to Waters of the United States.....7

 1.2.1 FY14 Bypass Events at Water Quality Treatment Centers..... 12

 1.2.2 FY14 Blending Events at the Jeffersontown WQTC..... 13

 1.2.3 FY14 Phosphorus Monitoring at the Prospect WQTCs 16

 1.2.4 FY14 Dry Weather CSOs 16

1.3 FY14 Overflows.....18

 1.3.1 FY14 Overflows to the Exterior 18

1.4 FY14 CSO and SSO Reductions.....19

 1.4.1 FY14 CSO Reductions 19

 1.4.2 FY14 SSO Reductions 19

1.5 Performance Measures - Trends.....19

 1.5.1 Rainfall 20

 1.5.2 Bypass 20

 1.5.3 Jeffersontown Water Quality Treatment Center 23

 1.5.4 WQTC Effluent Compliance 26

 1.5.6 Wet and Dry Weather SSOs 28

 1.5.7 SSOs per 100 Miles of Sewer 30

SECTION 2: Program Activities for Nine Minimum Controls..... 33

2.1 Nine Minimum Controls Program Background33

2.2 NMC 1: Proper Operation and Maintenance Programs.....33

2.3 NMC 2: Maximization of Storage in the Collection System.....35

2.4 NMC 3: Review and Modification of Pretreatment Requirements41

2.5 NMC 4: Maximization of Flow at the Morris Forman Water Quality Treatment Center (WQTC).....44

 2.5.1 Morris Forman Water Quality Treatment Center 44

 2.5.2 Wet Weather Capture 46

2.6 NMC 5: Elimination of CSOs During Dry Weather48

| | |
|---|-----------|
| 2.7 NMC 6: Control of Solids and Floatable Materials in Combined Sewer Overflows | 50 |
| 2.8 NMC 7: Pollution Prevention Programs to Reduce Contaminants in CSOs | 51 |
| 2.9 NMC 8: Public Notification | 52 |
| 2.10 NMC 9: Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls | 52 |
| SECTION 3: Program Activities for Sewer Overflow Response Protocol | 53 |
| 3.1 SORP Program Background | 53 |
| 3.2 Overflow Management and Field Documentation | 53 |
| 3.3 Regulatory Reporting and Data Management | 55 |
| 3.4 Staff Training and Communication | 55 |
| 3.5 Annual Program Review | 56 |
| 3.6 Public Notification and Communication | 57 |
| SECTION 4: Program Activities for Discharge Abatement Plans | 58 |
| 4.1 Integrated Overflow Abatement Plan (IOAP) | 58 |
| 4.2 Sanitary Sewer Discharge Plan (SSDP) | 58 |
| 4.2.1 Updated Sanitary Sewer Overflow Plan Implementation | 58 |
| 4.2.2 Interim Sanitary Sewer Discharge Plan | 58 |
| 4.2.3 Final Sanitary Sewer Discharge Plan | 58 |
| 4.3 CSO Long Term Control Plan | 59 |
| 4.3.1 Interim CSO Long Term Control Plan | 59 |
| 4.3.2 Final CSO Long Term Control Plan | 59 |
| 4.3.3 Green Demonstration Project Update | 59 |
| 4.3.4 Green Infrastructure Programmatic Activities | 59 |
| 4.4 Activity Progress Chart | 61 |
| 4.4.1 Project Certification Progress | 67 |
| 4.5 Post Construction Compliance Monitoring Program | 68 |
| SECTION 5: Public Outreach, Education, Notification and Participation | 76 |
| 5.1 Public Notification Program | 76 |
| 5.1.1 Overflow Advisory Signs | 76 |
| 5.1.2 Electronic Notifications | 76 |
| 5.1.3 Print Notifications | 77 |
| 5.2 Public Education Programs | 77 |

| | |
|--|------------|
| 5.2.1 Radio and Television Activities..... | 78 |
| 5.2.2 Printed Media Activities..... | 78 |
| 5.2.3 Project WIN and Green Websites | 79 |
| 5.3 Public Outreach Programs | 80 |
| 5.3.1 Green Infrastructure Workshops and Activities | 80 |
| 5.3.2 Clean Streams Workshops and Activities | 82 |
| 5.3.3 Outreach Activities for Students | 82 |
| 5.3.4 IOAP Project and Program Meetings | 83 |
| SECTION 6: Capacity Management Operations and Maintenance (CMOM) Annual Report..... | 85 |
| 6.1 Capacity Management Operations and Maintenance Program Activities | 85 |
| 6.1.1 Management Programs..... | 85 |
| 6.1.2 Operations Programs | 111 |
| 6.1.3 Maintenance Programs | 117 |
| 6.2 Comprehensive Performance Evaluations and Composite Correction Plans (CPE/CCP)..... | 121 |
| 6.2.1 Amended Consent Decree CPE/CCP Program | 121 |
| 6.2.2 CMOM CPE/CCP Program | 121 |
| 6.3 CMOM Activity Schedule | 125 |
| SECTION 7: Supplemental Environmental Projects (SEPs) Annual Report..... | 129 |
| 7.1 SEP Requirements | 129 |
| 7.2 Public Health Screening – Western Louisville (Budget ID J06248) | 130 |

ATTACHMENTS

Appendix A – CSO 108 FY14 Efficacy Reports
Appendix B-1 - Discharge Work Orders-Waters of the United States
Appendix B-2 - Discharge Work Orders-Bypass
Appendix B-3 - Discharge Work Orders-Blending
Appendix B-4 - Discharge Work Orders-Ground
Appendix B-5 - Discharge Work Orders-Interior
Appendix C - Annual Average Overflow Volume
Appendix D - CSO Flow Monitoring Data
Appendix E - Acronyms
Appendix F – May 1, 2014 Letter to Residents
Appendix G - Phosphorus Monitoring Data
Appendix H - Organizational Chart
Appendix I - FY14 CSSA Annual Report
Appendix J – Morris Forman WQTC FY14 Charts
Appendix K - Louisville Metro Health Department Program Accomplishments
Appendix L - Jeffersontown WQTC Blending Event Charts
Appendix M – Bypass Event Corrective Actions
Appendix N – 2014 Water Quality Synthesis Report

INTRODUCTION

The Louisville and Jefferson County Metropolitan Sewer District (MSD) has entered into an Amended Consent Decree with the Kentucky Department of Environmental Protection (KDEP) and the United States Environmental Protection Agency (EPA). The Amended Consent Decree was signed by United States District Judge Simpson on April 10, 2009 and filed in United States District Court, Western Division of Kentucky, Louisville Division, on April 15, 2009.

This is the seventh Annual Report submitted in accordance with Paragraph 30 of the Amended Consent Decree. This report covers the time period from July 1, 2013, through June 30, 2014. **The structure for this report is outlined as follows:**

Section 1: Project WIN Performance Overview - This section provides an accounting of the number of overflow occurrences, including unauthorized discharges, from the separate sanitary sewer and combined sewer system and the estimated volumes of each. A discussion of the probable reductions, in both unauthorized discharge points and the discharges from MSD's Combined Sewer Overflow (CSO) locations, identified in the Morris Forman Water Quality Treatment Center (WQTC) Kentucky Pollutant Discharge Elimination System (KPDES) permit, that are expected to result from MSD's projects and activities during the reporting period are also contained in this section.

Section 2: Program Activities for Nine Minimum Controls - This section describes the scope, schedule and status for projects and other activities that were active during the reporting period **July 1, 2013, through June 30, 2014**, and the anticipated projects and activities that are scheduled to be performed during the next reporting period (July 1, 2014, through June 30, 2015) for continued compliance with the Amended Consent Decree.

Section 3: Program Activities for Sewer Overflow Response Protocol - This section describes the scope, schedule and status for activities that were active during the reporting period **July 1, 2013, through June 30, 2014**, and the anticipated activities that are scheduled to be performed during the next reporting period (July 1, 2014, through June 30, 2015) for continued compliance with the Amended Consent Decree.

Section 4: Program Activities for Discharge Abatement Plans - This section describes the scope, schedule and status for projects and other activities that were active during the reporting period **July 1, 2013, through June 30, 2014**, and the anticipated projects and activities that are scheduled to be performed during the next reporting period (July 1, 2014, through June 30, 2015) for continued compliance with the Amended Consent Decree.

Section 5: Public Outreach, Education, Notification and Participation - This section describes the activities related to public outreach, education, notification and participation that were active during the reporting period **July 1, 2013, through June 30, 2014**, and the anticipated activities that are scheduled to be performed during the next reporting period (July 1, 2014, through June 30, 2015) for continued compliance with the Amended Consent Decree.

Section 6: Capacity Management Operations and Maintenance and Program Activities for Water Quality Treatment Centers - The program activities performed during the reporting period **July 1, 2013, through June 30, 2014**, and activities planned for the next reporting period

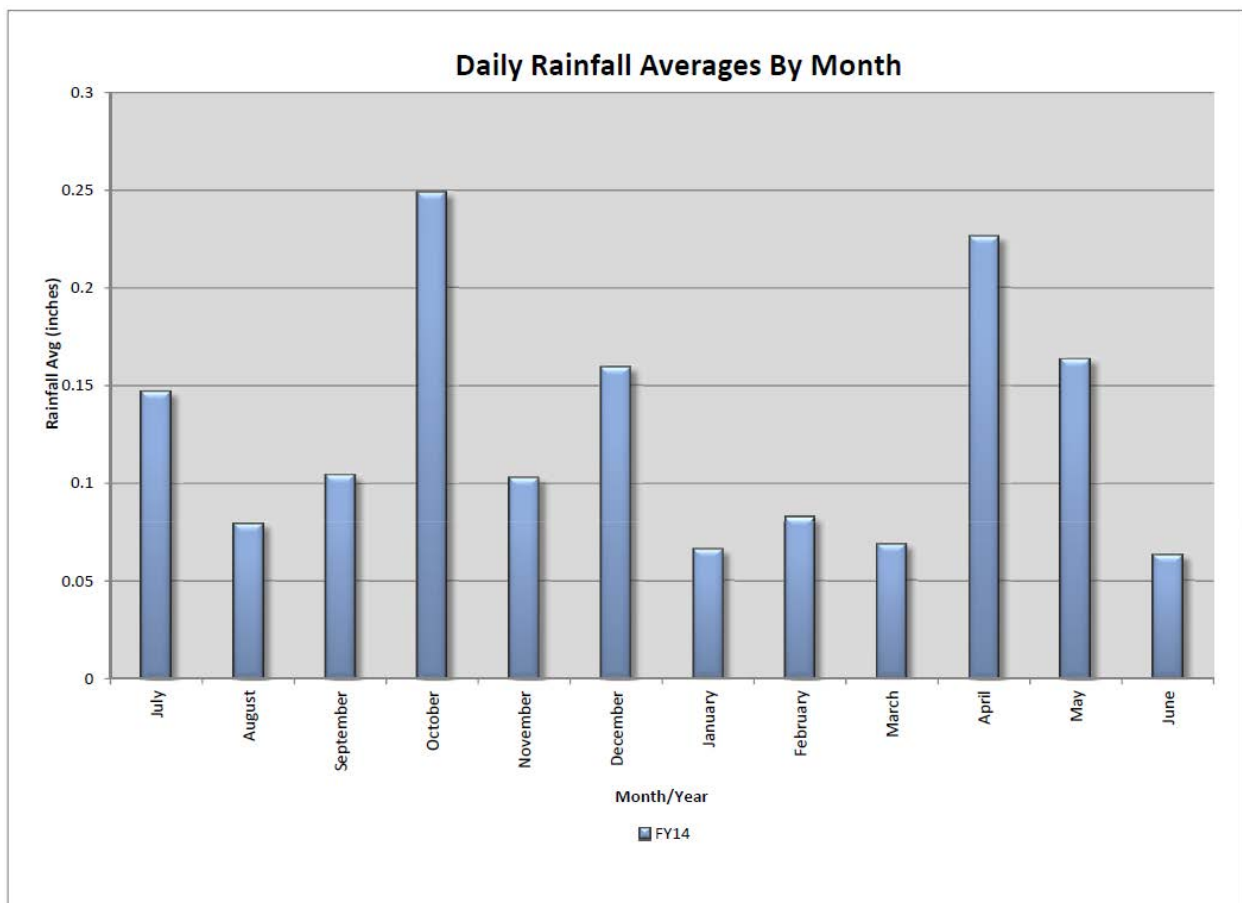
(July 1, 2014, through June 30, 2015) are included in this section for continued compliance with the Amended Consent Decree.

Section 7: Supplemental Environmental Projects (SEPs) Annual Report - The program activities performed during the reporting period (**July 1, 2013, through June 30, 2014**) and activities planned for the next reporting period (July 1, 2014, through June 30, 2015) are included in this section.

SECTION 1: Project WIN Performance Overview

1.1 FY14 Rainfall

The number and the volume of wet weather overflows are directly related to the amount of rain that has fallen during the reporting period. The following graph shows the Jefferson County average daily rainfall amounts by the month (with an average of all MSD Rain Gauges) for the period between FY08 and FY14.



1.2 FY14 Unauthorized Discharges to Waters of the United States

Appendix B-1 includes information related to MSD's discharges to Waters of the United States for the reporting period. This information is entered and maintained in the Hansen Information Management System (Hansen) utilizing procedures reviewed and improved through efforts associated with various components of the Amended Consent Decree. These discharges have

been reported to KDEP and EPA through automated email, telephone calls and monthly wastewater treatment plant discharge monitoring reports (DMRs).

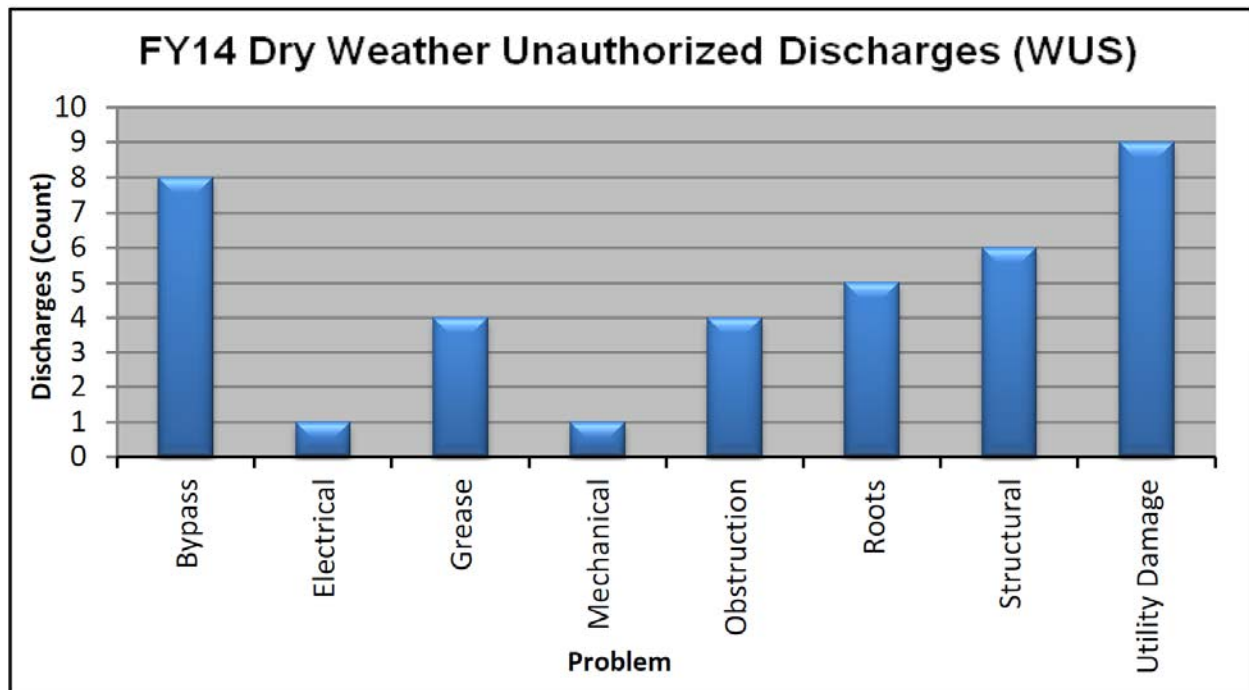
There were 454 overflows that reached the **Waters of the United States** in FY14. Thirty-eight were reported during dry weather and 416 were wet weather related.

| Unauthorized Discharges (WUS) | | | |
|--------------------------------------|--------------------|--------------------|--------------|
| | Dry Weather | Wet Weather | Total |
| Blending At Jtown WQTC | 0 | 14 | 14 |
| Bypass At WQTC | 8 | 19 | 27 |
| Electrical Problems At MSD | 1 | 0 | 1 |
| Grease Blockage | 4 | 0 | 4 |
| Lack Of System Capacity | 0 | 359 | 359 |
| Mechanical Failure | 1 | 3 | 4 |
| Obstruction-Not Grease / Roots | 4 | 5 | 9 |
| Power Outage (LG&E) | 0 | 2 | 2 |
| Pumped Overflow | 0 | 10 | 10 |
| Roots | 5 | 1 | 6 |
| Structural Failure | 6 | 2 | 8 |
| Utility Damaged MSD Asset | 9 | 1 | 10 |
| Total | 38 | 416 | 454 |

An analysis, by asset type, of the 38 **dry weather unauthorized discharges** was performed.

| Dry Weather Discharges (WUS) by Asset Type and Cause | | | | | | | | | |
|--|----------|------------|----------|------------|-------------|----------|------------|----------------|-----------|
| | Bypass | Electrical | Grease | Mechanical | Obstruction | Roots | Structural | Utility Damage | Total |
| Sewer Lift Station | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Sewer Main | 0 | 0 | 0 | 1 | 1 | 0 | 5 | 0 | 7 |
| Sewer Manhole | 0 | 1 | 2 | 0 | 3 | 5 | 0 | 9 | 20 |
| Sewer Service Line | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| Sewer Treatment Plant | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Total | 8 | 1 | 4 | 1 | 4 | 5 | 6 | 9 | 38 |

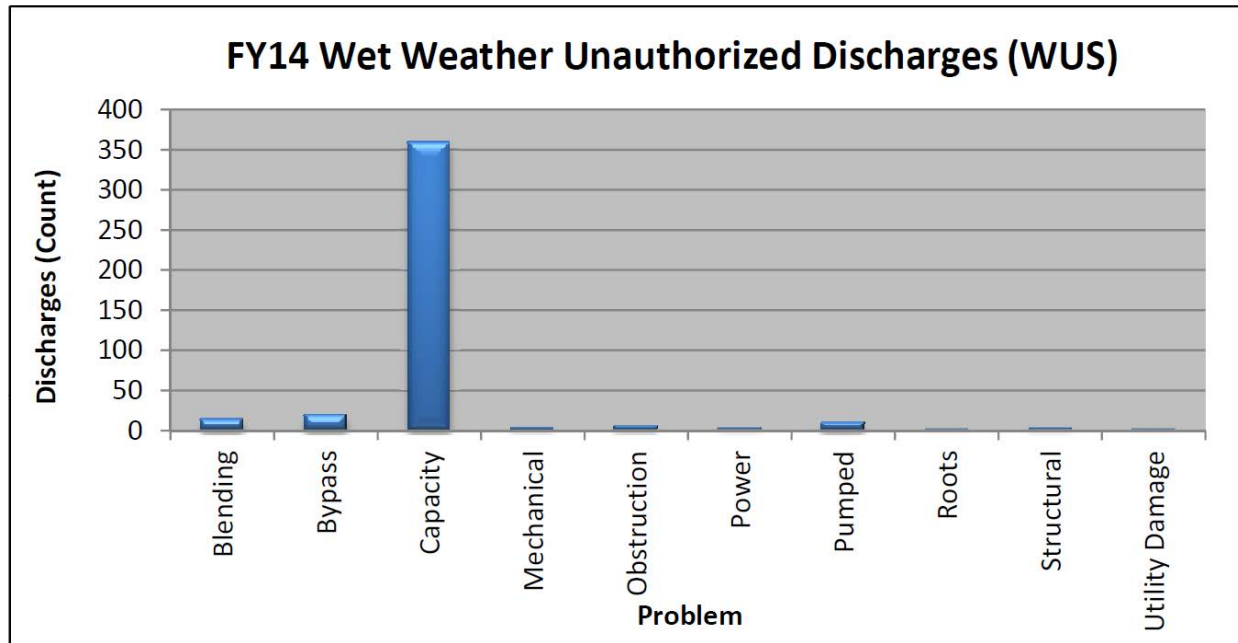
The next chart shows the dry weather overflows by problem code. In FY14, 38 (multiple dry weather related problem codes) overflows were attributed to dry weather problems. There was an increase in dry weather related overflows, due to utility damage, structural failures, grease, and roots.



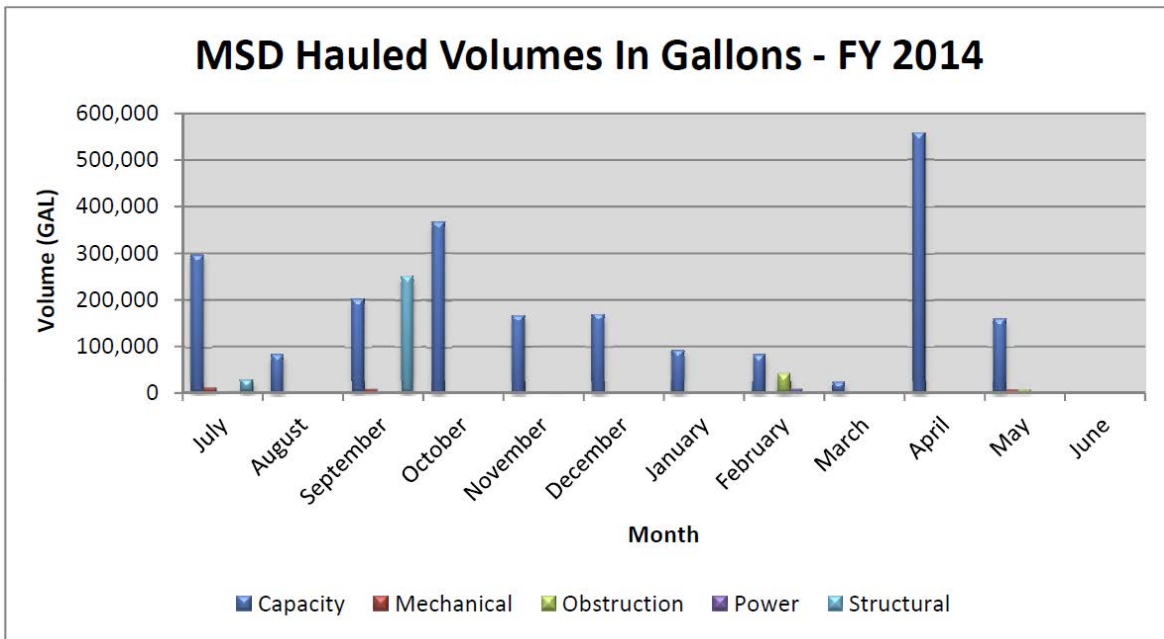
An analysis was performed by asset type, of the 416 **wet weather unauthorized discharges**.

| Wet Weather Discharges (WUS) by Asset Type and Cause | | | | | | | | | | | |
|--|-----------|-----------|------------|------------|-------------|----------|-----------|----------|------------|----------------|------------|
| | Blending | Bypass | Capacity | Mechanical | Obstruction | Power | Pumped | Roots | Structural | Utility Damage | Total |
| Sewer Lift Station | 0 | 0 | 22 | 2 | 0 | 0 | 10 | 0 | 0 | 0 | 34 |
| Sewer Main | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| Sewer Manhole | 0 | 0 | 312 | 1 | 4 | 2 | 0 | 0 | 0 | 1 | 320 |
| Sewer Node | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Sewer Service Line | 0 | 0 | 24 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 26 |
| Sewer Treatment Plant | 14 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| Total | 14 | 19 | 359 | 3 | 5 | 2 | 10 | 1 | 2 | 1 | 416 |

The next chart shows the wet weather overflows by problem code. In FY14, 416 (multiple wet weather related problem codes) overflows were attributed to wet weather capacity issues. There was a significant increase in wet weather related overflows, due to capacity from increased precipitation compared to the previous fiscal year.



To reduce the number of overflows in wet weather, MSD hauls sewage from multiple locations. MSD proactively monitors known and suspected locations that have wet weather capacity issues that may cause sewer line surcharging, basement back-ups and SSOs. MSD staff only hauls from these locations as needed based on actual wet weather event data. Hauling efforts are shown in the following charts.



| MSD Hauled Volume in Gallons - FY 2014 | | | | | | |
|--|------------------|---------------|---------------|--------------|----------------|------------------|
| | Capacity | Mechanical | Obstruction | Power | Structural | Total |
| July | 295,103 | 7,000 | 0 | 801 | 25,700 | 328,604 |
| August | 81,500 | 0 | 0 | 0 | 500 | 82,000 |
| September | 199,702 | 5,000 | 0 | 0 | 249,000 | 453,702 |
| October | 366,101 | 0 | 0 | 0 | 0 | 366,101 |
| November | 164,300 | 0 | 0 | 1,000 | 0 | 165,300 |
| December | 167,600 | 0 | 0 | 0 | 0 | 167,600 |
| January | 90,400 | 0 | 0 | 0 | 0 | 90,400 |
| February | 80,000 | 0 | 39,000 | 6,000 | 0 | 125,000 |
| March | 22,600 | 0 | 0 | 0 | 0 | 22,600 |
| April | 556,711 | 0 | 0 | 0 | 0 | 556,711 |
| May | 157,102 | 5,200 | 5,000 | 0 | 0 | 167,302 |
| June | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 2,181,119 | 17,200 | 44,000 | 7,801 | 275,200 | 2,525,320 |

1.2.1 FY14 Bypass Events at Water Quality Treatment Centers

Included in **Appendix B-2** is a report that details the 27 bypasses which occurred at water quality treatment centers (WQTC) during FY14. Bypasses were reported for the following WQTCs:

| FY14 Bypass Events | | | | |
|---------------------|---------------------|-------------|-------------|-----------|
| | KPDES Permit Number | Dry Weather | Wet Weather | Total |
| BERRYTOWN | KY0036501 | 0 | 13 | 13 |
| CEDAR CREEK | KY0098540 | 2 | 3 | 5 |
| DEREK R. GUTHRIE | KY0078956 | 0 | 1 | 1 |
| HUNTING CREEK NORTH | KY0029106 | 1 | 0 | 1 |
| KEN CARLA | KY0022497 | 0 | 1 | 1 |
| MCNEELY LAKE | KY0029416 | 1 | 0 | 1 |
| SHADOW WOOD | KY0031810 | 3 | 0 | 3 |
| STARVIEW | KY0031712 | 0 | 1 | 1 |
| TIMBERLAKE | KY0043087 | 1 | 0 | 1 |
| Total | | 8 | 19 | 27 |

Project WIN Quarterly Report 18 included a memorandum, included as Appendix K, which described the analysis of 44 bypass events that occurred between July 1, 2008, and December 31, 2009. This analysis delineated bypasses into the following categories:

- Capacity (CAP)
- External Power failures (LGE Related – PWR)
- Equipment Failure (Mechanical -MCH, Electrical - ELE, Structural-STR)
- Human Error (OPN)

In a continuation of the above analysis process, an assessment of FY14 WQTC bypasses was performed to determine the root cause of each bypass, the failure category, corrective actions to be taken, possible programmatic solutions, and corrective action completion date. Refer to **Appendix M** for details of this analysis. This analysis does not include the Jeffersontown WQTC blending events. Refer to **Section 1.2.2** for details of the Jeffersontown WQTC blending events.

1.2.2 FY14 Blending Events at the Jeffersontown WQTC

Included in **Appendix B-3** is a report that lists the 14 blending events which occurred at the Jeffersontown WQTC during FY14. The total blended amount, from the events, reported and documented on the Project WIN webpage was 24,566,750 gallons.

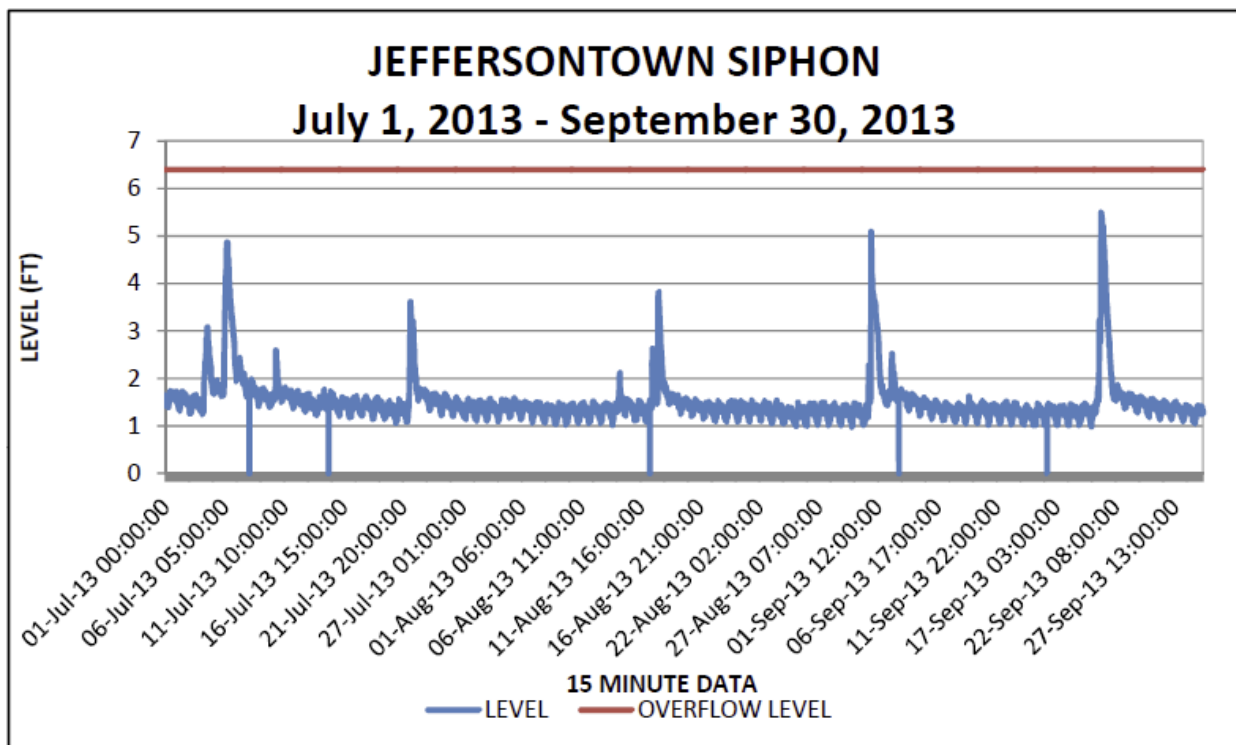
The blending events, as posted on the Project WIN website, are as follows:

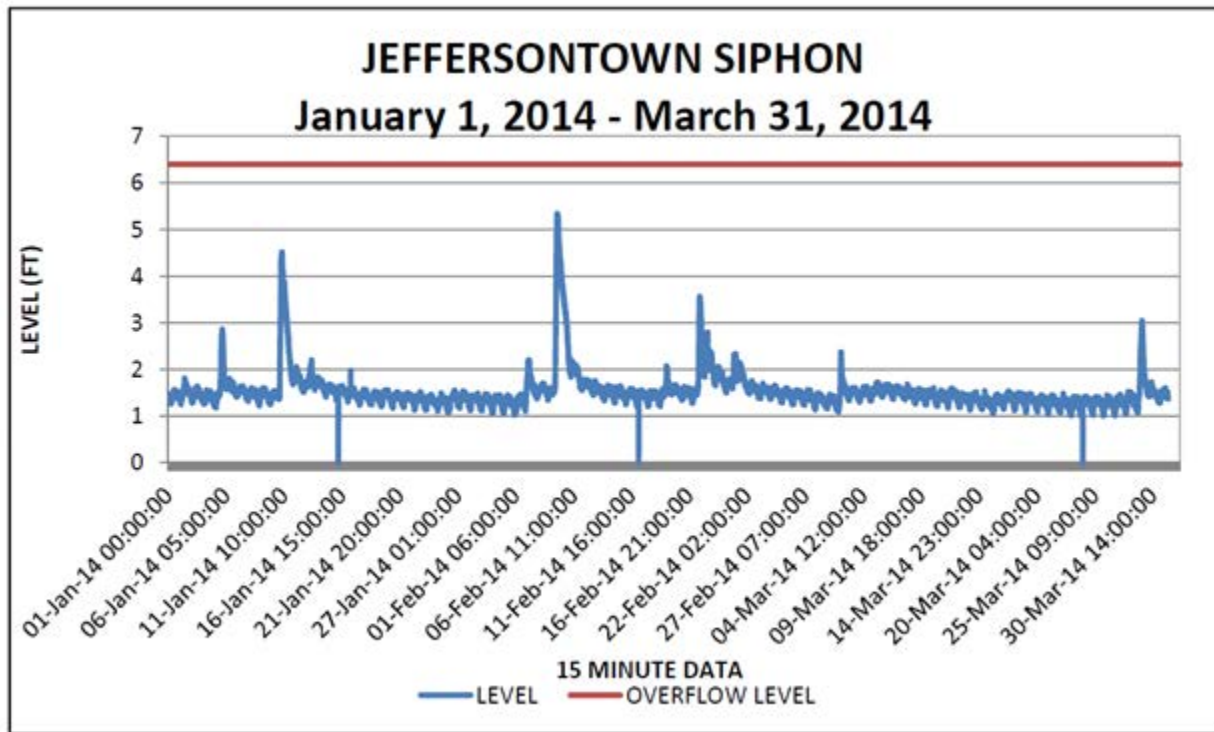
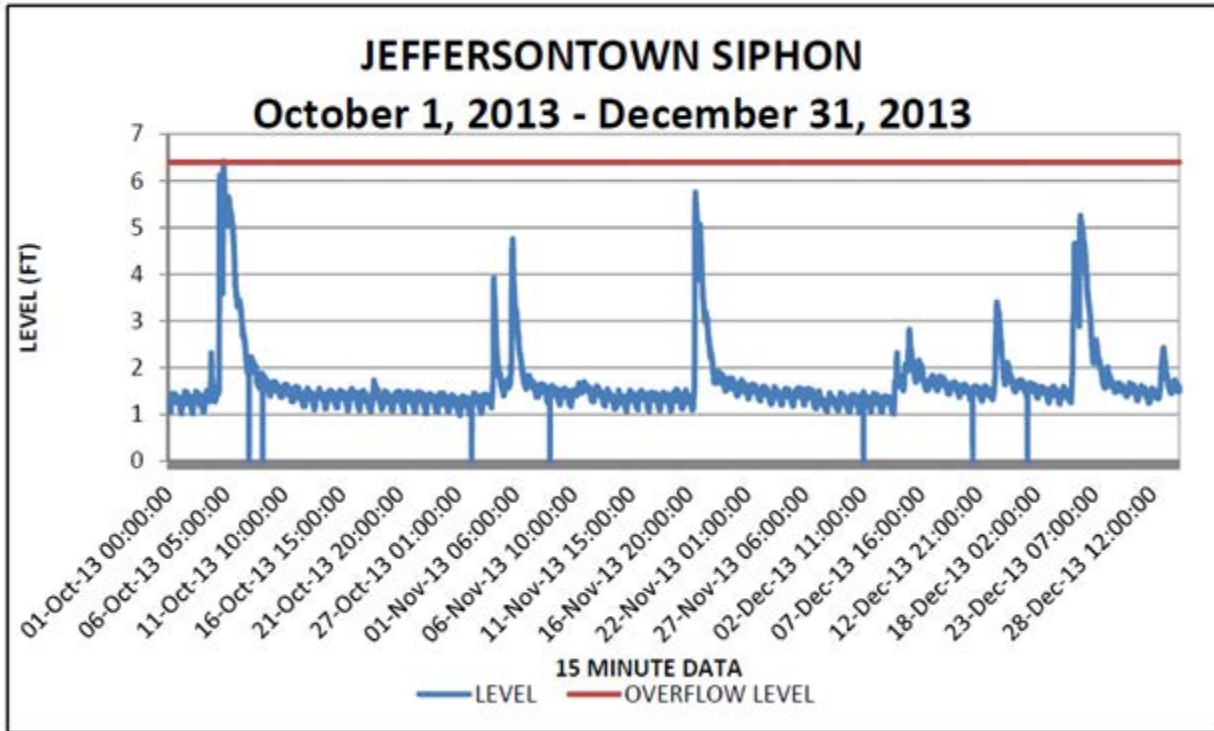
| Blending Events | |
|-----------------|--------------------|
| Number | Date |
| 1 | July 6, 2013 |
| 2 | August 13, 2013 |
| 3 | August 31, 2013 |
| 4 | September 21, 2013 |
| 5 | October 5, 2013 |
| 6 | October 30, 2013 |
| 7 | October 31, 2013 |
| 8 | November 17, 2013 |
| 9 | December 21, 2013 |
| 10 | January 11, 2014 |
| 11 | February 4, 2014 |
| 12 | April 3, 2014 |
| 13 | April 28, 2014 |
| 14 | May 14, 2014 |

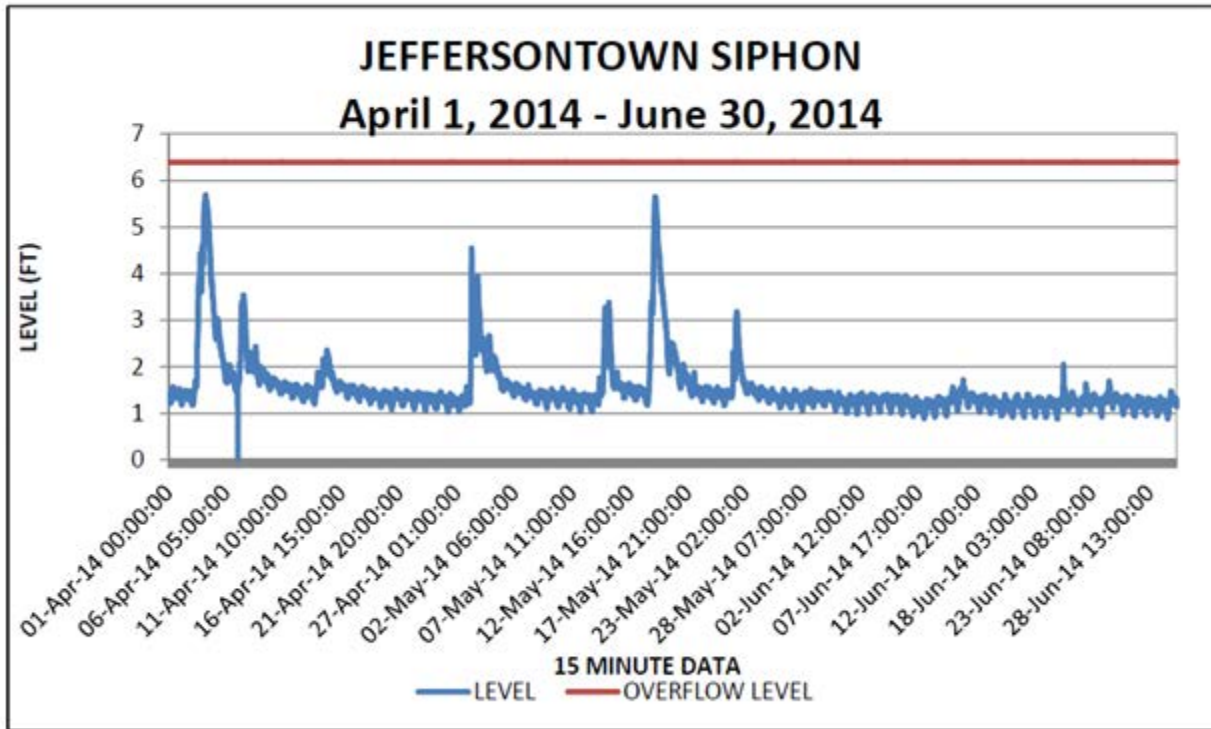
MSD submitted a Jeffersontown WQTC Process Control Plan on October 31, 2008, as required by paragraph 26.a of the Amended Consent Decree. MSD received comments on December 12, 2008, and resubmitted the plan January 16, 2009, and again on February 20, 2009. MSD received conditional approval of this document from EPA on April 1, 2009, pending finalization of the Amended Consent Decree that was under consideration by the Federal Court at the time the Process Control Plan was submitted. The Process Control Plan was accepted by the Federal Court and incorporated by reference into the Amended Consent Decree by an Order signed February 12, 2010, that was entered into public record February 15, 2010.

MSD conducted seventeen inspection routes for the Jeffersontown siphon during FY14. The inspections were completed on the following dates: July 6, 2013, July 10, 2013, July 22, 2013, August 21, 2013, October 4, 2013, October 5, 2013, October 30, 2013, November 17, 2013, December 21, 2013, January 11, 2014, February 4, 2014, April 3, 2014, April 7, 2014, April 28, 2014, May 9, 2014, May 14, 2014, and May 21, 2014. Five overflows were identified during these inspections along the siphon route at manhole 28173 upstream of the Jeffersontown Siphon. Levels in the siphon did not exceed the overflow elevation during the reporting period.

As shown in the following graphs, no overflows were documented at the siphon as confirmed by the inspections. The graphs are shown in three month intervals for clarity.







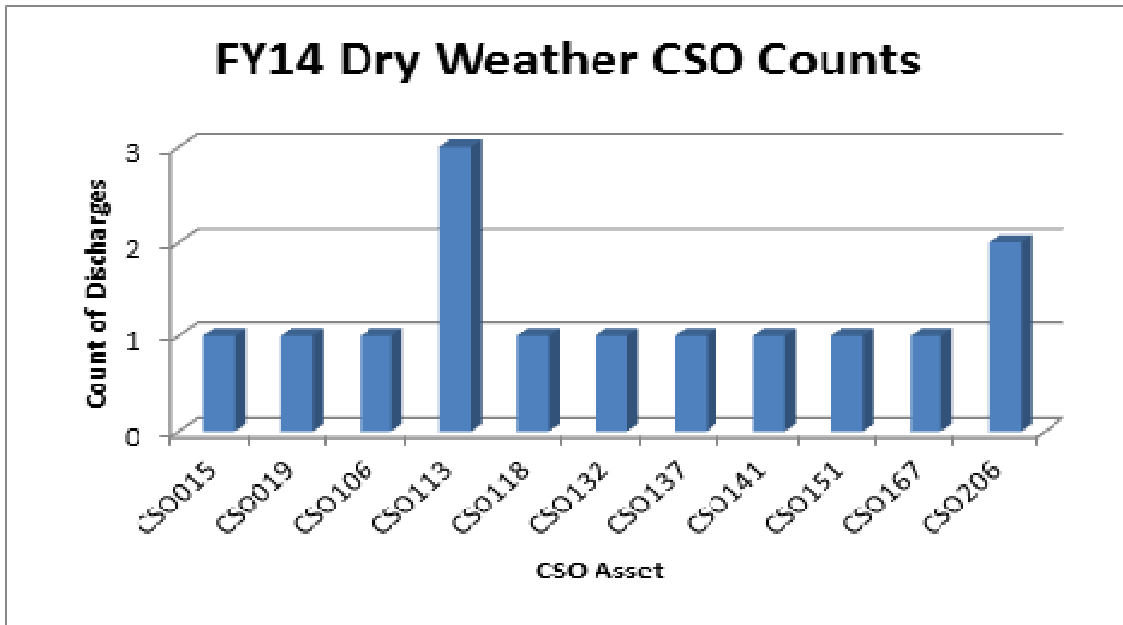
SEE **SECTION 6.2** FOR AN UPDATE ON THE COMPREHENSIVE PERFORMANCE EVALUATIONS (CPE) /COMPOSITE CORRECTION PLANS (CCP) PROJECTS FOR THE JEFFERSONTOWN WQTC.

1.2.3 FY14 Phosphorus Monitoring at the Prospect WQTCs

As part of the Amended Consent Decree, MSD submits phosphorus monitoring data including the calculations of monthly averages with the quarterly reports. The charts in **Appendix G** show the monthly average phosphorous results for the five Prospect WQTCs. The phosphorous limit for these facilities is shown on the charts with a red line at 1mg/l. The five WQTCs met permit limits for phosphorous in every month in FY14.

1.2.4 FY14 Dry Weather CSOs

During the FY14 reporting period there were 14 dry weather overflows from permitted CSO locations. At this time, 101 CSOs are functioning properly. The dry weather CSO's were analyzed by location and problem to identify issues that can be corrected. The two major causes for dry weather CSOs during the reporting period were electrical problems and utility damage.



In FY14, the volume attributed to Dry Weather CSOs was approximately 13,870,927 gallons. Seven dry weather overflows were over 50,000 gallons and are described below:

| Dry Weather CSOs - By Problem | | | | |
|-------------------------------|------------|----------------------------|--|--------------|
| CSO | Date | Problem | Description | Volume (GAL) |
| CSO015 | 09/10/2013 | ELECTRICAL PROBLEMS AT MSD | LG&E WORKING - SCHEDULED POWER OUTAGE TO BELLS LN PS, SYSTEM PUT IN MANUAL MODE; POWER CAME BACK; SYSTEM FAILED OPEN | 6,000,000 |
| CSO019 | 01/07/2014 | UTILITY DAMAGED MSD ASSET | WATER MAIN BREAK AT 34TH AND GRIFFITHS | 63,633 |
| CSO137 | 04/24/2014 | UTILITY DAMAGED MSD ASSET | LACK OF SYSTEM CAPACITY-LOUISVILLE WATER MAIN BREAK ON BAXTER AVE AND EASTERN PARKWAY | 4,222,000 |
| CSO151 | 04/24/2014 | UTILITY DAMAGED MSD ASSET | LACK OF SYSTEM CAPACITY-LOUISVILLE WATER COMPANY WATER MAIN BREAK | 2,472,069 |
| CSO167 | 12/13/2013 | UTILITY DAMAGED MSD ASSET | WATER MAIN BREAK AT BROWNSBORO RD AND DRESCHER BRIDGE AVE | 64,656 |
| CSO206 | 01/09/2014 | UTILITY DAMAGED MSD ASSET | WATER MAIN BREAK | 531,500 |
| CSO206 | 01/30/2014 | UTILITY DAMAGED MSD ASSET | WATER MAIN BREAK | 469,198 |

1.3 FY14 Overflows

Overflows in FY14 were delineated into three categories: overflows to Waters of the US (WUS), overflows to the exterior, and overflows to the interior. This section focuses on overflows to the exterior and interior. Please refer to **Section 1.2** for overflows to Waters of the US.

1.3.1 FY14 Overflows to the Exterior

MSD recorded information related to overflows to the ground that did not reach Waters of the United States for the reporting period. This information is entered and maintained in Hansen utilizing procedures reviewed and approved through efforts associated with various components of the Amended Consent Decree. These overflows are included in **Appendix B-4** for the period July 1, 2013, through June 30, 2014.

| FY14 Exterior Overflows | | | |
|-------------------------|-----------|----------|-----------|
| | Dry | Wet | Total |
| Electrical | 0 | 1 | 1 |
| Grease | 5 | 0 | 5 |
| Capacity | 0 | 3 | 3 |
| Mechanical | 6 | 0 | 6 |
| Obstruction | 7 | 0 | 7 |
| Pumped | 0 | 1 | 1 |
| Roots | 0 | 1 | 1 |
| Structural | 7 | 1 | 8 |
| Utility Damage | 1 | 0 | 1 |
| Total | 26 | 7 | 33 |

1.3.2 FY14 Overflows to the Interior

MSD recorded information related to overflows to building interiors for the reporting period. This information is entered and maintained in Hansen utilizing procedures reviewed and improved through efforts associated with various components of the Amended Consent Decree. These overflows, that are the result of an issue in the main line, are included in **Appendix B-5** for the period of July 1, 2012, through June 30, 2013.

| FY14 Interior Overflows | | | |
|-------------------------|------------|------------|------------|
| | Dry | Wet | Total |
| Grease | 18 | 1 | 19 |
| Capacity | 0 | 118 | 118 |
| Obstruction | 46 | 3 | 49 |
| Roots | 49 | 6 | 55 |
| Structural | 5 | 1 | 6 |
| Utility Damage | 9 | 1 | 10 |
| Total | 127 | 130 | 257 |

1.4 FY14 CSO and SSO Reductions

The following sections outline the activities performed in FY14 to reduce or eliminate CSOs and SSOs.

1.4.1 FY14 CSO Reductions

Appendix C includes the modeled Annual Average Overflow Volume (AAOV) for the permitted CSOs. The AAOV was derived from the InfoWorks CSO hydraulic model.

The CSO data for FY14 is included in **Appendix D**. The CSO data for each monitored overflow has been tabulated along with rainfall information from the nearest rain gauge to facilitate review of the overflows that occurred.

The following projects, completed during FY14, reduced or eliminated permitted CSOs:

- CSO 206 Separation Project – Completed December 12, 2013 – Reduced CSO occurrences.

Please refer to **Section 4.5 Post Construction Compliance Monitoring** for information regarding system monitoring.

1.4.2 FY14 SSO Reductions

Estimation of SSO volume is not available in the same manner as it is for the CSO locations. The SSO volume reductions are estimates based on actual observations or from flow monitoring information. The following projects that impacted SSOs were completed during this reporting period:

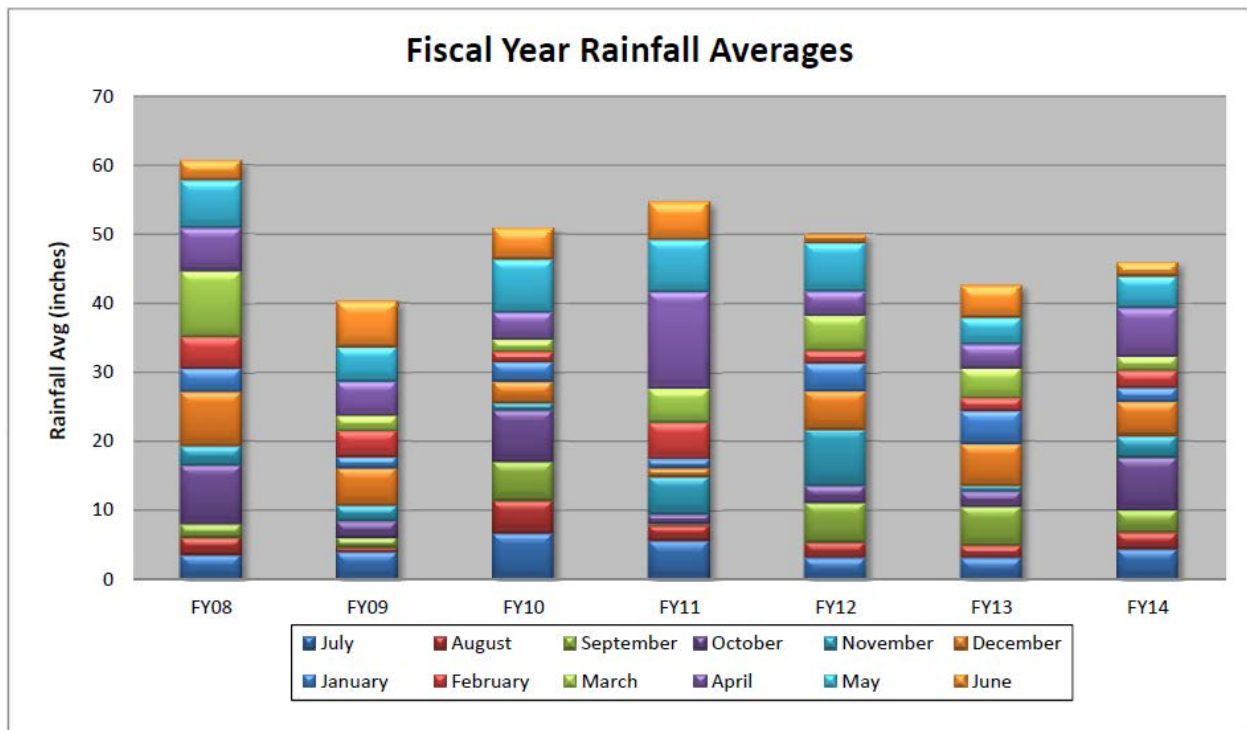
- Chenoweth Run Pump Station Elimination Project – Completed September 23, 2013 – Eliminated the following SSOs: 92061, MSD1043-PS, 13070113, 13070114, MSD0196-PS, 86052, 64096.
- Floyds Fork WQTC Phase 2 Expansion – Completed July 19, 2013 – Eliminated the following SSOs: 97807.
- Mud Creek/Silver Heights Interceptor #20 – Completed June 24, 2014 – Eliminated the following SSOs: 61667, 61687, 61683, MSD0258A-LS.

1.5 Performance Measures - Trends

MSD has developed performance measures to monitor the operation of the collection system and WQTC's, with the goal of reducing sewer overflows and improving surface water quality.

1.5.1 Rainfall

The Louisville area experienced an increase in rainfall in FY14, compared to FY13, and the overflow data reflects that trend. The chart below shows the FY08, FY09, FY10, FY11, FY12, FY13, and FY14 rainfall data broken up by month to show the significant months of rainfall over these years. Throughout the analysis of FY09, FY10, and FY11, rain events from January 2009 (Force Majeure ice storm event as described in the 2009 Annual Report), August 4, 2009 (Force Majeure rain event), and May 2, 2010 (Force Majeure rain event), and April 2011, are extracted to emphasize rainfall events that are comparable to events in the typical rainfall year. These more frequent events will provide a more accurate indication of the system performance, and improvement with the implementation of programmatic activities.



1.5.2 Bypass

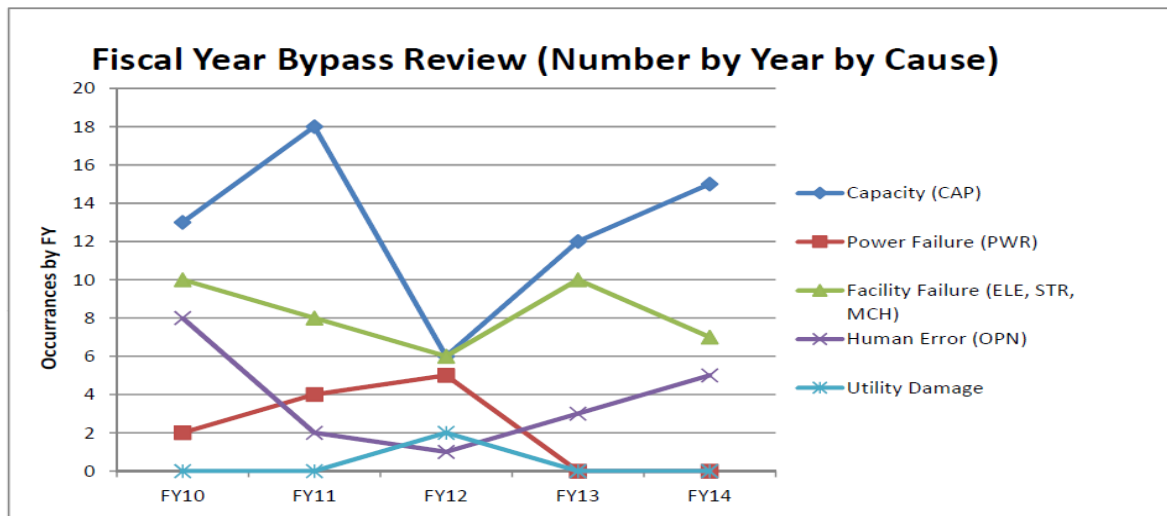
Project WIN Quarterly Report 18 included a memorandum, included as Appendix K, which described the analysis of 44 bypass events that occurred between July 1, 2008, and December 31, 2009. This analysis delineated bypasses into the following categories:

- Capacity (CAP)
- External Power failures (LGE Related – PWR)

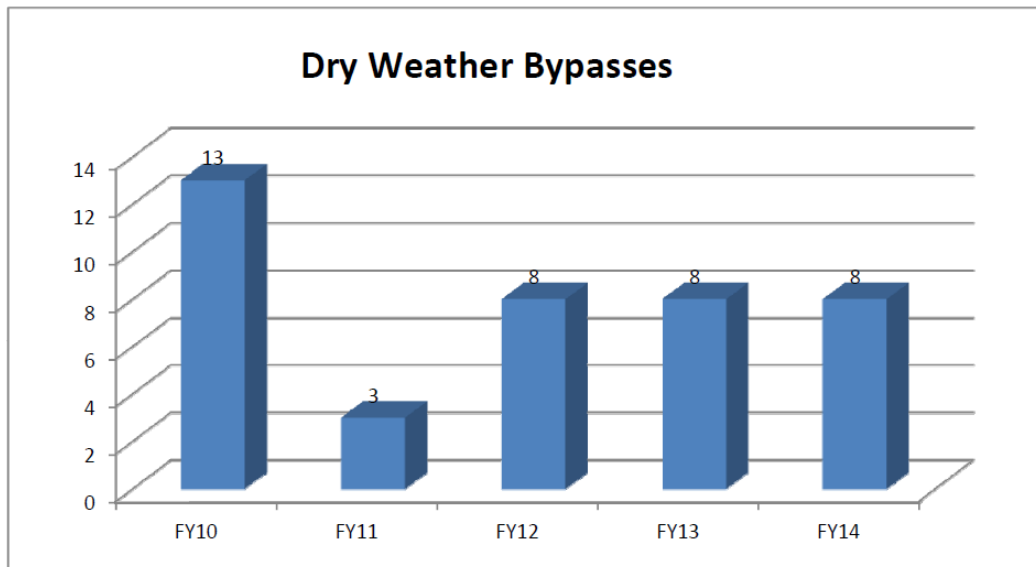
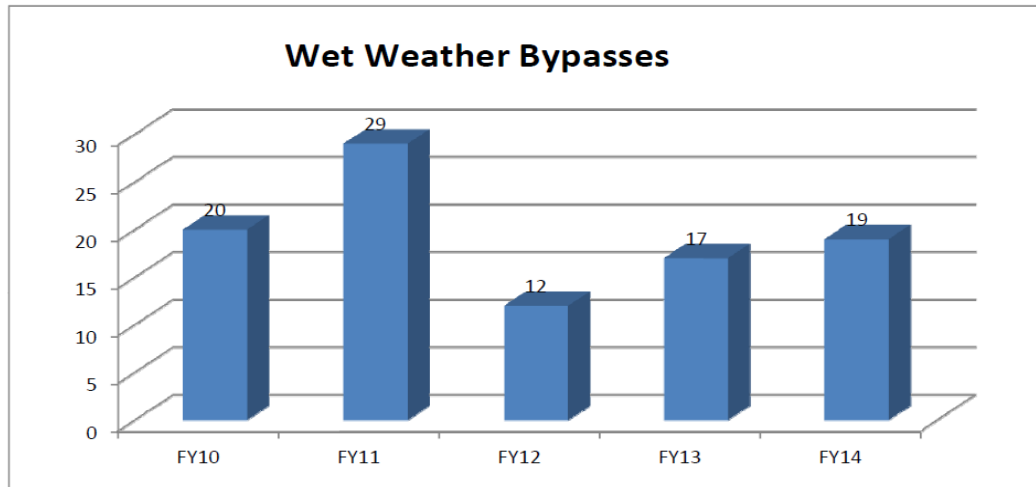
- Equipment Failure (Mechanical -MCH, Electrical - ELE, Structural-STR)
- Human Error (OPN)

The following table and graphs show the results of the previous five fiscal years of bypasses by cause. Human Error related bypasses are significantly reduced from the March 2010 analysis due to an increase in training, accountability, and implementation of CPE Phase I activities. A significant decrease in Facility Failure bypasses was observed during the reporting period. These improvements are due to the increased preventative maintenance and inspections.

| Bypass Events - Causes | | | | | | | | | | | | |
|----------------------------------|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|
| Determined Cause | FY09 | | FY10 | | FY11 | | FY12 | | FY13 | | FY14 | |
| Capacity (CAP) | 4 | 13% | 13 | 39% | 18 | 56% | 6 | 30% | 12 | 48% | 15 | 56% |
| Power Failure (PWR) | 6 | 19% | 2 | 6% | 4 | 13% | 5 | 25% | 0 | 0% | 0 | 0% |
| Facility Failure (ELE, STR, MCH) | 12 | 38% | 10 | 30% | 8 | 25% | 6 | 30% | 10 | 40% | 7 | 26% |
| Human Error (OPN) | 10 | 31% | 8 | 24% | 2 | 6% | 1 | 5% | 3 | 12% | 5 | 19% |
| Utility Damage | 0 | 0% | 0 | 0% | 0 | 0% | 2 | 10% | 0 | 0% | 0 | 0% |
| Total | 32 | | 33 | | 32 | | 20 | | 25 | | 27 | |



The following charts show the WQTC dry weather and wet weather bypass events. Dry weather bypasses remained the same during FY14 due to multiple large water main breaks during the fiscal year. It is expected that this category will decrease in the future due to continued CMOM and CPE efforts.



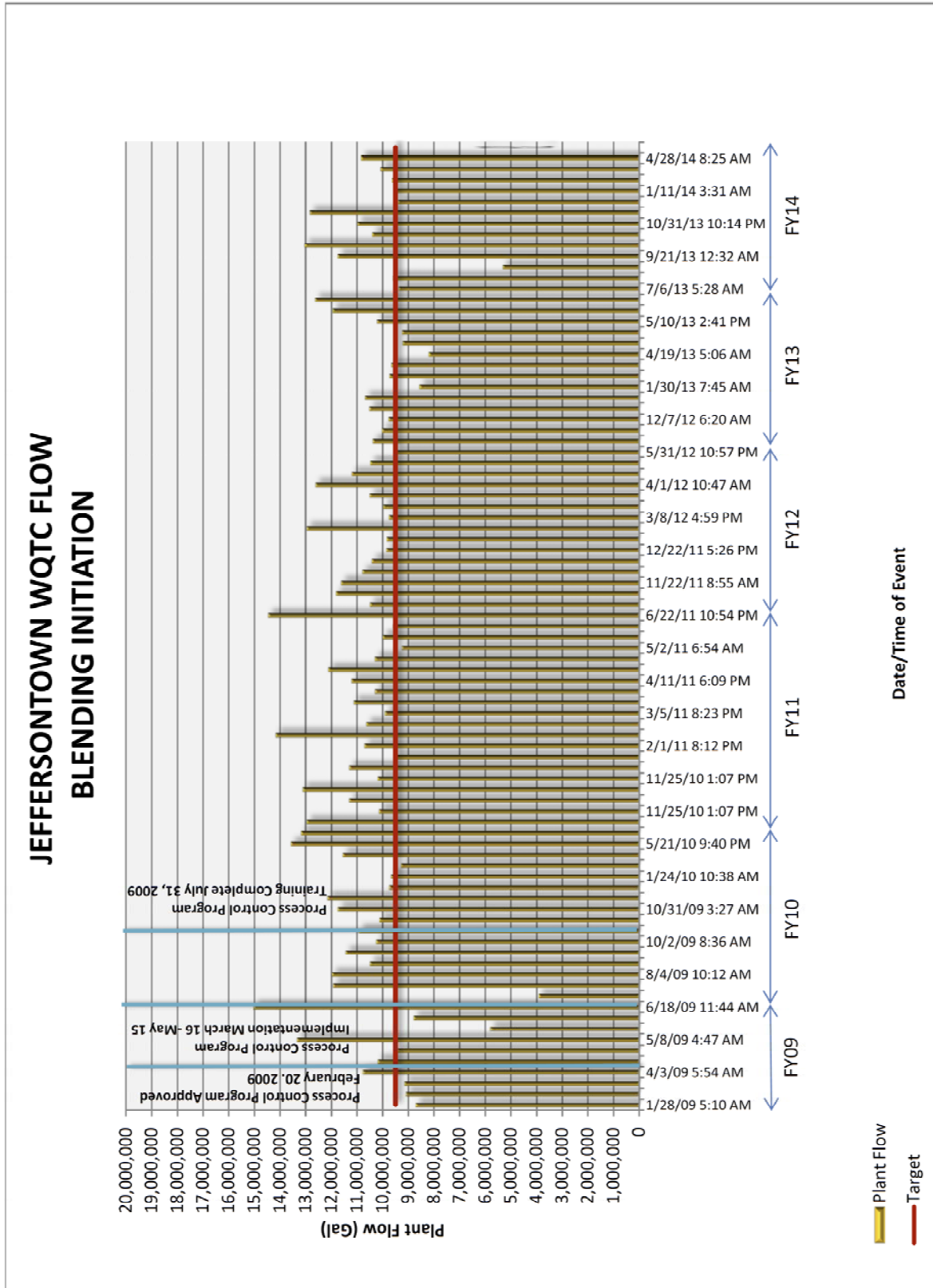
| FY10-FY14 Bypass Count Trending | | | | | | | | | | |
|---------------------------------|-------------|------|------|------|------|-------------|------|------|------|------|
| Treatment Plant | Dry Weather | | | | | Wet Weather | | | | |
| | FY10 | FY11 | FY12 | FY13 | FY14 | FY10 | FY11 | FY12 | FY13 | FY14 |
| BANCROFT | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| BERRYTOWN | 1 | 0 | 0 | 0 | 0 | 2 | 9 | 3 | 6 | 13 |
| CEDAR CREEK | 1 | 2 | 1 | 0 | 0 | 3 | 3 | 1 | 0 | 2 |
| CHENOWETH HILLS | 4 | 0 | 0 | 1 | 2 | 4 | 1 | 2 | 3 | 1 |
| CHENOWETH RUN | 0 | 0 | 1 | 0 | 0 | 2 | 3 | 0 | 0 | 0 |
| DEREK R. GUTHRIE | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 1 |
| FLOYDS FORK | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 3 | 0 |
| HITE CREEK | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 0 |
| HUNTING CREEK NORTH | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 |
| HUNTING CREEK SOUTH | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| JEFFERSONTOWN | 1 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 4 | 0 |
| KEN CARLA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| LAKE OF THE WOODS | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| MCNEELY LAKE | 0 | 1 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 0 |
| MORRIS FORMAN | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| SHADOW WOOD | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| SILVER HEIGHTS | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| STARVIEW | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 0 | 1 |
| TIMBERLAKE | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 |
| YORKTOWN | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Total | 13 | 3 | 8 | 8 | 8 | 20 | 29 | 12 | 17 | 19 |

1.5.3 Jeffersontown Water Quality Treatment Center

MSD has been documenting the blended flow at the Jeffersontown WQTC since February 2008. The FY 09 Jeffersontown WQTC Process Control Program describes the implementation of wet weather SOPs.

The Jeffersontown WQTC Process Control Program includes standard operating procedures (SOPs) for the initiation and disengagement of blending activities, with the goal of maximizing flow through secondary treatment during wet weather. The program was completed in February 2009, and implementation began in May, 2009, with training of all currently affected staff completed prior to July 31, 2009. The FY14 plant flows and blended flows are presented in **Appendix L – Jeffersontown WQTC Blending Event Charts**. The blending events were analyzed and compared to the wet weather protocols included in the SOPs regarding the flow

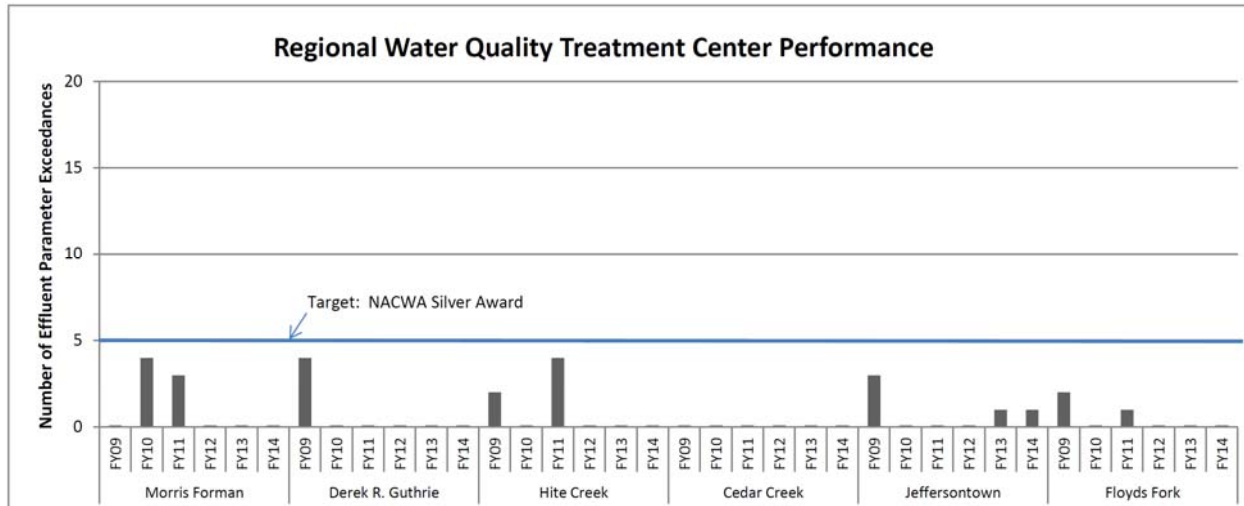
rate when blending will occur. The chart that follows shows the plant flow when blending events began at the Jeffersontown WQTC. The red line on the chart is shown at 9.5 MGD, which is the SOP guidance for initiating blending. The chart shows that once the wet weather SOPs training was completed, blending practice closely conformed to SOP guidance. In some cases the flows significantly exceeded 9.5 MGD before blending occurred. This is due to the rapid increase in flows that the Jeffersontown WQTC can experience, and the relatively slow response time of the blending gate. Operating at these higher flows is not sustainable, as the aeration basins may overflow if more than 9.5 MGD is delivered to them for more than a few minutes. For the events in January, April, and May 2013, in which blending was initiated prior to 9.5 MGD it was determined that poor solids settling led to high depths of blankets (5.5 feet in a 6 foot clarifier) that would have resulted in longer bypasses of secondary by delaying blending.



1.5.4 WQTC Effluent Compliance

MSD’s policy is to operate WQTC’s in full compliance with the permitted effluent water quality standards. However, circumstances sometimes arise that may cause wastewater WQTC’s to exceed the permitted effluent limits. This reality is recognized by the National Association of Clean Water Agencies (NACWA), which gives awards at different levels (platinum, gold, silver) based on the number of effluent parameter exceedances during the year. Based on past operating history, MSD has established the target for regional plants of receiving at least the NACWA Silver Award, which requires that the WQTC have five or fewer exceedances per year of any permit parameters.

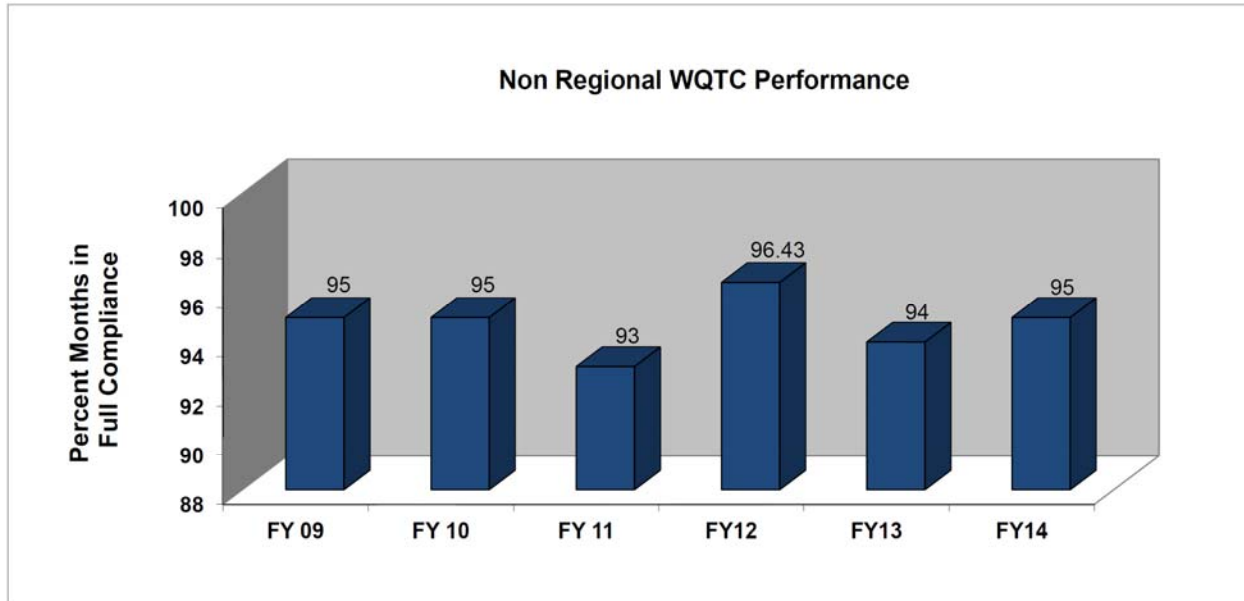
As shown in the figure below, all six regional WQTCs have achieved this goal in FY09, FY10, FY11, FY12, FY13, and FY14. During the current reporting period, the Morris Forman WQTC and all the other five regional WQTCs met all permit parameter targets.



Since 1985, MSD has acquired more than 200 privately owned non-regional WQTCs (“package plants”). MSD currently operates 12 non-regional plants. MSD will continue to operate the non-regional WQTCs until infrastructure is constructed to divert the wastewater flow to a regional plant and ultimately eliminate the non-regional WQTC’s.

The non-regional WQTCs typically have very limited operating flexibility, and are subject to high levels of variability in loads. Most of the non-regional WQTCs have been in operation over 35 years and typically have much poorer records of compliance than larger plants such as MSD’s regional WQTCs. This is the reason that MSD has aggressively eliminated non-regional WQTCs. As part of MSD’s continuing efforts to improve non-regional WQTC performance, MSD has a targeted goal of achieving full compliance with permit parameters in 95% of the months. As shown in the figure, 95% of the months were in full compliance in FY09, FY10, FY12, and FY14. In FY11 these facilities were at full compliance at 93% of the time and in

FY13 these facilities were in full compliance 94% of the time. Continued work on CPE/CCE activities such as additional training and SOP review, as well as removal of lagoons and polishing ponds is anticipated to reduce the occurrence of non-compliance going forward.



1.5.5 Dry Weather CSOs

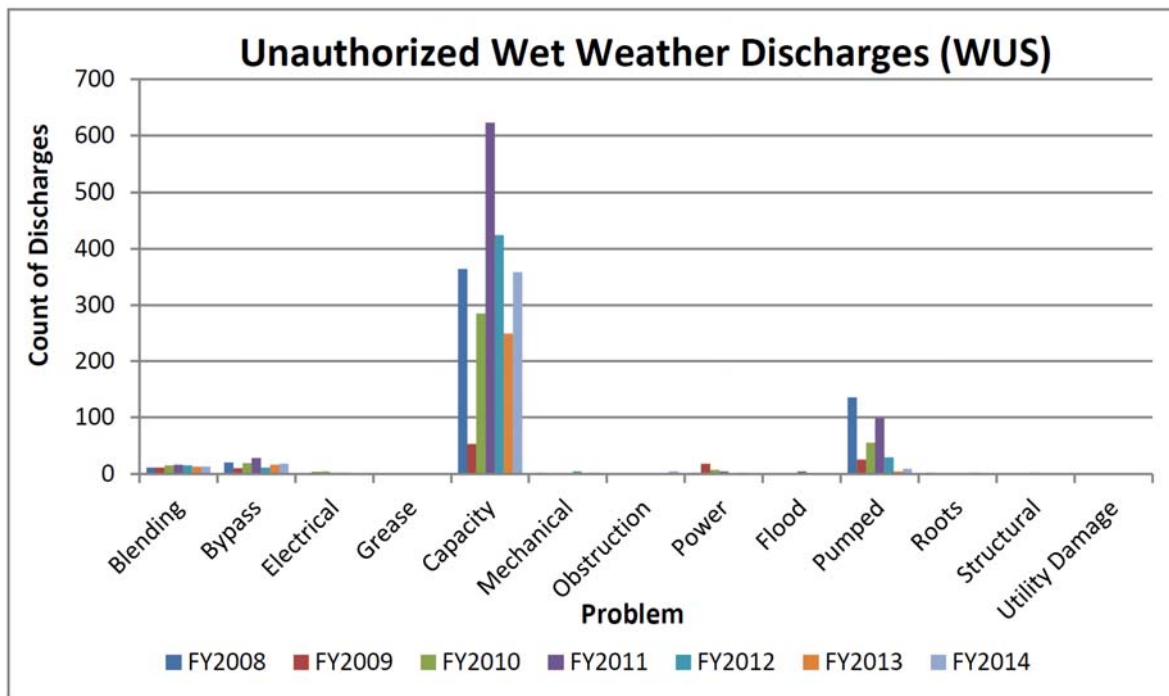
MSD has implemented NMC programs and provided resources to reduce dry weather combined sewer overflows (CSOs). The table below shows the number of occurrences of dry weather CSOs between FY08 and FY14, broken down by the problem that caused the overflow.

| Dry Weather CSOs by Problem Code | | | | | | | | | | | | |
|----------------------------------|-----------|--------------------|----------|----------------|-----------|-------------------|-----------|------------------|----------|----------------|-----------|-------------------|
| Problem | FY08 | | FY09 | | FY10 | | FY12 | | FY13 | | FY14 | |
| | Count | Volume | Count | Volume | Count | Volume | Count | Volume | Count | Volume | Count | Volume |
| Electrical | 1 | 2,500,000 | 1 | 67,500 | 2 | 13,059 | 1 | 2,225,000 | 0 | 0 | 1 | 6,000,000 |
| Flood | 8 | 194,802,815 | 1 | 400,754 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mechanical | 0 | 0 | 0 | 0 | 4 | 11,553,781 | 2 | 1,989,813 | 0 | 0 | 0 | 0 |
| Obstruction | 1 | 675 | 0 | 0 | 4 | 16,146 | 8 | 5,783 | 6 | 26,270 | 3 | 3,025 |
| Power | 0 | 0 | 0 | 0 | 2 | 1,415,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Roots | 0 | 0 | 0 | 0 | 1 | 1,500 | 0 | 0 | 0 | 0 | 1 | 13 |
| Structural | 1 | 200 | 0 | 0 | 1 | 6,600 | 1 | 280 | 0 | 0 | 0 | 0 |
| Utility Damage | 0 | 0 | 1 | 20,000 | 2 | 315,333 | 3 | 887,656 | 2 | 73,892 | 9 | 7,867,889 |
| Grand Total | 11 | 197,303,690 | 3 | 488,254 | 16 | 13,321,419 | 15 | 5,108,532 | 8 | 100,162 | 14 | 13,870,927 |

1.5.6 Wet and Dry Weather SSOs

MSD is committed to reducing SSOs that occur during wet weather events. The following table and chart shows the wet weather SSOs (to Waters of the US) by problem code. Due to increases in rainfall in FY14, the unauthorized discharges increased when compared to the last fiscal year, but are still down from FY12. MSD staff continues to utilize tanker trucks, which include portable pumps, to haul wet weather flow that is in excess of the pump station capacity, to reduce the number of documented overflows.

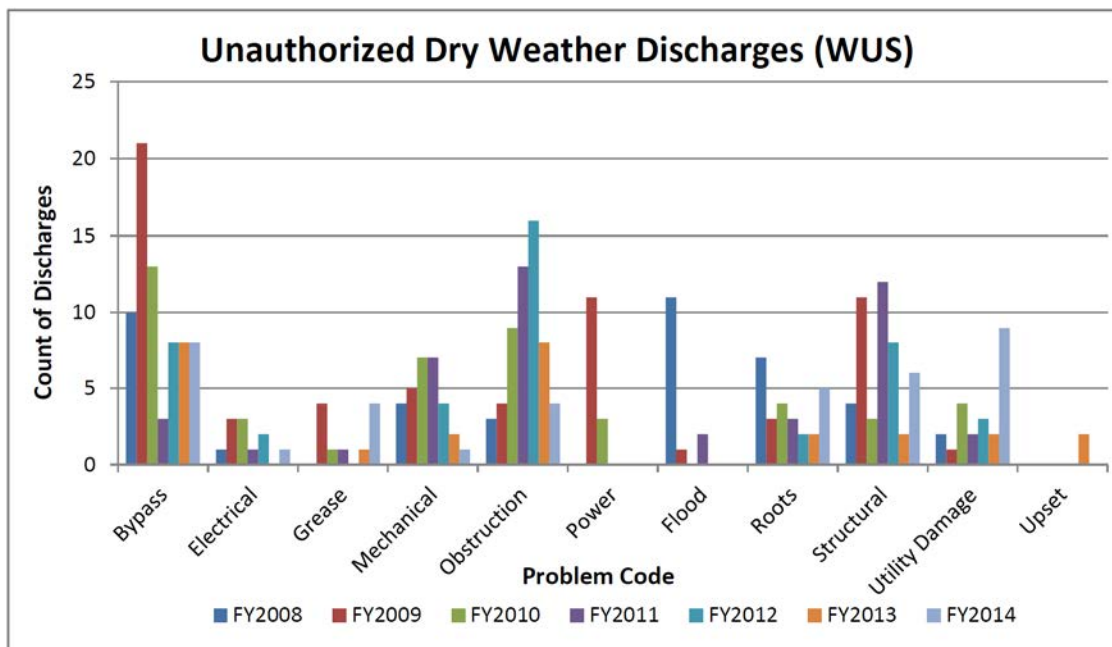
| Unauthorized Wet Weather Discharges (WUS) | | | | | | | | |
|---|------------|------------|------------|------------|------------|------------|------------|-------------|
| | FY2008 | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | FY2014 | Total |
| Blending | 12 | 12 | 16 | 17 | 16 | 14 | 14 | 101 |
| Bypass | 21 | 11 | 20 | 29 | 12 | 17 | 19 | 129 |
| Electrical | 2 | 4 | 5 | 3 | 3 | 1 | 0 | 18 |
| Grease | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 4 |
| Capacity | 365 | 53 | 286 | 623 | 425 | 250 | 359 | 2361 |
| Mechanical | 3 | 1 | 1 | 1 | 5 | 2 | 3 | 16 |
| Obstruction | 0 | 0 | 0 | 2 | 0 | 0 | 5 | 7 |
| Power | 3 | 19 | 8 | 5 | 1 | 3 | 2 | 41 |
| Flood | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 5 |
| Pumped | 136 | 26 | 55 | 99 | 30 | 5 | 10 | 361 |
| Roots | 3 | 1 | 0 | 2 | 0 | 3 | 1 | 10 |
| Structural | 1 | 0 | 0 | 3 | 1 | 1 | 2 | 8 |
| Utility Damage | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Total | 548 | 128 | 391 | 789 | 494 | 296 | 416 | 3062 |



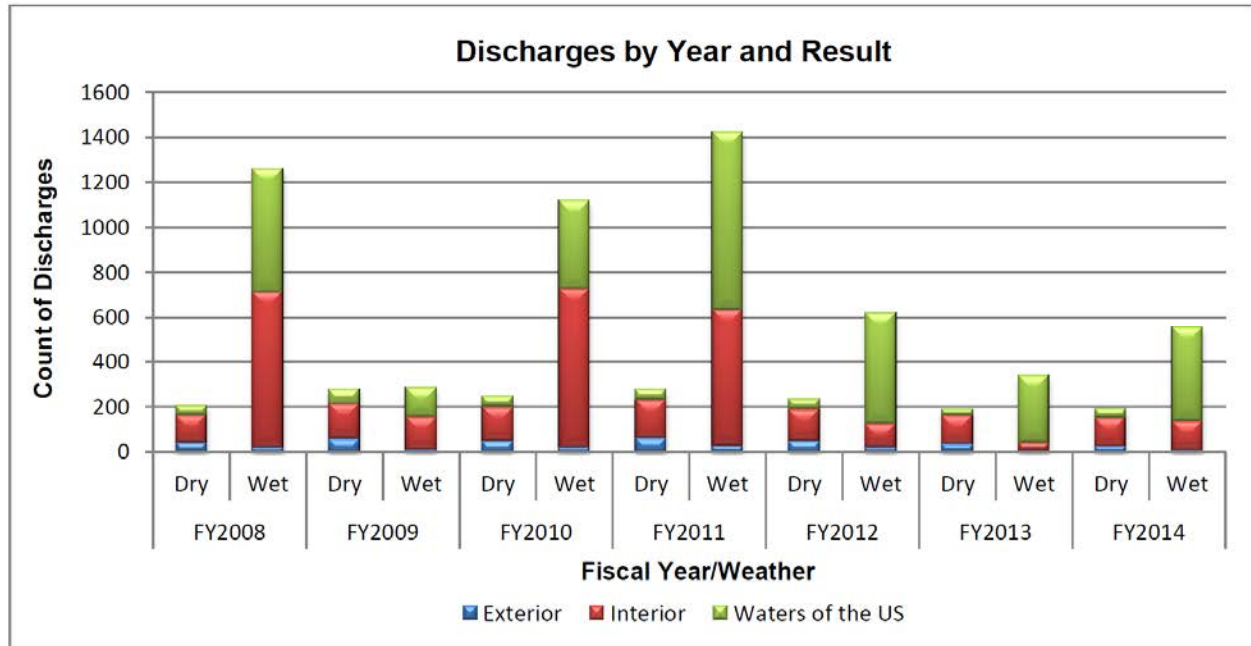
The following table shows the distribution of dry weather SSOs (WUS) by problem code. The prevalent cause of the increase of dry weather SSOs, as shown in the figure, are due to utility damage. MSD will continue to review, analyze and implement measures to reduce overflows caused by roots and obstructions.

| Unauthorized Dry Weather Discharges (WUS) | | | | | | | | |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| | FY2008 | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | FY2014 | Total |
| Bypass | 10 | 21 | 13 | 3 | 8 | 8 | 8 | 71 |
| Electrical | 1 | 3 | 3 | 1 | 2 | 0 | 1 | 11 |
| Grease | 0 | 4 | 1 | 1 | 0 | 1 | 4 | 11 |
| Mechanical | 4 | 5 | 7 | 7 | 4 | 2 | 1 | 30 |
| Obstruction | 3 | 4 | 9 | 13 | 16 | 8 | 4 | 57 |
| Power | 0 | 11 | 3 | 0 | 0 | 0 | 0 | 14 |
| Flood | 11 | 1 | 0 | 2 | 0 | 0 | 0 | 14 |
| Roots | 7 | 3 | 4 | 3 | 2 | 2 | 5 | 26 |
| Structural | 4 | 11 | 3 | 12 | 8 | 2 | 6 | 46 |
| Utility Damage | 2 | 1 | 4 | 2 | 3 | 2 | 9 | 23 |
| Upset | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Total | 42 | 64 | 47 | 44 | 43 | 27 | 38 | 305 |

The following chart shows the dry weather SSOs (to WUS) by result for FY08, FY09, FY10, FY11, FY12, FY13, and FY14. A decrease in dry weather SSOs due to obstructions was observed in FY14. Overall, the Dry weather trend is the same or down in most of the problem categories. The trends show that FOG enforcement and removal programs are effective in preventing SSOs, and that power related SSOs have trended downward due to installation of permanent generators across the district. MSD will continue to enhance the GLPM program to continue to improve the overall dry weather trend.

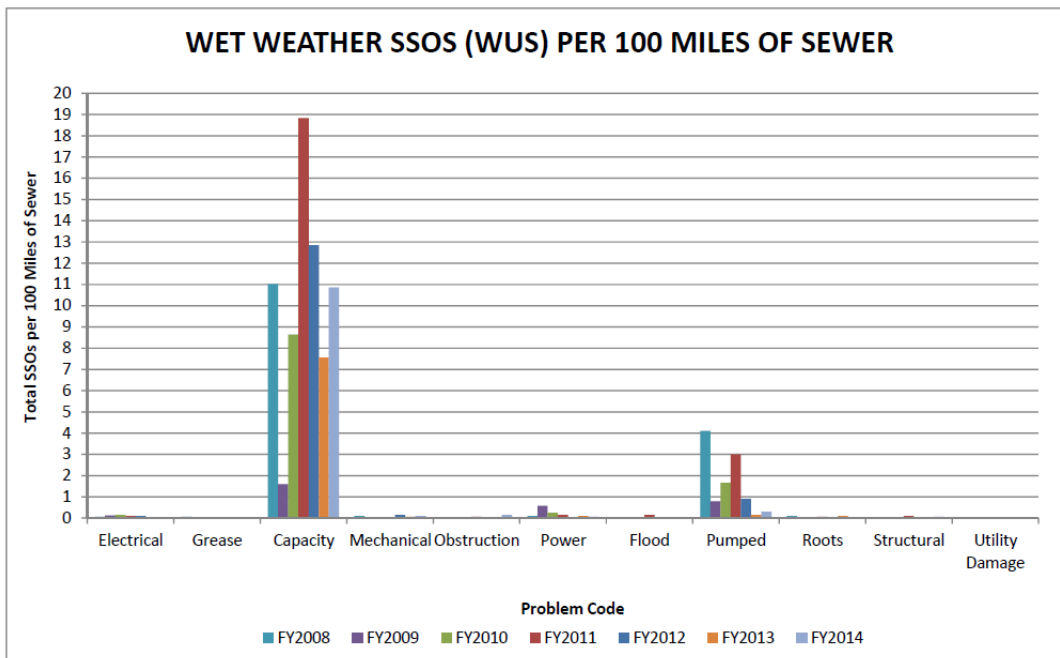
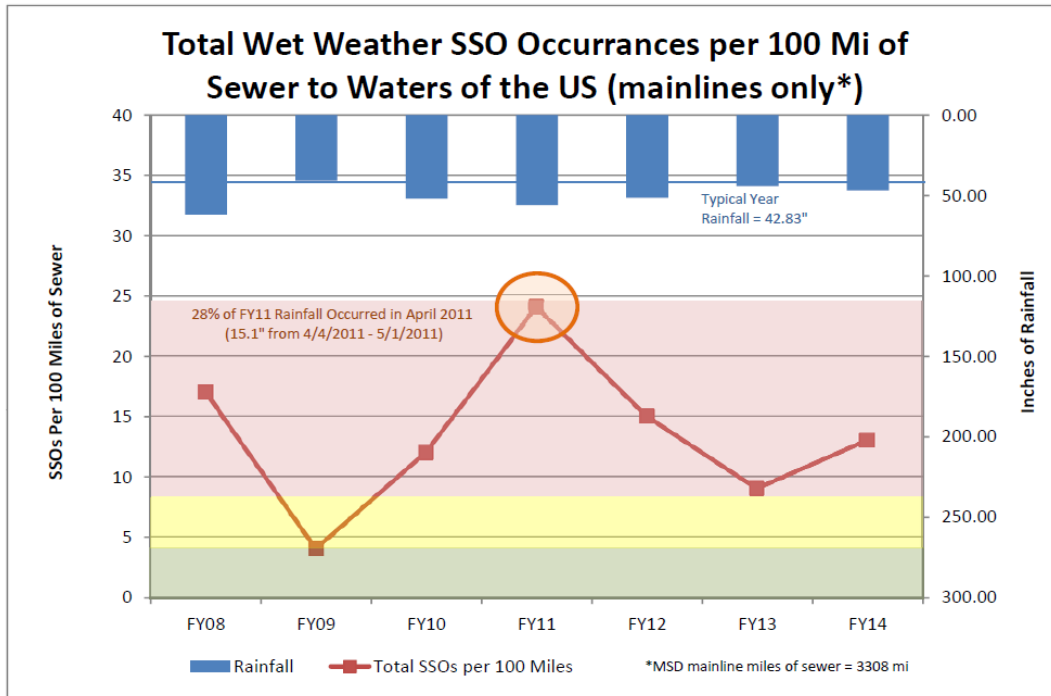


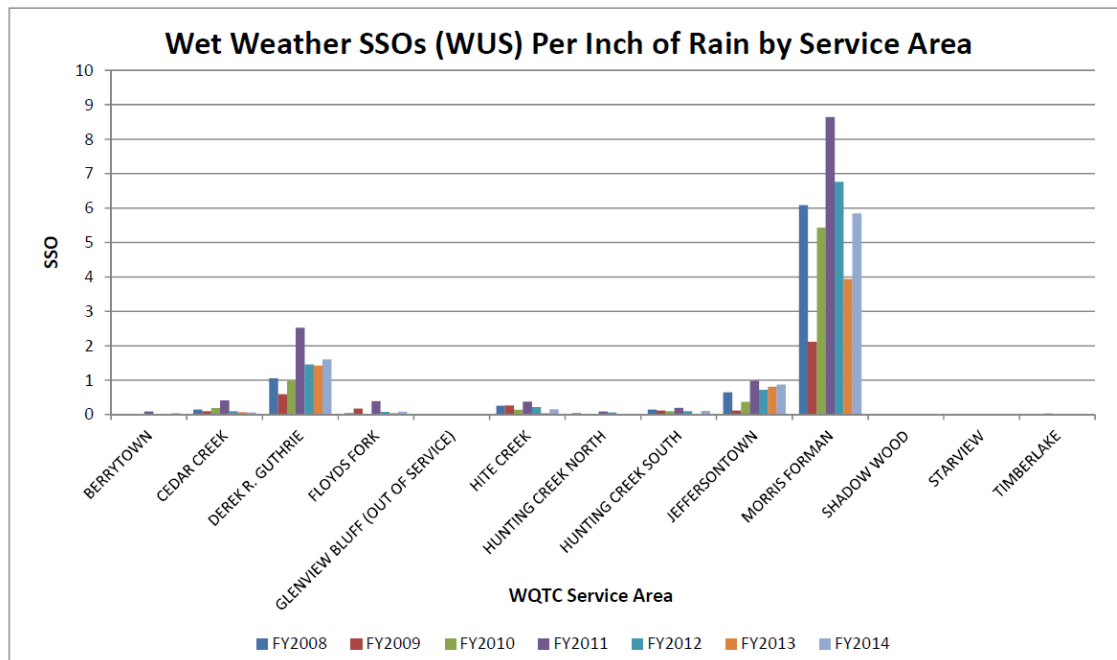
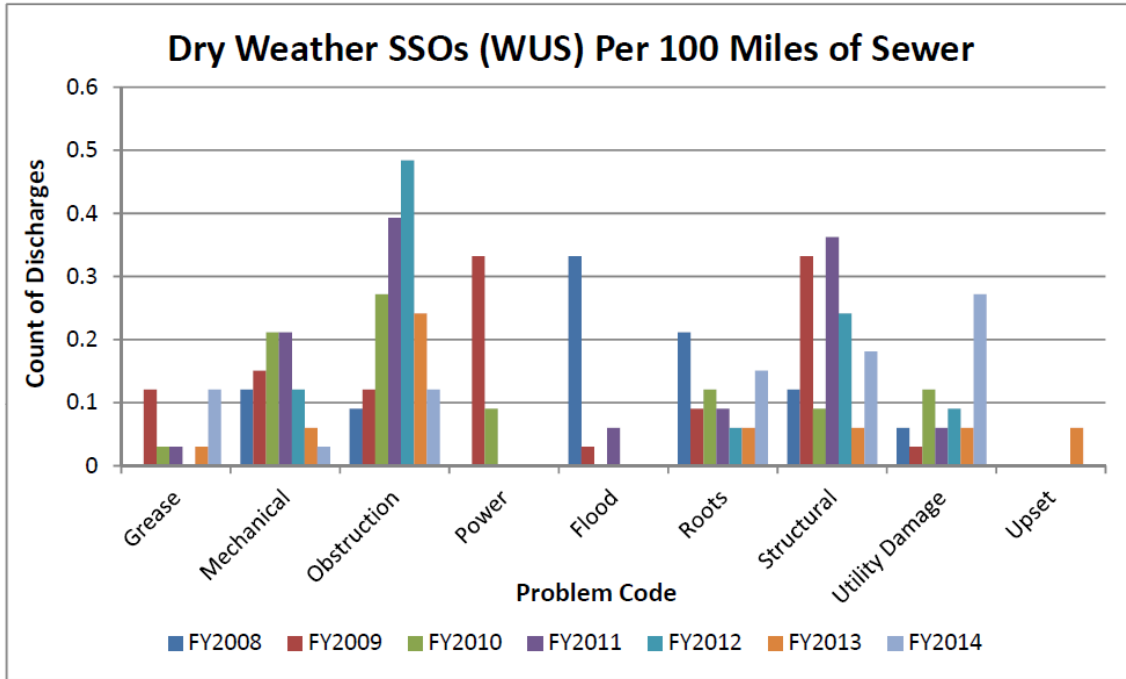
The following chart shows the breakdown of SSOs by category (Int., Ext., and WUS) for the past seven fiscal years.



1.5.7 SSOs per 100 Miles of Sewer

Per the request of EPA, and in keeping with benchmarks from other utilities, MSD has prepared the following analysis of SSOs per 100 Miles of sewer by cause for FY14, as well as by year and compared to national benchmarks. The green, yellow, and red bars on the following chart represent benchmarking from other utilities and EPA studies on overflows per mile of sewer. It is shown that MSD is trending favorably against benchmarks, and efforts documented in this Annual Report (CMOM, SORP, CPE, Bypass Reviews, etc.) are proving effective at reducing overflows.





SECTION 2: Program Activities for Nine Minimum Controls

2.1 Nine Minimum Controls Program Background

Per Paragraph 24.a. of the Amended Consent Decree, the Nine Minimum Controls (NMC) Compliance Report was initially submitted to EPA and KDEP on February 10, 2006. MSD received an approval letter, dated February 22, 2007, for the NMC Compliance Report. The approved NMC Compliance document can be viewed on the MSD Project WIN website www.msdlouky.org/projectwin. Highlights of the NMC program implementation during FY14 are outlined below.

2.2 NMC 1: Proper Operation and Maintenance Programs

FY14 Program

Program Metrics

- Inspected and cleaned 19,789 catch basins within the combined sewer system (CSS) during FY14.
- Continued to inspect, maintain and properly operate the CSS pump stations and the Morris Forman WQTC.
- Performed 5,353 weekly inspections on CSOs, 1,029 creek inspections, 621 siphon inspections, and initiated 554 work orders for debris removal and/or repairs as determined to be necessary to allow proper system operation during FY14.
- Flushed 2,641 sewer line segments in the CSS, including 486,204 feet (92 miles) of sewer lines ranging in size from 6 inches to 15 inches. Vactored 51 sewer line segments, including 1,160 feet (<1 mile). Performed formula TV inspection on 905,185 feet (171 miles) of sewer lines, as part of the gravity sewer preventive maintenance program in the CSS, during FY14.
- Chemically treated 408,941 (77 miles) feet of sanitary sewer for roots during FY14.
- Achieved the following program metrics:

| <u>Target</u> | <u>Result</u> |
|-------------------------------------|--|
| 95% of CSOs inspected weekly. | 100% Compliance - 101 CSOs were inspected weekly. |
| 95% of flap gates inspected weekly. | 100% Compliance – 15 flap gates on CSOs were inspected weekly. |
| 95% of siphons inspected monthly. | 100% Compliance - 10 siphons are inspected weekly and 7 additional siphons are inspected |

| | |
|---|---|
| | monthly. |
| 95% of Debris or Repair Work Orders on CSO assets created the next work day after the inspection of the asset and open for no more than 5 days. | 99% Compliance - 548 of 549 DEBRIS work orders and 5 of 5 CSOREP work orders created in FY14. |
| 95% of the catch basins within the CSSA cleaned every 15 months. | 100% Compliance - Currently MSD performs on a 12-month cycle. |

Annual Training

- Administered annual CSO training on June 14, 2014, to CSO Inspection Personnel. Annual CSO training included modules on pump stations in the combined system, and completion of work order documentation.

Annual Asset Review and Documentation

- Continued several projects to create improved access to selected CSO sites to facilitate cleaning activities.
- Continuing to review catch basin areas against the CSS area and explored re-alignment to confirm that regulatory commitments of cleaning on a 15-month cycle in the CSS are being achieved.

CSSA

- Provided details on the CSSA activities for FY14 in **Appendix I: CSSA Annual Report**.

FY14 Program

Program Metrics

- Continue cleaning and inspection programs.
- Continue to report on the following program goals:
 - 95% of CSOs Inspected/Week.
 - 95% of flap gates inspected weekly.
 - 95% of siphons inspected monthly.
 - 95% of Debris or Repair Work Orders on CSO assets created the next work day after the inspection of the asset and open for no more than 5 days.
 - 95% catch basins within the CSS cleaned every 15 months.

Annual Training

- Incorporate the results of the annual field investigation to adjust and enhance the annual CSO Field training modules.

- Schedule and conduct the annual CSO field training with I&FP and Morris Forman WQTC personnel.

Asset Review and Documentation

- Continue implementation of field verification effort to determine operation and maintenance enhancements to be incorporated into annual training.
- Continue to design and build access enhancement projects at CSO and siphon locations.
- Review the CSO Inventory schematics and revise as necessary.
- Update the CSO characterization sheets to reflect the updated and calibrated hydraulic model.

CSSA

- Evaluate sewers requiring additional and/or immediate maintenance or cleaning based upon CSSA inspection results from FY14.
- Define and complete inspection of critical areas and large diameter sewers in FY15.
- Continue to enhance the blockage abatement program. Continued implementation of the PipeLogic PACP software for internal crews.

2.3 NMC 2: Maximization of Storage in the Collection System

FY14 Program

Real Time Control Optimization –

- Continued operation of Phase I and Phase 2 of the Real Time Control (RTC) system. During FY14, over 1151 MG were stored in the system during rain events and routed to the Morris Forman WQTC once the system was able to handle the flow. See the end of Section 2.3 for a detailed report.
- Continued review of CSOs upstream of Morris Forman WQTC, and noted that flow through the plant is optimized prior to overflows occurring, as shown in the Morris Forman WQTC charts attached as **Appendix J – Morris Forman WQTC FY14 Charts**.
- Continued utilization of “RTC active storage” to standardize the calculation of the volume of flow stored during wet weather events by RTC facilities.
- Continued programming of tracking mechanisms to determine the volume of combined sewage stored in the system during rain events.
- Continued Csoft maintenance and service agreement contract with Tetra Tech CSO.
- Completed discussions with the software providers to develop a scope for the RTC software (CSOFT) and InfoWorks ICM hydraulic model integration.
- Wet Weather SOP training was completed with an operations consultant conducting “train the trainer” sessions for the MSD training department and Morris Forman WQTC

process supervisors. Morris Forman WQTC is now implementing the Wet Weather SOPs.

- RTC Phase 3 Integration – Staff worked with the RTC consultant to review, revise and begin implementing the draft wet weather SOP for the system that also includes the Southeast Diversion Structure, Buechel Basin, Northern Ditch Diversion, and the Derek R Guthrie WQTC Wet Weather treatment facility. Full integration in an automated mode will not be achieved until the RTC software (CSOFT) is upgraded to the most current version and the hydraulic engine is converted to use MSD's InfoWorks ICM hydraulic model which is expected to be completed during the next reporting period. While this work was being done, the SOP was implemented incrementally, starting with a period of manual operation to validate the control assumptions for each site, followed by increasing levels of system automation as the automated controls for individual components are implemented, validated, and then incorporated into the overall RTC system.
- RTC Performance Assessment – The main objective of the RTC Performance Assessment is to determine whether the available flow and storage capacities within the system are being utilized to their full potential. A draft technical memorandum providing recommendations for improvements designed to optimize the utilization and performance of the existing RTC system was developed. The recommended improvements have been reviewed and prioritized for implementation by MSD staff.

Storage Optimization

- CSO108 Dam Modification – Continue to monitor the performance of the bending weir installed at CSO 108. Analysis of this flow data shows performance of the bending weir and adjustments to the inlet of the solids and floatables control reduces overflows to the prescribed level of control.
- Continued planning of opportunities for bending weirs at other CSO outfalls to reduce overflow frequency.
- SWOR2 Modifications – Design was completed for the improvements to the gate actuators at the site. Improvements include replacing the hydraulic gate actuators with electric actuators mounted at grade level. This will remove all the operating sensors out of the flow in the pipe to improve reliability and maintenance conditions. The project was advertised for construction on June 27, 2014.
- Ashland Avenue and Brady Lake Basins – Gate stem repairs were completed at the Brady Lake basin. A project was developed to clean the basins and repair erosion occurring in the basins. During the next reporting period, the project will be advertised for construction and it is anticipated that a construction contract for both basins will be awarded.

FY15 Program

Real Time Control Optimization

- Continue to monitor CSOs upstream of Morris Forman WQTC to determine if physical modifications to the structures at CSO 210 and CSO 016 have reduced wet weather overflow. Develop a remedial action if necessary.
- Purchase software and install software needed for the RTC CSOFT and InfoWorks ICM hydraulic model integration.
- RTC Phase 3 Integration – Staff will continue to work with the RTC consultant to review, revise and implement wet weather SOP changes. Full integration in an automated mode is anticipated to start once the RTC software (CSOFT) is upgraded to the most current version and the hydraulic engine is converted to use MSD's InfoWorks ICM hydraulic model. Operations will continue to implement operational set point control changes for individual components and then incorporated into the overall RTC system.
- RTC Performance Assessment – MSD staff and the RTC consultant will continue to work to implement the hardware, software and set-point changes as applicable to each existing RTC.

Storage Optimization

- Continue to evaluate opportunities to raise dams and maximize storage to reduce overflow volumes and frequencies.
- Continue to plan and design for bending weir installation at strategic outfalls.
- SWOR2 Modifications – Advertise and award a construction contract for the improvements to the gate actuators at the site.
- Ashland Avenue and Brady Lake Basins – Advertise and award a construction contract to clean the basins and repair erosion occurring in the basins.



Louisville/Jefferson County
Metropolitan Sewer District

WET WEATHER STORAGE IN THE MORRIS FORMAN SEWER SYSTEM VIA THE RTC SYSTEM



| Period | |
|--------|------------|
| From : | 07/01/2013 |
| To : | 06/30/2014 |

| Event Number | Wet Weather Event | | | Rainfall | | | CSO Saved Volume (MG) | | | | | | | | High River Levels | Comments |
|--------------|-------------------|---------------|-----------|-----------|-----------|------------|------------------------|-------------|---|------------------------|---------------|------------------------------|---------------------|-------|-------------------|---|
| | Start Date | End Date | Duration | Average* | Max** | | SWPS SG Chamber (14.5) | SWOR2 (7.5) | Brady Lake and Executive Inn Storage (13.4) | Southern Outfall (3.5) | Ashland (1.0) | Ohio River Interceptor (4.1) | Sneads Branch (2.5) | Total | | |
| | | | | TRFD (in) | TRFD (in) | Rain Gauge | | | | | | | | | | |
| 2013-049 | 7/1/13 8:35 | 7/2/13 6:20 | 21:45:00 | 0.20 | 0.39 | TR12 | 20.00 | 1.30 | 2.50 | 5.85 | 0.10 | 3.20 | 0.20 | 33.15 | No | Back to back storm cells heterogeneously distributed over the service area with dewatering of storage sites between cells. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. SWSG and Brady Lake were manually operated. |
| 2013-050 | 7/2/13 14:05 | 7/3/13 0:20 | 10:15:00 | 0.02 | 0.13 | TR05 | 5.35 | 0.00 | 0.10 | 4.55 | 0.00 | 2.95 | 0.00 | 12.95 | No | Moderate storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. SWSG and Brady Lake were manually operated. |
| 2013-051 | 7/3/13 16:45 | 7/5/13 1:35 | 32:50:00 | 0.78 | 0.96 | TR14 | 9.10 | 0.00 | 2.95 | 1.80 | 0.00 | 2.40 | 0.00 | 16.25 | No | Moderate storm cells homogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake was manually operated. |
| 2013-052 | 7/6/13 0:35 | 7/9/13 9:30 | 80:55:00 | 0.80 | 0.98 | TR14 | 14.25 | 0.00 | 3.05 | 4.70 | 0.55 | 3.05 | 0.40 | 26.00 | No | Large storm cells homogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake was manually operated. |
| 2013-054 | 7/10/13 13:30 | 7/14/13 19:55 | 102:25:00 | 0.47 | 0.98 | TR13 | 13.85 | 0.00 | 1.40 | 4.40 | 0.00 | 2.95 | 2.15 | 24.75 | No | Large and intense storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. SWSG and Brady Lake were manually operated. |
| 2013-055 | 7/14/13 19:55 | 7/15/13 14:40 | 18:45:00 | 0.29 | 0.55 | TR13 | 4.10 | 0.00 | 2.10 | 4.55 | 0.25 | 3.00 | 1.60 | 15.60 | No | Moderate storm cells homogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake was manually operated. |
| 2013-056 | 7/17/13 16:00 | 7/18/13 3:20 | 11:20:00 | 0.03 | 0.22 | TR04 | 1.20 | 0.00 | 0.10 | 1.20 | 0.00 | 0.80 | 0.00 | 3.30 | No | Small storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake was manually operated. |
| 2013-057 | 7/18/13 16:20 | 7/19/13 10:25 | 18:05:00 | 0.08 | 0.38 | TR12 | 3.25 | 1.25 | 0.00 | 1.85 | 0.00 | 2.00 | 0.00 | 8.35 | No | Small storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake was manually operated. |
| 2013-058 | 7/21/13 19:35 | 7/23/13 18:45 | 47:10:00 | 2.09 | 3.02 | TR12 | 22.65 | 0.00 | 16.60 | 12.00 | 0.00 | 7.65 | 2.35 | 61.25 | No | Very large and intense storm cells heterogeneously distributed over the service area (characteristic of a 1-year return period). SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. SWSG and Brady Lake were manually operated. |
| 2013-063 | 8/9/13 0:15 | 8/10/13 14:05 | 37:50:00 | 0.64 | 1.79 | TR14 | 12.20 | 1.70 | 5.25 | 4.30 | 0.25 | 2.25 | 1.20 | 27.15 | No | Large storm cells homogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake was manually operated. |
| 2013-064 | 8/10/13 14:05 | 8/11/13 3:55 | 13:50:00 | 0.09 | 0.41 | TR11 | 12.15 | 2.45 | 0.90 | 0.00 | 0.30 | 0.00 | 0.00 | 15.80 | No | Moderate storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake was manually operated. |
| 2013-065 | 8/12/13 6:25 | 8/13/13 17:25 | 35:00:00 | 0.76 | 1.28 | TR12 | 21.60 | 1.45 | 7.15 | 9.40 | 1.10 | 5.60 | 2.65 | 48.95 | No | Back to back storm cells heterogeneously distributed over the service area with dewatering of storage sites between cells. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake was manually operated. |
| 2013-066 | 8/20/13 16:20 | 8/21/13 7:30 | 15:10:00 | 0.23 | 0.50 | TR12 | 0.00 | 0.00 | 1.25 | 1.90 | 0.00 | 2.25 | 0.55 | 5.95 | No | Small storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake was manually operated. |
| 2013-068 | 8/31/13 14:40 | 9/1/13 14:35 | 23:55:00 | 1.47 | 3.22 | TR15 | 10.90 | 0.20 | 4.50 | 4.90 | 0.25 | 3.30 | 0.40 | 24.45 | No | Large storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake was manually operated. |
| 2013-069 | 9/2/13 14:30 | 9/3/13 4:20 | 13:50:00 | 0.27 | 0.83 | TR12 | 11.05 | 0.30 | 2.20 | 5.05 | 0.15 | 3.35 | 2.30 | 24.40 | No | Large storm cells heterogeneously distributed over the service area, mostly in the southwestern part. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Executive Inn and Brady Lake were manually operated. |
| 2013-074 | 9/20/13 16:40 | 9/22/13 7:50 | 1:63 | 1.82 | 3.13 | TR15 | 12.10 | 1.95 | 4.70 | 2.50 | 0.55 | 5.40 | 1.20 | 28.40 | No | Large storm cells heterogeneously distributed over the service area (characteristic of a 2-year return period). SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Executive Inn and Brady Lake were manually operated. |
| 2013-077 | 10/4/13 18:00 | 10/8/13 13:15 | 91:15:00 | 4.87 | 7.09 | TR14 | 16.8 | 3.2 | 2.5 | 9.9 | 0.6 | 5.8 | 5.9 | 44.5 | No | Very large storm cells heterogeneously distributed over the service area (characteristic of a 25-year return period (duration of 24 hours) in some parts of the service area). SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. SWSG and Ashland had a regulator dysfunction due to high water levels, and Executive Inn and Brady Lake were manually operated. |
| 2013-080&81 | 10/29/13 20:40 | 11/1/13 10:20 | 61:40:00 | 2.04 | 1.57 | TR12 | 26.6 | 0.9 | 3.2 | 8.0 | 1.2 | 7.1 | 2.4 | 49.4 | No | Back-to-back storm cells homogeneously distributed over the service area. Dewatering between cells. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. SWSG and Brady Lake were manually operated. |





Louisville/Jefferson County
Metropolitan Sewer District

WET WEATHER STORAGE IN THE MORRIS FORMAN SEWER SYSTEM VIA THE RTC SYSTEM



| Period | |
|--------|------------|
| From : | 07/01/2013 |
| To : | 06/30/2014 |

| Event Number | Wet Weather Event | | | Rainfall | | | CSO Saved Volume (MG) | | | | | | | High River Levels | Comments | |
|--------------|-------------------|----------------|----------|-----------|-----------|------------|------------------------|-------------|---|------------------------|---------------|------------------------------|---------------------|-------------------|----------|---|
| | Start Date | End Date | Duration | Average* | Max** | | SWPS SG Chamber (14.5) | SWOR2 (7.5) | Brady Lake and Executive Inn Storage (13.4) | Southern Outfall (3.5) | Ashland (1.0) | Ohio River Interceptor (4.1) | Sneads Branch (2.5) | | | Total |
| | | | | TRFD (in) | TRFD (in) | Rain Gauge | | | | | | | | | | |
| 2013-086 | 11/17/13 1:45 | 11/19/13 18:20 | 64:35:00 | 2.59 | 2.83 | TR12 | 14.0 | 0.0 | 1.9 | 7.3 | 0.1 | 6.5 | 5.7 | 35.5 | No | Very large storm cells homogeneously distributed over the service area (2-year return period for the 6-hour rainfall). SWOR2 was manually controlled, with its gates in the open position and minimal use of the available storage. SWSG and Brady Lake were partially manually operated. |
| 2013-090 | 12/5/13 4:00 | 12/6/13 11:00 | 31:00:00 | 0.83 | 1.00 | TR15 | 14.7 | 0.0 | 1.2 | 5.0 | 0.5 | 4.5 | 0.3 | 26.0 | No | Moderate storm cells homogeneously distributed over the service area. SWOR2 was manually controlled, with its gates in the open position and minimal use of available storage. Brady Lake was manually operated. |
| 2013-093 | 12/13/13 13:20 | 12/15/13 3:15 | 37:55:00 | 0.96 | 1.12 | TR14 | 13.2 | 0.0 | 0.0 | 4.6 | 1.0 | 3.1 | 0.0 | 21.8 | No | Moderate storm cells homogeneously distributed over the service area. SWOR2 was manually controlled, with its gates in the open position and minimal use of available storage. Brady Lake was manually operated. |
| 2013-095 | 12/21/13 0:35 | 12/24/13 20:55 | 92:20:00 | 2.66 | 3.22 | TR04 | 16.8 | 0.0 | 1.2 | 7.6 | 0.5 | 6.8 | 2.4 | 35.2 | No | Very large storm with back-to-back cells homogeneously distributed over the service area. Dewatering between cells at MDS. SWOR2 was manually controlled, with its gates in the open position and minimal use of available storage. Ashland was mainly in regulator dysfunction operating mode. SWSG was put in manual mode during the event. Brady Lake was manually operated. |
| 2013-096 | 12/28/13 22:30 | 12/29/13 18:30 | 20:00:00 | 0.49 | 0.60 | TR15 | 6.2 | 0.0 | 0.5 | 1.9 | 0.1 | 2.3 | 0.0 | 10.9 | Yes | Small storm cells homogeneously distributed over the service area. SWOR2 was manually controlled, with its gates in the open position and minimal use of available storage. Ashland was mainly in the regulator dysfunction operating mode. SWSG and Brady Lake were manually operated. |
| 2014-002 | 01/05/14 14:20 | 01/06/14 05:35 | 15:15:00 | 0.55 | 0.59 | TR11 | 10.4 | 0.0 | 0.3 | 3.0 | 0.0 | 2.2 | 0.3 | 16.1 | No | Moderate storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland had a regulator dysfunction, Brady Lake and SWSG were manually operated. |
| 2014-004 | 1/10/14 23:45 | 1/12/14 6:20 | 30:35:00 | 1.00 | 1.20 | TR14 | 15.7 | 0.0 | 3.5 | 1.9 | 0.0 | 2.8 | 1.2 | 25.1 | No | Large storm cells homogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland had a regulator dysfunction, Brady Lake was manually operated. |
| 2014-005 | 1/13/14 13:45 | 1/14/14 1:00 | 11:15:00 | 0.21 | 0.30 | TR04 | 7.0 | 0.0 | 0.3 | 0.5 | 0.0 | 1.2 | 0.0 | 9.0 | No | Small storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland had a regulator dysfunction, Brady Lake was manually operated. |
| 2014-010 | 2/2/14 2:15 | 2/2/14 18:50 | 16:35:00 | 0.50 | 0.58 | TR11 | 13.0 | 0.0 | 1.0 | 3.2 | 0.0 | 2.7 | 0.2 | 20.0 | No | Moderate storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland and Brady Lake were also manually operated. |
| 2014-012 | 2/4/14 18:05 | 2/8/14 4:10 | 82:05:00 | 0.64 | 1.13 | TR11 | 15.4 | 0.0 | 4.7 | 0.2 | 0.0 | 0.9 | 1.9 | 23.0 | No | Moderate storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland and Brady Lake were also manually operated. |
| 2014-016 | 2/14/14 11:50 | 2/15/14 3:50 | 16:00:00 | 0.27 | 0.36 | TR12 | 7.5 | 0.0 | 0.4 | 0.7 | 0.0 | 1.4 | 0.1 | 10.1 | No | Small storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland and Brady Lake were also manually operated. |
| 2014-019 | 2/17/14 14:05 | 2/19/14 16:50 | 52:45:00 | 0.51 | 0.59 | TR04 | 15.6 | 0.0 | 2.9 | 4.5 | 0.0 | 4.7 | 1.5 | 29.2 | No | Large storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland and Brady Lake were also manually operated. |
| 2014-020 | 2/20/14 18:50 | 2/21/14 7:10 | 12:20:00 | 0.30 | 0.38 | TR11 | 5.6 | 0.0 | 0.8 | 0.8 | 0.0 | 1.2 | 0.2 | 8.5 | No | Moderate storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland and Brady Lake were also manually operated. |
| 2014-023 | 3/2/14 9:05 | 3/3/14 9:10 | 24:05:00 | 0.45 | 0.51 | TR11 | 13.2 | 0.0 | 1.1 | 3.7 | 0.0 | 3.8 | 0.5 | 22.2 | No | Large storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland and Brady Lake were also manually operated. |
| 2014-025 | 3/5/14 10:40 | 3/5/14 21:50 | 11:10:00 | 0.03 | 0.17 | TR13 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | No | Very small storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland and Brady Lake were also manually operated. |
| 2014-029 | 3/28/14 0:05 | 3/28/14 13:35 | 13:30:00 | 0.23 | 0.28 | TR04 | 5.8 | 0.0 | 0.1 | 1.7 | 0.0 | 1.9 | 0.1 | 9.6 | No | Moderate storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland and Brady Lake were also manually operated. |
| 2014-030 | 3/29/14 5:50 | 3/30/14 3:15 | 21:25:00 | 0.88 | 0.98 | TR12 | 13.9 | 0.0 | 2.6 | 4.6 | 0.0 | 3.3 | 1.2 | 25.6 | No | Large storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Ashland and Brady Lake were also manually operated. |





Louisville/Jefferson County
Metropolitan Sewer District

WET WEATHER STORAGE IN THE MORRIS FORMAN SEWER SYSTEM VIA THE RTC SYSTEM



| Period | |
|--------|------------|
| From : | 07/01/2013 |
| To : | 06/30/2014 |

| Event Number | Wet Weather Event | | | Rainfall | | | CSO Saved Volume (MG) | | | | | | | High River Levels | Comments | |
|--------------|-------------------|-----------------|----------|--------------|-----------|------------|------------------------|--------------|---|------------------------|---------------|------------------------------|---------------------|-------------------|----------|--|
| | Start Date | End Date | Duration | Average* | Max** | | SWPS SG Chamber (14.5) | SWOR2 (7.5) | Brady Lake and Executive Inn Storage (13.4) | Southern Outfall (3.5) | Ashland (1.0) | Ohio River Interceptor (4.1) | Sneads Branch (2.5) | | | Total |
| | | | | TRFD (in) | TRFD (in) | Rain Gauge | | | | | | | | | | |
| 2014-032 | 4/3/2014 5:30 | 4/6/2014 19:25 | 85:55:00 | 2.64 | 2.96 | TR12 | 16.8 | 1.4 | 6.4 | 5.4 | 0.4 | 6.3 | 2.5 | 39.1 | No | Very large storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. Brady Lake, Ashland were also manually operated. SWSG was partially in manual mode during the event. |
| 2014-033&034 | 4/7/2014 6:20 | 4/9/2014 8:40 | 50:20:00 | 0.92 | 1.13 | TR04 | 15.8 | 4.3 | 2.1 | 3.6 | 0.3 | 3.7 | 2.5 | 32.4 | No | Large storm cells homogeneously distributed over the service area . SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. However, storage occurred at SWOR2 either due to backflow at SWSG or inflows greater than SWOR2 gate capacity. Brady Lake, Ashland and SWSG were also manually operated. |
| 2014-035 | 4/14/2014 4:05 | 4/15/2014 18:25 | 38:20:00 | 0.96 | 1.01 | TR12 | 17.9 | 0.4 | 2.7 | 6.7 | 0.0 | 6.0 | 0.7 | 34.2 | No | Large storm cells homogeneously distributed over the service area . Back-to-back storm cells with dewatering in the storage sites between them. SWOR2 was manually controlled, with its gates in the open position and minimal utilization of the available storage. Ashland and Brady Lake were also manually operated. |
| 2014-037&38 | 4/27/2014 20:00 | 4/30/2014 10:50 | 62:50:00 | 2.22 | 2.40 | TR15 | 17.4 | 2.3 | 7.2 | 3.8 | 0.7 | 4.7 | 3.2 | 39.3 | No | Very large storm cells homogeneously distributed over the service area. SWOR2 was manually controlled, with its gates in the open position and minimal utilization of the available storage. However, storage occurred at SWOR2 either due to backflow at SWSG or inflows greater than the SWOR2 gate's capacity. Ashland had a regulator malfunction during the event and Brady Lake was manually operated. |
| 2014-039 | 5/9/2014 19:45 | 5/11/2014 16:05 | 44:20:00 | 1.75 | 2.01 | TR12 | 16.8 | 0.6 | 5.1 | 10.1 | 0.7 | 6.9 | 3.4 | 43.5 | No | Very large storm cells homogeneously distributed over the service area. Back-to-back storm cells with dewatering of storage sites between cells. SWOR2 was manually controlled, with its gates in the open position and minimal utilization of the available storage. Brady Lake was manually operated. SWSG was also partially manually operated during the storm event. |
| 2014-040 | 5/13/2014 22:00 | 5/16/2014 0:40 | 50:40:00 | 1.35 | 2.09 | TR15 | 19.7 | 0.0 | 4.5 | 8.1 | 0.6 | 6.3 | 0.8 | 40.0 | No | Very large storm cells homogeneously distributed over the service area. Back-to-back storm cells with dewatering of storage sites between cells. SWOR2 was manually controlled, with its gates in the open position and minimal utilization of the available storage. Brady Lake was also manually operated at the beginning of the storm and changed to normal operating mode on May 14 th . |
| 2014-042 | 5/21/2014 20:35 | 5/22/2014 20:45 | 24:10:00 | 0.75 | 1.17 | TR13 | 16.4 | 0.0 | 2.9 | 3.7 | 0.3 | 4.5 | 0.8 | 28.5 | No | Large storm cells heterogeneously distributed over the service area. Small amount of dewatering occurred, especially at MDS between two storm cells. SWOR2 was manually controlled with its gates in the open position and minimal utilization of the available storage. SWSG were also manually operated. |
| 2014-044 | 5/28/2014 14:25 | 5/29/2014 5:25 | 15:00:00 | 0.67 | 3.96 | TR04 | 1.3 | 0.4 | 0.1 | 5.2 | 0.1 | 5.6 | 0.1 | 12.7 | No | Moderate storm cells heterogeneously distributed over the service area with high intensity, especially on the west side of the service area. SWOR2 was manually controlled, with its gates in the open position and minimal utilization of the available storage. SWSG operated in mode 70 (regulator malfunction or water level alarm). The right and left gates were completely open in this mode. Therefore, SWSG was not completely filled. |
| 2014-045 | 5/29/2014 21:30 | 5/31/2014 3:40 | 30:10:00 | 0.93 | 2.16 | TR11 | 23.7 | 1.9 | 1.3 | 7.6 | 0.9 | 7.3 | N/A | 42.6 | No | Large storm cells heterogeneously distributed over the service area. Back-to-back storm cells with some dewatering in the storage sites between them. SWOR2 was manually controlled, with its gates in the open position and minimal utilization of the available storage. Sneads Branch had a regulator malfunction during the event and therefore data were invalid at this site. SWSG storage was not optimized due to the safety procedure (the gates were opened in case the water levels rose quickly within the site) |
| 2014-049 | 6/10/2014 5:10 | 6/11/2014 23:40 | 42:30:00 | 0.46 | 0.63 | TR13 | 5.8 | 0.0 | 1.6 | 3.2 | 0.3 | 3.0 | 0.4 | 14.1 | No | Moderate storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled, with its gates in the open position and minimal utilization of the available storage. |
| 2014-051 | 6/20/2014 16:35 | 6/21/2014 2:35 | 10:00:00 | 0.45 | 0.91 | TR11 | 6.8 | 0.0 | 0.1 | 0.9 | 0.0 | 1.5 | 0.0 | 9.2 | No | Moderate storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled, with its gates in the open position and minimal utilization of the available storage. Sneads Branch had a regulator malfunction. |
| 2014-054 | 6/24/2014 14:05 | 6/25/2014 4:10 | 14:05:00 | 0.35 | 0.39 | TR11 | 8.4 | 0.0 | 0.7 | 3.3 | 0.3 | 3.7 | 0.2 | 16.4 | No | Moderate storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled, with its gates in the open position and minimal utilization of the available storage. |
| TOTAL | | | | 43.52 | | | 572.67 | 25.88 | 117.21 | 199.23 | 11.79 | 171.29 | 53.15 | 1151.22 | | |

* Average total rainfall depth based on rain gauge TR04, TR05, TR11, TR12, TR13, TR14 and TR15
 ** Maximum total rainfall depth measurement and its location during the wet weather event
 *** MDS is always manually controlled by operator



2.4 NMC 3: Review and Modification of Pretreatment Requirements

FY14 Program

- Completed FY14 NMC 3 Trunk Sewer Water Quality Data Collection.
- Completed review and evaluation of non-domestic dischargers (NDD) of concern and trunkline sewer data contributory to CSOs to determine if they discharge a disproportionate share of pollutants of concern (POC) to the CSS.
- Finalized POC, NDD, and trunkline sewer data (contributory to CSOs) for FY14 Dry Weather Sampling Result Report.
- Drafted report for the file to document the findings and recommendations resulting from above efforts.
- Continued to send wet weather alerts to NDD of concern prior to rain events, reminding them of their commitment to implement voluntary controls during wet weather events. During this reporting period, the MSD service area experienced measurable rain events on 46 days, four events with only trace rainfall and two snow events. MSD sent email notices to NDD 147 times prior to a precipitation event. There are currently 7 NDD that voluntarily implement controls during wet weather by alternating their cleaning schedule and/or by storing wastewater during a rain event and releasing later.
- MSD continued to track performance measures to quantify the effectiveness of voluntary controls program during wet weather events. The pollutant loading kept out of the CSS per typical rain event in the last 5 fiscal years was quantified with the data from wet weather logs submitted by NDD. The typical results of pollutants kept out of the CSS when all NDD participate are presented in the table below.

| Parameter | Typical Pollutants Kept Out of the CSS per Rain Event ⁽¹⁾ | | | | |
|-----------------------------|--|---------|---------|------------------|------------------|
| | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 |
| Number of NDD Participating | 9 | 9 | 9 | 8 ⁽²⁾ | 7 ⁽²⁾ |
| Volume (gallons) | 134,000 | 139,000 | 110,000 | 170,000 | 170,000 |
| BOD (lbs) | 3,860 | 4,310 | 3,910 | 5,430 | 5,500 |
| TSS (lbs) | 2,180 | 2,490 | 1,690 | 3,370 | 4,060 |

⁽¹⁾When all NDDs Participate.

⁽²⁾Solae ceased operation in FY13 and Kent Feed ceased operation in FY14.

The flow and mass of pollutants kept out of the CSS in the last 5 fiscal years was quantified based on the actual rain events when NDD detained their flow or otherwise reduced their discharge. The table below lists the annual quantity of pollutants kept out of the CSS in the last 5 fiscal years.

| Parameter | Total Quantity Pollutant Kept Out of the CSS | | | | |
|------------------|--|-----------|-----------|-----------|-----------|
| | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 |
| Wet Weather Days | 136 | 130 | 68 | 72 | 46 |
| Volume (gallons) | 4,507,000 | 7,909,000 | 3,524,000 | 9,143,000 | 5,721,000 |
| BOD (lbs) | 140,000 | 265,000 | 109,000 | 290,000 | 181,000 |
| TSS (lbs) | 83,000 | 160,000 | 51,000 | 213,000 | 147,000 |

The average pollutant amounts kept out of the CSS per rain event in the last 5 fiscal years are presented in the table below.

| Parameter | Average Pollutants Kept Out of the CSS per Rain Event | | | | |
|------------------|---|---------|---------|---------|---------|
| | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 |
| Volume (gallons) | 33,100 | 60,800 | 51,800 | 127,000 | 124,400 |
| BOD (lbs) | 1,000 | 2,000 | 1,600 | 4,000 | 3,900 |
| TSS (lbs) | 600 | 1,200 | 800 | 3,000 | 3,200 |

- Continued to include specific NMC 3 related language as appropriate, in new and re-issued wastewater discharge permits to facilities located in the CSS, as well as in all Unusual Discharge Requests approved for discharge to the CSS. MSD re-issued 19 wastewater discharge permits to users discharging to or immediately upstream of the CSS. The total number of 31 Unusual Discharge Requests went to Morris Forman WQTC in FY 14. That includes 19 that were in the CSS and 12 that were located in SSS but end up at Morris Forman WQTC during FY14.
- Conducted 7 NMC 3 site inspections at NDD facilities as part of the permit renewal process.
- Conducted 14 NMC 3 site inspections at Significant Industrial User facilities not currently in the formal NMC 3 program as part of the initial permitting or permit renewal process. These are facilities that were found to have little to no impact during rain events. MSD

elected not to request implementation of voluntary controls at this time because of the limited benefit to be gained. MSD heightened the understanding of the CSS operation during wet weather for these industries during the inspections.

- MSD continued to seek out green infrastructure opportunities at NDD discharging to the CSS. For example, Parallel Products, an industry within the CSS, has completed a green infrastructure capital project.
- MSD continued to track performance measures to monitor the effectiveness of the implementation of NMC 3 within the Pretreatment Program.
- MSD completed and updated the Threat Matrix.

FY15 Program

- Finalize FY14 Dry Weather Sampling Result Report.
- Complete FY15 NMC 3 Trunk Sewer Water Quality Data Collection effort.
- Prepare a file report to document the findings and recommendations resulting from FY15 NMC3 trunk sewer collection data. Complete review and evaluation of user data of NDD of concern and trunkline sewer data contributory to CSOs to determine if they discharge a disproportionate share of pollutants of concern to the CSS. Determine POC, NDD, and trunkline sewer (contributory to CSOs) for FY15. Review NDD to identify those that may be removed from the program, as well as any that may need to be added.
- Continue to send wet weather alerts to NDD of concern prior to rain events, reminding them of their commitment to implement voluntary controls during wet weather events.
- Continue to include specific NMC 3 related language as appropriate, in new and re-issued wastewater discharge permits to facilities located in the CSS, as well as in all Unusual Discharge Requests approved for discharge to the CSS.
- Conduct NMC 3 site inspections at Industrial User permitted facilities not currently in the formal NMC 3 program as part of the permit renewal process.
- Discuss NMC3 program participation at each annual site inspection for Industrial Users who are currently in the NMC 3 program.
- Continue to seek out green infrastructure opportunities at NDD discharging to the CSS.
- Track performance measures to monitor the effectiveness of the implementation of NMC 3 within the Pretreatment Program.
- Conduct MSD staff refresher training on implementation of the NMC 3 program.

2.5 NMC 4: Maximization of Flow at the Morris Forman Water Quality Treatment Center (WQTC)

FY14 Program

- Completed work on replacing delaminated bottom section of the Secondary Bypass Parshall Flume.
- Started final design of upgrades to the screening and grit removal systems for both the East and West Headworks at the Morris Forman WQTC. MSD is targeting this project for completion before the commissioning of the major off-line storage basins, in anticipation of increased grit and screenings loading to the Morris Forman WQTC when the new storage basins are cleaned following wet weather events. This project is not included in the IOAP and does not have a fixed deadline for completion. The current project schedule calls for bidding this project in February 2015.
- Completed first round of training on the recommendations outlined in the Morris Forman WQTC Wet Weather Process Control Plan. The first round of training included “train the trainer” sessions to allow MSD to continue training new staff as personnel change at the plant.

FY15 Program

- Complete final design of upgrades to the screening and grit removal systems for both the East and West Headworks at the Morris Forman WQTC. Based on current schedules, the bidding phase will begin late in February 2015 with construction beginning prior to June 2015..
- Complete the evaluation of the proposed Capacity Calculator modifications to reflect results of secondary clarifier stress testing. Also incorporate the algorithm developed to calculate flow under Sluice Gate 1 at the Main Diversion Structure into the RTC system. Full RTC automation of SG-1 will be evaluated as part of the RTC integration of the Bells Lane WWTF in 2016 and 2017.
- Continue development of Effective Utility Management (EUM) performance measures for treatment parameters. After EUM metrics are up and running, develop and implement additional measures supporting maximization of treatment through Morris Forman WQTC.

2.5.1 Morris Forman Water Quality Treatment Center

- The charts provided in Appendix J illustrate performance in maximizing flow to the Morris Forman WQTC. The top of the chart shows rainfall inches per day. The middle part of the chart shows Morris Forman WQTC effluent flow and secondary treatment flow. The difference between these is the secondary bypass flow. The bottom of the chart shows days with a CSO activation at the five CSOs in the vicinity of the Morris Forman WQTC (CSOs 015, 016, 191, 210, and 211). Note that the flow meter downstream from CSO 211 is known to be affected by backwater effects of the Ohio River and the ultrasonic signal is sometimes blocked by mist and condensation when air and sewage temperatures are significantly different, so CSO activations at CSO 211 are keyed to

water levels upstream and downstream of the inflatable dam in the Main Diversion Structure. The other CSO activations are tied to flow measurement downstream of the respective CSOs. At times, “blips” representing very small volumes of overflow are indicated by flow meters even though an overflow cannot be verified by level measurements or other indicators. These blips are not reported as overflows, but are noted in the CSO monitoring data reported on elsewhere. There are occasions in which a communications failure with telemetry has led to short-term gaps in the data. In addition, indications of rainfall and CSO activations are shown on the day they happened, but are not aligned with the exact time, so the effluent flow graph (which is tied to actual time) may show peaks that are offset from the indicated rain or CSO events. The charts show the high performance of delivering flow to and through the plant prior to active storage and overflows occurring. The following bullets describe any anomalies that are shown on the Morris Forman WQTC charts.

- On August 9 and 10 a wet weather event caused overflows at CSO 015. While the rain gauge at the Morris Forman WQTC showed very little rain and flows to the Morris Forman WQTC were not as elevated as would normally be observed during CSO events, parts of the CSO 015 sewershed saw almost 2 inches of rain during the two-day period. The localized downpours in the CSO 015 sewershed caused high flows in the Southwest Interceptor which could not be contained in the SWOR1 in-line storage, even with three pumps running at the Southwestern Pump Station. This resulted in short-duration wet weather discharges at CSO 015, even though the flows at Morris Forman WQTC were less than the capacity of the plant as indicated by the Capacity Calculator.
- On September 10 a dry weather discharge occurred at CSO 015. Scheduled LG&E maintenance activities required a short power outage at the Southwestern Pump Station. To accommodate this, flow was stored in the SWOR 1 Real Time Control (RTC) inline storage facility. The power outage caused a loss of communications with the RTC system. The loss of signal initiated a failsafe mechanism that resulted in the gates downstream of CSO 015 opening and causing the dry weather discharge. The discharge was reported through the electronic discharge notification system. Components were added to monitor the communications status between the control systems and RTC. An SOP has been implemented to prevent discharges of this nature due to future outages.
- Primary Sedimentation Basin No. 1 was out of service for most of the month of September, and the first half of October. This caused a 25% reduction of wet weather flow capacity, which impacted the peak wet weather flows treated during the wet weather event of September 20 and 21. During the wet weather event of October 5 and 6, plant operations was able to take peak flows in excess of 300 MGD for short periods of time, while sustaining flows at about 260 MGD for the duration of the overflow event.
- As a result of scheduled preventive maintenance activities and corrective maintenance requirements identified during the scheduled maintenance, two secondary clarifiers were out of service for most of February and March of 2014. Plant staff was able to maintain flows of 120 – 140 MGD through the secondary process during this period of reduced clarifier capacity. During the rain event on March 29 the plant flows began falling off right after shift change and the incoming operator failed to recognize the need to make

gate adjustments to continue to maximize flow through the secondary process. This condition was corrected when noticed, and the operator was re-trained in the procedures to follow during wet weather events.

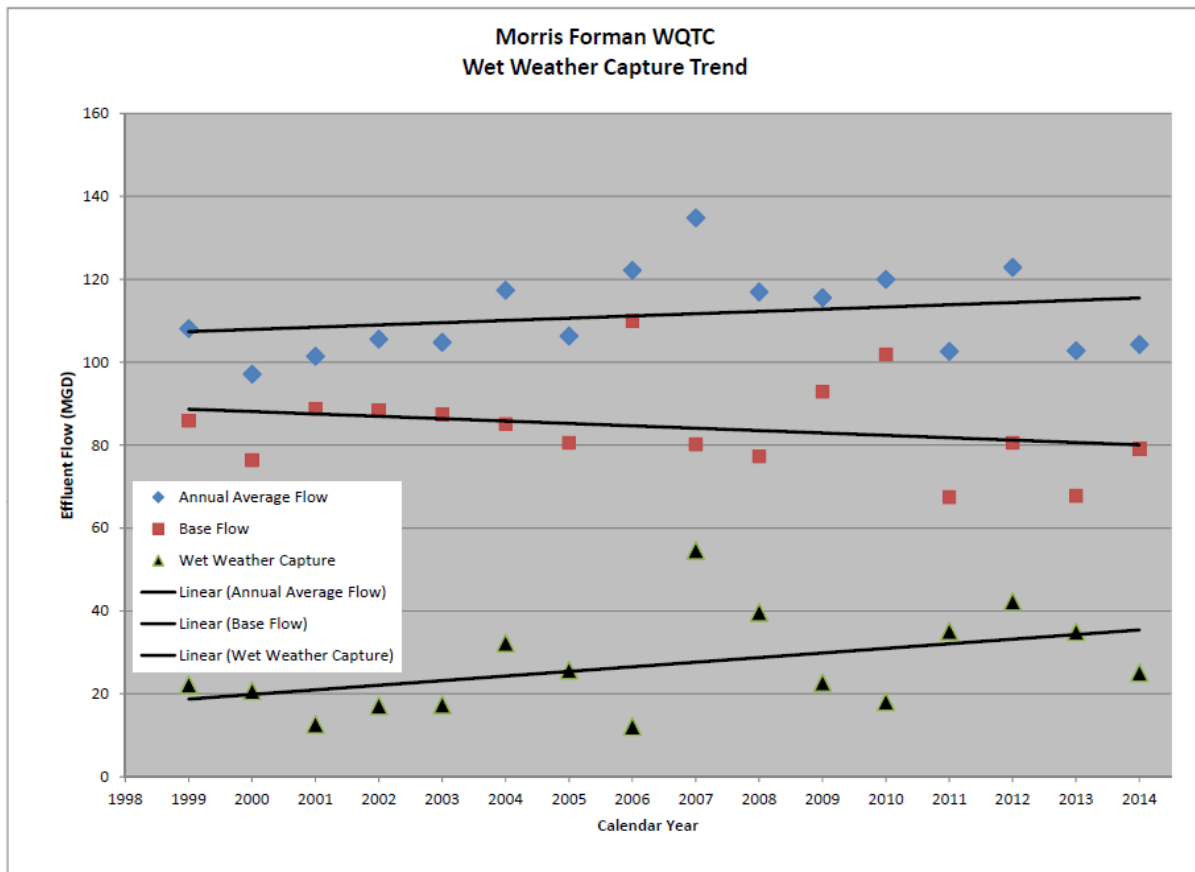
- There were no violations of the Morris Forman WQTC KPDES permit during FY 14.

FY15 Program

The FY15 program for the Morris Forman WQTC is as described previously under Section 2.5.

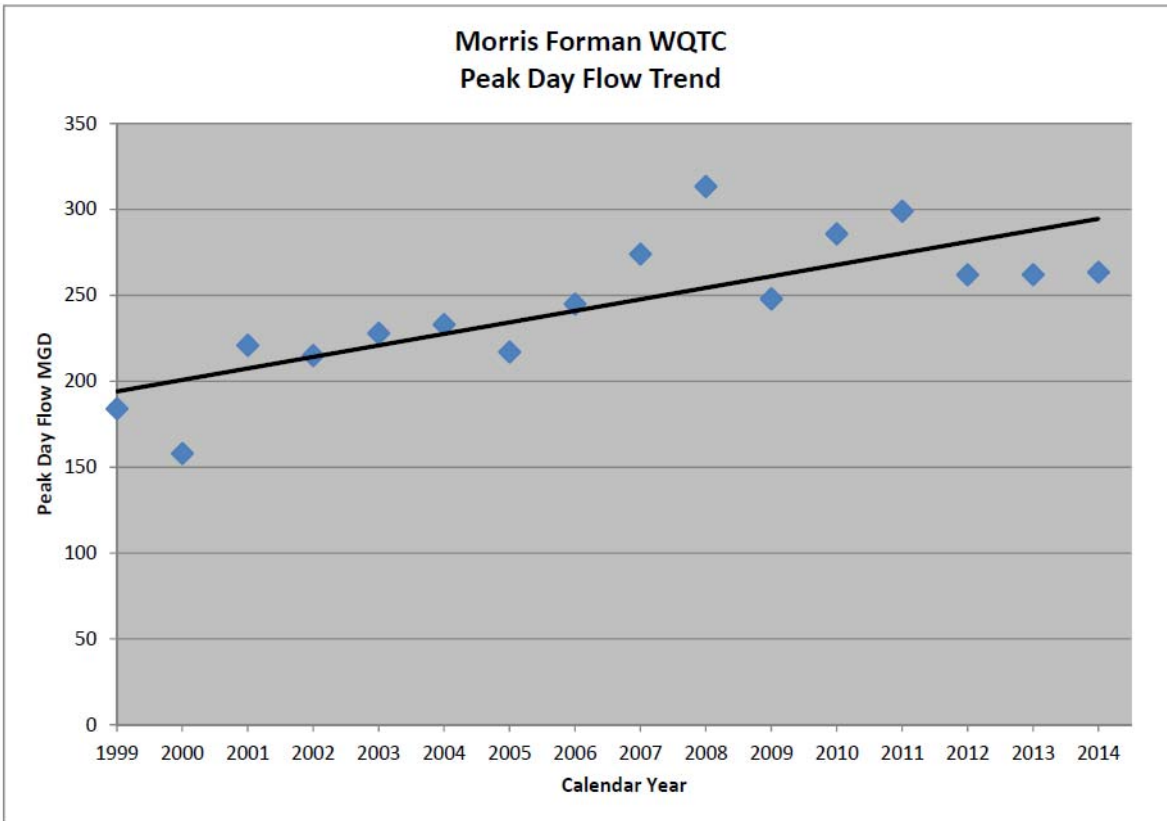
2.5.2 Wet Weather Capture

Over the past several years, the long term trend continues to show that MSD has increased the amount of wet weather flow treated at the Morris Forman WQTC. The wet weather capture is the difference between the annual average flow treated and the base wastewater flow (defined in state regulations as the lowest monthly average day flow during the calendar year). Calendar year 2014 shows an increase in base flow compared to 2013. Overall, the long term base flow trend is dropping slightly, reflective of a trend toward lower per capita water use as identified by the Louisville Water Company records, and also some loss of customers in the industrial/commercial and residential customer base in the Morris Forman WQTC service area. The fourteen-year trend shown in the figure below confirms that while individual year data is highly variable due to weather impacts, the long-term trend in wet weather capture continues to increase. The increasing trend in wet weather capture is largely attributed to a combination of capital improvements at the Morris Forman WQTC, development of wet weather operational procedures, and implementation of RTC facilities in the CSS.



The improving trend in plant wet weather flow capture performance is also reflected in the long term trend in the maximum day flow treated at Morris Forman WQTC, as shown in the figure below. Each data point represents the maximum daily flow treated during the year. Although the instantaneous peak hydraulic capacity of the Morris Forman WQTC is 350 MGD, the sustained flow that can be treated on a daily basis is governed by a number of other factors, including the performance of the biological treatment processes.

The data trend continues to show increases in peak day flows treated. While individual years are highly variable due to weather impacts, the long-term trend continues to be up. Factors contributing to this long-term positive trend are implementation of the new wet weather SOP, and better wet weather process control at the Morris Forman WQTC. These two factors result in the Morris Forman WQTC being able to treat elevated flows for a longer period of time without jeopardizing permit compliance, resulting in more flow being treated for longer periods of time during wet weather events.



2.6 NMC 5: Elimination of CSOs During Dry Weather

FY14 Program

Flood Pump Stations

- Continued updates of the U.S. Army Corps of Engineers (USACE) Flood Operations and Maintenance Manual per staff review and to reflect changes in operations that have occurred with the IOAP projects and operational SOP improvements. This will be an ongoing task until all the projects in the IOAP and an ongoing task as NMC programmatic activities are completed.
- Pumped approximately 300,400 gallons of trapped flow back into the sanitary sewer system to avoid dry weather overflows as a result of operation of the flood protection system from the 34th Street, Starkey, and 4th Street Flood Pump Stations during FY14.
- Completed construction activities for the 27th Street and Shawnee Flood Pump Station (FPS) Dry Weather Overflow (DWO) Elimination projects. The Consent Decree deadline for completion of these projects is December 31, 2013, but both were completed ahead of schedule: Shawnee FPS – June 18, 2013, 27th Street – June 28, 2013.

- Completed the Riverport FPS Conduit and Conductors Replacement Project. The project included the relocation of existing above ground conduit leading from the FPS motor control center (MCC) to the substation and placing it underground. The project also included the replacement of the conductors in the MCC.
- Construction activities started on the 17th Street FPS DWO Elimination project. The Consent Decree deadline for the project is December 31, 2014.

Asset Analysis

- Performed the quarterly evaluation of dry weather unauthorized discharges to the Waters of the United States, with emphasis on the CSS, to determine causes and to determine if there is a need for corrective activities. Some of the recommendations delivered from the inspection included: continued interaction with the Louisville Water Company on response to water main breaks, and continued analysis of options for the CSO 153 diversion structure to prevent materials from entering the siphon. MSD will continue to report dry weather overflows from the CSS in accordance with the Sewer Overflow Response Protocol (SORP).
- Performed inspection and cleaning of FOG hotspots within the CSS, in accordance with CMOM commitments.
- Started a detailed analysis of CSO 153 and the related siphon for a capital solution to the dry weather overflow issue. Alternatives are being evaluated for either a gravity or pumped solution. Field survey was completed.

FY15 Program

Flood Pump Stations

- Continue to implement additional operational and/or structural modifications at flood pump stations within the CSS to prevent dry weather overflows. Discussions with the USACE continued regarding proposed modifications to these pumping stations that will minimize dry weather CSOs due to high river levels. This will be an ongoing activity until all the IOAP projects are completed and as staff implements programmatic NMC activities. The suite of DWO elimination projects are to be completed by June 30, 2014, per the IOAP.
- Complete construction activities to implement gate automation changes for the 17th Street Flood Pump Station (FPS) Dry Weather Overflow (DWO) Elimination project. The Consent Decree deadline for completion of this project is December 31, 2014.
- Continue to review SOPs for the Flood Pump Stations to reflect ongoing operational changes that occur as capital projects and NMC programmatic activities are completed.

Asset Analysis

- Perform a quarterly evaluation of dry weather overflows to the Waters of the United States, with emphasis on the CSS, to determine causes and to determine if there is a need for corrective activities.

- Perform inspection and cleaning of FOG hotspots within the CSS, in accordance with CMOM commitments.

2.7 NMC 6: Control of Solids and Floatable Materials in Combined Sewer Overflows

FY14 Program

Field Verification

- Continued to monitor and document performance of the CSO 108 Solids and Floatables control CDS operation in accordance with the MOU with the Kentucky Nature Preserve. Two semi-annual reports of the efficacy of the CDS unit were submitted to the Kentucky Nature Preserve in FY14. Copies of the semi-annual CSO 108 efficacy report are provided in **Appendix A**.
- Continued to review new S&F technologies for potential incorporation into the program.

Solids and Floatables Debris Removal

- Continued inspection and maintenance procedures for the solids and floatables structures as part of the weekly CSO inspections and PM cleaning routines, outlined under NMC #1. During FY14, 549 work orders were issued for debris removal at the solids and floatables structures.
- Continued working with staff to determine the quantity of debris and floatables captured by street sweeping, catch basin cleaning, at the headworks of the Morris Forman WQTC, and at the end of line S&F controls. Reports have been developed to capture the amount of material removed through catch basin cleaning and at the end of the line S&F controls. It has been determined that cleaning activities result in material amounts being captured at the Morris Forman WQTC head works. Results for the FY14 are shown in the table below:

| Location | Approximate Amount of Debris Removed |
|---------------------------------|--------------------------------------|
| Catch Basin and Sewer Cleaning | 1,991 CY |
| Headworks of Morris Forman WQTC | 3591 Tons |

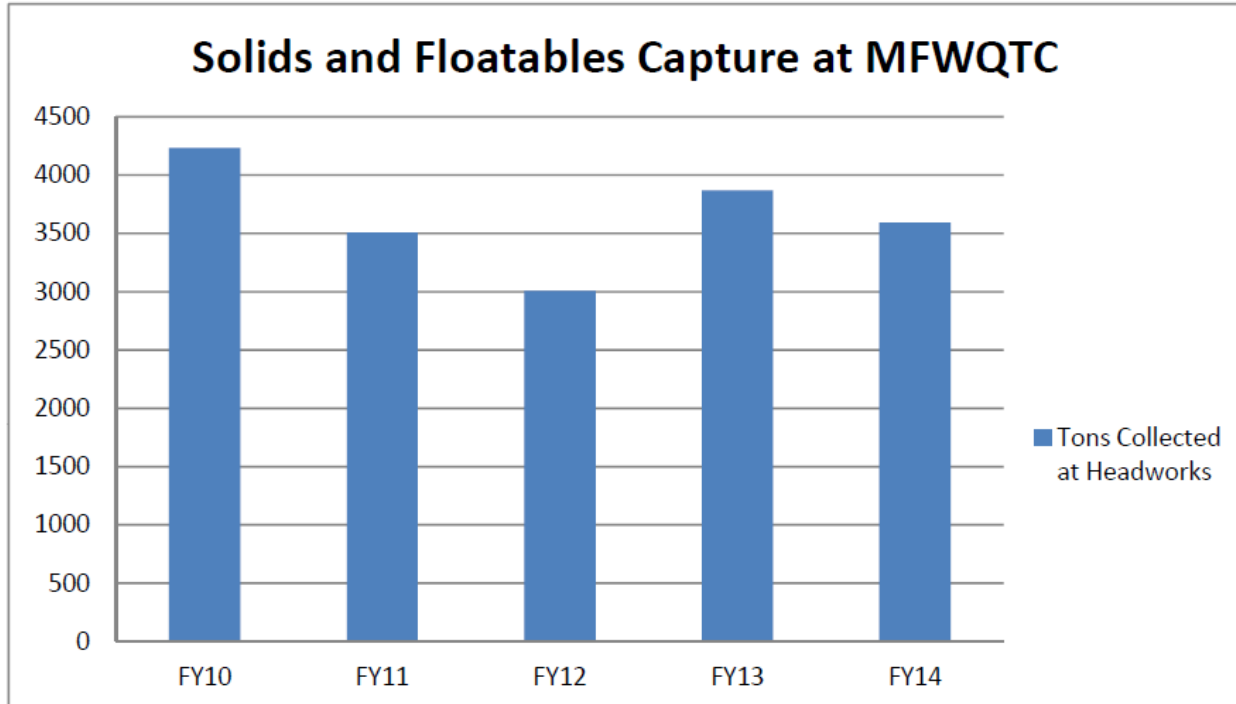
FY15 Program

Field Verification

- Continue to observe and document the effectiveness of controls for different floatable types at selected locations. Summarize findings in the FY14 Annual Report.
- Continue to monitor and document performance of the CSO 108 Solids and Floatable structure operation in accordance with the MOU with the Kentucky Nature Preserve by MSD Crews. Reports will be submitted on June 30, and December 31 annually.

Solids and Floatables Debris Removal

- Track the volume of solids and floatables materials removed from the CSS.



2.8 NMC 7: Pollution Prevention Programs to Reduce Contaminants in CSOs

FY14 Program

- Continued coordination of activities performed by Louisville Metro such as: street sweeping, Operation Brightside (trash and litter clean-up), and other Metro pollution prevention programs.
- Continued administration of the Hazardous Materials Ordinance, which requires users with hazardous materials on site to submit a spill prevention and control plan. Continued response to spills of hazardous materials and incidents involving discharges to the sewer system and provided spill mitigation kits to the Louisville Metro Fire Department to use to absorb vehicle fluids rather than flushing to the sewer.
- Continued administration of the Erosion Prevention and Sediment Control Ordinance (EPSC). Continued use of a tracking system for EPSC NOVs and Field Correction Notices within the CSS. In FY14, 228 field correction notices and 28 NOVs were issued for activities within the CSS.
- Continued issuance of Wastewater Discharge Permits under the Industrial Pretreatment Program.
- Continued to facilitate clean sweep events and coordinate volunteers to remove trash and debris from the waterways in Jefferson County; prepare and distribute informational

pieces targeted to inform customers and residents on activities that can be practiced within their homes to assist in the reduction of overflows within the collection system; promote Green Infrastructure initiatives within Jefferson County, such as pervious pavement and aqua pavers; and distribute a rain garden manual outlining design and installation procedures for homeowners.

- Continued to prepare and distribute informational pieces, targeted to inform customers and residents on activities that can be practiced within their homes to assist in the reduction of overflows within the collection system.
- Continued to develop Stormwater Pollution Prevention Plans (SWPPPs) for the WQTCs, major Pump Stations, and CMF.
- Distributed literature to SIUs on BMPs for prevention of pollution.
- Continued enhancement of the framework for the IOAP green infrastructure program tracking in HANSEN and Sharepoint.
- Utilized and distributed the rain garden handbook to Louisville Metro agencies and to the public in order to encourage green infrastructure.
- Applied base template plans and training modules related to Stormwater Pollution Prevention Plans (SWPPPs) at the WQTCs, major Pump Stations, and CMF.

FY15 Program

- Utilize and distribute the rain garden handbook to Louisville Metro agencies and to the public in order to encourage green infrastructure.
- Continue to track green infrastructure projects and initiatives in Hansen and Sharepoint.
- Enhance the green infrastructure BMP manual as necessary.
- Continue to track EPSC NOVs and Field Correction Notices within the CSS.
- Continue to prepare and distribute informational pieces, targeted to inform customers and residents on activities that can be practiced within their homes to assist in the reduction of overflows within the collection.

2.9 NMC 8: Public Notification

To reduce duplication, public notification information will be reported in **Section 5: Project WIN Program Activities for Public Outreach, Education, Notification and Participation.**

2.10 NMC 9: Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls

Please refer to **Section 4.5 - Post Construction Compliance Monitoring** for information regarding system monitoring.

SECTION 3: Program Activities for Sewer Overflow Response Protocol

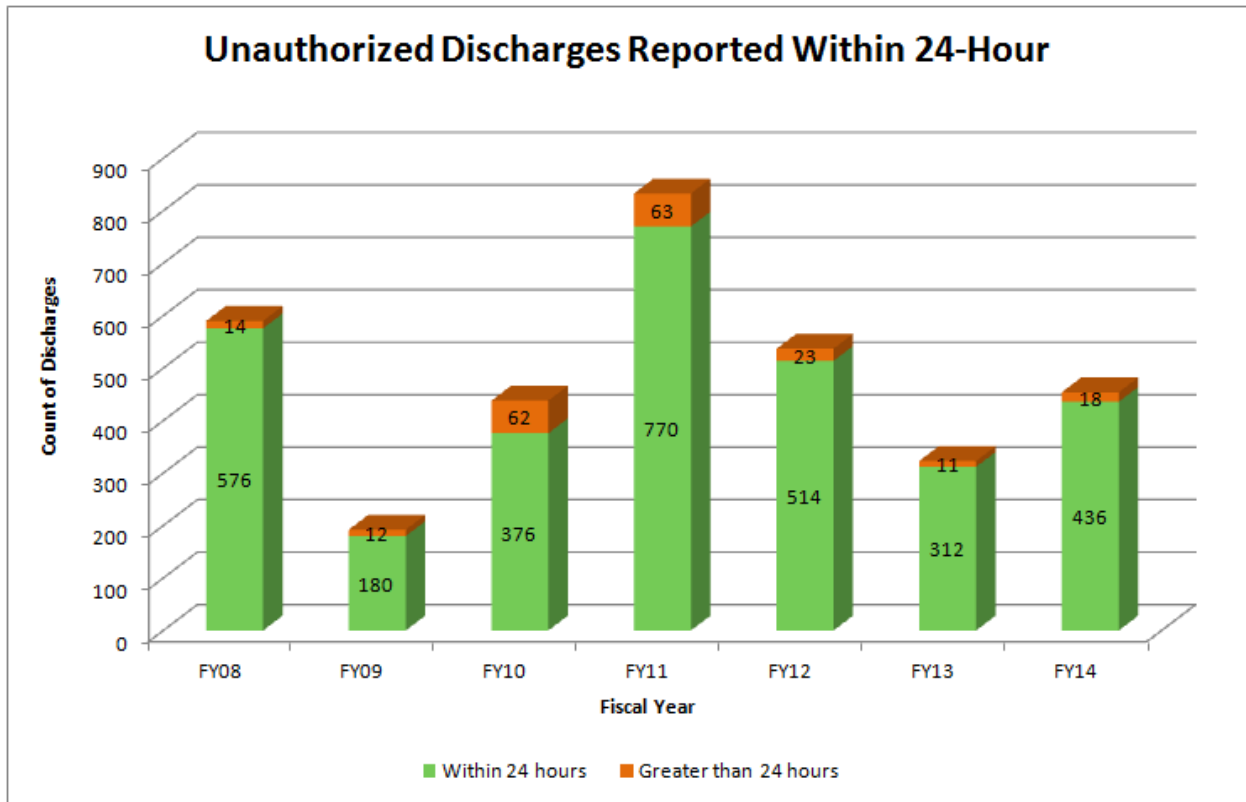
3.1 SORP Program Background

Per Paragraph 24.d. of the Amended Consent Decree, MSD initially submitted the Sewer Overflow Response Protocol (SORP) to EPA and KDEP on February 10, 2006, and received comments on March 13, 2006. MSD resubmitted the revised SORP on May 12, 2006, and received an approval letter for the SORP on August 22, 2006. The most recent version is dated February 12, 2012. The approved SORP document can be viewed on the MSD Project WIN website www.msdlouky.org/projectwin. The following activities were performed during this reporting period.

3.2 Overflow Management and Field Documentation

FY14 Program

- Documented a total of 454 overflows in FY14. The charts pertaining to overflows in Section 1 show these overflows broken down by Dry/Wet, Interior, Exterior, Waters of the US (WUS), and by Problem Code. Interior overflows are from MSD main line issues only, and **do not** include those that are the result of a problem on MSD's portion of the lateral. In addition, any interior overflow that is caused by a private property matter is also excluded from reporting.
- Reported 436 of the 454 overflows that reached the WUS (96%) within 24 hours.
- Reported 41 of the 454 overflows that reached the WUS (9%), as a Bypass or Blending event that required an additional 5-day written report.
- Reported 12 of the 190 dry weather discharges (6%), each with a volume between 1,000 and 50,000 gallons.
- Reported 6 of the 190 dry weather discharges (3%), each with a volume greater than 50,000 gallons.
- Continued to review and enhance the SORP Implementation Manual.



- Revised SORP Documentation and adjusted overflow/wet weather inspection routes as part of the annual SORP review.
- Continued daily, monthly and quarterly reviews with staff from Metro Operations, Infrastructure & Flood Protection and Regulatory Services.
- Continued to monitor overflow (SSO) sites, which have been grouped into routes based on the range of rainfall rates necessary to cause a SSO. These routes were monitored during rain events depending on the magnitude and location of the storm. If an overflow was observed, a Discharge Work Order was created to document the event. During FY14, MSD RS and Engineering staff found 177 unauthorized discharges. Sixty-two inspection routes were executed on 30 days in FY14.
- Continued to monitor over 300 sites via telemetry. There were approximately 12 sites where sewage was routinely (3 or more times per year) hauled from pump stations to prevent overflows during rain events depending on the magnitude and location of the storm. Due to capacity issues during FY14, MSD Metro Operations staff hauled over 2.5 million gallons of sewage.

FY15 Program

- Continue to monitor data, train staff and update information as needed.
- New SORP Document submitted to EPA/KDEP.

-
- Continue to monitor over 300 sites via telemetry.
 - Continue to haul to prevent overflows and backups during rain events until system improvements are completed.
 - Continue to monitor documented collection system SSO sites, which have been grouped into routes based on the range of rainfall rates necessary to cause a SSO.
 - Continue the daily, monthly and quarterly data reviews with staff from Metro Operations, Infrastructure & Flood Protection and Regulatory Services to ensure accuracy and consistency in reporting.
 - Schedule additional field reviews of SORP procedures after rain events to both ensure successful implementation and to assist with the annual SORP overall review.

3.3 Regulatory Reporting and Data Management

FY14 Program

- Conducted monthly meetings with staff to perform quality control on discharge work orders.
- Conducted a monthly review of the discharge work orders and updated the associated assets in Hansen as needed.
- Performed a detailed review and trend analysis on the discharge data, incorporated the findings into the quarterly SORP training and the quarterly reports.

FY15 Program

- Continue to perform quality control on discharge work orders with appropriate staff.
- Update assets in Hansen when new overflow locations are identified.
- Continue to review the overflow data for trends. These trends are discussed with staff in the Quarterly SORP training and documented in the Quarterly Reports.

3.4 Staff Training and Communication

FY14 Program

- Facilitated the **SORP FY14 Annual Training** from November 2013 through December 2013. 30 training sessions were held and 833 staff/contractors attended.
- Updated the modules for each of the quarterly SORP training prior to each session.

- Facilitated the **SORP FY14 Quarterly Training**.

| Key Learning Objective | Session 1 July - September | Session 2 October - December | Session 3 January - March | Session 4 April - June |
|---|---|---|---|---|
| Clean up and public notification | 12 classes in September - 266 staff trained | | | |
| Overflow field documentation | | 14 classes in November, 9 classes in December - 657 staff trained | | |
| Monitoring, staging, reconnaissance and mobilization. | | | 13 classes in March - 256 staff trained | |
| Control zones, mitigation and volume estimation. | | | | 13 classes in June, - 255 staff trained |

FY15 Program

- Schedule the FY14 SORP Quarterly Training as described below.

| | Session 1 July - September | Session 2 October - December | Session 3 January - March | Session 4 April - June |
|-------------------------|----------------------------------|---------------------------------|--|---|
| Key Learning Objectives | Clean up and public notification | Overflow field documentation | Monitoring, staging, reconnaissance and mobilization | Control zones, mitigation and volume estimation |

- Conduct the Annual SORP training in November and December 2014, for MSD staff.
- Continue to review and update the data associated with overflows.

3.5 Annual Program Review

FY14 Program

- Completed the annual SORP document review in August 2013. Revised an appendix of the SORP document as part of the review.
- Reviewed and updated routes to include any new SSO locations.

FY15 Program

- Perform the annual SORP review prior to August 2014. There are no major program updates anticipated at this time. Routes will be reviewed and updated to include any new SSO locations.
- Send new routes to EPA/KDEP by August 22, 2014. New routes will be published once approved by EPA/KDEP.

3.6 Public Notification and Communication

To reduce duplication, public notification information will be reported in **Section 5: Project WIN Program Activities for Public Outreach, Education, Notification and Participation.**

SECTION 4: Program Activities for Discharge Abatement Plans

4.1 Integrated Overflow Abatement Plan (IOAP)

As a requirement of the Amended Consent Decree, per Paragraph 25, MSD is to prepare and submit for review and approval discharge abatement plans for the elimination of unauthorized discharges from the separate sanitary sewer system and the combined sewer system, the reduction and control of discharges from the CSO locations identified in the Morris Forman WQTC KPDES permit, and the improvement of water quality in the receiving waters.

The Final Sanitary Sewer Discharge Plan and the Final CSO Long Term Control Plan were submitted concurrently and certified on December 19, 2008, under the title of the Integrated Overflow Abatement Plan (IOAP). The IOAP was accepted by the Federal Court and incorporated by reference into the Amended Consent Decree by an Order signed February 12, 2010, that was entered into public record February 15, 2010.

MSD submitted an IOAP modification request to EPA/KDEP on September 20, 2012, with partial approval granted via certified letter on October 25, 2012. The modified project package, program descriptions and progress, and updated supporting text are included in the revised IOAP, submitted to EPA/KDEP on June 14, 2013.

4.2 Sanitary Sewer Discharge Plan (SSDP)

The Sanitary Sewer Discharge Plan (SSDP) addresses the overflows and unauthorized discharges from the separate sanitary sewer system. Three separate plans have been submitted under this program as described below and outlined in Paragraph 25.a. of the Amended Consent Decree.

4.2.1 Updated Sanitary Sewer Overflow Plan Implementation

MSD prepared and submitted the Updated Sanitary Sewer Overflow Plan (SSOP) on February 10, 2006. This plan included an overview of the MSD sanitary sewer overflow abatement program and specific actions taken to reduce/eliminate overflows from the sanitary sewer system. This document included a list of the proposed improvements to be accomplished by December 31, 2008. Activities required under the Updated SSOP have been completed.

4.2.2 Interim Sanitary Sewer Discharge Plan

MSD submitted for approval an Interim Sanitary Sewer Discharge Plan (ISSDP) on September 30, 2007. Comments were received on January 8, 2008. MSD resubmitted the revised ISSDP on March 7, 2008, and received an approval letter for the ISSDP on July 24, 2008. The approved ISSDP document can be viewed on the MSD Project WIN website www.msdlouky.org/projectwin.

4.2.3 Final Sanitary Sewer Discharge Plan

MSD submitted for approval a Final Sanitary Sewer Discharge Plan (SSDP) on December 19, 2008, as Volume 3 of the Integrated Overflow Abatement Plan (IOAP). The IOAP was accepted by the Federal Court and incorporated by reference into the Amended Consent Decree by an Order signed February 12, 2010, that was entered into public record February 15, 2010.

Prospect WQTC Elimination Projects Easement Status - A total of 54 easements have been identified that are necessary to complete the entire suite of projects related to the plant eliminations. To date, MSD has acquired all 54 of these easements.

4.3 CSO Long Term Control Plan

The CSO Long Term Control Plan (LTCP) addresses the overflows and unauthorized discharges from the CSS. Two separate plans have been submitted under this program as described below and outlined in Paragraph 25.b. of the Amended Consent Decree.

4.3.1 Interim CSO Long Term Control Plan

The Interim CSO LTCP was initially submitted to EPA and KDEP on February 10, 2006. MSD received an approval letter dated February 22, 2007, for the Interim LTCP. The approved Interim LTCP can be viewed on the MSD Project WIN website www.msdlouky.org/projectwin.

This plan includes an overview of the MSD program, efforts taken to reduce/eliminate discharges from the CSS and the list of proposed improvements to be accomplished by December 31, 2008. All projects associated with this plan have been completed.

4.3.2 Final CSO Long Term Control Plan

MSD submitted for approval the Final CSO LTCP on December 19, 2008, as Volume 2 of the Integrated Overflow Abatement Plan (IOAP). The IOAP was accepted by the Federal Court and incorporated by reference into the Amended Consent Decree by an Order signed February 12, 2010, that was entered into public record February 15, 2010.

4.3.3 Green Demonstration Project Update

The Final CSO Long Term Control Plan (Volume 2 of the IOAP) included 19 green demonstration projects with schedules for completion in 2010 and 2011. The 19 green demonstration projects have been certified.

4.3.4 Green Infrastructure Programmatic Activities

FY14 Program

During FY14 the following programmatic activities related to the Green Infrastructure Program occurred:

- Updated the Green Best Management Practice (BMP) manual.
- Promoted the Green Incentives and Savings program for private property.
- Accepted and approved applications for the urban reforestation program.
- Utilized a green tracking protocol for green infrastructure projects.
- Executed memoranda of agreement on the urban reforestation program applicants (1346 trees included in proposals) to satisfy the 1000 tree/year IOAP commitment.
- Published www.msddgreen.org, an MSD Green Infrastructure website intended to advertise the private property incentive program and to offer general information on

green infrastructure.

- Tracked and calculated the impacts of green infrastructure projects on storm water capture and estimated overflow reductions.
- Continued the arrangement with EPA Office of Research and Development to determine the performance of green infrastructure practices to determine most effective applications, maintenance cycles, and areas with high potential for reduction of overflows.
- Applied for and received the first annual EPA Region 4 Rain Catcher Award, which recognized the CSO 130 suit of green projects for excellence in demonstrating the use of green infrastructure to meet regulatory commitments.
- Partnered with the development community to display and discuss green infrastructure during the Homearama event, which showcases new housing developments to the community.
- Developed and implemented a revised stormwater credit program which offers monthly drainage fee reductions to individuals who construct green infrastructure practices.
- Hosted a Construction Field Day at Fairdale High School on August 5, 2014, the site of a major green infrastructure installation, to demonstrate the viability of green infrastructure to the construction and development communities.
- Participated in the Portland State University Urban Sustainability Accelerator with other CSO communities to share experiences information on green performance.
- Participated in the Louisville Metro Sustainability plan, published in March 2013, and partnered with Louisville Metro to develop an “Eco District” in downtown Louisville.
- Developed a joint funding partnership with the Louisville Metro Office of Sustainability to further incentivize the construction of green infrastructure on private property.
- Received approval for the following green partnership projects:

| Project Approval Date | Project Name |
|------------------------------|--|
| 8-Jul-13 | University of Louisville – Soccer Complex |
| 8-Jul-13 | Tube Turns, Inc. - EMA Building and Steel Laydown Yard Phase 2 |
| 23-Sep-13 | University of Louisville – Recreational Facility |
| 23-Sep-13 | Southern Baptist Theological Seminary |
| 23-Sep-13 | Papillon Property Group – Angel’s Envy |
| 23-Sep-13 | University of Louisville – Chevron Property |
| 16-Dec-13 | Village Manor Partners, LTD |

| Project Approval Date | Project Name |
|------------------------------|---|
| 16-Dec-13 | Dupont Manual Apartments, LLC |
| 16-Dec-13 | Portland Properties, Inc. |
| 16-Dec-13 | Louisville Metro Government (Oak Street Streetscape) |
| 24-Feb-14 | Hunt Properties LLC |
| 24-Feb-14 | Sheppard Square Hope VI Revitalization - Block A, C and D |
| 23-Jun-14 | WPS, LLC |
| 23-Jun-14 | East Portland Warehouse, LLC |
| 23-Jun-14 | 1512 Portland, LLC |
| 23-Jun-14 | 1606 Rowan, LLC |
| 23-Jun-14 | Village Manor Apartments-Phase 2 |
| 23-Jun-14 | Darrell Griffith Athletic Center |

FY15 Program

- Review and revise the Green BMP Manual, and Re-publish.
- Continue to participate in the Louisville Metro Sustainability Plan.
- Continue to provide urban reforestation grants.
- Continue to track green infrastructure projects in the HANSEN and MSD GIS systems.
- Continue to provide incentives for green infrastructure on private property.

4.4 Activity Progress Chart

A Gantt chart showing the 2009 and 2012 IOAP Modification schedules (Refer to IOAP, Volume 1 – Figure 6.3.1 for the previous) for the entire program is provided below.

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

| Activity Name | Scheduled Finish | 2009 IOAP Completion | 2012 IOAP Modification | 2009 | | | | 2010 | | | | 2011 | | | | 2012 | | | | 2013 | | | | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | | 2021 | | | | 2022 | | | | 2023 | | | | 2024 | | | |
|---|------------------|----------------------|------------------------|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|--|--|--|------|--|--|--|------|--|--|--|------|--|--|--|------|--|--|--|
| | | | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | | | | | | | | | | | | | | | | | | | | |
| MSD IOAP SCHEDULE | 31-Dec-24 | 31-Dec-24 | 31-Dec-24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LONG TERM CONTROL PLAN | 01-Jan-21 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN DEMONSTRATION PROJECTS | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN INFRASTRUCTURE DEMONSTRATION PROJECTS | 31-Dec-11 A | 31-Dec-11 | 31-Dec-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN INFRASTRUCTURE DEMONSTRATION PROJECT | 31-Dec-11 A | 31-Dec-11 | 31-Dec-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN INFRASTRUCTURE PROGRAM | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN INFRASTRUCTURE PROGRAM | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GRAY INFRASTRUCTURE PROJECTS | 01-Jan-21 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 123 DOWNSPOUT DISCONNECTION | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 123 DOWNSPOUT DISCONNECTION | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I-64 AND GRINSTEAD DRIVE STORAGE BASIN | 31-Dec-20 | 21-Dec-14 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I-64 AND GRINSTEAD DRIVE STORAGE BASIN | 31-Dec-20 | 21-Dec-14 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 140 INCREASE PIPE CONVEYANCE | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 140 INCREASE PIPE CONVEYANCE | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 140 INCREASE PIPE CONVEYANCE | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 140 INCREASE PIPE CONVEYANCE | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 206 SEWER SEPARATION | 30-Dec-13 | 31-Dec-13 | 30-Dec-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 206 SEWER SEPARATION | 30-Dec-13 | 31-Dec-13 | 30-Dec-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CLIFTON HEIGHTS STORAGE BASIN | 31-Dec-18 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CLIFTON HEIGHTS STORAGE BASIN | 31-Dec-18 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PADDY'S RUN WET WEATHER TREATMENT FACILITY AND OFF LINE 1 | 31-Dec-16 | 31-Dec-14 | 31-Dec-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PADDY'S RUN WET WEATHER TREATMENT FACILITY | 31-Dec-16 | 31-Dec-14 | 31-Dec-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PORTLAND WHARF STORAGE BASIN | 31-Dec-19 | 31-Dec-19 | 31-Dec-19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PORTLAND WHARF STORAGE BASIN | 31-Dec-19 | 31-Dec-19 | 31-Dec-19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STORY AVENUE AND MAIN STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-13 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STORY AVENUE AND MAIN STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-13 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 668 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROL | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 668 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROL | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 658 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 658 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHWESTERN PARKWAY STORAGE BASIN | 31-Dec-18 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHWESTERN PARKWAY STORAGE BASIN | 31-Dec-18 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13TH STREET AND ROWAN STREET STORAGE BASIN | 01-Jan-21 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13TH STREET AND ROWAN STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13TH STREET AND ROWAN STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13TH STREET AND ROWAN STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CENTRAL RELIEF DRAIN IN-LINE STORAGE, GREEN INFRASTRUCTURE AND DISTRIBUTED STORAGE | 01-Jan-21 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CENTRAL RELIEF DRAIN IN-LINE STORAGE, GREEN INFRASTRUCTURE AND DISTRIBUTED STORAGE | 01-Jan-21 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 160 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROL | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 160 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROL | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADAMS STREET SEWER SEPARATION | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADAMS STREET SEWER SEPARATION | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18TH AND NORTHWESTERN PKY STORAGE BASIN | 31-Dec-17 | 31-Dec-17 | 31-Dec-17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18TH AND NORTHWESTERN PKY STORAGE BASIN | 31-Dec-17 | 31-Dec-17 | 31-Dec-17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALGONQUIN PARKWAY STORAGE BASIN | 01-Jan-19 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALGONQUIN PARKWAY STORAGE BASIN | 01-Jan-19 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHERN OUTFALL IN-LINE STORAGE (SOR 1) | 31-Dec-18 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHERN OUTFALL IN-LINE STORAGE AT 43RD ST. | 31-Dec-18 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHERN OUTFALL IN-LINE RETENTION (SOR 2) | 01-Jan-19 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHERN OUTFALL IN-LINE RETENTION AT 13TH AND WILSON AVE. (SOR 2) | 01-Jan-19 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NIGHTINGALE PUMP STATION REPLACEMENT AND STORAGE | 31-Dec-15 | 31-Dec-16 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NIGHTINGALE PUMP STATION REPLACEMENT AND STORAGE | 31-Dec-15 | 31-Dec-16 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOGAN STREET AND BRECKENRIDGE ST STORAGE BASIN | 31-Dec-17 | 31-Dec-17 | 31-Dec-17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOGAN STREET AND BRECKENRIDGE ST STORAGE BASIN | 31-Dec-17 | 31-Dec-17 | 31-Dec-17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 893 STRUCTURAL MODIFICATIONS AND GREEN INFRASTRUCTURE CONTROLS | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 893 STRUCTURAL MODIFICATIONS AND GREEN INFRASTRUCTURE CONTROLS | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 108 DAM MODIFICATIONS | 31-Dec-10 A | 31-Dec-10 | 31-Dec-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 108 DAM MODIFICATIONS | 31-Dec-10 A | 31-Dec-10 | 31-Dec-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STORY AVENUE AND SPRING STREET GREEN INFRASTRUCTURE CONTROL | 31-Dec-16 | 31-Dec-16 | 31-Dec-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STORY AVENUE AND SPRING STREET GREEN INFRASTRUCTURE CONTROL | 31-Dec-16 | 31-Dec-16 | 31-Dec-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FLOOD PUMP STATION PROJECTS | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27TH STREET FLOOD PUMP STATION | 30-Jun-13 | 30-Jun-13 | 30-Jun-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27TH STREET FLOOD PUMP STATION | 30-Jun-13 | 30-Jun-13 | 30-Jun-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Activity Name | Scheduled Finish | 2009 IOAP Completion | 2012 IOAP Modification | 2009 | | | | 2010 | | | | 2011 | | | | 2012 | | | | 2013 | | | | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | | 2021 | | | | 2022 | | | | 2023 | | | | 2024 | | | |
|---|------------------|----------------------|------------------------|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|--|--|--|------|--|--|--|------|--|--|--|
| | | | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | | | | | | | | | | | | |
| EDSEL PS II INVESTIGATION & REHABILITATION | 27-Sep-11 A | 30-Sep-11 | 30-Sep-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EDSEL PS III INVESTIGATION & REHABILITATION | 27-Sep-11 A | 30-Sep-11 | 30-Sep-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CINDERELLA PS ELIMINATION | 31-Dec-23 | 31-Dec-23 | 31-Dec-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CINDERELLA PS ELIMINATION | 31-Dec-23 | 31-Dec-23 | 31-Dec-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GOVERNMENT CENTER PS ELIMINATION | 01-Apr-11 A | 31-Dec-24 | 31-Dec-24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GOVERNMENT CENTER PS ELIMINATION | 01-Apr-11 A | 31-Dec-24 | 31-Dec-24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AVANTI PS ELIMINATION | 28-Jul-09 A | 31-Dec-10 | 31-Dec-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AVANTI PS ELIMINATION | 28-Jul-09 A | 31-Dec-10 | 31-Dec-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CHARLESWOOD INTERCEPTOR EXTENSION | 31-Dec-22 | 31-Dec-22 | 31-Dec-22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CHARLESWOOD INTERCEPTOR EXTENSION | 31-Dec-22 | 31-Dec-22 | 31-Dec-22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LANTANA PS II INVESTIGATION & REHABILITATION | 29-Dec-11 A | 31-Dec-11 | 29-Dec-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LANTANA PS II INVESTIGATION & REHABILITATION | 29-Dec-11 A | 31-Dec-11 | 29-Dec-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LEVEN PS ELIMINATION | 31-Dec-22 | 31-Dec-22 | 31-Dec-22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LEVEN PS ELIMINATION | 31-Dec-22 | 31-Dec-22 | 31-Dec-22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAVEN AVENUE WW STORAGE | 31-Dec-24 | 31-Dec-24 | 31-Dec-24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAVEN AVENUE PS ELIMINATION | 31-Dec-24 | 31-Dec-24 | 31-Dec-24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SMALL WWTP AREA | 31-Dec-21 | 31-Dec-21 | 31-Dec-21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RIDING RIDGE PS IMPROVEMENTS | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RIDING RIDGE PS IMPROVEMENTS | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LUCAS LN PS INLINE STORAGE | 31-Dec-21 | 31-Dec-21 | 31-Dec-21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LUCAS LN PS INLINE STORAGE | 31-Dec-21 | 31-Dec-21 | 31-Dec-21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ST. RENE RD PS INLINE STORAGE | 31-Dec-21 | 31-Dec-21 | 31-Dec-21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ST. RENE RD PS INLINE STORAGE | 31-Dec-21 | 31-Dec-21 | 31-Dec-21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LAKE FOREST PS IMPROVEMENTS | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LAKE FOREST PS IMPROVEMENTS | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GUNPOWDER PS INLINE STORAGE | 31-Dec-21 | 31-Dec-21 | 31-Dec-21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GUNPOWDER PS INLINE STORAGE | 31-Dec-21 | 31-Dec-21 | 31-Dec-21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FOX HARBOR INLINE STORAGE | 31-Dec-21 | 31-Dec-21 | 31-Dec-21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FOX HARBOR INLINE STORAGE | 31-Dec-21 | 31-Dec-21 | 31-Dec-21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FAIRWAY VIEW PS IMPROVEMENTS | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FAIRWAY VIEW PS IMPROVEMENTS | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHEASTERN DIVERSION AREA | 31-Dec-23 | 31-Dec-23 | 31-Dec-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PARKVIEW ESTATES II INVESTIGATION & REHABILITATION | 29-Jun-11 A | 30-Jun-11 | 30-Jun-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PARKVIEW ESTATES III INVESTIGATION & REHABILITATION | 29-Jun-11 A | 30-Jun-11 | 30-Jun-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SUTHERLAND INTERCEPTOR | 31-Dec-23 | 31-Dec-23 | 31-Dec-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SUTHERLAND INTERCEPTOR | 31-Dec-23 | 31-Dec-23 | 31-Dec-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BEARGRASS INTERCEPTOR REHABILITATION PH 2 | 14-Dec-10 A | 31-Dec-10 | 31-Dec-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BEARGRASS INTERCEPTOR REHABILITATION PH 2 | 14-Dec-10 A | 31-Dec-10 | 31-Dec-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Approved 2009 IOAP
 Remaining Work
 Completed Work

4.4.1 Project Certification Progress

FY14 Program

The following table shows the projects completed and certified during the FY14 reporting period:

| IOAP FY14 PROJECT COMPLETION DATES | | | | |
|---|---------------------------|--------------------------------|-----------------------|-----------------|
| (Sorted By Date Completed) | | | | |
| Budget ID | ACD Project Number | Project Name | Date Certified | ACD Date |
| H09131 | L_MI_MF_206_S_08_A_A_0 | CSO 206 SEWER SEPARATION | 12-Dec-13 | 30-Dec-13 |
| H09220 | S_SF_MF_30917_M_09_A | CAMP TAYLOR #2- REPLACE SEWERS | 20-Dec-13 | 31-Dec-13 |
| H07288 | S_MISF_MF_NB01_M_01_C_A1 | UMF #1 - BUECHEL BASIN | 27-Dec-13 | 31-Dec-13 |

FY15 Program

The following table shows the projects to be completed and certified during the FY15 reporting period:

| IOAP FY15 PROJECT REQUIRED COMPLETION DATES | | | | |
|--|---------------------------|------------------------------|-----------------|---|
| (Sorted By ACD Required Completion Date) | | | | |
| Budget ID | ACD Project Number | Project Name | ACD Date | Early Certification Date (if applicable) |
| H09138 | L_OR_MF_190_S_03_A_A | 17TH FPS DWO ELIMINATION | 31-Dec-14 | - |
| H09177 | S_HC_HS_NB01_S_03_C_A | FAIRWAY VIEW PS IMPROVEMENTS | 31-Dec-14 | - |
| H09175 | S_HC_HN_NB01_S_03_C_A | RIDING RIDGE PS IMPROVEMENTS | 31-Dec-14 | 15-Nov-14 |
| B06208 | S_MC_WC_NB01_M_01_A | SHIVELY INTERCEPTOR | 31-Dec-14 | 13-Apr-12 |

4.5 Post Construction Compliance Monitoring Program

Within the Integrated Overflow Abatement Plan, monitoring efforts that support the impact evaluation of both project and plan implementation are discussed in Volume 1, Section 6.5 - Post Construction Compliance Monitoring (PCCM). These efforts are incorporated into MSD's overall environmental data monitoring and management planning and activities, which support various MSD initiatives including operational support, the Municipal Separate Storm Sewer System (MS4) program, hydraulic and water quality modeling, and a range of regulatory reporting and trending requirement. For the IOAP specifically, the PCCM efforts will allow for an evaluation of the efficacy of various projects in meeting regulatory targets and adjusting as needed.

As such, during development of the Integrated Overflow Abatement Plan (IOAP), detailed and calibrated sewer models were built to assist in analyzing hundreds of solution alternatives for sewer overflow mitigation. A large amount of data was generated within each model representing existing sewer conditions and various solutions and solution combinations throughout the various collection systems. Since the approval of the IOAP, the sewer models have continued to be refined using additional field monitoring data.

Modeling Program

As implementation of the IOAP continues, the sewer models increasingly support critical planning and design decisions on sizing, location and operation of new facilities (storage basins, pump stations, gates, etc.) as well as reporting MSD's compliance with the IOAP's anticipated efficacy. The following efforts occurred in FY14:

- Engineering design support.
- Capacity assurance evaluations for requests for new capacity.
- Rain event analyses for regulatory reporting.
- Field survey and reconnaissance for improving hydrologic & hydraulic accuracy.
- Sewer modeling calibration using data from the expanded flow monitoring and rainfall networks.
- IOAP capital project assessment resulting from model calibration.
- IOAP capital project impact negotiation with the EPA and KDEP.
- Green infrastructure assessment for various CSO basins and impacts to downstream IOAP projects.
- Sewer model integration and calibration for newly connected service areas (DRG, Morris Forman, Jeffersontown WQTCs along with Prospect area and Hite Creek WQTC).
- Model exhibit development (maps, tables, videos, schematics and diagrams).
- Real Time Control integration assessment of new facilities.
- Two-dimensional modeling of the combined sewer system including flood protection system, Ohio River and Beargrass Creek influences.
- Post-construction compliance monitoring evaluation, conclusions and reports for completed IOAP projects to be included in the next annual report.
- Data management for historical and upcoming analyses, memoranda, reports and exhibits for utilization throughout MSD.

Project Performance Reporting

As described in Volume 1, Section 6.5.2 of the 2012 IOAP Modification, dated May 2014, beginning with the FY14 Annual Report, MSD has agreed to provide annual reports on performance findings for completed projects and self-identify cases where remedial measures may be required based on comparison of actual data to the committed level of control. To complete this effort and independently assess IOAP projects that have been certified to date, MSD has partnered with the University of Louisville Center for Infrastructure Research (UofL).

The initial reporting effort in 2014 involved evaluating a selection of the IOAP projects that were completed prior to December 31, 2013. Of the 57 projects that have been certified between 2009 and 2013, 41 were included in UofL's 2014 assessment. Due to efforts dedicated to the

development of the PCCM assessment methodology, a limited number of projects were evaluated in 2014. It is the intent that performance analyses will be conducted for all constructed IOAP projects as monitoring data is available to assess them. In addition, to meet this reporting commitment this PCCM submittal is in a calendar year format. Future reporting will be submitted on a fiscal year to coincide with this annual report.

Of the 41 projects that were assessed, 22 were either CSO or SSO control projects, and 19 were green demonstration projects. For each project, the PCCM period for monitoring performance and compliance is a three-year window. The following table summarizes the performance results for the 22 SSO and CSO projects that were reported on in 2014.

| SSO and CSO Performance Reports Completed in 2014 (Evaluated through December 31, 2014) | | | | |
|---|--------------------------------------|---------------------|------------------------------------|---------------------------|
| Project Name | Project Number | Project Type | PCCM Assessment Result | Certified Complete |
| Avanti Pump Station Elimination | S_PO_WC_PC07_M_01_A | SSO | Pass | 7/28/2009 |
| Ashburton PS Improvement and Diversion | S_FF_FF_NB03_M_01_C_A | SSO | Pass | 1/22/2010 |
| Woodland Hills PS Diversion | S_FF_FF_NB01_S_01_C_A | SSO | Pass | 4/1/2010 |
| Running Fox Pump Station Elimination | S_CC_CC_MSD1080_S_01_C | SSO | Pass | 4/5/2010 |
| Beargrass Interceptor Rehabilitation Ph 2 | S_SD_MF_NB06_S_13_C | SSO | Additional Remediation Recommended | 12/14/2010 |
| Floydsburg Rd. I/I Investigation & Rehabilitation | S_HC_HC_MSD1086_M_07_C_A | SSO | Additional Remediation Recommended | 12/17/2010 |
| Northern Ditch Diversion Interceptor | Northern Ditch Diversion Interceptor | SSO | Pass | 2/16/2011 |
| Government Center Pump Station Elimination | S_PO_WC_PC06_M_01_C | SSO | Pass | 4/1/2011 |
| Parkview Estates I/I Investigation and Rehabilitation | S_SD_MF_NB03_S_07_C | SSO | Pass | 6/28/2011 |

| SSO and CSO Performance Reports Completed in 2014 (Evaluated through December 31, 2014) | | | | |
|---|---------------------------|---------------------|------------------------------------|---------------------------|
| Project Name | Project Number | Project Type | PCCM Assessment Result | Certified Complete |
| Hazelwood PS I/I Investigation and Rehabilitation | S_MC_MF_55665_S_07_C | SSO | Pass | 6/30/2011 |
| Sonne PS I/I Investigation and Rehabilitation | S_OR_MF_42007_S_07_C | SSO | Additional Remediation Recommended | 6/30/2011 |
| Edsel PS I/I Investigation and Rehabilitation | S_PO_WC_PC11_M_07_C | SSO | Pass | 9/27/2011 |
| Anchor Estates1-Vannah PS Elimination | S_MI_MF_NB06_M_01_A_A - 2 | SSO | Pass | 10/15/2011 |
| Hurstbourne I/I Investigation and Rehabilitation | S_MI_MF_NB07_S_07_C | SSO | Pass | 12/27/2011 |
| Lantana I/I Investigation and Rehabilitation | S_PO_WC_PC05_M_07_C | SSO | Additional Remediation Recommended | 12/29/2011 |
| Adams Street Sewer Separation | L_OR_MF_172_S_09B_B_A_0 | CSO | Pass | 11/28/2012 |
| CSO123 Downspout Disconnection | L_MI_MF_123_S_08_A_A_0 | CSO | Pass | 12/30/2012 |
| CSO206 Sewer Separation | L_MI_MF_206_S_08_A_A_0 | CSO | Pass | 12/12/2013 |
| 34th Street FPS DWO Elimination | L_OR_MF_019_S_03_A_B | DWO | Pass | 6/11/2012 |
| 4th Street FPS DWO Elimination | L_OR_MF_022_M_03_A_A | DWO | Pass | 6/15/2012 |
| Shawnee Street FPS DWO Elimination | L_OR_MF_189_M_03_A_A | DWO | Pass | 6/18/2013 |
| 27th Street FPS DWO Elimination | L_OR_MF_019_S_03_A_A | DWO | Pass | 6/28/2013 |

* As of December 31, 2013

Of the 22 CSO and SSO projects analyzed, 18 met the criteria for the project level of control. Four (4) have been identified to need additional remediation because one or more performance events fell below the level of control: Floydensburg Rd I/I Investigation & Rehabilitation, Sonne PS I/I Investigation and Rehabilitation, Beargrass Interceptor Rehabilitation Phase 2, and Lantana I/I Investigation and Rehabilitation. MSD is committed to completing a remediation plan for each of these projects and continued monitoring to ensure efficacy. For each of the four projects identified to need additional remediation, the number of events that have occurred below the project level of control, the associated volume, and remediation solution and schedule are provided in the table below.

| SSO and CSO Performance Reports Indicating Need for Remediation Event Summary and Remediation Schedule (Evaluated through December 31, 2014) | | | | |
|--|--|---|--|-----------------------------|
| Project Name | Storm Events Below Level of Control | Estimated Volume Associated with Events Below Level of Control | Remediation Measure Action Plan | Remediation Schedule |
| Beargrass Interceptor Rehabilitation Ph 2 | 32 | 377,175 gallons | Remaining SSOs to be resolved with Nightingale PS/Basin Project (IOAP#: S_SD_MF_NB06_S_13_C) | December 2016 |
| Floydensburg Rd. I/I Investigation and Rehabilitation | 1 | 560 gallons | Sewer lining and manhole rehabilitation | Fall 2014 – Winter 2015 |
| Sonne PS I/I Investigation and Rehabilitation | 1 | 5 gallons | Manhole rehabilitation | Winter 2014 – Spring 2015 |
| Lantana I/I Investigation and Rehabilitation | 3 | 11,875 gallons | Sump pump removal at approximately 14 homes | Summer 2014 – Fall 2014 |

Green Demonstration Project Performance Assessment

MSD has completed 19 green demonstration projects as part of our commitment to implementing and testing the effectiveness of a variety of green management practice types. Because the intent of the green demonstration projects was to evaluate the suitability and effectiveness of green infrastructure technologies in various applications, UofL compiled a single performance report to document lessons learned through the planning, design,

construction, and maintenance processes. This effort was taken to establish green standards of practice. The suite of green infrastructure technologies implemented included:

- Permeable pavements
- Infiltration trenches
- Rain gardens / Biofiltration
- Green roofs

The process of implementing the green demonstration projects has holistically benefited MSD's Green Infrastructure Program. Because all of the green demonstration projects were completed prior to January 1, 2012, their 3-year PCCM period has been fulfilled. The summary below lists the critical lessons learned and improvements that have been made in order to demonstrate compliance with the intent of the green demonstration projects.

- Planning
 - Site selection is critical and must consider a variety of factors including property ownership, public visibility, soils, geology, watershed size, proximity to adjacent structures, and age of adjacent structures.
 - The Green implementation schedule was considered with respect to Amended Consent Decree deadlines in order to effectively right-size downstream grey projects.
 - Technology feasibility was a factor that prohibited the installation of dry wells within the required schedule constraints.
 - Communication with the public is critical, and a key factor in implementing the MSD Green Infrastructure website (www.msddgreen.org) as well as making improvements to the public engagement process.
- Design
 - Identification of the existing utility infrastructure on plans is critical for avoiding costly and time-intensive disruptions during the construction phase.
 - Project type selection with respect to the project site is also a factor to consider, especially where organic debris and fines may present potential maintenance issues after installation.
 - Consideration of underlying sewer locations that could be impacted by increased stormwater infiltration associated with green infrastructure.
 - Green Infrastructure Design Manual updates incorporated revised design specifications, including impacts on existing infrastructure, public outreach, aesthetics, consideration of surrounding land use and geophysical limitations during the design phase.

- Design lessons learned associated with each project type – permeable pavements, infiltration trenches, rain gardens, and green roofs.
- Construction
 - Improvements to add detailed material and construction specifications. Importance has also been placed on educating contractors on specific gradation sizes and washing to remove fines.
 - Green technologies are relatively new to the construction industry, and the benefit of providing training opportunities for contractors has been recognized. MSD has added construction and installation training, an annual green infrastructure construction field day, increased time in schedule for completing construction of green infrastructure projects, onsite inspector training to verify practices, and daily inspector logs.
 - Construction lessons learned associated with each project type – permeable pavements, infiltration trenches, rain gardens, and green roofs.
- Maintenance
 - Importance of maintenance agreements with potential partners to define maintenance quality and frequency were incorporated in MSD's operation and maintenance guidelines for green infrastructure.
 - Maintenance lessons learned associated with each project type – permeable pavements, infiltration trenches, rain gardens, and green roofs.
- Additional Project Impacts
 - Financial Incentives Program to encourage green infrastructure practices.
 - Evaluation of green infrastructure requests by estimating the overflow reduction value and treatment cost savings.

Green Infrastructure Monitoring

MSD has also partnered with the EPA Office of Research and Development (ORD) to continue long-term green infrastructure performance monitoring for two CSO areas where green infrastructure solution alternatives have demonstrated more favorable benefit/cost ratios than overflow storage basins. The CSO130 Green Infrastructure Project is nearing completion, and a significant amount of monitoring data has been compiled to document the green infrastructure infiltration rates, effectiveness of maintenance practices, and impact on overflow reduction. The monitoring data collected for CSO130 has proven to be valuable in developing an effective regular maintenance program. ORD will continue to be involved in collecting monitoring data when green infrastructure installations begin in the CSO190 basin. Both UofL and ORD will be reviewing field monitoring data for these IOAP projects to ascertain overflow reduction performance. PCCM findings for CSO 130 as well as any remaining IOAP projects completed prior to January 1, 2015, will be included in the FY15 annual report. Should their findings show that MSD has not achieved the proposed level of control; an action plan will be developed.

Water Quality Synthesis Report

As part of our Integrated Overflow Abatement Plan, MSD has committed to produce a Water Quality Synthesis Report every two (2) years that provides information to the public on the state of our streams in Jefferson County. Our last report was submitted in 2011, and since that time, MSD has continued environmental data collection and water quality trending for eleven watersheds in, or near, Jefferson County. MSD formally requested to extend the next Synthesis Report submittal to December 31, 2014, and modify the due date for subsequent reports to even numbered years (letter dated September 20, 2013) and received verbal approval for this change in submittal dates.

MSD's objective for this Synthesis Report has been to continue making water quality trends readily accessible and understandable to the general public and to assess a wide variety of water quality and environmental indicators. The report focuses on trends in the condition of fish diversity, aquatic insects, stream habitat, algae, and dissolved oxygen. Because of the one-year extension that was granted, additional environmental data was able to be incorporated, including benthic macroinvertebrate, aquatic habitat, dry and wet weather sampling at 42 sites, algae analyses, and fish diversity assessments. The additional 12-month period used to collect and analyze this data has offered significant improvements to the report and allowed us to produce a much more informative product. In order to allow for a complete review and data analysis, the 2014 Water Quality Synthesis Report will be submitted with the third quarter Consent Decree report submittal due April 2015. A draft of the report is included in Appendix N.

SECTION 5: Public Outreach, Education, Notification and Participation

5.1 Public Notification Program

MSD produced and distributed a number of products aimed at notifying the community on the objectives of Project WIN and how to lessen the risks associated with coming into contact with sewage overflows. The following activities occurred within FY14 or are scheduled to occur in FY15.

5.1.1 Overflow Advisory Signs

FY14 Program

- Completed the annual sign inspection process on March 28, 2014. 1,226 signs were inspected. 340 signs were cleaned, and 278 were placed or replaced.
- Completed follow-up documentation of the annual sign inspection which concluded on April 16, 2014.

FY15 Program

- Schedule the annual sign inspection process.
- Perform an annual evaluation of sign locations against the documented overflows to ensure all needed signs are in place.
- Perform an evaluation of damaged/defaced signs to determine if relocation could prevent vandalism.

5.1.2 Electronic Notifications

FY14 Program

- Notified customers who voluntarily sign up to receive email alerts regarding sewer overflows.
- Provided notification on 13 dry weather unauthorized discharges of more than 1000 gallons.
- Utilized the Louisville Metro e-mail alert system to broadcast messages to the public.

FY15 Program

- Continue email alerts to customers who sign up to receive the information.
- Continue to work with the Louisville Metro alert system to increase participation in the email program, and to improve retention of those who sign up.

5.1.3 Print Notifications

FY14 Program

- Mailed 4,622 Project WIN information packets to customers who called with questions about the Amended Consent Decree – specifically regarding overflows, discharges, plumbing modification and the surcharge fee.
- Distributed the annual mailing to residents within 500 feet of Beargrass Creek and Ohio River prior to May 1, 2014, advising the use of caution around streams during and immediately following rain events as they may contain untreated sewage. A copy of the letter to residents is provided in **Appendix F**.
- Provided annual notification to community at large in May 2014 through Courier Journal newspaper advertisement to use caution around streams during and immediately following rain events as they may contain untreated sewage.

FY15 Program

- Continue to mail Project WIN information packets to customers who call with questions about the Amended Consent Decree – specifically regarding overflows, discharges, plumbing modification and the surcharge fee.
- Continue to send out FOG residential public outreach letters to areas that have FOG issues.
- Distribute notification and informational material, providing a general overview and awareness relating to public health impacts associated with sewer overflows and an update of Project WIN initiatives by May 1, 2014.
- Distribute, prior to May 1, 2015, the annual mailing to residents within 500 feet of Beargrass Creek and Ohio River.

5.2 Public Education Programs

MSD has developed a public education program aimed at expanding the public's knowledge on MSD's primary business functions of wastewater, stormwater and flood protection, with an emphasis on Project WIN Program elements. The following activities occurred within FY14 or are scheduled to occur in FY15.

FY14 Program

- Continued to re-tool public education efforts to address areas of public knowledge requiring additional effort and attention. Modifications to the public education program were implemented in FY14.
- Two focus groups were selected and research was conducted on October 23, 2013. The study included 23 participants, with 12 and 11 participants in each of the two sessions. Participant knowledge on stormwater quality topics varied. The objective of the focus group study was threefold: first gather information on community knowledge of general water quality issues affecting the area; second, to gauge current community understanding of public health impacts that result from sewer overflows; and third, to

measure understanding of the small changes individuals can make that collectively will help improve overall stream water quality. Specifically, the moderated discussion in the focus group sessions was used to better understand what knowledge gaps exist, and how to educate and communicate to affect sustained behavior change. MSD then used this information to re-design the public survey process to gather the same information from a larger subset of the community.

- Administered the online survey to over 20,000 residents in December 2013. Out of 20,000 surveys delivered, nearly 1,600 either partially or fully responded, for a response rate of 8.5%.

FY15 Program

- Utilize the results of the 2013 survey to refine public education efforts that address areas of public knowledge requiring additional effort and attention.
- Begin planning for another measurement in 2015, via survey or other means to gauge public awareness of general water quality and personal behavioral impacts that can improve the quality of streams.

5.2.1 Radio and Television Activities

FY14 Program

- Coordinated with Metro TV (Channel 25) to develop and broadcast the **Project WIN IOAP Public Input Meetings video series** – a series of videos of project review and request for input meetings to encourage the public for input and education. The videos were shown 69 times in the reporting period.
- Coordinated with Metro TV (Channel 25) to broadcast the **Downspout Disconnection Video**- a short video about how to properly disconnect your downspout and install a rain barrel. This video aired 81 times during the reporting period.

FY15 Program

- Continue to utilize various media outlets, including television, radio and the newspaper, to serve as a conduit for disseminating information to the public.
- Continue coordination with MetroTV to show IOAP public input meetings and special interest material.

5.2.2 Printed Media Activities

FY14 Program

Louisville Magazine:

- September 2014 issue, “2,948 miles of toilet paper, sub message of what not to flush”.
- October 2014 issue, “67,668 catch basins...billions of leaves, help prevent surface flooding by keeping the catch basins clear of leaves and debris”.

- November 2014 issue, “The work we do is beneath most people...all 3,200 miles of it”. Message of what not to flush and how delayed use of washing machines and dish washers during rain events helps minimize sewer overflows.
- December 2014 issue, “2,948 miles of toilet paper, sub message of what not to flush”.
- January 2015 issue, “The work we do is beneath most people...all 3,200 miles of it”.

Business First:

- August 15, 2014 issue, “2,948 miles of toilet paper, sub message of what not to flush”.
- September 12, 2014 issue, “67,668 catch basins...billions of leaves, help prevent surface flooding by keeping the catch basins clear of leaves and debris”.
- October 24, 2014 issue, “The work we do is beneath most people...all 3,200 miles of it”. Message of what not to flush and how delayed use of washing machines and dish washers during rain events helps minimize sewer overflows.

Other Printed Media Activities:

- December 26, 2014 issue, “2,948 miles of toilet paper, sub message of what not to flush”. Provided the MSD Crosscurrents to all elected officials, internal staff, and customers that have contacted MSD with either drainage or a back-up problem. The majority of the articles relate to Project WIN. On-line copies of Crosscurrents can be viewed at http://www.msdlouky.org/aboutmsd/cross/cc_spring10web.pdf.
- Provided the MSD Update to customers and staff each month. Project WIN related articles are contained in each issue of this newsletter. These publications are available on the MSD Website. On-line versions of the Update newsletter can be viewed at <http://www.msdlouky.org/aboutmsd/updatenews.htm>.
- Continued distribution of Rain Garden Manuals to customers.

FY15 Program

- Continue to utilize various media outlets, including television, radio and the newspaper, to serve as a conduit for disseminating information to the public.
- Continue to send the MSD *Streamline* to customers and staff each month.

5.2.3 Project WIN and Green Websites

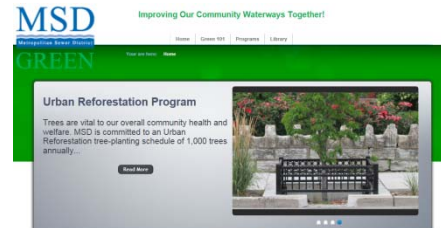
FY14 Program

- Continued to post Project WIN information on the website. On MSD’s home page, the Project WIN area provides important information on the condition of area streams and shows a warning if overflows are likely to be happening or have happened in the past 48 hours. Clicking on the Project WIN logo brings up the Project WIN site, which includes a repository of public documents related to Project WIN, tips for customers to help control overflows through their



personal actions, information about the history and background of Project WIN and a place to sign up for overflow advisory emails warning when significant precipitation has caused overflows in MSD's system. This website can be found at www.msdpowerwin.org.

- Finalized and deployed the enhanced Project WIN website to provide more user friendly format. The new web page includes educational and regulatory materials, information on behavioral changes, a page for children, and information on Project WIN programmatic activities.
- Deployed the IOAP project interactive map application for public use. Mapping shows IOAP project location, status, and project fact sheets.
- Deployed the Green Infrastructure Program website, at www.msddgreen.org. The website focuses on various green infrastructure programs that MSD offers, including financial incentives, urban reforestation and residential downspout disconnection programs. The website also links to the Green Infrastructure Design Manual and the MSD stormwater resource library.



FY15 Program

- Continue to post Project WIN information on the website.

5.3 Public Outreach Programs

MSD has developed a public outreach program aimed at involving the public on MSD's primary business functions with emphasis on wastewater, storm water and flood protection. The following activities occurred within FY14 or are scheduled to occur in FY15.

5.3.1 Green Infrastructure Workshops and Activities

FY14 Program

Presented, attended, and/or facilitated the following meetings/workshops related to Green Infrastructure:

- July 15, 2013 – Water Professionals Conference: Green Update, Rain Barrel Pilot Project
- July 15, 2013 – Water Professionals Conference: Green Workshop
- August 2, 2013 – Oldham County MS4 Staff: Green Tour
- August 7, 2013 – Louisville's Sustainability Forum: Residential Rain Gardens, Rain Barrels and Downspout Disconnection.
- August 20, 2013 – USACE Presentation on Green Program at Green/Stormwater Conference
- August 28, 2013 – Kentucky Association of Mitigation Managers (KAMM) Conference:

Green Program Update

- September 13, 2013 – Water Harvesting Conference
- September 16, 2013 – 9/20/2013 – PARK(ing) Day
- September 30, 2014 – Assumption High School: Green Group Presentation
- October 8, 2013 – Water Environment Federation Conference (WEFTEC): Rain Barrel Presentation
- October 15, 2013 – Center for Neighborhoods Class: MSD Update – Green Institute
- October 16, 2013 – KC UC Meeting: Kosair Green Project
- October 22, 2013 – Rain Garden Workshop
- October 28, 2013 – Fairdale High School Green Meeting
- November 13, 2013 – November 15, 2013 – 5 Cities Plus Conference: Various stormwater and green infrastructure presentations
- December 5, 2013 – Moore High School Rain Garden Assessment
- December 10, 2013 – Louisville Downtown Partnership (LDP) Tree Press Conference
- January 17, 2014 – Sustainability Summit at Louisville Zoo
- February 5, 2014 – UL Sustainability Class: Green Infrastructure Presentation & Tour
- February 12, 2014 – SoBro Team Meeting
- February 19, 2014 – KY/TN WEA Watershed Conference: MS4 and Green
- February 21, 2014 – UofL Stream Restoration Class
- March 4, 2014 – Center for Neighborhoods Meeting: MS4/Stormwater and Green
- March 26, 2014 – Green Summit: Green Infrastructure
- April 15, 2014 – Mayor's Give-a-Day Event (Beargrass Creek)
- April 17, 2014 – Mayor's Give-a-Day Event (Beargrass Creek)
- April 18, 2014 – Mayor's Give-a-Day Event (Louisville Nature Center)
- April 22, 2014 – Earth Day at Beargrass Falls
- May 10, 2014 – Louisville Free Public Library's How-to-Festival
- May 14, 2014 – Confluence Symposium
- May 15, 2014 – Hanover College - Environmental Geology Class
- May 31, 2014 – Portland State Urban Sustainability Accelerator: public meeting focused on the “South of Broadway” area to debrief on Green/Sustainability

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- June 19, 2014 – UPS Green Team: Green Brownbag
 - June 19, 2014 – AP Environmental Science Teachers Tour
 - July 12, 2014 – July 27, 2014 – Homearama
 - August 5, 2014 – Construction Field Day at Fairdale High School

FY15 Program

- Schedule rain garden workshops at various times throughout the year.
- Continued planning for additional signage for green demonstration sites and green partnership locations.
- Continue planning of internal and external workshops explaining the Green Infrastructure Program, including the next Construction Field Day and classes on green infrastructure design, construction and inspection.

5.3.2 Clean Streams Workshops and Activities

FY14 Program

- Facilitated the Ohio River Sweep at the Louisville riverfront on July 21, 2014.
- Assisted Beargrass Creek Alliance to mark catch basins in critical areas.

FY15 Program

- Continue to facilitate stream cleanup events and workshops.
- Continue work with Beargrass Creek Alliance to mark catch basins in critical areas.

5.3.3 Outreach Activities for Students

FY14 Program

Attended or presented at the following student based events:

- March 28, 2014 – Earth Day at Newburg Middle School – MSD used the Enviroscape model to teach kids about key messages.
- April 13, 2014 – Louisville Zoo Party For the Planet– MSD used the Enviroscape model to teach kids about key messages.
- April 25, 2014 – Trinity High School: Floyds Fork.
- May 6, 2014 – Fairdale High School ACE Mentoring Program presentation on Green Infrastructure.

FY15 Program

- Work with partners to maintain the outdoor classrooms at: Brandeis Elementary, Jeffersontown Elementary, DuPont Manual High School, and the Floyds Fork WQTC.

- Assist, as requested, the Environmental Magnet School program development for Portland and Cane Run Elementary Schools.
- Continue support for Eastern High School's Environmental Program at Floyds Fork WQTC.
- Coordinate with Parklands of Floyds Fork on possible educational partnerships at the Floyds Fork WQTC.
- Continue working with Fairdale High School to design and construct a green infrastructure project on campus.

5.3.4 IOAP Project and Program Meetings

FY14 Program

- Conducted a Wet Weather Team (WWT) Stakeholders Group meeting on November 11, 2013. At this meeting MSD provided updates on design/construction, sewer rehabilitation, and green infrastructure program activities. The IOAP implementation schedule was reviewed and the status of current and upcoming projects discussed. The post construction compliance monitoring program was discussed.
- Conducted WWT Stakeholders Group meeting on June 24, 2013. At this meeting MSD provided updates on the upcoming MSD 20 year Facilities Plan, IOAP midpoint peer review, construction activities, budget, and overflow abatement program performance.
- Facilitated four IOAP public input meetings to discuss the proposed IOAP and select project updates. The meetings were held on the following dates at the following venues.
 - September 24, 2013, MSD Central Maintenance Facility, 3050 Commerce Center Place. Discussed the IOAP, Bell's Lane High Rate Treatment Facility and the Southwestern Parkway Basin project.
 - November 11, 2013, Dunn Elementary, 2010 Rudy Lane. Discussed the IOAP, Muddy Fork Interceptor Basin, Logan Street Basin and Mellwood Avenue CSOs Green Infrastructure and Inline Storage Project.
 - March 3, 2014, Lincoln Elementary Performing Arts Theater, 930 East Main. Discussed the IOAP and underground storage facility in the Clifton Area.
 - June 17, 2014, Holy Family Catholic Church, 3926 Poplar Level Rd. Discussed the IOAP, Nightingale Pump Station Replacement and Storage project, Camp Taylor sewer rehabilitation and replacement projects.
- Provided information from the WWT Stakeholders Group and IOAP Public Input meetings on the Project WIN website, at www.msdlouky.org/projectwin.

FY15 Program

- Continue to inform the WWT on the progress of the IOAP implementation by hosting two WWT meetings per year. A WWT meeting will be held prior to December 31, 2014, and a second meeting will be held prior to June 30, 2015.

- Continue to provide information from the WWT Stakeholders Group and IOAP Public Input meetings on the Project WIN website, at www.msdlouky.org/projectwin.
- Continue to facilitate and document IOAP Public Input Meetings.

SECTION 6: Capacity Management Operations and Maintenance (CMOM) Annual Report

6.1 Capacity Management Operations and Maintenance Program Activities

Per Paragraph 24.c of the Amended Consent Decree, the Capacity Management Operations and Maintenance (CMOM) Self Assessment Report was submitted to EPA and KDEP on February 10, 2006. MSD received a letter of approval on August 22, 2006. The approved CMOM document can be viewed on the MSD Project WIN website www.msdlouky.org/projectwin. Highlights of the CMOM program implementation during FY14 are outlined below.

6.1.1 Management Programs

6.1.1.1 Table of Organization - *This section describes MSD's Table of Organization. The goal of this section is to ensure each department works efficiently and cooperatively by clearly defining each department's role in the organization in terms of authority, function, position, duties, and relation to other departments. This section also identifies positions currently budgeted and filled.*

M-A-1 Organizational Chart

M-A-2 Relationship to other Departments

FY14 Program

- Updated the MSD Organizational Chart on a quarterly basis and posted to the MSD Intranet. See **Appendix H** for the latest version.
- Carried 652 approved positions at the beginning of FY14 and 654.5 approved positions at the end of FY14. This is an increase of 2.5 positions.
- Carried 32 vacant positions at the beginning of FY14 and 55.5 vacant positions at the end of FY14.

FY15 Program

- Continue to hire staff to fill vacant positions.

6.1.1.2 Training Programs - *This section describes MSD's Training Programs. The goal of this section is to ensure employee growth and workplace safety, through mandatory training (both initial and ongoing), attendance to conferences and seminars, certification, accurate record keeping of employee training, and incentives such as pay, promotions, and ability to work. All training programs promote MSD's fundamental mission, goals, and policies.*

M-B-1 Technical Training

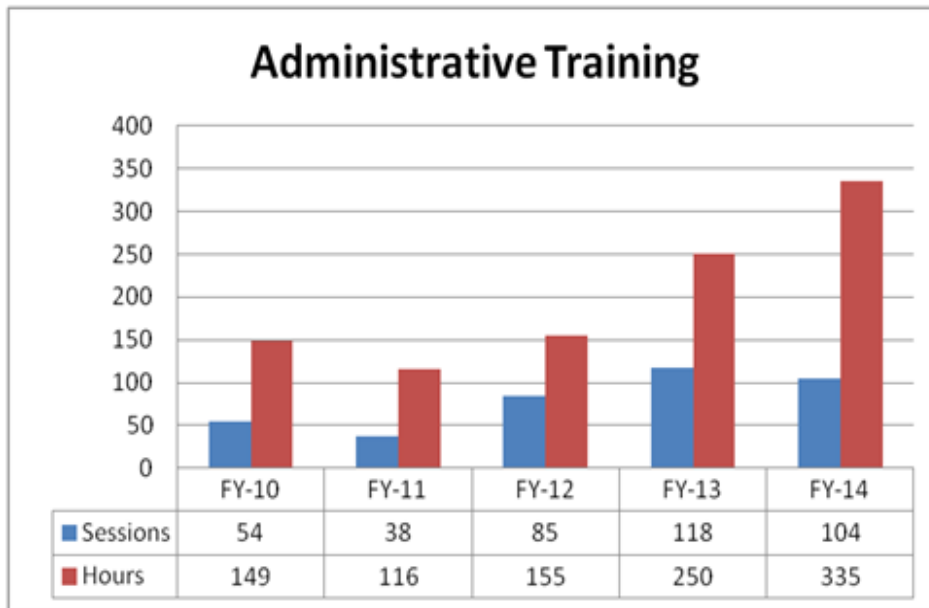
M-B-2 Skills Training

M-B-3 Safety Training

FY14 Program

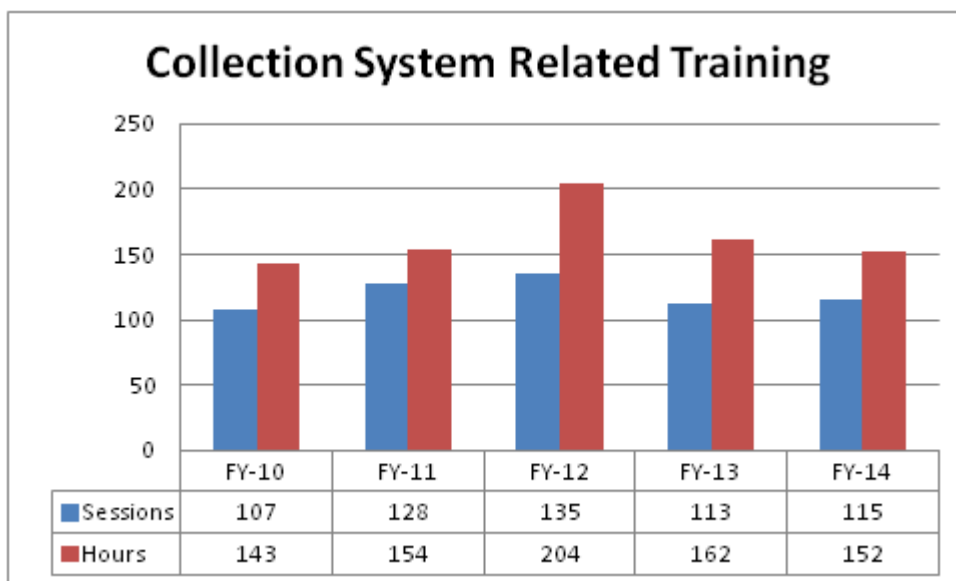
Performed training on the following initiatives through the course of FY10-FY14:

Administrative Training

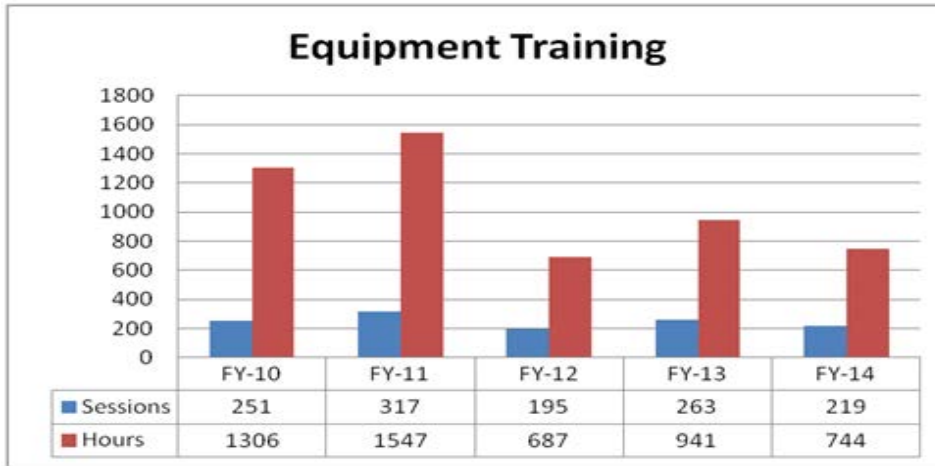


- Administrative Training sessions included such topics as New Employee Orientation, Microsoft Office, Crew Management, New Performance Appraisal Processes, Procurement and Supervisory/Management training.

Collection System Training

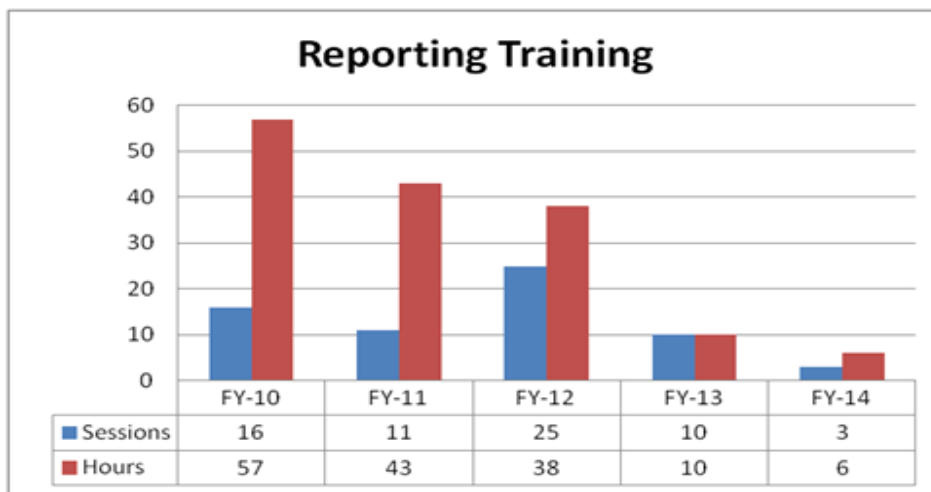


- Collection System Training sessions include areas such as Sewer Overflow Response Protocol, Erosion Control, CSO & Siphon Preventive Maintenance, Pipelaying, and Job Site Preplanning Equipment Training.



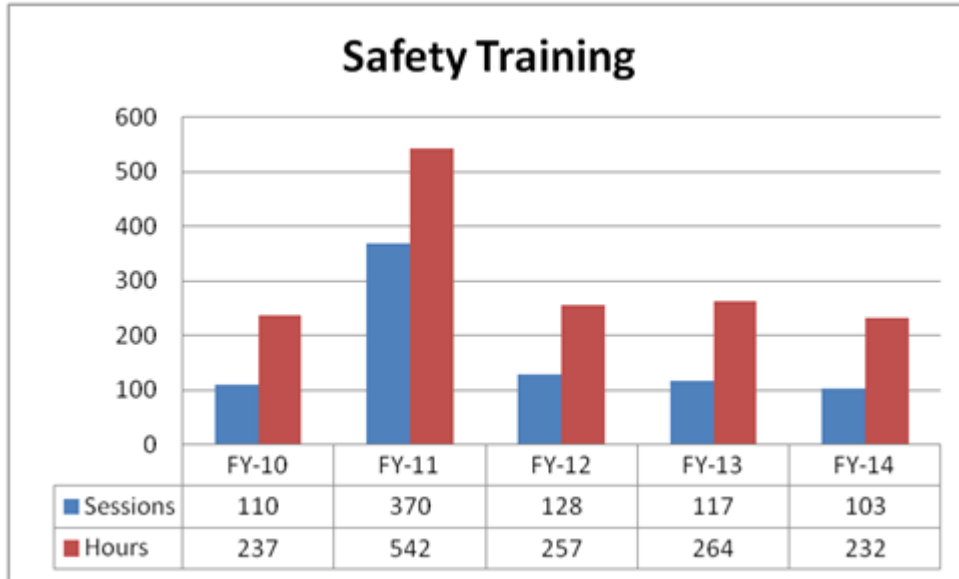
- Equipment training primarily includes heavy equipment that enables employees to maintain and operate the collection system, pump stations and treatment plants. Examples include training on mini-excavators, sewer cleaners, cranes, forklifts, and backhoes.

Reporting



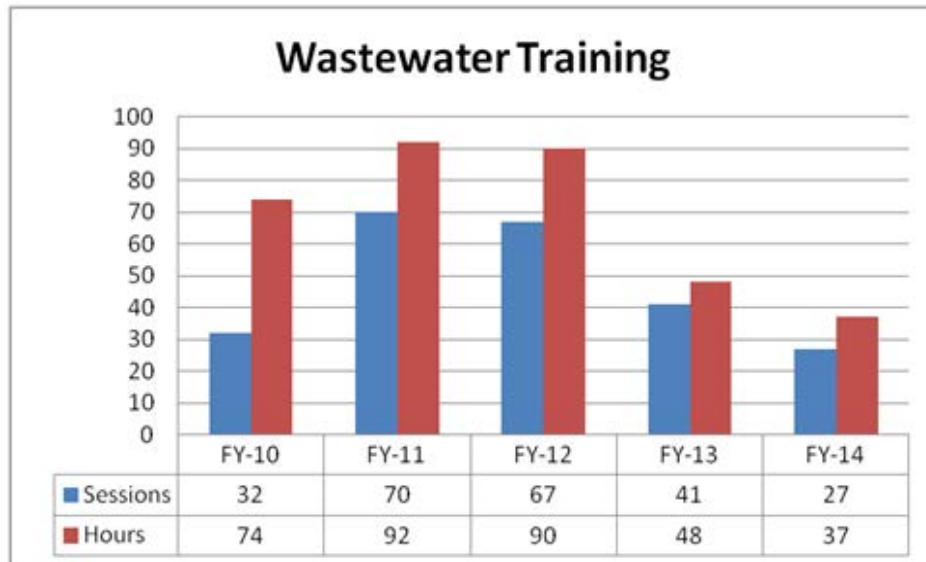
- Over this past year Lab Information Management System (LIMS) training was conducted as well as Hansen 8 training.

Safety Training



- MSD employees receive safety training in such areas as Confined Space Entry, Bloodborne Pathogens, Hazmat, Lock Out Tag Out, and Competent Person training for trenching and excavation.

Wastewater Operations



- This training focused on knowledge and skills related to wastewater treatment process and control and included sampling and Louisville Green Management System training.

FY15 Program:

- Implement employee performance-based goals as part of annual appraisal process.
- Develop processes to better link organizational goals to individual employee performance.

6.1.1.3 Safety Programs - *This section describes MSD's Safety Programs. The goal of this section is to eliminate on-the-job injuries. MSD's Safety Programs include safety committees, confined space entry procedures, district wide safety policies, traffic management, lock out/tag out procedures, and proper use of safety equipment.*

M-C-1 Safety Committee

FY14 Program

- Conducted quarterly meetings with the Safety Committee. This Committee includes three IFP representatives, Morris Forman WQTC representatives, and Metro Operations representatives.
- Performed random job site inspections, inspections at Morris Forman WQTC, and quarterly inspections with Metro Operations of WQTCs and Pump Stations.

FY15 Program

- Continue Safety Committee meetings to perform inspections and review policy and incidents. Address safety concerns presented by safety committee members.

M-C-2 Confined Space Entry

FY14 Program

- Conducted confined space entry training in accordance with the OSHA Confined Space Entry standard 29 CFR 1910.146 for new employees, and on an "as needed" basis for existing employees who have job descriptions requiring confined space entry.
- Maintained entry equipment and personal protective equipment to provide for safe entry conditions and to maintain compliance with 29 CFR 1910.146.
- Contracted with vendor to conduct repeating annual inspections on confined space entry equipment such as tripods, wenchers, and harnesses.

FY15 Program

- Continue to administer training and monitor procedures on confined space entry in order to maintain compliance with 29 CFR 1910.146. Health & Safety personnel will spot check confined space entries to determine compliance with company procedure.
- Continue to ensure that all "Lift Stations" in Metro Ops are correctly labeled as "Confined Spaces" and not "Permit Required Confined Spaces" and that all new stations are properly labeled when installed.

- Continue to advise personnel on the purchase of multi-gas monitors to replace older models that will no longer be maintained or manufactured.

M-C-3 General Safety Procedures

FY14 Program

- Established various general safety procedures based on both 1910 & 1926 OSHA regulations, input from internal personnel, and on the specific needs of the district in order to maintain regulatory compliance and provide safe working procedures for employees.
- Conducted fire drills at the Main Office, Central Maintenance Facility, and Morris Forman Water Quality Treatment Center.
- Conducted 8-hour refresher training on Hazardous Materials for the Emergency Response Teams.
- Conducted fire extinguisher training district wide.
- Conducted annual audiograms district wide.

FY15 Program

- Continue to conduct training with employees on the new OSHA Hazardous Communications Standard to include Globally Harmonized Systems for material safety data sheets and container labeling.
- Continue to assess the need to update existing procedures and/or create new procedures as conditions and regulatory requirements dictate.
- Continue to conduct 8-hour refresher training on Hazardous Materials for the Emergency Response Teams.
- Continue to conduct fire extinguisher training district wide.
- Continue to conduct annual audiograms district wide.
- Schedule 40hr HAZ-MAT Technician Level training for newly hired employees as needed based on hiring demands.

M-C-4 Traffic Management

FY14 Program

- Purchased and maintained traffic control equipment to reduce hazardous operational exposure. MSD provides training on traffic control through licensing and equipment operating training as employees are hired or their job duties require.

FY15 Program

- Continue to train on traffic control and continue to review existing traffic control equipment to ensure continued compliance with MSD standards.

M-C-5 Lock Out/Tag Out

FY14 Program

- Enhanced lock out and tag out procedures as required by the OSHA Control of Hazardous Energy standard. Procedures are kept, maintained and communicated to employees.
- Develop lock out/tag out procedures as equipment is added or replaced, or as processes are changed.

FY15 Program

- Implement lock out/tag out procedures as equipment is added or replaced, or as processes are changed.
- Work with staff at Morris Forman WQTC staff to enhance existing program by reviewing existing procedures and converting the procedures to an electronic database that can be accessed at any time to view procedures as needed prior to performing a lock out.

M-C-6 Safety Equipment

FY14 Program

- Continued to provide required personal protective equipment to employees at no cost to the employees themselves.

FY15 Program

- Maintain safety related equipment or replace the equipment per governing policies or as the need arises.
- Assist Metro Operations with the purchase of additional escape bottles.
- Replace SCBA bottles for confined space entry and hazardous materials response.

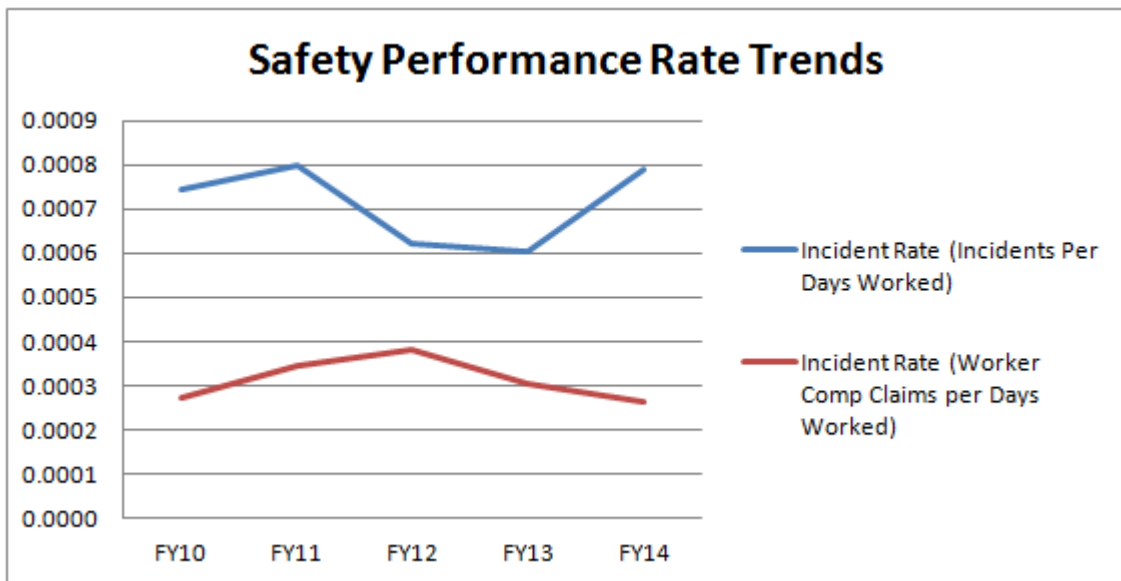
M-C-7 Performance Measures

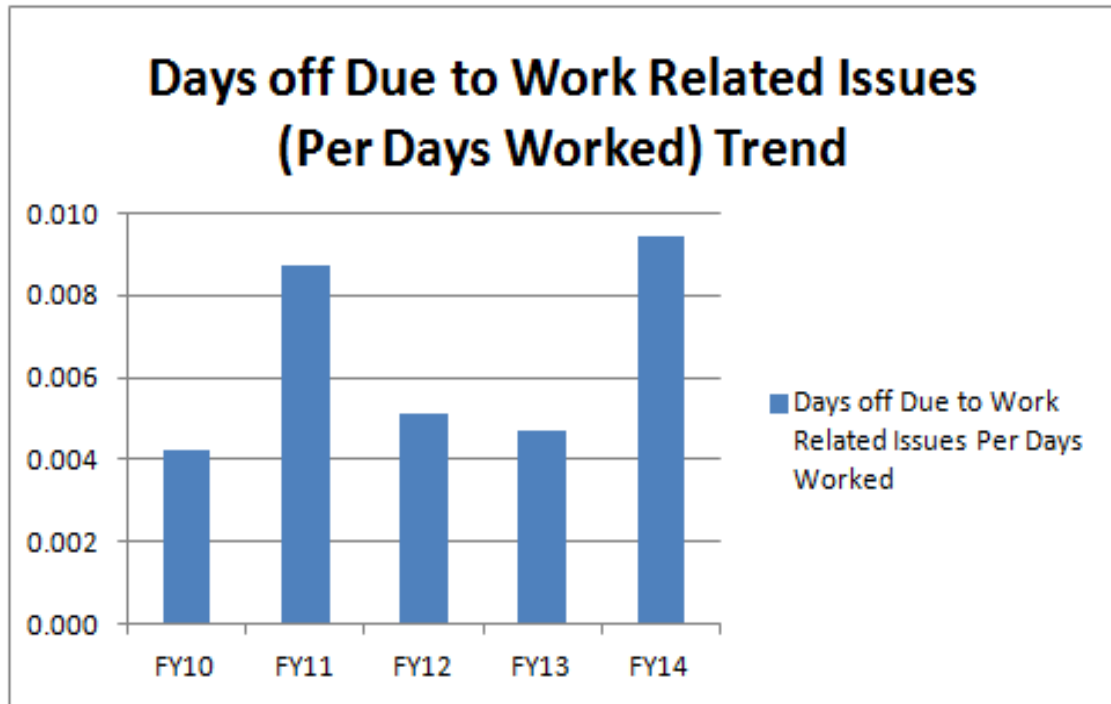
FY14 Program

- No OSHA inspections occurred. There were no MSD construction site visits from OSHA, which resulted in no NOVs. There were no fines assessed.

- Tracked the following safety/worker compensation metrics for MSD employees:

| 5- Year Safety Performance | | | | |
|----------------------------|-----------------------|------------------|--------------------|-------------------------------------|
| | Days worked (8 Hours) | Safety Incidents | Worker Comp Claims | Days off due to work related issues |
| FY10 | 146,499 | 109 | 40 | 623 |
| FY11 | 151,272 | 121 | 52 | 1317 |
| FY12 | 151,605 | 94 | 58 | 773 |
| FY13 | 145,302 | 88 | 44 | 681 |
| FY14 | 144,178 | 114 | 38 | 1357 |





- Ensured that appropriate staff attended mandatory training on Trench Training, Confined Space, First Aid, Hazmat Response and Fire Extinguisher usage.

FY15 Program

- Enhance compliance objectives based on NFPA 70E (Arc Flash) by conducting an initial arc flash study at one of the flood pump stations in service.
- Maintain field inspections to reduce the number of incidents.
- Continue to review existing crane equipment in use at MSD and determine needs in order to ensure compliance with the revised OSHA Crane Standard.
- Replace current Material Safety Data Sheets in the MSDS Pro database with updated Safety Data Sheets compliant with the GHS standard.

6.1.1.4 Utility Information Management Systems - *This section describes MSD's Utility Information Management System. The goal of this section is to produce quality information regarding sewer system performance. MSD's Utility Information Management System supports the following programs: management, operations, maintenance, complaint management, and performance indicators.*

M-D 1 Management Information Management Systems

M-D-2 Operations Information Management Systems

M-D-3 Maintenance Information Management Systems

M-D-4 Complaint Management and Tracking Information Management Systems

M-D-5 Performance Indicators

FY14 Program

- Provided network availability 24/7, 356 days per year.
- Continued enhancement of The Project WIN website with updated information related to the Amended Consent Decree. Some of the general statistics for these sites include:

| Metric | FY11 | FY12 | FY13 | FY14* |
|-----------------------------------|-------------|-------------|-------------|--------------|
| Number of Visits: | 139,919 | 89,753 | 93,326 | 109689 |
| Average Number of Visits per Day: | 383 | 380 | 256 | 301 |
| Average Visit Duration: | 31 Min | 20 Min | 6 Min | 10 |
| Unique visitors: | 38,371 | 31,387 | 12,714 | 31,155 |
| One time visitors: | 28,822 | 23,115 | 7,224 | 16885 |
| Repeat visitors: | 9,549 | 8272 | 7,749 | 14270 |
| Average Visits/visitor: | 3.65 | 2.85 | 2.52 | 3.52 |

* FY14 values are estimated due to Web Statistics process failure

- Maintained a helpdesk system to track and respond to requests from users.
- Utilized a wide variety of software to operate the day to day business activities associated with wastewater collection, conveyance and treatments. The major Utility Information Management (UIM) applications, is shown in the chart below.

| Utility Information Management (UIM) Applications | |
|---|----------------------|
| eB | OneRain |
| GIS | Performance Measures |
| Crystal Reports | SAP |
| EGIS | SCADA |
| Hansen | Telog |
| InfoWorks | GPS |
| LIMS | |

- Completed the upgrade/migration of the Hansen management system from version 7.7 to Version 8.2.3.
- Began the upgrade of the desktops to Windows 7.
- Implemented guest wireless at the Main Office.
- Added GPS data to the EGIS application.
- Published updated aerial imagery and began the update of the Planimetric/Topography data in GIS.
- Began working on upgrade of eB from version 14 to version 15.

FY15 Program

- Continue to post information on the Project WIN website and upgrade the look and feel to improve its layout and functionality.
- Continue to upgrade systems and performance with server and network upgrades.
- Complete eB15 upgrade.
- Complete desktop upgrade to Windows 7.
- Roll out updated Planimetric/Topography data.
- Continue with implementing new functionality in the Hansen 8 system with phase 2.
- Continue to enhance the SharePoint site with additional data.

6.1.1.5 Engineering Programs - *This section describes MSD’s Engineering Projects. The goal of this section is to maintain accurate plans of current sewer system infrastructure, oversee*

construction quality of new infrastructure, and conduct assessments to maximize the efficiency of current WQTCs. MSD's engineering programs include the following: collection and transmission system plans, system inventory, mapping, sewer system design, sewer construction, construction inspection, acquisition considerations, continuing sewer system assessment (CSSA), infrastructure rehabilitation, and a system capacity assurance plan (SCAP).

M-E-1 Collection and Transmission System Plans

M-E-2 System Inventory

M-E-3 Mapping

FY14 Program

- Scanned construction plan sheets into the eB imaging system. 256 projects were added to eB.
- Captured assets in the GIS and asset management software. 708 property service connections and 73,864 feet of sewer were added.
- Received data correction sheets from field staff.
- Made adjustment and updates to the WQTC and PS preventive maintenance schedules in Hansen.

FY15 Program

- Continue to scan plans and update data in the GIS and asset management software from the collection and transmission plans.
- Continue the enhancement of the HARP application.

M-E-4 Sewer System Design

FY14 Program

- The Green Infrastructure Chapter of the Design Manual (Chapter 18) was updated in December 2013, including new requirements for aggregate specifications, plan review and inspection forms, design calculation sheets, and infiltration testing specifications.
- The Qualified Post-Construction Inspector (QPCI) training course was developed and initiated, which includes a 4-hour training course and qualifying exam that participants must pass to become a certified QPCI. All green infrastructure projects are required to submit an annual inspection to verify continued on-site stormwater management.
- Posted the revised Green Infrastructure Chapter of the Design Manual to the MSD main website and www.msdgreen.org. Updates to the manual will occur as needed.
- Continued use of new AutoCAD templates to the MSD public Web page, including new AutoCAD 3D templates, for use by private firms as well as in-house design.

FY15 Program

- Continue implementing the program to finance replacement of private sewer service lines at property owner request.
- Continue to review and update the MSD design manual.
- Continue to administer training on the green infrastructure review and inspection process.

M-E-5 Sewer Construction

M-E-6 Construction Inspection

M-E-7 Acquisition Considerations

FY14 Program

- Financed capital expenditures of **\$119,641,875** (includes capitalized project management and administration costs).
- Committed professional services funds of \$17,451,138.
- Committed construction funds of \$100,353,364.
- Awarded construction contracts valued at \$107,877,154
- Processed total change orders equaling \$889,481:
 - MSD-requested scope change – 71.0%
 - Unforeseen conditions – 18.1%
 - Design error or omission – 15.0%
 - Final compensating quantities – (4.2%)
 - Emergency Work – 0.1%
- Prospect WQTC Elimination Projects Easement Status - A total of 54 easements have been identified and acquired as outlined below.
 - River Road Interceptor- Easement acquisition complete– project under construction.
 - River Road Interceptor Phase 1A- Easement acquisition complete– project under construction.
 - HC Pump Station- Easement acquisition complete– project under construction.
 - HC Interceptor and FM Phase 1- Easement acquisition complete– project under construction.
 - HC Interceptor and FM Phase 2- Easement acquisition complete– project under construction.

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- HC FM Phase 3A- Easement acquisition complete– project under construction.
 - HC FM Phase 3B- Easement acquisition complete– project under construction.
 - Shadow Wood- Easement acquisition complete– project under construction.
 - Hunting Creek North- Easement acquisition complete– project under construction.
- Continue the migration to tracking performance measures and project milestones through SharePoint.

M-E-8 Continuing Sewer System Assessment (CSSA)

- Provided details on the CSSA activities for FY14 in **Appendix I: CSSA Annual Report**.

M-E-9 Infrastructure Rehabilitation

- Refer to **Section 4: Program Activities for Discharge Abatement Plans** for more details on infrastructure rehab projects.

M-E-10 System Capacity Assurance Program (SCAP)

FY14 Program

- Continued to collect formula-based defect inspection of significant footage of sewer lines in various sewersheds across the county. This information is being used to prioritize cleaning and rehabilitation efforts that will remove inflow and infiltration from the system and create capacity credits.
- Tracked pump station capacities, reviewed drawdown testing results and identified action items pertaining to deficiencies. Critical results of this effort are being documented on each asset within the Hansen system.
- Continued sewer line inspections in sewer sheds across the county. Refer to the **FY14 CSSA Annual Report in Appendix I** for a progress update.
- Managed the Lateral Extension Program in accordance with the SCAP, with the following details:
 - Approved 116 lateral extension contracts with projected flow of 981,040 GPD.
 - Denied approval of 12 lateral extension projects with projected flow of 110,300 GPD due to capacity limitations.
 - Conditionally approved 227 additional lateral extension projects with projected flow of 2,158,561 GPD, contingent upon programmatic activities, such as completion of WQTC.
- Continued to work on the procedures for documentation of rehabilitation and the calculation of SCAP credits.
- Submitted credit catchment ledgers to the State and EPA as part of quarterly reports.

FY15 Program

- Continue to perform formula-based inspection of sewer lines in various sewer sheds across the county. Refer to the CSSA Annual Report in **Appendix I** of this report for an update on the areas selected for inspection.
- Continue tracking pump station capacities through testing, investigation and capacity evaluations.
- Update water quality treatment center capacities and track new development flows.
- Generate inflow and infiltration reduction projects and calculate related capacity credits.
- Continue to enhance credit calculation protocols and tracking in Hansen.
- Continue to enhance on the procedures for documentation of rehabilitation and the calculation of SCAP credits.
- Conduct a programmatic gap analysis of implementation processes, procedures, outcomes, and recommend program enhancements/refinements for both the CSSA and SCAP programs.
- Submit updated SCAP in FY15

6.1.1.6 Sanitary Sewer Overflow Reporting and Notification Program - *This section describes MSD's Sanitary Sewer Overflow (SSO) Reporting and Notification Program. The goal of this section is to maintain accurate, up to date records of SSOs and to ensure proper, timely notification of the agencies and organizations through un-permitted discharge reporting, SSO notification, and tracking.*

M-F-1 Unauthorized Discharge Reporting

M-F-2 Sanitary Sewer Overflow Notification

M-F-3 Tracking Sanitary Sewer Overflows

- Refer to **Section 3: Sewer Overflow Response Protocols** for detailed information.

6.1.1.7 Financing and Cost Analysis Program - *This section describes MSD's Financing and Cost Analysis Program. The goal of this section is to provide a detailed cost analysis for both the capital and operational costs of MSD for use in future budgeting and decision making. The following cost analysis programs are included in this section: operations, maintenance, capital improvement program funding, management, life cycle, and budget and customer rate setting.*

M-G-1 Operations Cost

M-G-2 Maintenance Cost

M-G-3 Capital Improvement Funding

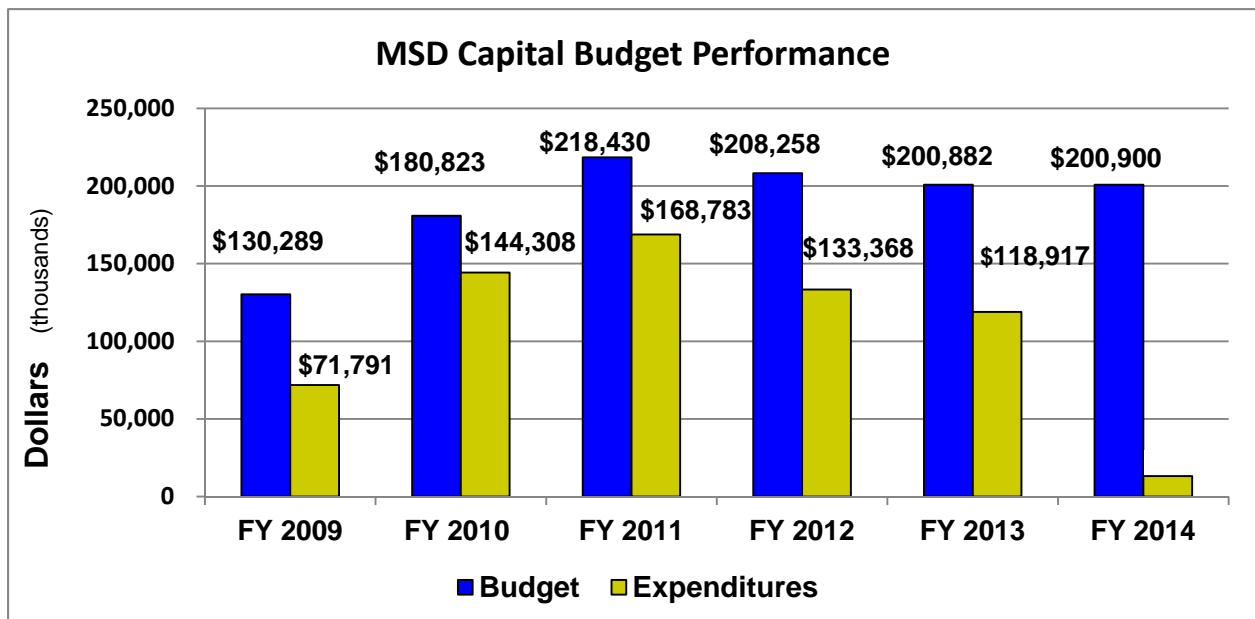
M-G-4 Management Programs Cost

M-G-5 Life Cycle Cost

M-G-6 Budget and Customer Rate Setting

FY14 Program

- Reported Operating Revenues growth of 3.1% in FY14 (\$216.6 million in FY14 vs. \$210.0 million in FY13).
 - Determined FY14 operating revenues were \$1.7 million less than the budgeted amount (\$218.4 million).
 - Determined wastewater & storm water revenue was \$0.3 million less than budgeted & miscellaneous income was \$1.4 million less than budgeted.
 - Reported investment income of \$20.3 million was \$0.3 million more than the budget of \$20.0 million.
- Reported FY14 debt service coverage of 184%. This was up from 165% in FY13.
 - Reported total operating expenses of \$136.9 million were \$1.6 million more than FY13 and \$4.2 million less than FY14 budget of \$141.1 million.
 - Increase in operating expense from prior year can be attributed to an increase in depreciation expense of \$3.2 million, offset by a decrease in administrative costs of \$1.6 million.



FY15 Program

- Set the operating budget at \$115,975,014 and the capital budget at \$117,859,314.

- Issued \$80 million of revenue bonds in FY15, to fund the capital program.

6.1.1.8 Equipment and Tools Management and Maintenance Program - *This section describes MSD's Equipment and Tools Management Programs. The goal of this section is to facilitate efficient repair and support of MSD's sewer systems through an accurate spare parts inventory, a timely equipment maintenance schedule, vehicle repair, and needed tools and supplies.*

M-H-1 Spare Parts Inventory Management

FY14 Program

- Continued review of security scan control pads access for inventory control measures. Security contractor inspected current system and submitted estimate for security scan pads and cameras at Cedar Creek storerooms.
- Work with IFP to reduce the inventory of obsolete materials. Clay pipe obsolete inventory was approved for removal by management for local donation.
- Continued improvements to annual physical inventories at Morris Forman, CMF and Hite Creek Storerooms.
- Continued monthly manager meetings to improve communication with other divisions in efforts to enhance customer service (Morris Forman daily meetings, Quarterly meetings with Metro).
- Customer Service Survey completed and recommendation to conduct regular surveys with smaller groups.
- Enhanced security controls on Storeroom processes for improved security, safety and improvements with departmental budget costs
- All grate inventory was moved under roof to avoid leaching from cast iron components.

FY15 Program

- Continue review of security scan control pads access for inventory control measures. Controls in place and training for increased security at Morris Forman.
- Continue to work with IFP to reduce the inventory of obsolete materials.
- Continue improvements to annual physical inventories at Morris Forman, CMF and Hite Creek Storerooms.
- Continue monthly manager meetings to improve communication with other divisions in efforts to enhance customer service.
- Enhance security controls on Storeroom processes for improved security, safety and improvements with departmental budget costs.
- Prepare plan for recycling contaminated containers, such as weed killer, used oil, cleaners, issued from Inventory

-
- Work with Quality Improvement Department to standardize bid list.
 - Cross-Training of all Storeroom personnel for better inventory management and role responsibilities for future job promotions and skill-training.

M-H-2 Equipment and Tools Repair Management

FY14 Program

- Implemented standardized tooling lists and processes for all locations to save costs on extra tools not required for operations
- Worked with Morris Forman Supervisors and Management to improve Security Asset Process for after hours accountability and SOP for tighter security
- Completed enhanced processes for tool check-out and repair to ensure proper usage and controls with internal repair shop
- Worked with Safety Committee Member at Morris Forman, with set standardized membership roles and processes to evaluate plant safety controls and materials (eyewash stations inspections, hearing protection evaluations, Arc Flash PPE inventory control, harness inspections, monthly safety inspections, quarterly safety inspections with Safety Department)
- Continued utilization of processes for tool check-out and repair to ensure proper usage and controls with internal repair shop

FY15 Program

- Complete Security Asset Process for after hours accountability and SOP for tighter security with Morris Forman Supervisors and Management
- Work with Safety Committee Member at Morris Forman, with set standardized membership roles and processes to evaluate plant safety controls and materials (eyewash stations inspections, hearing protection evaluations, Arc Flash PPE inventory control, harness inspections, monthly safety inspections, quarterly safety inspections with Safety Department)
- Update spare parts catalogs for all maintenance and support at Morris Forman and Metro for information purposes, and work with IT to develop on-line catalog.
- Continue to assemble the Security Asset group sub-committees to meet on recommendations of Security Asset Policy and SOP for improvements and tighter security.
- Conduct tool inspections for all Mechanics and Electricians.
- Improve tool check-out and repair process to include non-inventory high-dollar repairs to ensure proper usage and controls at Maintenance Shops.
- Complete standardized tooling lists and processes for all locations to save costs on extra tools not required for operations.

M-H-3 Vehicle Repair

MSD's vehicle repair maintenance program addresses over 600 pieces of rolling stock, including automobiles, trucks, trailers, construction equipment (backhoes, mobile cranes, etc.) and specialty sewer maintenance equipment. Quarterly and annual summary reports specifically address maintenance issues related to the grouping of Mission Critical Equipment (MCEs) that were identified as being essential to meeting Amended Consent Decree commitments related to NMC and CMOM activities. The following 5 types (41 pieces) of equipment were identified as MCEs in the MSD fleet:

- High-Pressure Sewer Flusher Trucks, qty. 6
- Vacuum Sewer / Catch Basin Cleaner Trucks, qty. 9
- Catch Basin Cleaners (mechanical clamshell type), qty. 5
- Tele-Inspection Vehicles, qty. 7
- Sound Attenuated Six-Inch Trash Pumps, qty. 14

FY14 Program

MSD Fleet Services performed an analysis on critical equipment maintenance and procurement during the reporting period with the following results:

- Evaluated Mission Critical Equipment Availability:
 - Catch Basin Cleaners (clamshell type) – 90.6%
 - Sewer Flushers – 90.2%
 - Tele Inspection Trucks – 99.2%
 - Vacuum Catch Basin / Sewer Cleaner Trucks – 90.6%
 - Sound-Attenuated 6" Trash Pumps – 99.5%
 - Average availability for all Mission Critical equipment – 95.7%
- Procured/Repaired Critical Equipment:
 - No Mission Critical Equipment was replaced during this period.
 - Monitored equipment and work order data for future replacement planning.
- Continued utilizing the FASTER System for analysis and evaluation of work processes and procedures for targeted improvements in productivity and efficiency.
- Examined non-scheduled repairs for cause classification. Addressed problem areas as required.
- Investigated future training opportunities.
- Investigated training opportunities for creating and modifying FASTER Crystal Reports.
- Analyzed FASTER system settings and relationships to the generation of accurate fleet

data in FASTER generated reports.

- Refined FASTER system settings and/or adjust/modify work processes as required.
 - Identify problematic processes.
 - Critique work processes and FASTER System Settings for relationship to data and reporting anomalies.

FY15 Program

- Begin working on the One Water Initiative with The Louisville Water Company to combine services in areas of Fleet, IT, Customer Service and Procurement to better serve our customers and increase levels of service to the community.
- Implement new PM schedules which are class specific and in-line with industry standards. This will better address specific needs of different classes of equipment to help perform preventive maintenance.
- Continue monitoring and reporting availability of Mission Critical Equipment (MCE).
- Target an overall average availability of 95% or higher for all MCE.
- Utilize FASTER System reports to analyze and target areas where improvement is needed.
- Replace two aging Vacuum Catch Basin Cleaners, providing adequate funding is available.
- Schedule a workgroup consisting of Fleet and IFP staff to discuss critical equipment availability, causes of downtime, and corrective actions.
- Modify non-scheduled repair classification; update classifications on repair orders on a timely basis, eliminating time that is clocked as down time when unit is already back in service. Monitor supervisors to make sure equipment is in proper status.
- Hold operator and service training on new combination vacuum sewer cleaners being purchased.
- Receive and place in service 5 new combination vacuum sewer cleaners in service to replace 5 aging units.
- Prepare specifications and bid for 2 new Tele-Inspection trucks to replace 2 aging trucks.
- Continue One Water initiative, identifying opportunities to improve customer service and implement plan for combined service and operations opportunities.
- Analyze FY16 capital purchasing needs, including the evaluation of sewer flusher equipment replacement.

M-H-4 Supplies Management

FY14 Program

- Continued lean manufacturing quality improvements, such as 5-S, in the warehouse non-inventory working area at CMF. 5-S is a system to identify waste and opportunities for improvement, then bring order to the work environment through establishing efficient flow of material, supplies and activities.
- Updated all SOP for Storeroom personnel and work with team to access job description for accuracy.
- Increased recycling services with all division at MSD to increase global improvements.
- Improved pipe yard for better ground filtration and to improve soil erosion and remove all soil contaminations.

FY15 Program

- Continue lean manufacturing quality improvements, such as 5-S, in the warehouse non-inventory working area at CMF. 5-S is a system to identify waste and opportunities for improvement, then bring order to the work environment through establishing efficient flow of material, supplies and activities.
- Update SOPs for Storeroom personnel and work with teams to refine job descriptions.
- Increase recycling efforts to increase global improvements.
- Continue to sample “green” products to replace aerosol and maintenance cleaning chemicals.

6.1.1.9 Customer Service Programs - *This section describes MSD’s Customer Service Programs. The goal of this section is to strengthen and maintain a healthy relationship between MSD and the public through service programs which include complaint management, public information, and public education.*

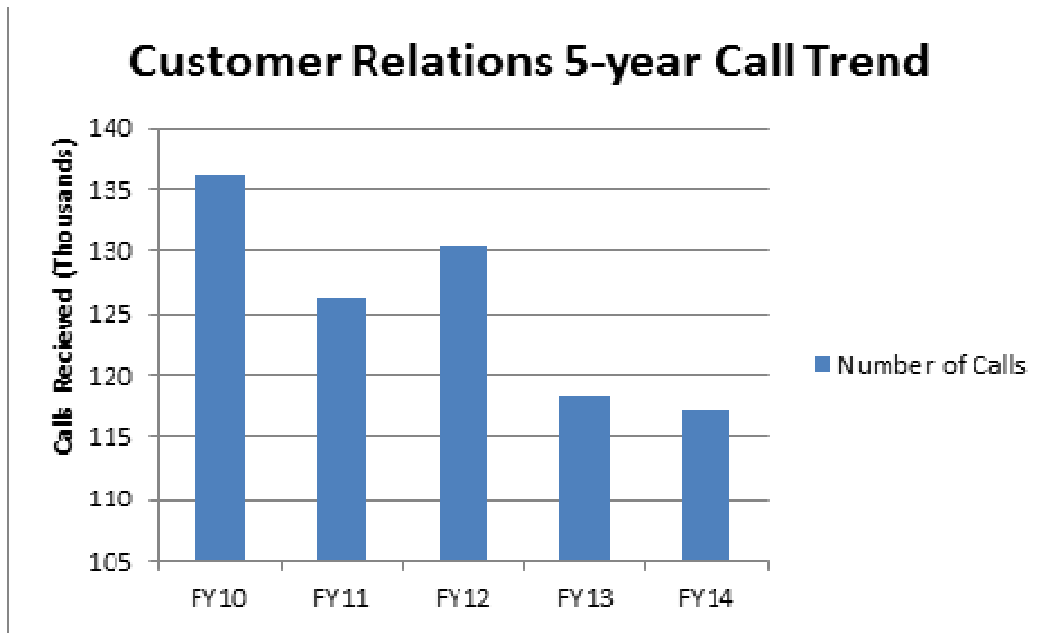
M-I-1 Customer Service

M-I-2 Public Information

M-I-3 Public Education

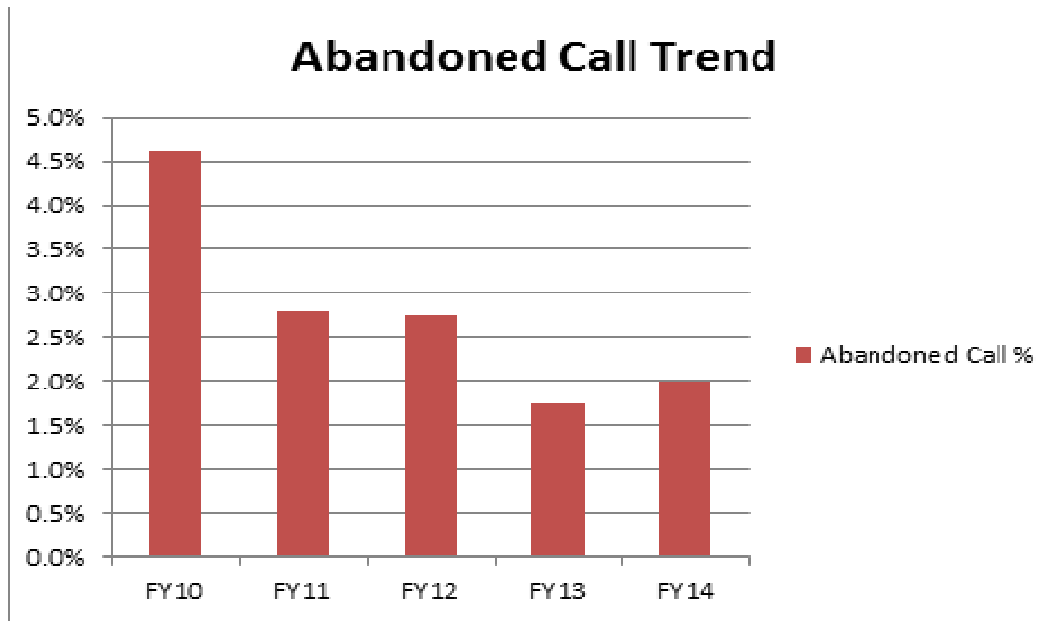
FY14 Program

- Received 118,429 calls during this period. The chart below breaks down the calls between MSD and MetroCall. The “311” MetroCall lines are answered by department staff during off-shift and holidays when Metro is closed.



| MSD Call Center Reporting – FY14 | | | | | | |
|----------------------------------|--------------|-----------------------|--------------------------|-----------------------------|-----------------|--------------------------|
| | MSD | | | METROCALL | | |
| | Call's Rec'd | Calls Abandoned | Avg. Hold Time (seconds) | Call's Rec'd | Calls Abandoned | Avg. Hold Time (seconds) |
| Jul-13 | 5,107 | 54 | 0:09 | 5,658 | 232 | 0:13 |
| Aug-13 | 5,030 | 51 | 0:09 | 4,918 | 184 | 0:12 |
| Sep-13 | 4,620 | 70 | 0:09 | 4,530 | 143 | 0:11 |
| Oct-13 | 5,948 | 231 | 0:21 | 4,332 | 326 | 0:17 |
| Nov-13 | 4,350 | 110 | 0:14 | 4,223 | 189 | 0:13 |
| Dec-13 | 4,147 | 123 | 0:15 | 3,233 | 145 | 0:15 |
| Jan-14 | 4,070 | 88 | 0:11 | NA | NA | NA |
| Feb-14 | 3,856 | 77 | 0:10 | NA | NA | NA |
| Mar-14 | 4,292 | 103 | 0:10 | NA | NA | NA |
| Apr-14 | 5,877 | 107 | 0:12 | NA | NA | NA |
| May-14 | 5,386 | 141 | 0:12 | NA | NA | NA |
| Jun-14 | 4,671 | 96 | 0:11 | NA | NA | NA |
| Sub-Total Ans. | 57,354 | 1,251 | 0:11 | 26,894 | 1,219 | 0:13 |
| Sub-Total Rec'd. | 58,605 | | | 28,113 | | |
| Abandoned % | | 2% | | | 4% | |
| Total Calls Received | 115,959 | Total Calls Abandoned | 2,470 | FY14 – Total Calls Received | 118,429 | |

- Continued the effort to reduce the percentage of abandoned calls. The abandoned rate for MetroCalls is significantly higher than for MSD due to differences in Louisville Metro's new telephone system. MetroCall's system does not allow their staff to finish calls in queue before switching lines to MSD. This routes as many as 25-35 calls to MSD lines at time of switch (7 days each week). MSD has no more than two staff members working off-shift to respond to both MSD and MetroCalls – at times it is a solo shift.



- Mailed out 3,248 ProjectWIN and Plumbing modification program packets of information or applications.

FY15 Program

- Launch the Customer Relations new “Customer Care” program to improve communications and provide information to MSD customers who have requested service work from MSD. Customers will be asked for their preferred method of communication (phone, email or letter) and MSD agents will monitor the progress throughout the service request. This will allow MSD to keep the customer informed of the current project status until completion. In addition, service requests will be tracked to assure our crews have met customer expectations.

6.1.1.10 Legal Support Programs – *The following support programs are included in this section: inter-jurisdictional agreement, ordinances, pretreatment legal support, grease control legal support, service laterals legal support, septic tank haulers legal support, and “Call Before You Dig” legal support.*

M-J-1 Inter-Jurisdictional Agreement

M-J-2 Ordinances

FY14 Program

Over the past fiscal year, the MSD legal department has provided a variety of legal services designed to support MSD in its efforts to implement programs to abate sanitary sewer overflows as required by the Amended Consent Decree. The services most directly related to this effort include:

- Participated in and/or provided legal advice and other functions pertaining to the procurement of construction and professional service contractors to provide services and/or perform work in furtherance of SSO abatement related projects.
- Participated in the acquisition of properties and/or property interests (easements and/or fee simple ownership) critical to the completion of SSO abatement related sewer construction projects. The department's participation has included assisting in the negotiation and structuring of purchase and sale agreements, drafting acquisition related documents, title research, and performing or providing oversight of the closing of acquisition transactions.
- Provided legal advice and comments pertaining to compliance functions necessitated by MSD's proposed MS4 NPDES permit.

FY15 Program

- Continue to provide legal services to support MSD.

M-J-3 Pretreatment

M-J-4 Grease Control

M-J-5 Service Laterals

M-J-6 Septic Tank Haulers Legal Support

M-J-7”Call Before You Dig”

- Information on these programs is provided in **Section 2.4 NMC 3: Review and Modification of Pretreatment Programs, 6.1.2.2 Pretreatment Program, 6.1.2.4 Grease Trap Inspection and Enforcement Program, 6.1.2.7 Septic Tank Haulers Program, and 6.1.2.8. “Call Before You Dig” Program.**

6.1.1.11 Water Quality Monitoring Programs - *This section describes MSD’s Water Quality Monitoring Program. The goal of this section is to maintain an accurate, consistent record of water quality in receiving bodies of water. Monitoring results are used to determine the effect of effluent discharge and/or spills through the following monitoring programs: routine water quality, investigative water quality, and water quality monitoring for spill impact.*

M-K-1 Routine Water Quality Monitoring Programs

M-K-2 Investigate Water Quality Monitoring

M-K-3 Water Quality Monitoring for Spill Impact

- Information on these programs is provided in **Section 4.5 Post Construction Monitoring Program**, for details on water quality monitoring efforts.

6.1.1.12 Contingency Plan for Sewer and Treatment Plant - *This section describes MSD’s Contingency Plan for the Sewer and Treatment System. The goal of this section is to provide a protocol for emergency response and notification. The following elements are included in this section: contingency planning process, response flow diagram, public notification plan, agency*

notification plan, emergency flow control plan, emergency operations and maintenance plan, preparedness training program, water quality monitoring plan, and sewer overflow response protocol (SORP). The SORP requires training for all MSD employees.

M-L-1 Contingency Planning Process

M-L-2 Response Flow Diagram

FY14 Program

- Continued implementation of protocols for emergency and disaster response.
- Updated the contact list of names, phone numbers, and responsibilities for emergency and disaster response protocols.
- Continued to administer Emergency Response Pretreatment Inspector (ERPI) training for possible discharges or pollution spill response.

FY15 Program

- Revise the disaster response protocol document to incorporate lessons learned from previous rain events, if necessary.
- Compile a team to review MSD's disaster response exposure and make recommendations as part of the MSD Strategic Business Plan.
- Continue training planning for disaster response protocols and event critiques.
- Continue to administer Emergency Response Pretreatment Inspector training.
- Develop work plans for FY16 program activities.

M-L-3 Public Notification Plan

M-L-4 Agency Notification Plan

FY14 Program

- Maintained as part of the emergency and disaster response protocols, inter and intra Agency Notification Plans.
- Maintained the Public Notification Plan as outlined in the SORP. Refer to **Section 3: Program Activities for Sewer Overflow Response Protocol** for more details.

FY15 Program

- Continue to update protocols and training as outlined in **Section 3: Program Activities for Sewer Overflow Response Protocol**.

M-L-5 Emergency Flow Control Plan

M-L-6 Emergency Operations and Maintenance Plan

FY14 Program

- Updated procedures for Emergency Flow Control and Emergency Operations and Maintenance.

FY15 Program

- Continue to review the Emergency Flow Control and Emergency Operations and Maintenance procedures.

M-L-7 Preparedness Training

FY14 Program

- Administered training for SORP and Emergency Response procedures. For more detail on SORP see **Section 3: Program Activities for Sewer Overflow Response Protocol**.
- Refer to Section **6.1.1.2 Training Programs** for more details on the number of personnel trained and various preparedness training sessions.

FY15 Program

- Refer to Section **6.1.1.2 Training Programs** for more details on the goals for training in FY15.
- Continue to administer ERPI training for possible discharge or pollution spill response.

M-L-8 Water Quality Monitoring Plan

- Refer to **Section 4.5 Post Construction Monitoring Program** for more details on the MSD Water Quality Monitoring Plan

M-L-9 Sewer Overflow Response Protocol (SORP)

- Refer to **Section 3: Program Activities for Sewer Overflow Response Protocol** for more details on the SORP.

6.1.2 Operations Programs

6.1.2.1 Pump Station Operations Programs - *This section describes MSD's Pump Station Operation Programs. The goal of this section is to maintain pump stations for optimal use during routine and emergency operations through well documented operating procedures.*

O-A-1 Routine Operating Programs

FY14 Program

- Continued review and updates, as needed, of the U.S. Army Corps of Engineers (USACE) Flood Operations and Maintenance Manual based on USACOE and staff review comments. The manual is continuously under review as MSD completes both LTCP and NMC programmatic activities.

-
- Continued review of SOPs for the Flood Pump Stations to reflect ongoing operational changes that occur as LTCP and NMC programmatic activities are completed.
 - Determined capital project priorities and the budgetary needs during regular meetings with Metro Operations and Regulatory Services staff.
 - Continued to develop operations and maintenance (O&M) manuals for existing sanitary pump stations that do not have formal O&M manuals. Staff prioritized and developed O&M manuals for pump stations from the Greenline Program. New manuals were created for 12 pump stations.
 - Continued to develop an Excel spreadsheet for automatic pump station draw down tests remotely. Selected sites for testing and begin trending. Staff is working to develop an application to automate the drawdown testing and to develop trending standards using Telog. Sites selected will be simple duplex pumping stations with clearly defined wet well volumes. Pump run time and wet well level data will be used in the spreadsheet to calculate both influent and effluent flow rates. The data will help staff trend pump station operations, plan proactive corrective measures and maintain accurate hydraulic models.
 - Completed initial installation of the level sensors at the East Region Greenline pump station sites.

FY15 Program

- Continue regular meetings with operations and maintenance staff to determine capital project priorities and advise on the budgetary needs on a quarterly basis.
- Continue review of SOPs and job aides for Regional Pump Stations. These are sites with design capacities at 2 MGD or greater and typically have a building. This will include the development of SOPs for wet/dry weather capacity issues at pump stations and conducting annual pump station field training. This will be a continuous process as MSD completes programmatic CMOM activities.
- Continue the planning to enhance operations and maintenance (O&M) manuals for existing sanitary pump stations that do not have formal O&M manuals. Staff will prioritize pump stations based on operational history.
- Review Central and West Region Greenline pump stations for installation of the level sensors for the automated drawdown effort. Staff will review existing duplex pump stations for additional sites for sensor installations.
- Continue to provide backup power at critical pump stations based upon the previously performed prioritization, as described in Section O-A-2 Emergency Operating Programs.
- Automate data spreadsheet to complete automatic pump station draw down tests remotely. Select sites for testing and begin trending.

O-A-2 Emergency Operating Programs

FY14 Program

- Emergency Generator Program – Continued MSD’s emergency generator program by collecting operational and maintenance data for MSD’s 280+ pump stations to prioritize sites for generator installation. Data collection included frequency of power outages, over flows (including basement back-ups) and hauling events. This data was graphed with pump station horsepower requirements for the selection process. The list was narrowed down further by looking at site access, how far a pump station is from a maintenance facility, generator installation costs and whether a pump station could be eliminated. To date, MSD has installed 42 new generators under this program and have addressed the pump stations with the most significant power failure issues. During the next reporting period, staff will continue to review the program to see if additional permanently installed generators are still needed.
- Flood Pumping Station Emergency Generator Study – MSD completed a study of the 16 flood pumping stations to determine generator sizing for emergency back-up power requirements at each site. Study recommended generator sizes and a planning level budget was developed for each site.
- Royster Basin Access Road and Generator Project (Budget ID H09365) – Created this West Region project to install a permanent stand-by generator and access road at the Royster Basin Pump Station. The access road project was advertised on July 15, 2012, and bids were received on August 15, 2012. A notice-to-proceed for construction was issued on September 15, 2012, and all construction activities were completed January 16, 2013. The design project for the new generator was completed and the project was advertised for construction June 22, 2014.
- Prospect Point Pump Station Access Road Project (Budget ID H13084) – Created this East Region project to install a permanent access road to the Prospect Point Pump Station. The access road project was advertised on January 6, 2013, and bids were received on February 1, 2013. A notice-to-proceed for construction was issued on February 5, 2013, and all construction activities were completed April 16, 2013.
- Greenline Analysis – Completed review of the lowest home opening elevations and confirmed pump station as-constructed information for the West and Central Region. Selected other sites not included under the original Greenline Analysis for evaluation. Began planning and implementation of field corrections, based on the field information obtained from the lowest home elevations and the as-constructed information, to prevent future home back-ups. Adjusted pump station operating levels and installed level sensors.

FY15 Program

- Emergency Generator Program (Budget ID H09337) – Continue MSD’s emergency generator program by collecting operational and maintenance data for MSD’s 280+ pump stations to prioritize sites for generator installation. During the next reporting period, staff will review the program to see if additional permanently installed generators

are still needed. The existing mobile generator inventory will be reviewed and a plan created to repair or replacement generators as needed. Staff will also review salvaged generators from pump station and treatment plant elimination or upgrade projects. The salvaged generators will be sized and placed at sites as needed.

- Royster Basin Access Road and Generator Project (Budget ID H09365) – Award a construction project for the installation of a new permanent stand-by generator. All construction, start-up, training and acceptance activities will be completed during the next reporting period.
- Greenline Analysis - Continue to evaluate pump stations for inclusion in the Greenline program. Greenline pump stations will be prioritized under the program to complete new draw down tests and pump station site assessments. The data from this effort will be collected and will be used to plan future rehabilitation projects. The future rehabilitation work will also correct any pump station operation level settings to prevent line surcharging.

6.1.2.2 Pretreatment Program - *This section describes MSD's Pretreatment Programs. The goal of this section is to protect MSD's sewer system and treatment plants by requiring industrial users to pre-treat their effluent to required levels through industrial user permitting, inspection and sampling and enforcement.*

O-B-1 Industrial User Permit

O-B-2 Inspection

O-B-3 Sampling Enforcement

Administered pretreatment limitations at 5 of its 6 regional WQTCs, 1 of which is in the combined sewer system – Morris Forman WQTC. Additional information related to the MSD Pretreatment Program for the combined sewer system can be found in **Section 2.4 NMC 3: Review and Modification of Pretreatment Requirements.**

6.1.2.3 Corrosion Controls Program - *This section describes MSD's Corrosion Controls Program. The goal of this section is to extend the life of MSD's sewer system by controlling the corrosive effects of Hydrogen Sulfide and other corrosive chemicals in the system through inspection, control measures, monitoring, and performance measures.*

O-C-1 Inspection

O-C-2 Control Measures

O-C-3 Monitoring

O-C-4 Performance Measures

FY14 Program

- Continued to clean MSD facilities to minimize odors.

- Recorded service requests for Operations into two groups: those that are associated with the Morris Forman WQTC will use the code of MFF and those associated with the remaining WQTCs and Pump Stations will use the code of MOP.

FY15 Program

- Determine the next inspection areas for corrosion based on force main discharge locations.
- Continue to clean MSD facilities to minimize odors.
- Continue to enhance asset review and documentation.

6.1.2.4 Grease Trap Inspection and Enforcement Program – *This section describes MSD's Grease Trap Inspection and Enforcement Programs. The goal of this section is to reduce the amount of fats, oils and grease (FOG) that enter MSD's sewer system and treatment plants through permitting, inspection, enforcement, performance measures, and the FOG program.*

O-D-1 Permitting

O-D-2 Inspection

O-D-3 Enforcement

O-D-4 Performance Measures

O-D-5 FOG

- Conducted 72 inspections at Food Service Establishments and issue enforcement actions as appropriate for violations of the MSD Wastewater/Stormwater Discharge Regulations
- Issued 79 FOG Enforcement Actions to Food Service Establishments requiring action(s) to prevent and/or eliminate grease blockages in MSDs collection system
- Mailed 600 FOG residential public outreach letters to residents in neighborhoods in the MSD service area that had FOG issues.
- Conducted 2 Certified Grease Waste Hauler training classes.
- Performed 12 Certified Grease Waste Hauler audits for haulers participating in the Certified Grease Waste Haulers Program
- Continued to track FOG removal by Certified Grease Waste Haulers, records indicate 2,678,715 gallons of FOG removed
- Conducted 2 FOG Hot Spot Reconnaissance inspections.
- Continued to track and report FOG Program performance measures.
- Continued the grease liquefaction dosing pilot project.

- Continued study to develop a residential grease drop off program, in which drop off locations are identified, and small containers are distributed to homeowners to capture grease before it enters the sewer system.

FY15 Program

- Continue to conduct inspections at Food Service Establishments and issue enforcements actions as appropriate for violations of the MSD Wastewater/Stormwater Discharge Regulations.
- Continue to send FOG residential public outreach letters to residents in neighborhoods in the MSD service area that had FOG issues.
- Continue to host a public education and outreach booth at the Annual Kentucky Restaurant Association Day at the Races Exposition.
- Continue to host at least 2 Certified Grease Waste Hauler training classes.
- Continue to conduct Certified Grease Waste Hauler audits.
- Conduct 2 FOG Hot Spot Reconnaissance inspections.
- Continue to track and report FOG Program performance measures.
- Continue the grease liquefaction dosing pilot project.
- Review 5-year trends in FOG related blockages and compare to similar performance metrics from other cities.

6.1.2.5. New Connection Tap-In Program - *This section describes MSD's New Connection Tap-In Program. The goal of this section is to ensure that future connections do not compromise the capacity of the receiving treatment plant. The program is implemented using a new service taps approval process, inspection, enforcement, and performance measures.*

O-E-1 Installation of New Service Taps

O-E-1 Inspection

O-E-1 Enforcement

O-E-1 Performance Measures

O-E-5 Other

FY14 Program

- Approved plans for 341 projects in FY14. Treatment plant capacity is reviewed prior to approval of any plans based on the SCAP.
- Inspected sewer installations. Twenty-three new property service connections were installed.

FY15 Program

- Continue to review projects for capacity availability.

6.1.2.6 Flow Monitoring Field Operation Programs - *This section describes MSD’s Flow Monitoring Field Operation Programs. The goal of this section is to provide accurate flow data for use in evaluating various aspects of MSD’s sewer system. Flow is monitored at both permanent and temporary stations.*

O-F-1 Permanent Stations

O-F-2 Temp Stations

- Refer to **Section 4.5 Post Construction Monitoring Program** for details on water quality monitoring efforts.

6.1.2.7 Septic Tank Haulers Program - *MSD does not accept septic tank waste. This is handled through private contractors in Jefferson County.*

6.1.2.8. “Call Before You Dig” Program –*This section describes MSD’s “Call Before You Dig” Program. The goal of this section is to prevent the damaging or cutting of sewer lines and subsequent spills through permitting, inspection, enforcement, and performance measures.*

O-H-1 Permitting

O-H-2 Inspection

O-H-3 Enforcement

O-H-4 Performance Measures

FY13 Program

- Contracted \$ 579,174.47 to process 82,035 locate requests to mark MSD facilities.
- Contracted the KY 811 (BUD Center) \$105,000 to participate in this program.
- Requested 3035 (1,022 via web) and (2,084 via phone) to the BUD Center for the marking of other utilities during this time period.

FY14 Program

- Continue to contract for this service.

6.1.3 Maintenance Programs

6.1.3.1 Pump Station Preventive Maintenance - *This section describes MSD’s Pump Station Preventive Maintenance program. The goal of this section is to prevent unanticipated repairs and subsequent down-time by providing scheduling, staff, and records to perform routine, preventive pump station maintenance. Electrical, mechanical, and physical maintenance are included in this section.*

S-A-1 Electrical

S-A-2 Mechanical

S-A-3 Physical

FY14 Program

- Continued implementing the preventive maintenance and inspection plan for flood pump stations based on the USACE Inspection Guide. Staff is using the Hansen asset management system to track Flood Pump Station work orders as well as associated flood pump station assets such as station related floodgates.
- Continued assessment of the sanitary pump stations based on the previous 2007 draw down deficiency priorities. The new draw down data was compared against the 2007 results to update the baseline operations of each pump station. From November 2009 to June 2013, MSD staff completed new draw down tests on 222 pump stations. The testing continues to include an assessment of the mechanical and electrical equipment at each station by the Drawdown Investigation Evaluation Team (DIET). The team consists of two mechanics, electrician, operations supervisor and an engineering technician. During this reporting period, staff completed repairs at 22 sites. After the repairs, drawdown tests were completed at each site showing the pump stations were operating at or above their design. The following table lists the repair activities completed.

| FY14 Sanitary PS Repair Activities | Count | Cost |
|---|--------------|---------------------|
| Pump Replacement | 8 | \$176,2232.15 |
| Electrical/ I&C Work | 15 | \$64,854.00 |
| Generator Installation | 2 | \$42,627.00 |
| Generator Repair | 1 | \$7,575.00 |
| Ventilation Modifications | 1 | \$11,550.00 |
| Pump Repair | 11 | \$22,514.00 |
| Access Road Installation | 1 | \$14,600.00 |
| Miscellaneous | 8 | \$24,258.00 |
| Total: | | \$364,201.15 |

- Performed inspections on pump station sites that have deficiencies determined during the Draw Down and Greenline Programs. Staff will proactively inspect critical equipment on site during the inspections. Check lists were created to document the inspection and list corrective actions needed. Corrective work orders were issued as needed.
- Continued to use Hansen for preventive maintenance task and corrective work orders for sewer lift stations and WQTCs.
- Completed a design template for replacing existing pump station electrical and control panels. MSD has several acquired pump stations that have electrical panels nearing their useful deign lives. Many of these panels are out dated and do not comply with MSD's current specifications. A standard design and bid documents was developed to standardize the panels. Sites are being selected based on age and existing panel deficiencies.

FY15 Program

- Continue preventive maintenance inspections for flood pump stations based on the revised USACE Inspection Guide. Continue to annually train staff to use the Hansen asset management system to track Flood Pump Station work orders as well as associated flood pump station assets such as station related floodgates.
- Continue sanitary pump station assessments based on the previous draw down deficiency priorities with the DIET Team. The data collected will be used to prioritize rehabilitation and replacement projects.
- Review and select the first round of pump stations for electrical panel replacement utilizing the completed design template for replacing existing pump station electrical and control panels. Sites will be selected based on age and existing panel deficiencies. Bidding of the first round of panels will be completed as budget allows during the next reporting period.
- Continue inspections on pump station sites that have deficiencies determined during the Draw Down and Greenline Programs. These two programs relate only to pump performance and level controls. Staff will proactively inspect critical equipment on site during the inspections. Corrective work orders will be issued as needed.

6.1.3.2 Force Main Preventive Maintenance- *This section describes MSD’s Force Main Preventive Maintenance program. The goal of this section is to prevent unanticipated repairs and subsequent down-time by providing scheduling, staff, and records to perform routine, preventive force main maintenance. The maintenance programs include air release valves and valve exercise and walking the line to find cave-ins on the force main.*

S-B-1 Air Release Valves

S-B-2 Valve Exercise Program

FY14 Program

- Completed inspections on the following force mains:

| | | |
|-------------------------|----------------------------------|-----------------|
| Rosa Terrace PS | Edsel PS | ORFM PS |
| Goose Creek PS | English Station/Academy Ridge PS | Perwinkle PS |
| Beckley Station PS | Freeway PS | Pitch Pine PS |
| Brownsboro Glen PS | Hasbrook PS | Poplar Level PS |
| Chamberlain Lane PS | John Hancock PS | Rubbertown PS |
| Cherry Lane PS | Lake Forest PS | Vista Club PS |
| Eastwood-Fisherville PS | Old Brownsboro Place PS | WCFM PS |

- Created valve repair work orders on identified problems.
- Conducted the annual force main program evaluation.

FY15 Program

- Schedule FY15 force mains for inspection.
- Complete the annual force main evaluation by December 31, 2013. Adjustments to the inspection schedule will be made based on conditions observed during the inspection cycle.
- Review 5-year trends in activities and performance metrics, comparing to targets established in 2006.

6.1.3.3 Gravity Line Preventive Maintenance Quarterly - *This section describes MSD's Gravity Line Preventive Maintenance program. The goal of this section is to reduce infiltration and increase efficiency of the gravity line system through routine cleaning, root control, and manhole preventive maintenance.*

S-C-1 Routine Hydraulic Cleaning

S-C-2 Routine Mechanical Cleaning

S-C-3 Root Control Program

S-C- 4 Manhole Preventive Maintenance

- Refer to **Appendix I – FY14 CSSA Annual Report** for more details on the Gravity Line Preventive Maintenance Program.

6.1.3.4 Equipment and Collection System Maintenance - *This section describes MSD's Equipment and Collection System Maintenance program. The goal of this section is to maximize the efficiency of the collection system by maintaining the supporting equipment.*

S-D-1 Equipment Maintenance

FY14 Program

- Scheduled preventive maintenance on mobile trash pumps during periods when no rain was forecast for an extended period of time, maintaining 99.5% availability when needed for wet weather pumping.
- Developed performance metrics and tracking systems to ensure critical equipment is available when needed.

FY15 Program

- Begin working on the One Water Initiative with The Louisville Water Company to combine services in areas of Fleet, IT, Customer Service and Procurement to better serve our customers and increase levels of service to the community.
- Continue to monitor and report availability of Mission Critical Equipment (MCE)
- Target an overall average availability of 95% or higher for all MCE.
- Modify non-scheduled repair classification, Update classifications on repair orders on a timely basis, eliminating time that is clocked as down time when unit is already back in

service. Monitor supervisors to make sure equipment is in proper status.

- Vac-Con Service and operator training.
- Five new Vac-Con vacuum sewer cleaners to replace 5 aging units.
- Start working on specifications and bid for 2 new Tele-Inspection trucks to replace 2 aging trucks.
- Continue One Water initiative, identifying opportunities to improve customer service and implement plan for combined service and operations opportunities.
- Analyze FY16 capital purchasing needs, including the evaluation of sewer flusher equipment replacement.

6.2 Comprehensive Performance Evaluations and Composite Correction Plans (CPE/CCP)

Per requirements of MSD's 2009 Amended Consent Decree, MSD implemented a Comprehensive Performance Evaluation (CPE) and Composite Correction Plan (CCP) program for the District's water quality treatment centers (WQTCs). This program defined specific WQTC improvements to be completed by December 31, 2011. These improvements under this program will be discussed under **Section 6.2.1**. Although the IOAP CPE/CCP improvements will be completed by December 31, 2011, MSD will continue to implement CPE/CCP activities as part of the District's CMOM Program. **Section 6.2.2** will list such activities per WQTC as they occur each reporting period and a comprehensive project schedule for CPE/CCP related capital projects is provided in **Section 6.3 – CMOM Activity Schedule**.

6.2.1 Amended Consent Decree CPE/CCP Program All activities under this program were completed by December 31, 2011, as required per the IOAP.

6.2.2 CMOM CPE/CCP Program *This section describes CMOM CPE/CCP activities active during FY14 and being planned for FY15. Schedules for CPE/CCP related capital projects are provided in **Section 6.3 – CMOM Activity Schedule**.*

6.2.2.1 Cedar Creek Water Quality Treatment Center

FY14 Program

- Selected a consultant to conduct a tertiary filter replacement study.

FY15 Program

- Complete the tertiary filter replacement study. Final project planning and budget prioritization we be developed from the findings of the study.

6.2.2.2 Hite Creek Water Quality Treatment Center

FY14 Program

- Completed the alternative analysis for both the collection and treatment systems for the Facilities Plan Update, held public outreach meeting in December 2013 and finalized a 90% draft action plan document. A formal public hearing was held in June 2014.
- Selected a consultant to complete an alternative solids and tertiary filter replacement study. The study is to review options to improve plant operations and efficiency.
- Completed design for a plant hydraulic expansion to accommodate an increase in flow from the new Harrods Creek and Meadowstream force mains. Improvements will include increasing the peak hourly flow rating from 16 MGD to 24 MGD, including a new secondary clarifier, grit facilities, UV disinfection system addition, cascade aerator with new plant outfall, new chemical building and miscellaneous electrical, flow metering, piping changes/additions and improvements.

FY15 Program

- Complete the public input and hearing comments phases and submit a final draft for KDEP approval.
- Complete an alternative solids and tertiary filter replacement study. The study is to review options to improve plant operations and efficiency. Based on the study recommendations, staff will plan and prioritize any capital budget as needed.
- Advertise for construction and award a contract for the plant hydraulic expansion. It is anticipated that the work will be completed prior to December 31, 2015.

6.2.2.3 Floyds Fork Water Quality Treatment Center

FY14 Program

- Completed construction and startup of the Floyds Fork WQTC Phase 2 Expansion. MSD staff completed training on the major equipment. The expansion will provide an average daily design capacity of 7.5 MGD at the current site.

FY15 Program

- During the next reporting period, MSD will select a consultant to conduct an Enhanced Biological Phosphorus Removal study.

6.2.2.4 Derek R. Guthrie Water Quality Treatment Center

FY14 Program

- Continued the Facilities Plan Update, revisiting the flow and load projections based on recalibration of collection system models. System alternatives and treatment plant rerating were modified to account for the new data. An internal review of the draft Facilities Plan Update continued during this period.

- Selected a consultant to complete a design Secondary Clarifiers 1, 2 & 3 collection mechanism replacement and removal and upgrade of Return Activated Sludge (RAS) Pumps 1 and 4 including replacement of pumps 1 through 4 variable frequency drives.

FY15 Program

- Complete the alternative treatment and collection system analysis and schedule public outreach meetings. Finalize and submit a draft for KDEP review. MSD will request KDEP to rerate the average design capacity from 30 MG to 45 MG in conjunction with the submittal of a Facility Plan Update.
- Advertise for construction and award a contract for the secondary clarifiers and the RAS pump upgrades. Construction is anticipated to be completed by June 31, 2016.

6.2.2.5 Prospect Area Water Quality Treatment Center Updates

Submitted the elimination plan for the five WQTCs serving Prospect (Timberlake, Hunting Creek North, Hunting Creek South, Ken Carla, and Shadow Wood) to EPA and KDEP on March 31, 2009. Received approval of this plan on September 24, 2009, and work is proceeding on the projects defined in the IOAP. See **Section 4- Program Activities for Discharge Abatement Plans** for an update on the design and construction projects that make up the elimination plan for the Prospect Area WQTCs.

6.2.2.5.1 Timberlake Water Quality Treatment Center

Schedules for CPE/CCP related capital projects are provided in **Section 6.3 – CMOM Activity Schedule**.

6.2.2.5.2 Hunting Creek North Water Quality Treatment Center

Schedules for CPE/CCP related capital projects are provided in **Section 6.3 – CMOM Activity Schedule**.

6.2.2.5.3 Hunting Creek South Water Quality Treatment Center

Schedules for CPE/CCP related capital projects are provided in **Section 6.3 – CMOM Activity Schedule**.

6.2.2.5.4 Ken Carla Water Quality Treatment Center

Schedules for CPE/CCP related capital projects are provided in **Section 6.3 – CMOM Activity Schedule**.

6.2.2.5.5 Shadow Wood Water Quality Treatment Center

Schedules for CPE/CCP related capital projects are provided in **Section 6.3 – CMOM Activity Schedule**.

6.2.2.6 Starview Water Quality Treatment Center

FY14 Program

- Completed design plans for the Chenoweth Run Interceptor Section 2 Project (Budget ID E93353) for the elimination of the Starview WQTC. The plant flows will be diverted to the Floyds Fork WQTC. The gravity portion of this project is approximately 55% of the total

length of gravity line required to eliminate the Starview WQTC. A private developer was responsible for the Chenoweth Run Interceptor Section 2 project which was completed during the reporting period.

FY15 Program

- During the next reporting period, it is anticipated that the project will be advertised for construction with construction beginning early 2015. The Starview WQTC is scheduled to be off-line prior to December 31, 2015.

6.2.2.7 Berrytown Water Quality Treatment Center

FY14 Program

- Completed an in-house tank repair project. The existing aeration and digester tanks have corroded and are beginning to lose structural integrity. A contract was awarded to pour concrete walls around the tanks to provide structural support.
- Completed design plans for the Middletown Sanitary Recapture Phase II - Section D Project (Budget ID E93353) for the elimination of the Berrytown WQTC. The plant flows will be diverted to the Floyds Fork WQTC. The gravity portion of this project is approximately 25% of the total length of gravity line required to eliminate the Starview WQTC. A private developer was responsible for the Middletown Sanitary Recapture Phase I Project which was completed during the reporting period.

FY 15 Program

- Project will be advertised for construction with construction beginning early 2015. The Berrytown WQTC is scheduled to be off-line prior to December 31, 2015.

6.2.2.8 McNeely Lake Water Quality Treatment Center

FY14 Program

- Completed design plans of an interceptor for the elimination of the McNeely Lake WQTC. The plant flows will be diverted to the existing Washington Green Pump Station which will require expansion. The gravity portion of this project is approximately 75% of the total length of gravity line required to eliminate the McNeely Lake WQTC. A private developer is responsible for extending the remaining gravity sewer through a future residential development to within 600 feet of the McNeely Lake WQTC. Discussions continue with a developer proposing to expand this pump station as part of a future development project. If the development does not occur, MSD will review the current budget for funds to eliminate the plant.

FY15 Program

- Advertise and start construction of the public portion of the gravity solution for the elimination of the facility. The anticipated schedule for the completion of this interceptor is fall 2014. This gravity portion is approximately 75% of the total length of gravity line required to eliminate the McNeely Lake WQTC. A private developer is responsible for

extending the remaining gravity sewer through a future residential development to within 600 feet of the McNeely Lake WQTC. MSD anticipates eliminating McNeely Lake WQTC prior to December 31, 2015, pending private developer portion being completed.

6.2.2.9 Silver Heights Water Quality Treatment Center

FY14 Program

- Completed construction activities for the Mud Creek Interceptor Project (Budget ID H12022) for the elimination of the facility. The Silver Heights WQTC was taken off-line June 12, 2014.

6.2.2.10 Bancroft Water Quality Treatment Center

FY14 Program

- Completed the design of the Bancroft WQTC Elimination Design Project (Budget ID A13006). The scope of this project has been modified to a 0.33 MGD Pump Station and 0.25 MG Storage Basin. This change is due to the elimination of the nearby Devondale Pump Station which is part of the IOAP.

FY15 Program

- During the next reporting period, it is anticipated that the project will be advertised for construction with construction beginning early 2015. The Bancroft WQTC and Devondale Pump Station are scheduled to be off-line prior to December 31, 2015.

6.2.2.11 Glenview Bluff Water Quality Treatment Center

FY14 Program

- Completed the design of the Glenview Bluff WTP Elimination Design Project (Budget ID A13004). A construction contract was awarded April 2014 and construction began May 2014.

FY15 Program

- During the next reporting period, construction will continue and the Glenview Bluff WQTC will be off-line prior to December 31, 2014.

6.3 CMOM Activity Schedule

CMOM capital project milestones for the period of July 1, 2013, through June 30, 2014, as well as a look-ahead for the period of July 1, 2014, through December 31, 2014, are provided in the schedule below.

| MSD CMOM Annual Commitments Schedule (FY2014-FY2015) | | | | | Date: 16-Dec-14 | | | | | | | | | | | | | | | | | | |
|--|-------------------------|---------------------|-------------|-------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Activity ID | Activity Name | Physical % Complete | Start | Finish | 2014 | | | | | | | | | | | | | | | | | | |
| | | | | | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | |
| CMOM FY ANNUAL REPORT COMMITMENTS FINAL | | | | | | | | | | | | | | | | | | | | | | | |
| M-E-9 Infrastructure Rehabilitation | | | | | | | | | | | | | | | | | | | | | | | |
| St Matthews Interceptor I/I Rehabilitation Project (H12059) | | | | | | | | | | | | | | | | | | | | | | | |
| A2960 | Warranty | 100% | 23-Aug-12 A | 23-Aug-13 A | █ | | | | | | | | | | | | | | | | | | |
| Annual I/I FY 12 Project (H09205) | | | | | | | | | | | | | | | | | | | | | | | |
| A5080 | Warranty | 100% | 01-Mar-13 A | 01-Mar-14 A | █ | | | | | | | | | | | | | | | | | | |
| Annual I/I FY13 Project (H09206) | | | | | | | | | | | | | | | | | | | | | | | |
| A5090 | Contract Administration | 100% | 19-Nov-12 A | 30-Jul-14 A | █ | | | | | | | | | | | | | | | | | | |
| A5570 | Camp Taylor 4 | 100% | 15-Dec-12 A | 01-Nov-13 A | █ | | | | | | | | | | | | | | | | | | |
| A5590 | Stonybrook | 100% | 01-Mar-13 A | 01-Oct-13 A | █ | | | | | | | | | | | | | | | | | | |
| A5620 | Pike Alley CIPP | 100% | 01-Jun-13 A | 01-Nov-13 A | █ | | | | | | | | | | | | | | | | | | |
| A5600 | Middle MH WT Lids | 100% | 01-Sep-13 A | 01-Nov-13 A | █ | | | | | | | | | | | | | | | | | | |
| A5100 | Warranty | 50% | 30-Mar-14 A | 30-Mar-15 | █ | | | | | | | | | | | | | | | | | | |
| Lea Ann Way Interceptor I/I Rehabilitation Project (H12064) | | | | | | | | | | | | | | | | | | | | | | | |
| A3040 | Warranty | 100% | 04-Jun-13 A | 04-Jun-14 A | █ | | | | | | | | | | | | | | | | | | |
| Lea Ann Way East - Stonybrook Rehabilitation Project (C08433) | | | | | | | | | | | | | | | | | | | | | | | |
| A3910 | Construction | 100% | 15-Dec-12 A | 01-Oct-13 A | █ | | | | | | | | | | | | | | | | | | |
| A4020 | Warranty | 90% | 01-Nov-13 A | 01-Nov-14 | █ | | | | | | | | | | | | | | | | | | |
| Lake Forest Sanitary Sewer Rehabilitation Project (H11303) | | | | | | | | | | | | | | | | | | | | | | | |
| A3190 | Construction | 100% | 01-Nov-12 A | 30-Aug-13 A | █ | | | | | | | | | | | | | | | | | | |
| A3370 | Warranty | 100% | 31-Aug-13 A | 31-Aug-14 A | █ | | | | | | | | | | | | | | | | | | |
| Camp Taylor SSR Phase I Project (H09407) | | | | | | | | | | | | | | | | | | | | | | | |
| A3680 | Warranty | 100% | 21-Sep-12 A | 21-Sep-13 A | █ | | | | | | | | | | | | | | | | | | |
| Prospect Phase I Sanitary Sewer Rehabilitation Project (H11311) | | | | | | | | | | | | | | | | | | | | | | | |
| A3210 | Ad | 100% | 15-Jul-13 A | | ◆ | | | | | | | | | | | | | | | | | | |
| A3220 | Bid Open | 100% | 06-Aug-13 A | | ◆ | | | | | | | | | | | | | | | | | | |
| A3230 | Award | 100% | 26-Aug-13 A | | ◆ | | | | | | | | | | | | | | | | | | |
| A3240 | Construction | 90% | 20-Sep-13 A | 19-Dec-14 | █ | | | | | | | | | | | | | | | | | | |
| Meadow Stream Sanitary Sewer Rehabilitation Project (H11305) | | | | | | | | | | | | | | | | | | | | | | | |
| A4890 | Ad | 100% | 30-Jul-13 A | | ◆ | | | | | | | | | | | | | | | | | | |
| A4900 | Bid Open | 100% | 03-Sep-13 A | | ◆ | | | | | | | | | | | | | | | | | | |
| A4920 | Award | 100% | 23-Sep-13 A | | ◆ | | | | | | | | | | | | | | | | | | |
| A4910 | Construction | 95% | 21-Oct-13 A | 21-Oct-14 | █ | | | | | | | | | | | | | | | | | | |
| Lea Ann Way East - Fegenbush Rehabilitation Project (C08433) | | | | | | | | | | | | | | | | | | | | | | | |
| A3960 | Construction | 100% | 01-Dec-12 A | 01-Oct-13 A | █ | | | | | | | | | | | | | | | | | | |
| A4010 | Warranty | 60% | 28-Feb-14 A | 28-Feb-15 | █ | | | | | | | | | | | | | | | | | | |
| Lea Ann Way East - Fern Creek Rehabilitation Project (C08433) | | | | | | | | | | | | | | | | | | | | | | | |
| A4160 | Construction | 100% | 05-Oct-12 A | 01-Oct-13 A | █ | | | | | | | | | | | | | | | | | | |
| A5690 | Warranty | 100% | 01-Oct-13 A | 01-Oct-14 A | █ | | | | | | | | | | | | | | | | | | |
| Lea Ann Way East - Picadilly Rehabilitation Project (C08433) | | | | | | | | | | | | | | | | | | | | | | | |
| A4260 | Construction | 100% | 15-Dec-12 A | 31-Aug-13 A | █ | | | | | | | | | | | | | | | | | | |
| Caven Avenue Rehab Project (H11304) | | | | | | | | | | | | | | | | | | | | | | | |
| A5280 | Award | 100% | 22-Jul-13 A | | ◆ | | | | | | | | | | | | | | | | | | |
| A5290 | Construction | 100% | 03-Sep-13 A | 15-Sep-14 A | █ | | | | | | | | | | | | | | | | | | |
| Beargrass Interceptor Rehab Project (H09207) | | | | | | | | | | | | | | | | | | | | | | | |
| A5360 | Design | 100% | 01-May-13 A | 31-Aug-13 A | █ | | | | | | | | | | | | | | | | | | |
| Berrytown Rehab Project (H11299) | | | | | | | | | | | | | | | | | | | | | | | |
| A5460 | Design | 100% | 01-Jul-13 A | 01-Sep-13 A | █ | | | | | | | | | | | | | | | | | | |

Actual Work ◆ Milestone
Remaining Work

| MSD CMOM Annual Commitments Schedule (FY2014-FY2015) | | | | | | Date: 16-Dec-14 | | | | | | | | | | | | | | | | | |
|--|------------------------------------|---------------------|-------------|-------------|------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Activity ID | Activity Name | Physical % Complete | Start | Finish | 2014 | | | | | | | | | | | | | | | | | | |
| | | | | | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | |
| A5500 | Construction | 100% | 15-Mar-14 A | 30-Aug-14 A | | | | | | | | | | | | | | | | | | | |
| Starview Rehab Project (H11312) | | | | | | | | | | | | | | | | | | | | | | | |
| A5510 | Design | 100% | 01-Aug-13 A | 01-Nov-13 A | | | | | | | | | | | | | | | | | | | |
| A5550 | Construction | 100% | 15-Mar-14 A | 30-Aug-14 A | | | | | | | | | | | | | | | | | | | |
| Camp Taylor Area 3 Rehab Project (H09218) | | | | | | | | | | | | | | | | | | | | | | | |
| A5420 | Ad | 100% | 20-Aug-13 A | | | | | | | | | | | | | | | | | | | | |
| A5430 | Bid Open | 100% | 01-Oct-13 A | | | | | | | | | | | | | | | | | | | | |
| A5440 | Award | 100% | 28-Oct-13 A | | | | | | | | | | | | | | | | | | | | |
| A5450 | Construction | 90% | 01-Dec-13 A | 31-Dec-14 | | | | | | | | | | | | | | | | | | | |
| Annual I/I FY14 Project (H14184) | | | | | | | | | | | | | | | | | | | | | | | |
| A5700 | Ad | 100% | 23-Sep-13 A | | | | | | | | | | | | | | | | | | | | |
| A5710 | Bid Open | 100% | 15-Oct-13 A | | | | | | | | | | | | | | | | | | | | |
| A5720 | Award | 100% | 16-Dec-13 A | | | | | | | | | | | | | | | | | | | | |
| A5730 | Construction | 50% | 28-Jan-14 A | 28-Jan-15 | | | | | | | | | | | | | | | | | | | |
| A5740 | Berrytown | 100% | 28-Jan-14 A | 30-Aug-14 A | | | | | | | | | | | | | | | | | | | |
| A6140 | Camp Taylor Tophats 4&5 | 100% | 28-Jan-14 A | 01-Sep-14 A | | | | | | | | | | | | | | | | | | | |
| A6150 | Hillridge | 60% | 28-Jan-14 A | 30-Dec-14 | | | | | | | | | | | | | | | | | | | |
| A6160 | Rosa Terrace | 90% | 28-Jan-14 A | 30-Oct-14 | | | | | | | | | | | | | | | | | | | |
| A6170 | Starview | 80% | 28-Jan-14 A | 30-Oct-14 | | | | | | | | | | | | | | | | | | | |
| A6180 | Goose Creek | 50% | 28-Jan-14 A | 30-Dec-14 | | | | | | | | | | | | | | | | | | | |
| A6190 | LAW Quad3 Whispering Hills Phase I | 90% | 28-Jan-14 A | 30-Dec-14 | | | | | | | | | | | | | | | | | | | |
| FY13 ICA Project | | | | | | | | | | | | | | | | | | | | | | | |
| A4410 | Planning | 100% | 01-Jun-12 A | 31-Jul-14 A | | | | | | | | | | | | | | | | | | | |
| Goose Creek PS SSES (H11407) | | | | | | | | | | | | | | | | | | | | | | | |
| A4950 | Planning | 95% | 01-Apr-13 A | 31-Jan-15 | | | | | | | | | | | | | | | | | | | |
| Nightingale PS SSES (H11313) | | | | | | | | | | | | | | | | | | | | | | | |
| A5110 | Planning | 95% | 15-Jul-13 A | 31-Dec-14 | | | | | | | | | | | | | | | | | | | |
| 2015 Annual Sewer Rehabilitation (H09208) | | | | | | | | | | | | | | | | | | | | | | | |
| A5470 | Design | 100% | 01-Aug-14 A | 01-Sep-14 A | | | | | | | | | | | | | | | | | | | |
| A5480 | Ad | 100% | 15-Sep-14 A | | | | | | | | | | | | | | | | | | | | |
| A5490 | Bid Open | 0% | 15-Oct-14* | | | | | | | | | | | | | | | | | | | | |
| A5520 | Award | 0% | 30-Dec-14* | | | | | | | | | | | | | | | | | | | | |
| Pump Station Operations Programs | | | | | | | | | | | | | | | | | | | | | | | |
| O-A-2 Emergency Operation Programs | | | | | | | | | | | | | | | | | | | | | | | |
| Trinity Homes Pump Station Emergency Generator & Access Road (H11440) | | | | | | | | | | | | | | | | | | | | | | | |
| A2310 | Warranty | 100% | 16-Jan-13 A | 16-Jan-14 A | | | | | | | | | | | | | | | | | | | |
| Trinity Homes Pump Station Roof Hatch (H13154) | | | | | | | | | | | | | | | | | | | | | | | |
| A4640 | Construction | 100% | 24-Apr-13 A | 28-Aug-13 A | | | | | | | | | | | | | | | | | | | |
| A5560 | Warranty | 100% | 28-Aug-13 A | 28-Aug-14 A | | | | | | | | | | | | | | | | | | | |
| Northern Ditch Diversion Structure Flow Meter Manhole Project (H13033) | | | | | | | | | | | | | | | | | | | | | | | |
| A5120 | Warranty | 100% | 16-Apr-13 A | 16-Apr-14 A | | | | | | | | | | | | | | | | | | | |
| Royster Basin Access Road Project (H12163) | | | | | | | | | | | | | | | | | | | | | | | |
| A5200 | Warranty | 100% | 16-Jan-13 A | 16-Jan-14 A | | | | | | | | | | | | | | | | | | | |
| Royster Basin Generator Project (H12163) | | | | | | | | | | | | | | | | | | | | | | | |
| A4810 | Design | 100% | 26-Mar-12 A | 31-Jul-13 A | | | | | | | | | | | | | | | | | | | |
| A4820 | Ad | 100% | 17-Jan-14 A | | | | | | | | | | | | | | | | | | | | |
| A4850 | Bid Open | 100% | 04-Feb-14 A | | | | | | | | | | | | | | | | | | | | |
| A4830 | Award | 100% | 09-Jun-14 A | | | | | | | | | | | | | | | | | | | | |

Actual Work ◆ Milestone
Remaining Work

| MSD CMOM Annual Commitments Schedule (FY2014-FY2015) | | | | | 2014 | | | | | | | | | | | | Date: 16-Dec-14 | | | | | | | |
|---|---------------|---------------------|-------------|-------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----|-----|--|
| Activity ID | Activity Name | Physical % Complete | Start | Finish | 13 | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | |
| A4840 | Construction | 40% | 28-Aug-14 A | 18-Jan-15 | | | | | | | | | | | | | | | | | | | | |
| St. Matthews #4 Pump Station Modification Project (H14211) | | | | | | | | | | | | | | | | | | | | | | | | |
| A5790 | Design | 100% | 01-Jul-13 A | 26-Nov-13 A | | | | | | | | | | | | | | | | | | | | |
| A5800 | Ad | 100% | 08-Jan-14 A | | | | | | | | | ◆ | | | | | | | | | | | | |
| A5830 | Bid Open | 100% | 21-Feb-14 A | | | | | | | | | | ◆ | | | | | | | | | | | |
| A5810 | Award | 100% | 29-May-14 A | | | | | | | | | | | | | | | | | | | | | |
| A5820 | Construction | 100% | 29-May-14 A | 29-Aug-14 A | | | | | | | | | | | | | | | | | | | | |
| Gunpowder Pump Station FM Modification Project (H14211) | | | | | | | | | | | | | | | | | | | | | | | | |
| A6040 | Design | 100% | 01-Sep-13 A | 30-Sep-14 A | | | | | | | | | | | | | | | | | | | | |
| Prospect Point Pump Station Access Road (H13084) | | | | | | | | | | | | | | | | | | | | | | | | |
| A5140 | Warranty | 100% | 16-Apr-13 A | 16-Apr-14 A | | | | | | | | | | | | | | | | | | | | |
| Brandies FPS Ventilation Modifications (H09352) | | | | | | | | | | | | | | | | | | | | | | | | |
| A5020 | Ad | 100% | 01-Oct-13 A | | | | | | | | | | | | | | | | | | | | | |
| A5030 | Bid Open | 100% | 30-Oct-13 A | | | | | | | | | | | | | | | | | | | | | |
| A5040 | Award | 100% | 26-Nov-13 A | | | | | | | | | | | | | | | | | | | | | |
| A5050 | Construction | 100% | 26-Nov-13 A | 15-May-14 A | | | | | | | | | | | | | | | | | | | | |
| Valley Village PS Header Piping Improvements Project (H09352) | | | | | | | | | | | | | | | | | | | | | | | | |
| A5000 | Construction | 100% | 13-Mar-13 A | 02-Jul-13 A | | | | | | | | | | | | | | | | | | | | |
| A5060 | Warranty | 100% | 03-Jul-13 A | 01-Jul-14 A | | | | | | | | | | | | | | | | | | | | |
| 4th Street FPS Gate and Switch Gear Replacement Project (F12095) | | | | | | | | | | | | | | | | | | | | | | | | |
| A5150 | Design | 70% | 04-Jan-13 A | 28-Feb-15 | | | | | | | | | | | | | | | | | | | | |
| Shannon Run PS Elimination Project (B13132) | | | | | | | | | | | | | | | | | | | | | | | | |
| A5300 | Warranty | 100% | 01-Jun-13 A | 01-Jul-14 A | | | | | | | | | | | | | | | | | | | | |
| CPE/CPE Treatment Plant Activities | | | | | | | | | | | | | | | | | | | | | | | | |
| Morris Forman WWTP Sampling Manholes (H14107) | | | | | | | | | | | | | | | | | | | | | | | | |
| A4750 | Design | 100% | 01-Sep-12 A | 13-Sep-13 A | | | | | | | | | | | | | | | | | | | | |
| A4710 | Ad | 100% | 18-Oct-13 A | | | | | | | | | | | | | | | | | | | | | |
| A4740 | Bid Open | 100% | 21-Nov-13 A | | | | | | | | | | | | | | | | | | | | | |
| A4720 | Award | 100% | 15-Jan-14 A | | | | | | | | | | | | | | | | | | | | | |
| A4730 | Construction | 100% | 15-Jan-14 A | 15-Jun-14 A | | | | | | | | | | | | | | | | | | | | |
| MFWQTP Rubbertown Sampling Manholes (H09374) | | | | | | | | | | | | | | | | | | | | | | | | |
| A6090 | Design | 100% | 02-Sep-13 A | 30-Aug-14 A | | | | | | | | | | | | | | | | | | | | |
| A6100 | Ad | 0% | 15-Dec-14* | | | | | | | | | | | | | | | | | | | | | |
| Morris Forman Secondary Flume Replacement (H12047) | | | | | | | | | | | | | | | | | | | | | | | | |
| A3270 | Construction | 100% | 12-Sep-12 A | 23-Aug-13 A | | | | | | | | | | | | | | | | | | | | |
| Berrytown Tank Rehabilitation (H09374) | | | | | | | | | | | | | | | | | | | | | | | | |
| A5350 | Design | 100% | 01-Mar-13 A | 30-May-14 A | | | | | | | | | | | | | | | | | | | | |
| A5330 | Construction | 100% | 02-Jun-14 A | 23-Jun-14 A | | | | | | | | | | | | | | | | | | | | |
| Hillridge WTP Diversion Project (A13070) | | | | | | | | | | | | | | | | | | | | | | | | |
| A5680 | Warranty | 100% | 01-Dec-12 A | 01-Dec-13 A | | | | | | | | | | | | | | | | | | | | |
| West County Force Main Assessment (H09519) | | | | | | | | | | | | | | | | | | | | | | | | |
| A5340 | Planning | 50% | 20-Jun-14 A | 28-Feb-15 | | | | | | | | | | | | | | | | | | | | |

Actual Work ◆ Milestone
Remaining Work



SECTION 7: Supplemental Environmental Projects (SEPs) Annual Report

This section defines the progress on projects as identified in Appendix G of the Amended Consent Decree. The program activities performed during the FY14 are included in this section. All SEPs have been completed, this will represent the final reporting of SEP activities.

7.1 SEP Requirements

The original SEP requirements (August 2005) were outlined in paragraph 28 of the Consent Decree, with the specific SEPs described in Exhibit A of the Consent Decree. In April 2009 an Amended Consent Decree was filed and contained additional SEP requirements. These were outlined in paragraph 34 of the Amended Consent Decree, with the specific SEPS described in Exhibit H of the Amended Consent Decree.

The SEPs categories and related deadlines are as follows.

- **Public Health Screenings – Western Louisville** - Originally this was to be performed by December 31, 2007, subject to the approval of the Health Department. In 2007 Louisville Mayor Jerry E. Abramson signed a resolution to enter into an agreement with KDEP and MSD to organize and conduct community health screenings with results, follow-up and referrals. The scope was revised and the Louisville Metro Department of Health & Wellness continues to progress toward completion. These activities were completed prior to April 31, 2014.

Funding level: \$1,200,000 and completed prior to April 30, 2014.

- **Environmental Education and Public Outreach** -
 - Riparian buffers - Originally these activities were to be performed by August 12, 2008, but the deadline was later amended to Dec. 31, 2008. **Funding level: \$250,000 and completed prior to December 31, 2008.**
 - Sustainable Landscaping - Education, planning and plant material for implementing sustainable landscaping for urban areas. Specifically, schools and low-income housing were targeted. These activities were completed prior to the deadline of August 12, 2007. **Funding level: \$100,000 and completed prior to August 12, 2007.**
 - Outdoor Classroom - Continued support of the Outdoor Classroom program with Jefferson County Public Schools. These activities will be completed prior to the deadline of August 12, 2010. **Funding level: \$100,000 and to be completed by August 12, 2010.**
 - Kentucky Personal Responsibility in a Desirable Environment (PRIDE) – Implementation and/or expansion of PRIDE into the local and regional area. These activities were completed prior to the deadline of February 12, 2006. **Funding level: \$200,000 and completed prior to February 12, 2006.**
 - Environmental Education Certification – Continued support for the existing Certification Program. These activities will be completed prior to the deadline of

August 12, 2010. **Funding level: \$50,000 and completed prior to August 12, 2010.**

- Watershed Focused Environmental Groups - Provide funding to assist these groups with environmental education and public outreach activities. These activities were completed prior to the deadline of August 12, 2010. **Original Funding level: \$250,000. Completed prior to August 12, 2010.**
- Bicycle and Pedway Connections along K&I Railroad Bridge and Metro Park System - These activities were completed prior to the deadline of August 12, 2010. **Funding level: \$100,000 and Completed prior to February 12, 2007.**
- **Stream Restoration Project** – The project provides one-time restoration work for various stretches of Jefferson County streams. As required, MSD submitted a stream restoration plan to EPA and KDEP within 30 days of the entry of the Amended Consent Decree. Approval of this plan was received on September 25, 2009. Within six months of approval by EPA, MSD must begin construction on the project and the work is to be complete one year from the beginning of the work. **Funding level: \$400,000 for construction, and completed prior to March 25, 2011.**

The Consent Decree requires preparation of a SEP Completion Report within 60 days of the completion of the specific SEP. The report must address the following topics:

- A detailed description of the SEP
- A description of any operating problems encountered and the solutions thereto
- A breakdown of itemized costs
- Certification that the SEP is complete
- A description of the environmental and public health benefits resulting from the SEP

The following sections describe progress on the SEPs with continuing activities, describing the completed tasks, current status during FY14. For SEPS activities completed within FY14, copies of the SEP Completion Reports are included in **Appendix K**. This documentation from MSD is considered by MSD to fulfill the commitment as stated in paragraph 34 of the Amended Consent Decree.

7.2 Public Health Screening – Western Louisville (Budget ID J06248)

The Public Health Screening project represents the final active SEP, and with the project completion will represent the final satisfaction of SEP commitments as outlined in the Amended Consent Decree. This SEP was to perform public health screenings for residents adjacent to the industrialized areas of western portion of Louisville Metro. The screenings were coordinated through the Louisville Metro Department of Public Health and Wellness (LMPHW) and performed at no cost to the residents. During the screening period of September 10, 2007, to November 9, 2007, 2,407 people participated. The Community Health Screenings Project Report, with the statistical data and demographical information, was included as Section 8 of the FY09 Consent Decree Annual Report, dated December 30, 2009.

In 2007, nearly \$400,000 of the committed \$1.2 Million for the Public Health Screening SEP remained after the initial completion of activities. An extension of the SEP schedule to 2014, with additional project partners was negotiated and executed to fulfill the financial SEP agreement. The Louisville Metro Department of Public Health & Wellness (LMPHW) executed a contract with University of Louisville Pediatrics Clinic in FY14, for \$83,990, to provide enhanced community services from a nurse to contact the Clinic's asthmatic children and their families to assure appropriate compliance with medications and avoidance of environmental hazards. There was also completion of work with Norton Healthcare to provide cancer screenings, and The Family Health Centers, Inc. to provide primary healthcare to low-income Louisville Metro residents. This is the final contract needed to satisfy the SEP commitments as outlined in the Amended Consent Decree. In **Appendix K**, a report is provided from the LMPHW that summarizes final Program accomplishments and detailed accounts of spending on the SEP.

Funding amount: \$1,200,000

Status: Complete. A final report from the Louisville Metro Department of Public Health & Wellness is included in **Appendix K**.

APPENDIX A – CSO108 FY14 EFFICACY REPORTS



INTRODUCTION

The Louisville and Jefferson County Metropolitan Sewer District (MSD) has entered into a Memorandum of Understanding (MOU) with the Kentucky State Nature Preserve Commission (Commission). The MOU was signed by MSD on July 30, 2008, and by the Commission on September 17, 2008. This MOU is effective for the period starting September 1, 2008, and ending on September 1, 2018.

This is the eleventh Semi-Annual Report submitted in accordance with Paragraph 10 of the MOU. This report covers the time period of July 1, 2013 to December 31, 2013.

This Semi-Annual Report will address only those requirements considered ongoing. The initial Semi-Annual Report, MOU Semi-Annual Report #1, was comprehensive and included a response to each requirement addressed within the MOU. Please refer to the initial Semi-Annual Report should you need additional information not found within this document.

Work and activities undertaken by MSD and relating to the MOU are outlined in the paragraphs below:

Paragraph #10 of the MOU:

MSD shall be diligent of this ten year period in more timely supplying the Commission with semi-annual reports on the efficacy of the CDS unit, water quality monitoring data, and any other such pertinent information. Said reports shall be provided to the Commission by June 30 and December 31 of each year.

- MSD Response: This document is the eleventh semi-annual report to the Commission since the completion of the Project.
- Cleaning and Inspection Activities:

The CSO 108 CDS Unit is inspected weekly and cleaned on an as-needed basis. Between the dates of July 1, 2013, and December 29, 2013, MSD cleaned the CDS Unit bar racks once on July 26, 2013. The information, shown in Table 1, is generated from work orders initiated whenever the CDS Unit is inspected and needs to be cleaned. Cleaning consists of either washing debris off of the bar racks or hauling the solids and floatables from the site. Both operations result in removing debris that would otherwise overflow into Beargrass Creek. When cleaning the bar



racks, the debris is reintroduced into the sewer system, and as a result, is difficult to accurately estimate the amount removed during the maintenance process. The Crystal Report indicates the quantity removed as “unknown”.

TABLE 1: CSO 108 CDS Unit Debris Removal

| <u>ACTCO</u> | <u>UNITID</u> | <u>FAILCODE</u> | <u>QTY</u> | <u>COMMENTS</u> | <u>COMPDTM</u> |
|--------------|---------------|------------------------|-----------------|---|---------------------|
| Debris | CSO 108 | Solids & Floatables | 1 Cubic Yard | Removed approximately one cubic yard of debris from CDS Unit | 07/26/13 7:30 am |

- Maintenance Activities:

In addition to the weekly inspections, MSD has initiated a preventative maintenance program to insure that the CDS Unit and respective pumps are performing optimally. During these quarterly preventative maintenance activities MSD staff also cleans the CDS Unit and rack bars, washing the debris into the interceptor. The CDS Unit’s pumps are removed from the facility twice yearly to more closely inspect and to perform any needed maintenance. The work orders associated with the preventative maintenance activities are shown in Attachment “B”.

- Captured Flow

The CDS system was placed along the Trevillian Way Twin Trunk Sewer to capture solids and floatables from a 485 acre drainage area. The unit uses a vortex action created by the hydraulic energy of incoming flow to separate solids and floatable from the flow. The treated flow is then discharged through the outlet pipe to Beargrass Creek and the debris that is captured is pumped to the Morris Forman Water Quality Treatment Center (MFWQTC).

In an effort to estimate the volume of debris captured by the CDS Unit and kept within the sewer system, a study of the efficiency of the unit was performed in the early 2002. The results of the study indicated that the concentration of solids kept within the sewer system was approximately 1ml/l. Using pump run times and knowing the efficiency of the pumps, MSD was able to determine a volume of solids



**MOU Semi-Annual Report #11
July 1, 2013 – December 31, 2013**

captured by the CDS technology. MSD estimates that the CDS Unit captured 5.44 tons of solids during the reporting period. Attachment "C" lists the pump run times and calculations MSD used to determine the amount of debris captured by the CDS Unit and sent to the MFWQTC for treatment.



MOU Semi-Annual Report #11
July 1, 2013 – December 31, 2013

ATTACHMENT "A"

PHOTOS OF AREA ADJACENT TO CSO 108 AND THE CDS UNIT (dated December 16, 2013)



Figure 1 – Entrance to CDS Unit



Figure 2 – Area Adjacent to CDS Unit



Figure 3 – Area Adjacent to Entrance



Figures 4 & 5 – Area Adjacent to Creek



MOU Semi-Annual Report #11
July 1, 2013 – December 31, 2013

ATTACHMENT "B"

PREVENTATIVE MAINTENANCE WORK ORDERS

December 30, 2013

INFOR HANSEN 8

12/27/2013 08:30

Work Order # 2004157

Sewer Lift Station
 MSD1204-PS
 TELEMTRY CONTROLS 6 MO PM
 CDS UNIT
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code TELEM6
 Asset

Summary

Closed on 10/2/2013 by STEVEN ROBBINS.
 Authorized by KSLAUG.
 Maintenance Type is PM.
 Part of Group Project 18548
 Budget is 7457212.

Information

Work Order Information

Initiated 8/29/2013 00:00
 Source
 Authorization KSLAUG
 Schedule Start 9/1/2013 00:00
 Maint Type PM
 Assigned To CONTROLS-SUP
 Schedule Finish
 Problem
 Responsibility CTRL
 Due 11/22/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18548
 7457212
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00059
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Distance 0.00
 Valuation Type
 Started 10/2/2013 00:00
 Linked Case
 QC Performed no
 Closed 10/2/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|------------------|-----------|----------|
| TELEM6 | Labor | 00059 REGULAR SALARY | 1 | Hours | 60.8300 | \$60.83 | 10/11/2013 00:00 | | |
| TELEM6 | Labor | 53963 REGULAR SALARY | 1 | Hours | 60.8300 | \$60.83 | 10/11/2013 00:00 | | |

Planned Tasks

Complete All
 Complete Selected

1

Tasks

| Task | Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------|--------------------------------|----------|------|-------|---------|-----------|------|----------|
| FMTR7 | NOTIFY COMPUTER ROOM PRE-TASK | 0 | | 0 | 0 | | | |
| LOTO | LOCK OUT/TAG OUT | 0 | | 0 | 0 | | | |
| TELM14 | CONFIRM UPS WORKING | 0 | | 0 | 0 | | | |
| TELM15 | CALIBRATE 4-20 MA SIGNAL | 0 | | 0 | 0 | | | |
| TELM16 | VERIFY OVER ENTIRE SPAN | 0 | | 0 | 0 | | | |
| TELM13 | LOOK FOR CORRUPT DATA | 0 | | 0 | 0 | | | |
| TELM12 | CHECK/REPLACE BATTERY | 0 | | 0 | 0 | | | |
| CKS | CHECK SETTINGS | 0 | | 0 | 0 | | | |
| REPORT | REPORT ANY PROBLEMS | 0 | | 0 | 0 | | | |
| FMTR8 | NOTIFY COMPUTER ROOM POST-TASK | 0 | | 0 | 0 | | | |
| WO | NOTE CORRECTIVE WO REQUIRED | 0 | | 0 | 0 | | | |
| PMLNR | RETURN COMPLETED PM TO PLANNER | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00

| |
|-----------------|
| 0.00 |
| Plant Equipment |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Extra Item |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Labor |
| 0.00 |
| 121.66 |
| -121.66 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 121.66 |
| -121.66 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INTEGR HANSEN 8

12/27/2013 08:56

Work Order # 2021836

Plant Equipment
 CDS-LVL-01
 LEVEL SENSORS MONTHLY (SNTRY)
 CDS PUMP LEVEL SENSOR #1 SIGMA 950 FLOW METER

Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
Activity Code FPSA04
 Asset

Summary

Closed on 10/29/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18785
 Budget is 7478123.

Information

Work Order Information

Initiated 9/30/2013 00:00
Source
Authorization RFLYNN
Schedule Start 10/1/2013 00:00
Maint Type PM
Assigned To FLOODPS-SUP
Schedule Finish
Problem
Responsibility FLDOPS
Due 11/12/2013 00:00
Priority
Reference #
Initiated By MIDASSYS
Service Request 0
Project
Estimated Cost 0.00
Group Project 18785
 7478123
Inspection# 0
Budget Number
Out of Service no
Potential Service
Request no
Incident 0

Create eB Container no
Stoppage no
Crew Days 0.00
Flow Dapth 0.00
Measured Flow 0.00
Closed By 15575
Hours 0.00
Down Time 0.00
Result WOCOM
Condition
Actual Quantity 0.000
Usage 0.000
Distance 0.00
Valuation Type
Started 10/29/2013 00:00
Linked Case
QC Performed no
Closed 10/29/2013 00:00
QC By
Major Failure no
Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|------------------|-----------|----------|
| FPSA04 | Labor | 15393 REGULAR SALARY | 0.57 | Hours | 60.8245 | \$34.67 | 11/15/2013 00:00 | | |
| FPSA04 | Labor | 15575 REGULAR SALARY | 1 | Hours | 60.8300 | \$60.83 | 11/15/2013 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS095 CK FOR PROPER OPERATION | 0 | | 0 | | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor

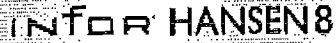
0.00
95.50
-95.50
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
95.50
-95.50
0.00

Other Observation

Other Observation

1

(No Data)



12/27/2013 08:57

Work Order # 1941723

Plant Equipment
 CDS-01
 CDS UNIT QUARTERLY
 CDS UNIT - CREEK
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA19
 Asset

Summary

Closed on 9/13/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 17599
 Budget is 7478123.

Information

Work Order Information

Initiated 6/29/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 7/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 8/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 17599
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 9/13/2013 00:00
 Linked Case
 QC Performed no
 Closed 9/13/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-----------------|-----------|----------|
| FPSA19 | Labor | 00049 REGULAR SALARY | 1 | Hours 60.8300 | \$60.83 | 9/20/2013 00:00 | | |
| FPSA19 | Labor | 15575 REGULAR SALARY | 1 | Hours 60.8300 | \$60.83 | 9/20/2013 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS160 PUMP DOWN CDS UNIT | 0 | | 0 | 0 | | | |
| FPS161 INSPECT FOR SCREEN DAMAGE | 0 | | 0 | 0 | | | |
| FPS162 SPRAY OFF SCREENS | 0 | | 0 | 0 | | | |
| FPS163 CHECK SPRAY DOWN PIPING | 0 | | 0 | 0 | | | |
| FPS164 CK SPRAY NOZZLE FOR CLOG/DRCTN | 0 | | 0 | 0 | | | |
| FPS165 CK CDS SUMP FOR DEBRIS | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00

| |
|------------|
| Extra Item |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Labor |
| 0.00 |
| 121.66 |
| -121.66 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 121.66 |
| -121.66 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

12/27/2013 08:58

Work Order # 2021844

Plant Equipment
 CDS-01
 CDS UNIT QUARTERLY
 CDS UNIT - CREEK
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA19
 Asset

Summary

Closed on 10/29/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18786
 Budget is 7478123.

Information

Work Order Information

Initiated 9/30/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 10/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 11/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18786
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service
 Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 10/29/2013 00:00
 Linked Case
 QC Performed no
 Closed 10/29/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-------------|-----------|----------|
| FPSA19 | Labor | 15393 REGULAR SALARY | 0.57 | Hours | 60.8245 | \$34.67 | 11/15/2013 | 00.00 | |
| FPSA19 | Labor | 15575 REGULAR SALARY | 1 | Hours | 60.8300 | \$60.83 | 11/15/2013 | 00.00 | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS160 PUMP DOWN CDS UNIT | 0 | 0 | 0 | 0 | | | |
| FPS161 INSPECT FOR SCREEN DAMAGE | 0 | 0 | 0 | 0 | | | |
| FPS162 SPRAY OFF SCREENS | 0 | 0 | 0 | 0 | | | |
| FPS163 CHECK SPRAY DOWN PIPING | 0 | 0 | 0 | 0 | | | |
| FPS164 CK SPRAY NOZZLE FOR CLOG/DRCTN | 0 | 0 | 0 | 0 | | | |
| FPS165 CK CDS SUMP FOR DEBRIS | 0 | 0 | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00

| |
|------------|
| Extra Item |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Labor |
| 0.00 |
| 95.50 |
| -95.50 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 95.50 |
| -95.50 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN 8

12/27/2013 09:17

Work Order # 1941725

Plant Equipment
 CDS-02
 CDS UNIT QUARTERLY
 CDS UNIT - STREET
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA19
 Asset

Summary

Closed on 9/13/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 17599
 Budget is 7478123.

Information

Work Order Information

Initiated 6/29/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 7/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 8/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 17599
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 9/13/2013 00:00
 Linked Case
 QC Performed no
 Closed 9/13/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-----------------|-----------|----------|
| FPSA19 | Labor | 00049 REGULAR SALARY | 1 | Hours 60.8300 | \$60.83 | 9/20/2013 00:00 | | |
| FPSA19 | Labor | 15575 REGULAR SALARY | 1 | Hours 60.8300 | \$60.83 | 9/20/2013 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS160 PUMP DOWN CDS UNIT | 0 | | 0 | 0 | | | |
| FPS161 INSPECT FOR SCREEN DAMAGE | 0 | | 0 | 0 | | | |
| FPS162 SPRAY OFF SCREENS | 0 | | 0 | 0 | | | |
| FPS163 CHECK SPRAY DOWN PIPING | 0 | | 0 | 0 | | | |
| FPS164 CK SPRAY NOZZLE FOR CLOG/DRCTN | 0 | | 0 | 0 | | | |
| FPS165 CK CDS SUMP FOR DEBRIS | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00

| |
|------------|
| Extra Item |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Labor |
| 0.00 |
| 121.66 |
| -121.66 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 121.66 |
| -121.66 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INTER HANSEN 8

12/27/2013 09:17

Work Order # 2021845

Plant Equipment
 CDS-02
 CDS UNIT QUARTERLY
 CDS UNIT - STREET
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA19
 Asset

Summary

Closed on 10/29/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18786
 Budget is 7478123.

Information

Work Order Information

Initiated 9/30/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 10/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 11/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18786
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 10/29/2013 00:00
 Linked Case
 QC Performed no
 Closed 10/29/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|------------------|-----------|----------|
| FPSA19 | Labor | 15393 REGULAR SALARY | 0.57 | Hours 60.8245 | \$34.67 | 11/15/2013 00.00 | | |
| FPSA19 | Labor | 15575 REGULAR SALARY | 1 | Hours 60.8300 | \$60.83 | 11/15/2013 00.00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS160 PUMP DOWN CDS UNIT | 0 | | 0 | 0 | | | |
| FPS161 INSPECT FOR SCREEN DAMAGE | 0 | | 0 | 0 | | | |
| FPS162 SPRAY OFF SCREENS | 0 | | 0 | 0 | | | |
| FPS163 CHECK SPRAY DOWN PIPING | 0 | | 0 | 0 | | | |
| FPS164 CK SPRAY NOZZLE FOR CLOG/DRCTN | 0 | | 0 | 0 | | | |
| FPS165 CK CDS SUMP FOR DEBRIS | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00

| |
|------------|
| Extra Item |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Labor |
| 0.00 |
| 95.50 |
| -95.50 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 95.50 |
| -95.50 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN 8

12/27/2013 09:19

Work Order # 1941727

Plant Equipment
 CDS-REG-00
 CDS FLOW REGULATOR BOX QUARTER
 CDS FLOW REGULATOR BOX
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA37
 Asset

Summary

Closed on 9/13/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 17600
 Budget is 7478123.

Information

Work Order Information

Initiated 6/29/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 7/11/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 8/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 17600
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 9/13/2013 00:00
 Linked Case
 QC Performed no
 Closed 9/13/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-----------------|-----------|----------|
| FPSA37 | Labor | 00049 REGULAR SALARY | 1 | Hours 60.8300 | \$60.83 | 9/20/2013 00:00 | | |
| FPSA37 | Labor | 15575 REGULAR SALARY | 1 | Hours 60.8300 | \$60.83 | 9/20/2013 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS166 CK FOR DEBRIS | 0 | | 0 | 0 | | | |
| FPS167 CK FLOAT OPERATION | 0 | | 0 | 0 | | | |
| FPS168 CK GATE OPERATION | 0 | | 0 | 0 | | | |
| FPS169 LUBRICATE UNIT | 0 | | 0 | 0 | | | |

Cost Summary

| | |
|--------------------|------|
| Estimated Costs | |
| Actual Costs | |
| Difference | |
| Actual Group Costs | |
| Contractor | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Fleet Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Plant Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Extra Item | 0.00 |

0.00
0.00
0.00
Labor
0.00
121.66
-121.66
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
121.66
-121.66
0.00

Other Observation

Other Observation

1

(No Data)



12/27/2013 09:20

Work Order # 2021846

Plant Equipment
 CDS-REG-00
 CDS FLOW REGULATOR BOX QUARTER
 CDS FLOW REGULATOR BOX
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA37
 Asset

Summary

Closed on 10/29/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18787
 Budget is 7478123.

Information

Work Order Information

Initiated 9/30/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 10/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 11/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18787
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 10/29/2013 00:00
 Linked Case
 QC Performed no
 Closed 10/29/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|------------------|-----------|----------|
| FPSA37 | Labor | 15393 REGULAR SALARY | 0.57 | Hours | 60.8245 | \$34.67 | 11/15/2013 00:00 | | |
| FPSA37 | Labor | 15575 REGULAR SALARY | 1 | Hours | 60.8300 | \$60.83 | 11/15/2013 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS166 CK FOR DEBRIS | 0 | | 0 | 0 | | | |
| FPS167 CK FLOAT OPERATION | 0 | | 0 | 0 | | | |
| FPS168 CK GATE OPERATION | 0 | | 0 | 0 | | | |
| FPS169 LUBRICATE UNIT | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00

0.00
0.00
0.00
Labor
0.00
95.50
-95.50
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
95.50
-95.50
0.00

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN 8

12/27/2013 09:21

Work Order # 1941709

Plant Equipment
 CDS-LVL-02
 LEVEL SENSORS MONTHLY (SNTRY)
 CDS PUMP LEVEL SENSOR #2 (WETWELL HYDROSTAT)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA04
 Asset

Summary

Closed on 7/29/2013 by RONALD SIMPSON JR.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 17597
 Budget is 7478123.

Information

Work Order Information

Initiated 6/29/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 7/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 8/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 17597
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00597
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 7/29/2013 10:44
 Linked Case
 QC Performed no
 Closed 7/29/2013 10:44
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-------------|-----------|----------|
| FPSA04 | Labor | 00597 REGULAR SALARY | 0.5 | Hours 60,8400 | \$30.42 | 8/9/2013 | 00.00 | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS095 CK FOR PROPER OPERATION | 0 | | 0 | | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor
 0.00

| |
|----------|
| 30.42 |
| -30.42 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 30.42 |
| -30.42 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

12/27/2013 09:21

Work Order # 2021837

Plant Equipment
 CDS-LVL-02
 LEVEL SENSORS MONTHLY (SNTRY)
 CDS PUMP LEVEL SENSOR #2 (WETWELL HYDROSTAT)

Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA04
 Asset

Summary

Closed on 10/29/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18785
 Budget is 7478123.

Information

Work Order Information

Initiated 9/30/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 10/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 11/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18785
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 10/29/2013 00:00
 Linked Case
 QC Performed no
 Closed 10/29/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|------------------|-----------|----------|
| FPSA04 | Labor | 15393 REGULAR SALARY | 0.57 | Hours | 60.8245 | \$34.67 | 11/15/2013 00:00 | | |
| FPSA04 | Labor | 15575 REGULAR SALARY | 1 | Hours | 60.8300 | \$60.83 | 11/15/2013 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS095 CK FOR PROPER OPERATION | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor

0.00
95.50
-95.50
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
95.50
-95.50
0.00

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN 8

12/27/2013 09:23

Work Order # 1941710

Plant Equipment
 CDS-LVL-03
 LEVEL SENSORS MONTHLY (SNTRY)
 CDS PUMP LEVEL SENSOR #3 (UNDERFLOW SUMP/CDS UNIT HYDROSTAT)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA04
 Asset

Summary

Closed on 7/29/2013 by RONALD SIMPSON JR.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 17597
 Budget is 7478123.

Information

Work Order Information

Initiated 6/29/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 7/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 8/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 17597
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00597
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 7/29/2013 10:43
 Linked Case
 QC Performed no
 Closed 7/29/2013 10:43
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-------------|-----------|----------|
| FPSA04 | Labor | 00597 REGULAR SALARY | 0.5 | Hours 60.8400 | \$30.42 | 8/9/2013 | 00:00 | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS095 CK FOR PROPER OPERATION | 0 | 0 | 0 | | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor
 0.00

| |
|----------|
| 30.42 |
| -30.42 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 30.42 |
| -30.42 |
| 0.00 |

Other Observation

Other Observation

1

{No Data}

INFOR HANSEN 8

12/27/2013 09:23

Work Order # 2021838

Plant Equipment
 CDS-LVL-03
 LEVEL SENSORS MONTHLY (SNTRY)
 CDS PUMP LEVEL SENSOR #3 (UNDERFLOW SUMP/CDS UNIT HYDROSTAT)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA04
 Asset

Summary

Closed on 10/29/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18785
 Budget is 7478123.

Information

Work Order Information

Initiated 9/30/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 10/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 11/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18785
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 10/29/2013 00:00
 Linked Case
 QC Performed no
 Closed 10/29/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-------------|-----------|----------|
| FPSA04 | Labor | 15393 REGULAR SALARY | 0.57 | Hours | 60.8245 | \$34.67 | 11/15/2013 | 00:00 | |
| FPSA04 | Labor | 15575 REGULAR SALARY | 1 | Hours | 60.8300 | \$60.83 | 11/15/2013 | 00:00 | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS095 CK FOR PROPER OPERATION | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor

0.00
95.50
-95.50
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
95.50
-95.50
0.00

Other Observation

Other Observation

1

(No Data)

INFORM HANSEN8

12/27/2013 09:25

Work Order # 1941712

Plant Equipment
 CDS-LVL-04
 LEVEL SENSORS MONTHLY (SNTRY)
 CDS PUMP FLOW SENSOR #4 (SIGMA 2410 UNDERFLOW FORCEMAIN ULTRASONIC
 METER)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA04
 Asset

Summary

Closed on 7/29/2013 by RONALD SIMPSON JR.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 17597
 Budget is 7478123.

Information

Work Order Information

Initiated 6/29/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 7/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 8/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 17597
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00597
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 7/29/2013 10:43
 Linked Case
 QC Performed no
 Closed 7/29/2013 10:43
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|----------------|-----------|----------|
| FPSA04 | Labor | 00597 REGULAR SALARY | 0.5 | Hours 60.8400 | \$30.42 | 8/3/2013 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS095 CK FOR PROPER OPERATION | 0 | | 0 | | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor
 0.00

30.42
-30.42
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
30.42
-30.42
0.00

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

12/27/2013 09:25

Work Order # 2021839

Plant Equipment
 CDS-LVL-04
 LEVEL SENSORS MONTHLY (SNTY)
 CDS PUMP FLOW SENSOR #4 (SIGMA 2410 UNDERFLOW FORCEMAIN ULTRASONIC
 METER)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA04
 Asset

Summary

Closed on 11/10/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18785
 Budget is 7478123.

Information

Work Order Information

Initiated 9/30/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 10/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 11/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18785
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service
 Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 11/10/2013 00:00
 Linked Case
 QC Performed no
 Closed 11/10/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-------------|-----------|----------|
| FPSA04 | Labor | 15393 REGULAR SALARY | 0.57 | Hours 60,8245 | \$34.67 | 11/15/2013 | 00.00 | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS095 CK FOR PROPER OPERATION | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor
 0.00

| |
|----------|
| 34.67 |
| -34.67 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 34.67 |
| -34.67 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN 8

12/27/2013 09:26

Work Order # 1941729

Plant Equipment
 CDS-CTN-00
 CURTAIN WALL QUARTERLY
 CSO108 CURTAIN WALL
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA38
 Asset

Summary

Closed on 9/13/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 17601
 Budget is 7478123.

Information

Work Order Information

Initiated 6/29/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 7/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 8/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 17601
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 9/13/2013 00:00
 Linked Case
 QC Performed no
 Closed 9/13/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-----------------|-----------|----------|
| FPSA38 | Labor | 00049 REGULAR SALARY | 1 | Hours | 60.8300 | \$60.83 | 9/20/2013 00.00 | | |
| FPSA38 | Labor | 15575 REGULAR SALARY | 1 | Hours | 60.8300 | \$60.83 | 9/20/2013 00.00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS170 INSP CURTAIN WALLS FOR DEFECTS | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor

| |
|----------|
| 0.00 |
| 121.66 |
| -121.66 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 121.66 |
| -121.66 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INTER HANSEN8

12/27/2013 09:27

Work Order # 2021848

Plant Equipment
 CDS-CTN-00
 CURTAIN WALL QUARTERLY
 CSO108 CURTAIN WALL
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA38
 Asset

Summary

Closed on 10/30/2013 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18788
 Budget is 7478123.

Information

Work Order Information

Initiated 9/30/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 10/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 11/12/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18788
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 10/30/2013 00:00
 Linked Case
 QC Performed no
 Closed 10/30/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|------------------|-----------|----------|
| FPSA38 | Labor | 15393 REGULAR SALARY | 0.59 | Hours | 60.8305 | \$35.89 | 11/15/2013 00:00 | | |
| FPSA38 | Labor | 15575 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 11/15/2013 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS170 INSP CURTAIN WALLS FOR DEFECTS | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor

0.00
157.55
-157.55
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
157.55
-157.55
0.00

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

12/27/2013 09:30

Work Order # 1995856

Sewer Pump
 CDS-PMP-03
 SEWAGE FACILITY REPAIR ITEMS
 CDS UNDERFLOW PUMP

Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code SREPR
 Asset

Summary

Closed on 8/10/2013 by DAVID CIEZ.
 Authorized by RFLYNN.
 Maintenance Type is UM.
 Budget is 7478123.

Information

Work Order Information

Initiated 8/13/2013 16:43
 Source
 Authorization RFLYNN
 Schedule Start
 Maint Type UM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility OPER
 Due
 Priority
 Reference #
 Initiated By 00298
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 0
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15393
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 8/10/2013 06:30
 Linked Case
 QC Performed no
 Closed 8/10/2013 15:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-----------------|-----------|----------|
| SREPR | Lebor | 15393 REGULAR SALARY | 1 | Hours 60.8300 | \$60.83 | 8/23/2013 00:00 | | |

Comments

Comments

Pump tripped out on the overloads. Reset and troubleshoot if necessary

Went to the site. reset the pump. It pulled 25 amp. The pump ran fine. When the pump stopped, it may have back flushed itself. nfan

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor
 0.00
 60.83

| |
|----------|
| -60.83 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 60.83 |
| -60.83 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)



12/27/2013 09:30

Work Order # 2078799
 Sewer Pump
 CDS-PMP-03
 STORM ASSET REPLACE
 CDS UNDERFLOW PUMP
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code STREP
 Asset

Summary
 Closed on 12/7/2013 by RODERICK PULLIAM.
 Authorized by RFLYNN.
 Maintenance Type is UM.
 Budget is 7478123.

Information

Work Order Information

Initiated 12/7/2013 13:43
 Source
 Authorization RFLYNN
 Schedule Start
 Maint Type UM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility OPER
 Due
 Priority
 Reference #
 Initiated By 00298
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 0
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Dapth 0.00
 Measured Flow 0.00
 Closed By 00049
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 12/7/2013 13:43
 Linked Case
 QC Performed no
 Closed 12/7/2013 16:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-------------|-----------|----------|
| STREP | Labor | 00049 REGULAR SALARY | 1 | Hours 60.8300 | \$60.83 | 12/20/2013 | 00.00 | |

Comments

Comments

The pump tripped out. need to reset and troubleshoot if it does not reset.

reset the pump. The pump ran with no problems. nfan

Cost Summary

| | |
|--------------------|--------|
| Estimated Costs | |
| Actual Costs | |
| Difference | |
| Actual Group Costs | |
| Contractor | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Fleet Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Plant Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Extra Item | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Labor | 60.83 |
| | -60.83 |

| |
|----------|
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 60.83 |
| -60.83 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

12/27/2013 09:31

Work Order # 1867541

Sewer Pump
 CDS-PMP-03
 SEWAGE FACILITY REPAIR ITEMS
 CDS UNDERFLOW PUMP
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code SREPR
 Asset

Summary

Initiated 2/28/2013 Start Now
 Assigned to METRO OPS FLOOD PS Re-assign
 Maintenance Type is UM.
 Budget is 7478123.

Information

Work Order Information

Initiated 2/28/2013 14:45
 Source
 Authorization
 Schedule Start
 Maint Type UM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility
 Due
 Priority
 Reference # 1649803
 Initiated By 00298
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 0
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By
 Hours 0.00
 Down Time 0.00
 Result
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started
 Linked Case
 QC Performed no
 Closed
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pro Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|---------------------------|-------------|-----------|------------|-----------------|-----------|--|
| SREPR | Extra Item | XMISC MISCELLANEOUS COSTS | 1 | 218.0000 | \$218.00 | 4/15/2013 00:00 | | FABRICATION OF 3 STAINLESS STEEL BLOCK SPACERS |
| SREPR | Extra Item | XMISC MISCELLANEOUS COSTS | 1 | 1200.0000 | \$1,200.00 | 7/8/2013 00:00 | | fix guardrails |
| SREPR | Extra Item | XMISC MISCELLANEOUS COSTS | 1 | 1200.0000 | \$1,200.00 | 7/11/2013 00:00 | | 11921, 5/16/13, wo#1649803 |

Comments

Comments

found guide rails bent. repair guide rails

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 2618.00
 -2618.00
 0.00
 Labor
 0.00

| |
|----------|
| 0.00 |
| 0.00 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 2618.00 |
| -2618.00 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN 8

12/27/2013 09:32

Work Order # 1941787

Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary

Closed on 7/16/2013 by DAVID CIEZ.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 17612
 Budget is 7478123.

Information

Work Order Information

Initiated 6/29/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 7/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 8/8/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 17612
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15393
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 7/16/2013 11:57
 Linked Case
 QC Performed no
 Closed 7/16/2013 11:57
 QC By
 Major Failure no
 Cancel Work Order no

| | |
|--------------------------------------|---|
| Location | |
| Address Information | |
| <i>Street #</i> | 2324 |
| <i>Pre Dir</i> | |
| <i>Street Name</i> | NEWBURG |
| <i>Suffix</i> | RD |
| <i>Post Dir</i> | |
| <i>Subdesignation</i> | Address |
| <i>Cross Street</i> | |
| <i>Cross Street</i> | |
| <i>City, State, ZIP</i> | LOUISVILLE KY 40205-0000 |
| Location Information | |
| <i>Location</i> | |
| Planned Tasks | |
| Complete All | |
| Complete Selected | |
| 1 | |
| Tasks | |
| Task Description | Duration Days Hours Minutes Completed Date Comments |
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 0 0 |
| Other Observation | |
| Other Observation | |
| 1 | |
| (No Data) | |

INFOR HANSEN8

12/27/2013 09:32

Work Order # 1990475

Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary

Closed on 8/19/2013 by DAVID CIEZ.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18201
 Budget is 7478123.

Information

Work Order Information

Initiated 7/31/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 8/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 9/10/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18201
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15393
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 8/19/2013 00:00
 Linked Case
 QC Performed no
 Closed 8/19/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-------------|-----------|----------|
| FPSA54 | Labor | 15393 REGULAR SALARY | 0.4 | Hours 60.8250 | \$24.33 | 8/30/2013 | 00:00 | |

Planned Tasks

Complete All
 Complete Selected
 1

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 | | 0 | | | | |

Cost Summary

| | |
|--------------------|------|
| Estimated Costs | |
| Actual Costs | |
| Difference | |
| Actual Group Costs | |
| Contractor | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Fleet Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Plant Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Extra Item | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Labor | 0.00 |

| |
|----------|
| 24.33 |
| -24.33 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 24.33 |
| -24.33 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INTEGR HANSEN 8

12/27/2013 09:33

Work Order # 2003211

Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary

Closed on 9/18/2013 by DAVID CIEZ.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18362
 Budget is 7478123.

Information

Work Order Information

Initiated 8/29/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 9/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 10/9/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18362
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service
 Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15393
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 9/18/2013 00:00
 Linked Case
 QC Performed no
 Closed 9/18/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-----------------|-----------|----------|
| FPSA54 | Labor | 15393 REGULAR SALARY | 0.5 | Hours 60,8400 | \$30,42 | 9/27/2013 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 | | 0 | | | | |

Cost Summary

| | |
|--------------------|------|
| Estimated Costs | |
| Actual Costs | |
| Difference | |
| Actual Group Costs | |
| Contractor | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Fleet Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Plant Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Extra Item | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Labor | 0.00 |

| |
|----------|
| 30.42 |
| -30.42 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 30.42 |
| -30.42 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

12/27/2013 09:33

Work Order # 2021887

Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary

Closed on 10/4/2013 by RODERICK PULLIAM.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 18798
 Budget is 7478123.

Information

Work Order Information

Initiated 9/30/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 10/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 11/8/2013 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 18798
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00049
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 10/4/2013 00:00
 Linked Case
 QC Performed no
 Closed 10/4/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-------------|-----------|----------|
| FPSA54 | Labor | 15575 REGULAR SALARY | 0.5 | Hours 60.8400 | \$30.42 | 10/11/2013 | 00:00 | |

Planned Tasks

Complete All
 Complete Selected
 1

| Task Description | Duration Days | Hours | Minutes | Completed Date | Comments |
|--|---------------|-------|---------|----------------|----------|
| FPS203 COMPLETE ROTATION OF IMPELLER 0 | 0 | 0 | | | |

Cost Summary

| | |
|--------------------|------|
| Estimated Costs | |
| Actual Costs | |
| Difference | |
| Actual Group Costs | |
| Contractor | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Fleet Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Plant Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Extra Item | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Labor | 0.00 |

30.42
-30.42
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
30.42
-30.42
0.00

Other Observation

Other Observation

1

(No Data)



12/27/2013 09:34

Work Order # 1917122
 Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary
 Closed on 10/15/2013 by DAREN THOMPSON.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 17348
 Budget is 7478123.

Information

Work Order Information

Initiated 5/20/2013 06:31
 Source
 Authorization RFLYNN
 Schedule Start 6/1/2013 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 7/10/2013 00:00
 Priority
 Reference # 1699369
 Initiated By 00187
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 17348
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00298
 Hours 0.00
 Down Time 0.00
 Result WONDLC
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 10/15/2013 00:00
 Linked Case
 QC Performed no
 Closed 10/15/2013 00:00
 QC By
 Major Failure no
 Cancel Work Order no

| | |
|--------------------------------------|---|
| Location | |
| Address Information | |
| Street # | 2324 |
| Pre Dir | |
| Street Name | NEWBURG |
| Suffix | RD |
| Post Dir | |
| Subdesignation | |
| Address | |
| Cross Street | |
| Cross Street | |
| City, State, ZIP | LOUISVILLE KY 40205-0000 |
| Location Information | |
| Location | |
| Planned Tasks | |
| Complete All | |
| Complete Selected | |
| 1 | |
| Tasks | |
| Task Description | Duration Days Hours Minutes Completed Date Comments |
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 0 |
| Other Observation | |
| Other Observation | |
| 1 | |
| (No Data) | |

INFOR HANSEN8

12/27/2013 09:34

| | |
|-----------------------------|--|
| Work Order # 2043326 | |
| | Sewer Pump CDS-PMP-04 ROTATE IMPELLERS CDS UNDERFLOW PUMP (SPARE) |
| Address | 2324 NEWBURG RD LOUISVILLE KY 40205-0000 |
| Activity Code | FPSA54 Asset |

| |
|--|
| Summary |
| Closed on 11/11/2013 by RODERICK PULLIAM. Authorized by RFLYNN. Maintenance Type is PM. Part of Group Project 19195 Budget is 7478123. |

| |
|---------------------------------|
| Information |
| Work Order Information |
| Initiated 10/28/2013 00:00 |
| Source |
| Authorization RFLYNN |
| Schedule Start 11/11/2013 00:00 |
| Maint Type PM |
| Assigned To FLOODPS-SUP |
| Schedule Finish |
| Problem |
| Responsibility FLDOPS |
| Due 12/11/2013 00:00 |
| Priority |
| Reference # |
| Initiated By MIDASSYS |
| Service Request 0 |
| Project |
| Estimated Cost 0.00 |
| Group Project 19195 |
| 7478123 |
| Inspection# 0 |
| Budget Number |
| Out of Service no |
| Potential Service Request no |
| Incident 0 |

| | |
|---------------------|------------------|
| Create eB Container | no |
| Stoppage | no |
| Crew Days | 0.00 |
| Flow Depth | 0.00 |
| Measured Flow | 0.00 |
| Closed By | 00049 |
| Hours | 0.00 |
| Down Time | 0.00 |
| Result | WOCOM |
| Condition | |
| Actual Quantity | 0.000 |
| Usage | 0.000 |
| Distance | 0.00 |
| Valuation Type | |
| Started | 11/11/2013 00:00 |
| Linked Case | |
| QC Performed | no |
| Closed | 11/11/2013 00:00 |
| QC By | |
| Major Failure | no |
| Cancel Work Order | no |

Location

Address Information

Street # 2324
Pre Dir
Street Name NEWBURG
Suffix RD
Post Dir
Subdesignation
Address
Cross Street
Cross Street
City, State, ZIP LOUISVILLE
KY
40205-0000

Location Information

Location

Planned Tasks

Complete All
Complete Selected
1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 | | 0 | 0 | | | |

Other Observation

Other Observation

1

(No Data)



ATTACHMENT "C"

CDS UNIT PUMP RUN TIMES

CSO 108 Underflow Pump Flow Meter Data

| Date | Daily Volume (MG) | Daily Volume (CF) | Daily Volume (gal) | Daily Volume Debris (gal) |
|--------------------|-------------------|-------------------|--------------------|---------------------------|
| 21-Jun-13 03:00:01 | 0.002846651 | 380.5418278 | 2846.650546 | 2.846650546 |
| 22-Jun-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 23-Jun-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 24-Jun-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 25-Jun-13 03:00:01 | 0.002846651 | 380.5418278 | 2846.650546 | 2.846650546 |
| 26-Jun-13 03:00:01 | 0.002846651 | 380.5418278 | 2846.650546 | 2.846650546 |
| 27-Jun-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 28-Jun-13 03:00:01 | 0.002846651 | 380.5418278 | 2846.650546 | 2.846650546 |
| 29-Jun-13 03:00:01 | 0.002846651 | 380.5418278 | 2846.650546 | 2.846650546 |
| 30-Jun-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 01-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 02-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 03-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 04-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 05-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 06-Jul-13 03:00:01 | 0.036599021 | 4892.57753 | 36599.0214 | 36.5990214 |
| 07-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 08-Jul-13 03:00:01 | 0.044897143 | 6001.875012 | 44897.1428 | 44.8971428 |
| 09-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 10-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 11-Jul-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 12-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 13-Jul-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 14-Jul-13 03:00:01 | 0.002846651 | 380.5418278 | 2846.650546 | 2.846650546 |
| 15-Jul-13 03:00:01 | 0.007230764 | 966.6125237 | 7230.763789 | 7.230763789 |
| 16-Jul-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 17-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 18-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 19-Jul-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 20-Jul-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 21-Jul-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 22-Jul-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 23-Jul-13 03:00:01 | 0.00772754 | 1033.021795 | 7727.539632 | 7.727539632 |
| 24-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 25-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 26-Jul-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 27-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 28-Jul-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 29-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 30-Jul-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 31-Jul-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 01-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 02-Aug-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 03-Aug-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 04-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |

CSO 108 Underflow Pump Flow Meter Data

| Date | Daily Volume (MG) | Daily Volume (CF) | Daily Volume (gal) | Daily Volume Debris (gal) |
|--------------------|-------------------|-------------------|--------------------|---------------------------|
| 05-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 06-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 07-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 08-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 09-Aug-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 10-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 11-Aug-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 12-Aug-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 13-Aug-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 14-Aug-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 15-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 16-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 17-Aug-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 18-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 19-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 20-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 21-Aug-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 22-Aug-13 03:00:01 | 0.002820772 | 377.0823541 | 2820.771886 | 2.820771886 |
| 23-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 24-Aug-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 25-Aug-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 26-Aug-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 27-Aug-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 28-Aug-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 29-Aug-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 30-Aug-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 31-Aug-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 01-Sep-13 03:00:01 | 0.007191279 | 961.3342335 | 7191.279437 | 7.191279437 |
| 02-Sep-13 03:00:01 | 0.006630359 | 886.3500444 | 6630.358752 | 6.630358752 |
| 03-Sep-13 03:00:01 | 0.002794893 | 373.6228804 | 2794.893226 | 2.794893226 |
| 04-Sep-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 05-Sep-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 06-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 07-Sep-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 08-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 09-Sep-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 10-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 11-Sep-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 12-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 13-Sep-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 14-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 15-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 16-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 17-Sep-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 18-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |

CSO 108 Underflow Pump Flow Meter Data

| Date | Daily Volume (MG) | Daily Volume (CF) | Daily Volume (gal) | Daily Volume Debris (gal) |
|--------------------|-------------------|-------------------|--------------------|---------------------------|
| 19-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 20-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 21-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 22-Sep-13 03:00:01 | 0.007403228 | 989.667693 | 7403.228432 | 7.403228432 |
| 23-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 24-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 25-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 26-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 27-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 28-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 29-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 30-Sep-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 01-Oct-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 02-Oct-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 03-Oct-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 04-Oct-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 05-Oct-13 03:00:01 | 0.002717257 | 363.2444592 | 2717.257245 | 2.717257245 |
| 06-Oct-13 03:00:01 | 0.031646401 | 4230.50844 | 31646.40069 | 31.64640069 |
| 07-Oct-13 03:00:01 | 0.044587813 | 5960.523675 | 44587.81332 | 44.58781332 |
| 08-Oct-13 03:00:01 | 0.002742273 | 366.5886151 | 2742.273267 | 2.742273267 |
| 09-Oct-13 03:00:01 | 0.007663635 | 1024.478935 | 7663.634606 | 7.663634606 |
| 10-Oct-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 11-Oct-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 12-Oct-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 13-Oct-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 14-Oct-13 03:00:01 | 0.002717257 | 363.2444592 | 2717.257245 | 2.717257245 |
| 15-Oct-13 03:00:01 | 0.002717257 | 363.2444592 | 2717.257245 | 2.717257245 |
| 16-Oct-13 03:00:01 | 0.002717257 | 363.2444592 | 2717.257245 | 2.717257245 |
| 17-Oct-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 18-Oct-13 03:00:01 | 0.002743376 | 366.7359916 | 2743.37572 | 2.74337572 |
| 19-Oct-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 20-Oct-13 03:00:01 | 0.002772633 | 370.6471192 | 2772.632986 | 2.772632986 |
| 21-Oct-13 03:00:01 | 0.002769946 | 370.2878753 | 2769.945655 | 2.769945655 |
| 22-Oct-13 03:00:01 | 0.002743136 | 366.7039329 | 2743.135905 | 2.743135905 |
| 23-Oct-13 03:00:01 | 0.002743167 | 366.7080726 | 2743.166871 | 2.743166871 |
| 24-Oct-13 03:00:01 | 0.002760617 | 369.0407616 | 2760.616597 | 2.760616597 |
| 25-Oct-13 03:00:01 | 0.002817894 | 376.6976499 | 2817.894099 | 2.817894099 |
| 26-Oct-13 03:00:01 | 0.002846637 | 380.5400537 | 2846.637275 | 2.846637275 |
| 27-Oct-13 03:00:01 | 0.002751925 | 367.8788368 | 2751.924796 | 2.751924796 |
| 28-Oct-13 03:00:01 | 0.002784004 | 372.1671363 | 2784.003504 | 2.784003504 |
| 29-Oct-13 03:00:01 | 0.002750493 | 367.6874496 | 2750.49312 | 2.75049312 |
| 30-Oct-13 03:00:01 | 0.002769015 | 370.1634067 | 2769.014565 | 2.769014565 |
| 31-Oct-13 03:00:01 | 0.011141988 | 1489.467086 | 11141.98752 | 11.14198752 |
| 01-Nov-13 03:00:01 | 0.003293977 | 440.3406927 | 3293.977119 | 3.293977119 |
| 02-Nov-13 03:00:01 | 0.002764158 | 369.5142029 | 2764.158184 | 2.764158184 |

CSO 108 Underflow Pump Flow Meter Data

| Date | Daily Volume (MG) | Daily Volume (CF) | Daily Volume (gal) | Daily Volume Debris (gal) |
|--------------------|-------------------|-------------------|--------------------|---------------------------|
| 03-Nov-13 03:00:01 | 0.004552432 | 608.5716236 | 4552.43187 | 4.55243187 |
| 04-Nov-13 03:00:01 | 0.004325143 | 578.1875293 | 4325.143062 | 4.325143062 |
| 05-Nov-13 03:00:01 | 0.004321734 | 577.7318603 | 4321.734421 | 4.321734421 |
| 06-Nov-13 03:00:01 | 0.004295882 | 574.2758726 | 4295.881838 | 4.295881838 |
| 07-Nov-13 03:00:01 | 0.004298215 | 574.5878066 | 4298.215266 | 4.298215266 |
| 08-Nov-13 03:00:01 | 0.004386455 | 586.3837815 | 4386.455286 | 4.386455286 |
| 09-Nov-13 03:00:01 | 0.0044195 | 590.8012183 | 4419.500008 | 4.419500008 |
| 10-Nov-13 03:00:01 | 0.004296066 | 574.3005235 | 4296.066239 | 4.296066239 |
| 11-Nov-13 03:00:01 | 0.00440417 | 588.7518285 | 4404.169507 | 4.404169507 |
| 12-Nov-13 03:00:01 | 0.004295785 | 574.2629868 | 4295.785446 | 4.295785446 |
| 13-Nov-13 03:00:01 | 0.0044717 | 597.7793031 | 4471.699707 | 4.471699707 |
| 14-Nov-13 03:00:01 | 0.004500387 | 601.6142057 | 4500.386771 | 4.500386771 |
| 15-Nov-13 03:00:01 | 0.004420791 | 590.973775 | 4420.790821 | 4.420790821 |
| 16-Nov-13 03:00:01 | 0.004296082 | 574.3025778 | 4296.081606 | 4.296081606 |
| 17-Nov-13 03:00:01 | 0.004295856 | 574.2723866 | 4295.855761 | 4.295855761 |
| 18-Nov-13 03:00:01 | 0.004413302 | 589.9726727 | 4413.302056 | 4.413302056 |
| 19-Nov-13 03:00:01 | 0.00434192 | 580.4302672 | 4341.919906 | 4.341919906 |
| 20-Nov-13 03:00:01 | 0.004393956 | 587.3865023 | 4393.956158 | 4.393956158 |
| 21-Nov-13 03:00:01 | 0.004332611 | 579.1858303 | 4332.610872 | 4.332610872 |
| 22-Nov-13 03:00:01 | 0.004367317 | 583.8253123 | 4367.316607 | 4.367316607 |
| 23-Nov-13 03:00:01 | 0.006282898 | 839.9012533 | 6282.897666 | 6.282897666 |
| 24-Nov-13 03:00:01 | 0.043212552 | 5776.677927 | 43212.55162 | 43.21255162 |
| 25-Nov-13 03:00:01 | 0.011712143 | 1565.685815 | 11712.1432 | 11.7121432 |
| 26-Nov-13 03:00:01 | 0.004376904 | 585.1069124 | 4376.903642 | 4.376903642 |
| 27-Nov-13 03:00:01 | 0.004425901 | 591.6568427 | 4425.900523 | 4.425900523 |
| 28-Nov-13 03:00:01 | 0.004578801 | 612.0966464 | 4578.800872 | 4.578800872 |
| 29-Nov-13 03:00:01 | 0.004487533 | 599.8958606 | 4487.532657 | 4.487532657 |
| 30-Nov-13 03:00:01 | 0.004475262 | 598.2554523 | 4475.26155 | 4.47526155 |
| 01-Dec-13 03:00:01 | 0.00439447 | 587.4552261 | 4394.470248 | 4.394470248 |
| 02-Dec-13 03:00:01 | 0.004310891 | 576.2823723 | 4310.891498 | 4.310891498 |
| 03-Dec-13 03:00:01 | 0.004299391 | 574.7449875 | 4299.391061 | 4.299391061 |
| 04-Dec-13 03:00:01 | 0.004805493 | 642.4009986 | 4805.493169 | 4.805493169 |
| 05-Dec-13 03:00:01 | 0.004269977 | 570.8129129 | 4269.9771 | 4.2699771 |
| 06-Dec-13 03:00:01 | 0.028170709 | 3765.875984 | 28170.70857 | 28.17070857 |
| 07-Dec-13 03:00:01 | 0.004521159 | 604.3910475 | 4521.15899 | 4.52115899 |
| 08-Dec-13 03:00:01 | 0.004549989 | 608.2451231 | 4549.989477 | 4.549989477 |
| 09-Dec-13 03:00:01 | 0.004447517 | 594.5464812 | 4447.51652 | 4.44751652 |
| 10-Dec-13 03:00:01 | 0.00448852 | 600.0278303 | 4488.519859 | 4.488519859 |
| 11-Dec-13 03:00:01 | 0.004550939 | 608.3721128 | 4550.939426 | 4.550939426 |
| 12-Dec-13 03:00:01 | 0.004519722 | 604.1989444 | 4519.721959 | 4.519721959 |
| 13-Dec-13 03:00:01 | 0.004521551 | 604.4433996 | 4521.550611 | 4.521550611 |
| 14-Dec-13 03:00:01 | 0.00438374 | 586.0208649 | 4383.740481 | 4.383740481 |
| 15-Dec-13 03:00:01 | 0.004358738 | 582.6784831 | 4358.737729 | 4.358737729 |
| 16-Dec-13 03:00:01 | 0.0044207 | 590.9616985 | 4420.700483 | 4.420700483 |
| 17-Dec-13 03:00:01 | 0.004384398 | 586.1088239 | 4384.39846 | 4.38439846 |

CSO 108 Underflow Pump Flow Meter Data

| Date | Daily Volume (MG) | Daily Volume (CF) | Daily Volume (gal) | Daily Volume Debris (gal) |
|--------------------|-------------------|-------------------|--------------------|---------------------------|
| 18-Dec-13 03:00:01 | 0.004471749 | 597.7858394 | 4471.748602 | 4.471748602 |
| 19-Dec-13 03:00:01 | 0.005585088 | 746.6177219 | 5585.088395 | 5.585088395 |
| 20-Dec-13 03:00:01 | 0.004269977 | 570.8129129 | 4269.9771 | 4.2699771 |
| 21-Dec-13 03:00:01 | 0.004295856 | 574.2723866 | 4295.855761 | 4.295855761 |
| 22-Dec-13 03:00:01 | 0.134465858 | 17975.47071 | 134465.8583 | 134.4658583 |
| 23-Dec-13 03:00:01 | 0.013664013 | 1826.612825 | 13664.01277 | 13.66401277 |
| 24-Dec-13 03:00:01 | 0.007416365 | 991.4237615 | 7416.364737 | 7.416364737 |
| | | | | 1002.876984 |

10876.12045

Pounds

5.438060224

Tons

| | Pump 1 Run Hours | Pump 2 Run Hours | Pump 3 Run Hours |
|--------------------|------------------|------------------|------------------|
| 21-Jun-13 03:00:01 | 0 | 0 | 0 |
| 22-Jun-13 03:00:01 | 0 | 0 | 0 |
| 23-Jun-13 03:00:01 | 0 | 0 | 0 |
| 24-Jun-13 03:00:01 | 0 | 0 | 0 |
| 25-Jun-13 03:00:01 | 0 | 0 | 0 |
| 26-Jun-13 03:00:01 | 0 | 0 | 0 |
| 27-Jun-13 03:00:01 | 6.449999809 | 2.416666746 | 5.683333397 |
| 28-Jun-13 03:00:01 | 4.699999809 | 0 | 0.516666651 |
| 29-Jun-13 03:00:01 | 0 | 0 | 0.133333334 |
| 30-Jun-13 03:00:01 | 0.466666669 | 0.216666669 | 0.850000024 |
| 01-Jul-13 03:00:01 | 0 | 0 | 0.033333335 |
| 02-Jul-13 03:00:01 | 0 | 0 | 0 |
| 03-Jul-13 03:00:01 | 0 | 0 | 0 |
| 04-Jul-13 03:00:01 | 0 | 0 | 0 |
| 05-Jul-13 03:00:01 | 0 | 0 | 0.050000001 |
| 06-Jul-13 03:00:01 | 0 | 0 | 0 |
| 07-Jul-13 03:00:01 | 0 | 0 | 0.050000001 |
| 08-Jul-13 03:00:01 | 0 | 0 | 0.633333325 |
| 09-Jul-13 03:00:01 | 0 | 0 | 0.083333336 |
| 10-Jul-13 03:00:01 | 0 | 0 | 0 |
| 11-Jul-13 03:00:01 | 0.433333337 | 0.733333349 | 1.149999976 |
| 12-Jul-13 03:00:01 | 0 | 0 | 0 |
| 13-Jul-13 03:00:01 | 0 | 0 | 0.033333335 |
| 14-Jul-13 03:00:01 | 0 | 0 | 0 |
| 15-Jul-13 03:00:01 | 0.433333337 | 0.216666669 | 0.699999988 |
| 16-Jul-13 03:00:01 | 0.433333337 | 0.216666669 | 0.699999988 |
| 17-Jul-13 03:00:01 | 0 | 0 | 0.050000001 |
| 18-Jul-13 03:00:01 | 0 | 0 | 0 |
| 19-Jul-13 03:00:01 | 0 | 0 | 0 |
| 20-Jul-13 03:00:01 | 0 | 0 | 0.366666675 |
| 21-Jul-13 03:00:01 | 0 | 0 | 0 |
| 22-Jul-13 03:00:01 | 0 | 0 | 0 |
| 23-Jul-13 03:00:01 | 0.516666651 | 0.949999988 | 1.299999952 |
| 24-Jul-13 03:00:01 | 3.049999952 | 2.966666698 | 6.383333206 |
| 25-Jul-13 03:00:01 | 0 | 0 | 0.050000001 |
| 26-Jul-13 03:00:01 | 0 | 0 | 0.033333335 |
| 27-Jul-13 03:00:01 | 0 | 0 | 0.183333337 |
| 28-Jul-13 03:00:01 | 0 | 0 | 0 |
| 29-Jul-13 03:00:01 | 0 | 0 | 0 |
| 30-Jul-13 03:00:01 | 0 | 0 | 0 |
| 31-Jul-13 03:00:01 | 0 | 0 | 0 |
| 01-Aug-13 03:00:01 | 0 | 0 | 0 |
| 02-Aug-13 03:00:01 | 0 | 0 | 0 |
| 03-Aug-13 03:00:01 | 0 | 0 | 0 |

| | | | |
|--------------------|-------------|-------------|-------------|
| 04-Aug-13 03:00:01 | 0 | 0 | 0 |
| 05-Aug-13 03:00:01 | 0 | 0 | 0 |
| 06-Aug-13 03:00:01 | 0 | 0 | 0 |
| 07-Aug-13 03:00:01 | 0 | 0 | 0 |
| 08-Aug-13 03:00:01 | 0 | 0 | 0 |
| 09-Aug-13 03:00:01 | 0 | 0 | 0 |
| 10-Aug-13 03:00:01 | 0.783333361 | 0.433333337 | 0.633333325 |
| 11-Aug-13 03:00:01 | 0 | 0 | 0.216666669 |
| 12-Aug-13 03:00:01 | 0 | 0 | 0 |
| 13-Aug-13 03:00:01 | 0 | 0 | 0 |
| 14-Aug-13 03:00:01 | 0.416666657 | 0.716666639 | 1.049999952 |
| 15-Aug-13 03:00:01 | 0 | 0 | 0 |
| 16-Aug-13 03:00:01 | 0 | 0 | 0 |
| 17-Aug-13 03:00:01 | 0 | 0 | 0.050000001 |
| 18-Aug-13 03:00:01 | 0 | 0 | 0 |
| 19-Aug-13 03:00:01 | 0 | 0 | 0 |
| 20-Aug-13 03:00:01 | 0 | 0 | 0 |
| 21-Aug-13 03:00:01 | 0 | 0 | 0 |
| 22-Aug-13 03:00:01 | 0 | 0 | 0 |
| 23-Aug-13 03:00:01 | 0 | 0 | 0.050000001 |
| 24-Aug-13 03:00:01 | 0 | 0 | 0 |
| 25-Aug-13 03:00:01 | 0 | 0 | 0 |
| 26-Aug-13 03:00:01 | 0 | 0 | 0 |
| 27-Aug-13 03:00:01 | 0 | 0 | 0 |
| 28-Aug-13 03:00:01 | 0 | 0 | 0 |
| 29-Aug-13 03:00:01 | 0 | 0 | 0 |
| 30-Aug-13 03:00:01 | 0 | 0 | 0.050000001 |
| 31-Aug-13 03:00:01 | 0 | 0 | 0 |
| 01-Sep-13 03:00:01 | 0 | 0 | 0 |
| 02-Sep-13 03:00:01 | 0.316666663 | 0.583333313 | 0.866666675 |
| 03-Sep-13 03:00:01 | 0 | 0 | 0.033333335 |
| 04-Sep-13 03:00:01 | 0.683333337 | 0.366666675 | 1.149999976 |
| 05-Sep-13 03:00:01 | 0 | 0 | 0 |
| 06-Sep-13 03:00:01 | 0 | 0 | 0.050000001 |
| 07-Sep-13 03:00:01 | 0 | 0 | 0 |
| 08-Sep-13 03:00:01 | 0 | 0 | 0 |
| 09-Sep-13 03:00:01 | 0 | 0 | 0 |
| 10-Sep-13 03:00:01 | 0 | 0 | 0.483333319 |
| 11-Sep-13 03:00:01 | 0 | 0 | 0.083333336 |
| 12-Sep-13 03:00:01 | 0 | 0 | 0 |
| 13-Sep-13 03:00:01 | 0 | 0 | 0 |
| 14-Sep-13 03:00:01 | 0 | 0 | 0 |
| 15-Sep-13 03:00:01 | 0.016666668 | 0 | 0.150000006 |
| 16-Sep-13 03:00:01 | 0 | 0 | 0 |
| 17-Sep-13 03:00:01 | 0 | 0 | 0 |
| 18-Sep-13 03:00:01 | 0 | 0 | 0 |
| 19-Sep-13 03:00:01 | 0 | 0 | 0 |

| | | | |
|--------------------|--------------|-------------|-------------|
| 20-Sep-13 03:00:01 | 0 | 0 | 0 |
| 21-Sep-13 03:00:01 | 0 | 0 | 0 |
| 22-Sep-13 03:00:01 | 0.150000006 | 0.183333337 | 1.116666675 |
| 23-Sep-13 03:00:01 | 0 | 0 | 0.116666667 |
| 24-Sep-13 03:00:01 | 0 | 0 | 0.050000001 |
| 25-Sep-13 03:00:01 | 0 | 0 | 0 |
| 26-Sep-13 03:00:01 | 0 | 0 | 0 |
| 27-Sep-13 03:00:01 | 0 | 0 | 0 |
| 28-Sep-13 03:00:01 | 0 | 0 | 0 |
| 29-Sep-13 03:00:01 | 0 | 0 | 0 |
| 30-Sep-13 03:00:01 | 0 | 0 | 0.033333335 |
| 01-Oct-13 03:00:01 | 0 | 0 | 0 |
| 02-Oct-13 03:00:01 | 0 | 0 | 0 |
| 03-Oct-13 03:00:01 | 0 | 0 | 0 |
| 04-Oct-13 03:00:01 | 0 | 0 | 0 |
| 05-Oct-13 03:00:01 | 0 | 0 | 0 |
| 06-Oct-13 03:00:01 | 0 | 0.283333331 | 0.516666651 |
| 07-Oct-13 03:00:01 | 6.633333206 | 6.016666889 | 8.649999619 |
| 08-Oct-13 03:00:01 | 14.583333302 | 21.43333244 | 24 |
| 09-Oct-13 03:00:01 | 0 | 0 | 24 |
| 10-Oct-13 03:00:01 | 0 | 0 | 23.20000076 |
| 11-Oct-13 03:00:01 | 0 | 0 | 0.116666667 |
| 12-Oct-13 03:00:01 | 0 | 0 | 0.083333336 |
| 13-Oct-13 03:00:01 | 0 | 0 | 0 |
| 14-Oct-13 03:00:01 | 0 | 0 | 0.050000001 |
| 15-Oct-13 03:00:01 | 0 | 0 | 0 |
| 16-Oct-13 03:00:01 | 0 | 0 | 0 |
| 17-Oct-13 03:00:01 | 0 | 0 | 0 |
| 18-Oct-13 03:00:01 | 0 | 0 | 0 |
| 19-Oct-13 03:00:01 | 0 | 0 | 0 |
| 20-Oct-13 03:00:01 | 0 | 0 | 0 |
| 21-Oct-13 03:00:01 | 0 | 0 | 0 |
| 22-Oct-13 03:00:01 | 0 | 0 | 0 |
| 23-Oct-13 03:00:01 | 0 | 0 | 0 |
| 24-Oct-13 03:00:01 | 0 | 0 | 0.06666667 |
| 25-Oct-13 03:00:01 | 0 | 0 | 0 |
| 26-Oct-13 03:00:01 | 0 | 0 | 0 |
| 27-Oct-13 03:00:01 | 0 | 0 | 0 |
| 28-Oct-13 03:00:01 | 0 | 0 | 0 |
| 29-Oct-13 03:00:01 | 0 | 0 | 0 |
| 30-Oct-13 03:00:01 | 0 | 0 | 0.06666667 |
| 31-Oct-13 03:00:01 | 0 | 0 | 0.13333334 |
| 01-Nov-13 03:00:01 | 0.866666675 | 1.466666698 | 19.43333244 |
| 02-Nov-13 03:00:01 | 0 | 0 | 24 |
| 03-Nov-13 03:00:01 | 0 | 0 | 24 |
| 04-Nov-13 03:00:01 | 0 | 0 | 23.98333359 |
| 05-Nov-13 03:00:01 | 0 | 0 | 16.83333397 |

| | | | |
|--------------------|-------------|-------------|-------------|
| 06-Nov-13 03:00:01 | 0 | 0 | 0 |
| 07-Nov-13 03:00:01 | 0 | 0 | 0 |
| 08-Nov-13 03:00:01 | 0 | 0 | 0 |
| 09-Nov-13 03:00:01 | 0 | 0 | 0.100000001 |
| 10-Nov-13 03:00:01 | 0 | 0 | 0 |
| 11-Nov-13 03:00:01 | 0 | 0 | 0 |
| 12-Nov-13 03:00:01 | 0 | 0 | 0 |
| 13-Nov-13 03:00:01 | 0 | 0 | 0 |
| 14-Nov-13 03:00:01 | 0 | 0 | 0.06666667 |
| 15-Nov-13 03:00:01 | 0 | 0 | 0 |
| 16-Nov-13 03:00:01 | 0 | 0 | 0 |
| 17-Nov-13 03:00:01 | 0 | 0 | 0 |
| 18-Nov-13 03:00:01 | 0 | 0 | 0 |
| 19-Nov-13 03:00:01 | 14.88333321 | 7.683333397 | 17.95000076 |
| 20-Nov-13 03:00:01 | 0 | 0 | 24 |
| 21-Nov-13 03:00:01 | 0 | 0 | 24 |
| 22-Nov-13 03:00:01 | 0 | 0 | 24 |
| 23-Nov-13 03:00:01 | 0 | 0 | 23.98333359 |
| 24-Nov-13 03:00:01 | 0 | 0 | 20.01666641 |
| 25-Nov-13 03:00:01 | 0 | 0 | 24 |
| 26-Nov-13 03:00:01 | 0 | 0 | 24 |
| 27-Nov-13 03:00:01 | 0 | 0 | 3.650000095 |
| 28-Nov-13 03:00:01 | 0 | 0 | 0 |
| 29-Nov-13 03:00:01 | 0 | 0 | 0 |
| 30-Nov-13 03:00:01 | 0 | 0 | 2.716666698 |
| 01-Dec-13 03:00:01 | 0 | 0 | 2.383333445 |
| 02-Dec-13 03:00:01 | 0 | 0 | 0 |
| 03-Dec-13 03:00:01 | 0 | 0 | 0 |
| 04-Dec-13 03:00:01 | 0 | 0 | 0 |
| 05-Dec-13 03:00:01 | 0 | 0 | 1.666666627 |
| 06-Dec-13 03:00:01 | 0 | 0 | 5.583333492 |
| 07-Dec-13 03:00:01 | 0.166666672 | 0.016666668 | 16.60000038 |
| 08-Dec-13 03:00:01 | 0 | 0 | 12.51666641 |
| 09-Dec-13 03:00:01 | 0 | 0 | 4.699999809 |
| 10-Dec-13 03:00:01 | 0 | 0 | 0 |
| 11-Dec-13 03:00:01 | 0 | 0 | 0.366666675 |
| 12-Dec-13 03:00:01 | 0 | 0 | 0 |
| 13-Dec-13 03:00:01 | 0 | 0 | 0 |
| 14-Dec-13 03:00:01 | 0 | 0 | 0.050000001 |
| 15-Dec-13 03:00:01 | 0 | 0 | 0.06666667 |
| 16-Dec-13 03:00:01 | 0 | 0 | 0.06666667 |
| 17-Dec-13 03:00:01 | 0 | 0 | 0.050000001 |
| 18-Dec-13 03:00:01 | 0 | 0 | 0.06666667 |
| 19-Dec-13 03:00:01 | 0 | 0 | 0 |
| 20-Dec-13 03:00:01 | 0 | 0 | 0 |
| 21-Dec-13 03:00:01 | 0 | 0 | 5.349999905 |
| 22-Dec-13 03:00:01 | 0 | 0 | 0 |

23-Dec-13 03:00:01

2.299999952

3.133333445

8.449999809

24-Dec-13 03:00:01

4.083333492

10.13333321

23.60000038



INTRODUCTION

The Louisville and Jefferson County Metropolitan Sewer District (MSD) has entered into a Memorandum of Understanding (MOU) with the Kentucky State Nature Preserve Commission (Commission). The MOU was signed by MSD on July 30, 2008, and by the Commission on September 17, 2008. This MOU is effective for the period starting September 1, 2008, and ending on September 1, 2018.

This is the twelfth Semi-Annual Report submitted in accordance with Paragraph 10 of the MOU. This report covers the time period of January 1, 2014 to June 30, 2014.

This Semi-Annual Report will address only those requirements considered ongoing. The initial Semi-Annual Report, MOU Semi-Annual Report #1, was comprehensive and included a response to each requirement addressed within the MOU. Please refer to the initial Semi-Annual Report should you need additional information not found within this document.

Work and activities undertaken by MSD and relating to the MOU are outlined in the paragraphs below:

Paragraph #10 of the MOU:

MSD shall be diligent of this ten year period in more timely supplying the Commission with semi-annual reports on the efficacy of the CDS unit, water quality monitoring data, and any other such pertinent information. Said reports shall be provided to the Commission by June 30 and December 31 of each year.

- MSD Response: This document is the eleventh semi-annual report to the Commission since the completion of the Project.
- Cleaning and Inspection Activities:

The CSO 108 CDS Unit is inspected weekly and cleaned on an as-needed basis. Between the dates of January 1, 2014, and June 30, 2014, MSD cleaned the CDS Unit bar racks twice. The information, shown in Table 1, is generated from work orders initiated whenever the CDS Unit is inspected and needs to be cleaned. Cleaning consists of either washing debris off of the bar racks or hauling the solids and floatables from the site. Both operations result in removing debris that would otherwise overflow into Beargrass Creek. When cleaning the bar racks, the debris is

reintroduced into the sewer system, and as a result, is difficult to accurately estimate the amount removed during the maintenance process. The Crystal Report often indicates the quantity removed as “unknown”.

TABLE 1: CSO 108 CDS Unit Debris Removal

| <u>ACTCO</u> | <u>UNITID</u> | <u>FAILCODE</u> | <u>QTY</u> | <u>COMMENTS</u> | <u>COMPDTM</u> |
|--------------|---------------|--------------------------|------------|--|----------------|
| Debris | CSO 108 | Rack Bars | Unknown | Cleaned heavy debris from rack bar | 02/26/2014 |
| Debris | CSO 108 | Solids and Floatables | 3.0 CY | Cleaned approximately 3 cubic yards of debris from CDS Unit | 06/20/2014 |

- Maintenance Activities:

In addition to the weekly inspections, MSD has initiated a preventative maintenance program to insure that the CDS Unit and respective pumps are performing optimally. During these quarterly preventative maintenance activities MSD staff also cleans the CDS Unit and rack bars, washing the debris into the interceptor. The CDS Unit’s pumps are removed from the facility twice yearly to more closely inspect and to perform any needed maintenance. The work orders associated with the preventative maintenance activities are shown in Attachment “B”.

- Captured Flow

The CDS system was placed along the Trevillian Way Twin Trunk Sewer to capture solids and floatables from a 485 acre drainage area. The unit uses a vortex action created by the hydraulic energy of incoming flow to separate solids and floatable from the flow. The treated flow is then discharged through the outlet pipe to Beargrass Creek and the debris that is captured is pumped to the Morris Forman Water Quality Treatment Center (MFWQTC).

In an effort to estimate the volume of debris captured by the CDS Unit and kept within the sewer system, a study of the efficiency of the unit was performed in the early 2002. The results of the study indicated that the concentration of solids kept



**MOU Semi-Annual Report #12
January 1, 2014 – June 30, 2014**

within the sewer system was approximately 1ml/l. Using pump run times and knowing the efficiency of the pumps, MSD was able to determine a volume of solids captured by the CDS technology. MSD estimates that the CDS Unit captured 29.64 tons of solids during the reporting period. Attachment "C" lists the pump run times and calculations MSD used to determine the amount of debris captured by the CDS Unit and sent to the MFWQTC for treatment.



MOU Semi-Annual Report #12
January 1, 2014 – June 30, 2014

ATTACHMENT “A”

PHOTOS OF AREA ADJACENT TO CSO 108 AND THE CDS UNIT (dated June 20, 2014)



Figure 1 – Entrance to CDS Unit



Figures 2 and 3 – Area Adjacent to CDS Unit



Figure 4 – Area Adjacent to Entrance



Figure 5 – Area Adjacent to Creek



MOU Semi-Annual Report #12
January 1, 2014 – June 30, 2014

ATTACHMENT “B”

PREVENTATIVE MAINTENANCE WORK ORDERS

June 30, 2014

INFOR HANSEN8

6/30/2014 15:31

Work Order # 2120260

Sewer Lift Station
 MSD1204-PS
 TELEMETRY CONTROLS 6 MO PM
 CDS UNIT
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code TELEM6
 Asset

Summary

Closed on 3/6/2014 by STEVEN ROBBINS.
 Authorized by KSLAUG.
 Maintenance Type is PM.
 Part of Group Project 21134
 Budget is 7457212.

Information

Work Order Information

Initiated 2/28/2014 00:00
 Source
 Authorization KSLAUG
 Schedule Start 3/1/2014 00:00
 Maint Type PM
 Assigned To CONTROLS-SUP
 Schedule Finish
 Problem
 Responsibility CTRL
 Due 5/23/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 21134
 7457212
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00059
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Distance 0.00
 Valuation Type
 Started 3/6/2014 00:00
 Linked Case
 QC Performed no
 Closed 3/6/2014 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-----------------|-----------|----------|
| TELEM6 | Labor | 00019 REGULAR SALARY | 0.5 | Hours 60.8400 | \$30.42 | 3/14/2014 00:00 | | |
| TELEM6 | Labor | 00059 REGULAR SALARY | 0.5 | Hours 60.8400 | \$30.42 | 3/14/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task | Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------|--------------------------------|----------|------|-------|---------|-----------|------|----------|
| FMTR7 | NOTIFY COMPUTER ROOM PRE-TASK | 0 | | 0 | 0 | | | |
| LOTO | LOCK OUT/TAG OUT | 0 | | 0 | 0 | | | |
| TELM14 | CONFIRM UPS WORKING | 0 | | 0 | 0 | | | |
| TELM15 | CALIBRATE 4-20 MA SIGNAL | 0 | | 0 | 0 | | | |
| TELM16 | VERIFY OVER ENTIRE SPAN | 0 | | 0 | 0 | | | |
| TELM13 | LOOK FOR CORRUPT DATA | 0 | | 0 | 0 | | | |
| TELM12 | CHECK/REPLACE BATTERY | 0 | | 0 | 0 | | | |
| CKS | CHECK SETTINGS | 0 | | 0 | 0 | | | |
| REPORT | REPORT ANY PROBLEMS | 0 | | 0 | 0 | | | |
| FMTR8 | NOTIFY COMPUTER ROOM POST-TASK | 0 | | 0 | 0 | | | |
| WO | NOTE CORRECTIVE WO REQUIRED | 0 | | 0 | 0 | | | |
| PMPLNR | RETURN COMPLETED PM TO PLANNER | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00

| |
|-----------------|
| 0.00 |
| Plant Equipment |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Extra Item |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Labor |
| 0.00 |
| 60.84 |
| -60.84 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 60.84 |
| -60.84 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

6/30/2014 15:32

Work Order # 2087599

Sewer Pump
 CDS-PMP-01
 SUBMERSIBLE PUMP SEMI-ANNUAL
 CDS PUMP #1
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA16
 Asset

Summary

Initiated 12/28/2013 Start Now
 FLDOPS is responsible - Assigned to METRO OPS FLOOD PS Re-assign
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20050
 Budget is 7478123.

Information

Work Order Information

Initiated 12/28/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 1/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 3/26/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 20050
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By
 Hours 0.00
 Down Time 0.00
 Result
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started
 Linked Case
 QC Performed no
 Closed
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS054 CK JUNCTION BOX | 0 | | 0 | 0 | | | |
| FPS055 CHECK TERMINAL BOARD | 0 | | 0 | 0 | | | |
| FPS056 ISOLATION CHECK | 0 | | 0 | 0 | | | |
| FPS057 CHECK OIL HOISING | 0 | | 0 | 0 | | | |
| FPS058 CHECK STATOR HOUSING | 0 | | 0 | 0 | | | |
| FPS059 CHECK SENSORS | 0 | | 0 | 0 | | | |
| FPS060 CK IMPEL/PROPEL WEAR RING | 0 | | 0 | 0 | | | |
| FPS061 CK ZING ANODES | 0 | | 0 | 0 | | | |
| FPS062 CK SCREW JOINTS | 0 | | 0 | 0 | | | |
| FPS063 CK LIFTING HANDLE | 0 | | 0 | 0 | | | |
| FPS064 CK IMPEL/PROPEL ROTATION DIR | 0 | | 0 | 0 | | | |
| FPS065 CK CABLE | 0 | | 0 | 0 | | | |
| FPS066 INSPECT BEARINGS | 0 | | 0 | 0 | | | |
| FPS067 CK ORINGS & RUBBER SEALING PTS | 0 | | 0 | 0 | | | |
| FPS068 INSPECT SEALS | 0 | | 0 | 0 | | | |
| FPS030 CHANGE OIL / SYSTEM FLUID | 0 | | 0 | 0 | | | |
| FPS070 INSPECT IMPELLER/PROPELLER | 0 | | 0 | 0 | | | |
| FPS071 CHECK RUNNING V&A VALUES | 0 | | 0 | 0 | | | |
| FPS072 MEGGER TESTING ON PUMP MOTOR | 0 | | 0 | 0 | | | |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

6/30/2014 15:33

Work Order # 2087603
 Sewer Pump
 CDS-PMP-02
 SUBMERSIBLE PUMP SEMI-ANNUAL
 CDS PUMP #2
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA16
 Asset

Summary
 Initiated 12/28/2013 Start Now
 FLDOPS is responsible - Assigned to METRO OPS FLOOD PS Re-assign
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20050
 Budget is 7478123.

Information

Work Order Information

| | |
|-------------------|------------------|
| Initiated | 12/28/2013 00:00 |
| Source | |
| Authorization | RFLYNN |
| Schedule Start | 1/1/2014 00:00 |
| Maint Type | PM |
| Assigned To | FLOODPS-SUP |
| Schedule Finish | |
| Problem | |
| Responsibility | FLDOPS |
| Due | 3/26/2014 00:00 |
| Priority | |
| Reference # | |
| Initiated By | MIDASSYS |
| Service Request | 0 |
| Project | |
| Estimated Cost | 0.00 |
| Group Project | 20050 |
| | 7478123 |
| Inspection# | 0 |
| | Budget Number |
| Out of Service | no |
| Potential Service | no |
| Request | no |
| Incident | 0 |

| | |
|---------------------|-------|
| Create eB Container | no |
| Stoppage | no |
| Crew Days | 0.00 |
| Flow Depth | 0.00 |
| Measured Flow | 0.00 |
| Closed By | |
| Hours | 0.00 |
| Down Time | 0.00 |
| Result | |
| Condition | |
| Actual Quantity | 0.000 |
| Usage | 0.000 |
| Distance | 0.00 |
| Valuation Type | |
| Started | |
| Linked Case | |
| QC Performed | no |
| Closed | |
| QC By | |
| Major Failure | no |
| Cancel Work Order | no |

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS054 CK JUNCTION BOX | 0 | | 0 | 0 | | | |
| FPS055 CHECK TERMINAL BOARD | 0 | | 0 | 0 | | | |
| FPS056 ISOLATION CHECK | 0 | | 0 | 0 | | | |
| FPS057 CHECK OIL HOISING | 0 | | 0 | 0 | | | |
| FPS058 CHECK STATOR HOUSING | 0 | | 0 | 0 | | | |
| FPS059 CHECK SENSORS | 0 | | 0 | 0 | | | |
| FPS060 CK IMPEL/PROPEL WEAR RING | 0 | | 0 | 0 | | | |
| FPS061 CK ZING ANODES | 0 | | 0 | 0 | | | |
| FPS062 CK SCREW JOINTS | 0 | | 0 | 0 | | | |
| FPS063 CK LIFTING HANDLE | 0 | | 0 | 0 | | | |
| FPS064 CK IMPEL/PROPEL ROTATION DIR | 0 | | 0 | 0 | | | |
| FPS065 CK CABLE | 0 | | 0 | 0 | | | |
| FPS066 INSPECT BEARINGS | 0 | | 0 | 0 | | | |
| FPS067 CK ORINGS & RUBBER SEALING PTS | 0 | | 0 | 0 | | | |
| FPS068 INSPECT SEALS | 0 | | 0 | 0 | | | |
| FPS030 CHANGE OIL / SYSTEM FLUID | 0 | | 0 | 0 | | | |
| FPS070 INSPECT IMPELLER/PROPELLER | 0 | | 0 | 0 | | | |
| FPS071 CHECK RUNNING V&A VALUES | 0 | | 0 | 0 | | | |
| FPS072 MEGGER TESTING ON PUMP MOTOR | 0 | | 0 | 0 | | | |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

6/30/2014 15:33

Work Order # 2087605

Sewer Pump
 CDS-PMP-03
 SUBMERSIBLE PUMP SEMI-ANNUAL
 CDS UNDERFLOW PUMP
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA16
 Asset

Summary

Initiated 12/28/2013 Start Now
 FLDOPS is responsible - Assigned to METRO OPS FLOOD PS Re-assign
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20050
 Budget is 7478123.

Information

Work Order Information

Initiated 12/28/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 1/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 3/26/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 20050
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By
 Hours 0.00
 Down Time 0.00
 Result
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started
 Linked Case
 QC Performed no
 Closed
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS054 CK JUNCTION BOX | 0 | | 0 | 0 | | | |
| FPS055 CHECK TERMINAL BOARD | 0 | | 0 | 0 | | | |
| FPS056 ISOLATION CHECK | 0 | | 0 | 0 | | | |
| FPS057 CHECK OIL HOISING | 0 | | 0 | 0 | | | |
| FPS058 CHECK STATOR HOUSING | 0 | | 0 | 0 | | | |
| FPS059 CHECK SENSORS | 0 | | 0 | 0 | | | |
| FPS060 CK IMPEL/PROPEL WEAR RING | 0 | | 0 | 0 | | | |
| FPS061 CK ZING ANODES | 0 | | 0 | 0 | | | |
| FPS062 CK SCREW JOINTS | 0 | | 0 | 0 | | | |
| FPS063 CK LIFTING HANDLE | 0 | | 0 | 0 | | | |
| FPS064 CK IMPEL/PROPEL ROTATION DIR | 0 | | 0 | 0 | | | |
| FPS065 CK CABLE | 0 | | 0 | 0 | | | |
| FPS066 INSPECT BEARINGS | 0 | | 0 | 0 | | | |
| FPS067 CK ORINGS & RUBBER SEALING PTS | 0 | | 0 | 0 | | | |
| FPS068 INSPECT SEALS | 0 | | 0 | 0 | | | |
| FPS030 CHANGE OIL / SYSTEM FLUID | 0 | | 0 | 0 | | | |
| FPS070 INSPECT IMPELLER/PROPELLER | 0 | | 0 | 0 | | | |
| FPS071 CHECK RUNNING V&A VALUES | 0 | | 0 | 0 | | | |
| FPS072 MEGGER TESTING ON PUMP MOTOR | 0 | | 0 | 0 | | | |

Other Observation

Other Observation

1

(No Data)

Work Order Information

INFOR HANSEN8

6/30/2014 15:34

Work Order # 2087846

Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary

Closed on 1/6/2014 by RODERICK PULLIAM.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20078
 Budget is 7478123.

Information

Work Order Information

Initiated 12/28/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 1/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 2/10/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 20078
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00049
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 1/6/2014 00:00
 Linked Case
 QC Performed no
 Closed 1/6/2014 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-----------------|-----------|----------|
| FPSA54 | Labor | 00333 REGULAR SALARY | 0.2 | Hours | 60.8500 | \$12.17 | 1/17/2014 00:00 | | |
| FPSA54 | Labor | 00333 REGULAR SALARY | 0.25 | Hours | 60.8400 | \$15.21 | 1/17/2014 00:00 | | |
| FPSA54 | Labor | 00049 REGULAR SALARY | 0.5 | Hours | 60.8400 | \$30.42 | 1/17/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 | | 0 | | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00

| |
|----------|
| 0.00 |
| Labor |
| 0.00 |
| 57.80 |
| -57.80 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 57.80 |
| -57.80 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

6/30/2014 15:34

Work Order # 2101588

Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary

Closed on 2/5/2014 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20454
 Budget is 7478123.

Information

Work Order Information

Initiated 1/28/2014 00:00
 Source
 Authorization RFLYNN
 Schedule Start 2/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 3/12/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 20454
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 2/5/2014 00:00
 Linked Case
 QC Performed no
 Closed 2/5/2014 00:00
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-----------------|-----------|----------|
| FPSA54 | Labor | 15575 REGULAR SALARY | 0.5 | Hours | 60.8400 | \$30.42 | 2/14/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected

1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 | | 0 | | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor
 0.00

| |
|----------|
| 30.42 |
| -30.42 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 30.42 |
| -30.42 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFO HANSEN8

6/30/2014 15:35

Work Order # 2119343

Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary

Closed on 3/8/2014 by RODERICK PULLIAM.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20953
 Budget is 7478123.

Information

Work Order Information

Initiated 2/28/2014 00:00
 Source
 Authorization RFLYNN
 Schedule Start 3/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 4/9/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 20953
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service
 Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00049
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 3/8/2014 08:00
 Linked Case
 QC Performed no
 Closed 3/8/2014 16:00
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-------------|-----------|----------|
| FPSA54 | Labor | 00049 REGULAR SALARY | 0.5 | Hours | 60.8400 | \$30.42 | 3/21/2014 | 00.00 | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------------|----------|------|-------|---------|-----------|----------|----------|
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 | 0 | | | | 3/8/2014 | YES |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor
 0.00

Work Order Information

30.42
-30.42
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
30.42
-30.42
0.00

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

6/30/2014 15:35

Work Order # 2136902

Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary

Closed on 4/7/2014 by DANNY JANSSEN.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 21433
 Budget is 7478123.

Information

Work Order Information

Initiated 3/28/2014 00:00
 Source
 Authorization RFLYNN
 Schedule Start 4/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 5/9/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 21433
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00333
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 4/7/2014 08:00
 Linked Case
 QC Performed no
 Closed 4/7/2014 16:00
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-------------|-----------|----------|
| FPSA54 | Labor | 00333 REGULAR SALARY | 0.5 | Hours | 60.8400 | \$30.42 | 4/21/2014 | 00:00 | |

Planned Tasks

Complete All
 Complete Selected
 1

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------------|----------|------|-------|---------|-----------|----------|----------|
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 | | 0 | | | 4/7/2014 | OK |

Cost Summary

| Cost Summary | Amount |
|--------------------|--------|
| Estimated Costs | |
| Actual Costs | |
| Difference | |
| Actual Group Costs | |
| Contractor | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Fleet Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Plant Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Extra Item | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Labor | 0.00 |
| | 0.00 |

30.42
-30.42
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
30.42
-30.42
0.00

Other Observation

Other Observation

1

(No Data)

Work Order Information

INFOR HANSEN8

6/30/2014 15:35

Work Order # 2151802

Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary

Closed on 5/5/2014 by RODERICK PULLIAM.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 21864
 Budget is 7478123.

Information

Work Order Information

Initiated 4/28/2014 00:00
 Source
 Authorization RFLYNN
 Schedule Start 5/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 6/10/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 21864
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0
 Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 00049
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 5/5/2014 08:00
 Linked Case
 QC Performed no
 Closed 5/5/2014 16:00
 QC By
 Major Failure no
 Cancel Work Order no

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-----------------|-----------|----------|
| FPSA54 | Labor | 00049 REGULAR SALARY | 0.5 | Hours 60.8400 | \$30.42 | 5/16/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

| Task Description | Duration Days | Hours | Minutes | Completed Date | Comments |
|--------------------------------------|---------------|-------|---------|----------------|----------|
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 | 0 | | 5/5/2014 | YES |

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor
 0.00

Work Order Information

30.42
-30.42
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
Total
0.00
30.42
-30.42
0.00

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

6/30/2014 15:36

Work Order # 2166345

Sewer Pump
 CDS-PMP-04
 ROTATE IMPELLERS
 CDS UNDERFLOW PUMP (SPARE)
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA54
 Asset

Summary

Initiated 5/28/2014 Start Now
 FLDOPS is responsible - Assigned to METRO OPS FLOOD PS Re-assign
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 22221
 Budget is 7478123.

Information

Work Order Information

Initiated 5/28/2014 00:00
 Source
 Authorization RFLYNN
 Schedule Start 6/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 7/9/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 22221
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By
 Hours 0.00
 Down Time 0.00
 Result
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started
 Linked Case
 QC Performed no
 Closed
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-----------------|-----------|----------|
| FPSA54 | Labor | 00049 REGULAR SALARY | 0.5 | Hours | 60.8400 | \$30.42 | 6/13/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|--------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS203 COMPLETE ROTATION OF IMPELLER | 0 | | 0 | | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor
 0.00

Work Order Information

30.42
-30.42
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
30.42
-30.42
0.00

Other Observation

Other Observation

1

(No Data)

Work Order Information

INFOR HANSEN8

6/30/2014 15:38

Work Order # 2136859

Plant Equipment
 CDS-01
 CDS UNIT QUARTERLY
 CDS UNIT - CREEK
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA19
 Asset

Summary

Initiated 3/28/2014 Start Now
 FLDOPS is responsible - Assigned to METRO OPS FLOOD PS Re-assign
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 21420
 Budget is 7478123.

Information

Work Order Information

Initiated 3/28/2014 00:00
 Source
 Authorization RFLYNN
 Schedule Start 4/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 5/13/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 21420
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By
 Hours 0.00
 Down Time 0.00
 Result
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started
 Linked Case
 QC Performed no
 Closed
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-----------------|-----------|----------|
| FPSA19 | Labor | 15393 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 6/13/2014 00:00 | | |
| FPSA19 | Labor | 15575 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 6/13/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS160 PUMP DOWN CDS UNIT | 0 | | 0 | 0 | | | |
| FPS161 INSPECT FOR SCREEN DAMAGE | 0 | | 0 | 0 | | | |
| FPS162 SPRAY OFF SCREENS | 0 | | 0 | 0 | | | |
| FPS163 CHECK SPRAY DOWN PIPING | 0 | | 0 | 0 | | | |
| FPS164 CK SPRAY NOZZLE FOR CLOG/DRCTN | 0 | | 0 | 0 | | | |
| FPS165 CK CDS SUMP FOR DEBRIS | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00

0.00
Extra Item
0.00
0.00
0.00
0.00
Labor
0.00
243.32
-243.32
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
243.32
-243.32
0.00

Other Observation

Other Observation

1

(No Data)

Work Order Information

INFOR HANSEN8

6/30/2014 15:38

Work Order # 2087637

Plant Equipment
 CDS-01
 CDS UNIT QUARTERLY
 CDS UNIT - CREEK
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA19
 Asset

Summary

Closed on 3/24/2014 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20056
 Budget is 7478123.

Information

Work Order Information

Initiated 12/28/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 1/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 2/12/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 20056
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 3/24/2014 08:00
 Linked Case
 QC Performed no
 Closed 3/24/2014 16:00
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|----------------|-----------|----------|
| FPSA19 | Labor | 15575 REGULAR SALARY | 0.02 | Hours 61.0000 | \$1.22 | 4/7/2014 00:00 | | |
| FPSA19 | Labor | 00049 REGULAR SALARY | 2 | Hours 60.8300 | \$121.66 | 4/7/2014 00:00 | | |
| FPSA19 | Labor | 15575 REGULAR SALARY | 2 | Hours 60.8300 | \$121.66 | 4/7/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration Days | Hours | Minutes | Completed Date | Comments |
|---------------------------------------|---------------|-------|---------|----------------|----------|
| FPS160 PUMP DOWN CDS UNIT | 0 | 0 | 0 | 3/24/2014 | YES |
| FPS161 INSPECT FOR SCREEN DAMAGE | 0 | 0 | 0 | 3/24/2014 | OKAY |
| FPS162 SPRAY OFF SCREENS | 0 | 0 | 0 | 3/24/2014 | YES |
| FPS163 CHECK SPRAY DOWN PIPING | 0 | 0 | 0 | 3/24/2014 | YES |
| FPS164 CK SPRAY NOZZLE FOR CLOG/DRCTN | 0 | 0 | 0 | 3/24/2014 | OKAY |
| FPS165 CK CDS SUMP FOR DEBRIS | 0 | 0 | 0 | 3/24/2014 | OKAY |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00

0.00
0.00
Extra Item
0.00
0.00
0.00
0.00
Labor
0.00
244.54
-244.54
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
244.54
-244.54
0.00

Other Observation

Other Observation

1

(No Data)

Work Order Information

INFOR HANSEN8

6/30/2014 15:39

Work Order # 2136860

Plant Equipment
 CDS-02
 CDS UNIT QUARTERLY
 CDS UNIT - STREET
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA19
 Asset

Summary

Initiated 3/28/2014 Start Now
 FLDOPS is responsible - Assigned to METRO OPS FLOOD PS Re-assign
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 21420
 Budget is 7478123.

Information

Work Order Information

Initiated 3/28/2014 00:00
 Source
 Authorization RFLYNN
 Schedule Start 4/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 5/13/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 21420
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By
 Hours 0.00
 Down Time 0.00
 Result
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started
 Linked Case
 QC Performed no
 Closed
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-----------------|-----------|----------|
| FPSA19 | Labor | 15393 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 6/13/2014 00:00 | | |
| FPSA19 | Labor | 15575 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 6/13/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS160 PUMP DOWN CDS UNIT | 0 | | 0 | 0 | | | |
| FPS161 INSPECT FOR SCREEN DAMAGE | 0 | | 0 | 0 | | | |
| FPS162 SPRAY OFF SCREENS | 0 | | 0 | 0 | | | |
| FPS163 CHECK SPRAY DOWN PIPING | 0 | | 0 | 0 | | | |
| FPS164 CK SPRAY NOZZLE FOR CLOG/DRCTN | 0 | | 0 | 0 | | | |
| FPS165 CK CDS SUMP FOR DEBRIS | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00

| |
|------------|
| 0.00 |
| Extra Item |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Labor |
| 0.00 |
| 243.32 |
| -243.32 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 243.32 |
| -243.32 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

Work Order Information

INFOR HANSEN8

6/30/2014 15:40

Work Order # 2087639

Plant Equipment
 CDS-02
 CDS UNIT QUARTERLY
 CDS UNIT - STREET
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA19
 Asset

Summary

Closed on 3/24/2014 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20056
 Budget is 7478123.

Information

Work Order Information

Initiated 12/28/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 1/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 2/12/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 20056
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 3/24/2014 08:00
 Linked Case
 QC Performed no
 Closed 3/24/2014 16:00
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|----------------|-----------|----------|
| FPSA19 | Labor | 00049 REGULAR SALARY | 2 | Hours 60.8300 | \$121.66 | 4/7/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected

1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|-----------|----------|
| FPS160 PUMP DOWN CDS UNIT | 0 | 0 | 0 | 0 | | 3/24/2014 | YES |
| FPS161 INSPECT FOR SCREEN DAMAGE | 0 | 0 | 0 | 0 | | 3/24/2014 | OKAY |
| FPS162 SPRAY OFF SCREENS | 0 | 0 | 0 | 0 | | 3/24/2014 | YES |
| FPS163 CHECK SPRAY DOWN PIPING | 0 | 0 | 0 | 0 | | 3/24/2014 | OKAY |
| FPS164 CK SPRAY NOZZLE FOR CLOG/DRCTN | 0 | 0 | 0 | 0 | | 3/24/2014 | OKAY |
| FPS165 CK CDS SUMP FOR DEBRIS | 0 | 0 | 0 | 0 | | 3/24/2014 | OKAY |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00

Work Order Information

0.00
0.00
0.00
Labor
0.00
121.66
-121.66
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
121.66
-121.66
0.00

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

6/30/2014 15:40

Work Order # 2163727

Plant Equipment
 CDS-02
 ELECTRICAL
 CDS UNIT - STREET
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code ELEC
 Asset

Summary

Initiated 5/20/2014 Start Now
 Assigned to METRO OPS FLOOD PS Re-assign
 Maintenance Type is UM.
 Budget is 7478123.

Information

Work Order Information

Initiated 5/20/2014 07:40
 Source
 Authorization
 Schedule Start
 Maint Type UM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility
 Due
 Priority
 Reference #
 Initiated By 00298
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 0
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By
 Hours 0.00
 Down Time 0.00
 Result
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started
 Linked Case
 QC Performed no
 Closed
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|----------------|-----------|----------|
| ELEC | Labor | 00597 REGULAR SALARY | 1 | Hours | 60.8300 | \$60.83 | 6/6/2014 00:00 | | |

Comments

Comments
 Pump 2 kicked out on a moisture alarm. Troubleshoot.

Cost Summary

Cost Summary

| | |
|--------------------|--------|
| Estimated Costs | |
| Actual Costs | |
| Difference | |
| Actual Group Costs | |
| Contractor | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Fleet Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Plant Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Extra Item | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Labor | 0.00 |
| | 60.83 |
| | -60.83 |
| | 0.00 |
| Material | 0.00 |
| | 0.00 |

| |
|---------|
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 60.83 |
| -60.83 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

6/30/2014 15:41

Work Order # 2087641

Plant Equipment
 CDS-REG-00
 CDS FLOW REGULATOR BOX QUARTER
 CDS FLOW REGULATOR BOX
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA37
 Asset

Summary

Closed on 3/24/2014 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20057
 Budget is 7478123.

Information

Work Order Information

Initiated 12/28/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 1/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 2/12/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 20057
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 3/24/2002 08:00
 Linked Case
 QC Performed no
 Closed 3/24/2014 16:00
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|----------------|-----------|----------|
| FPSA37 | Labor | 00049 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 4/7/2014 00:00 | | |
| FPSA37 | Labor | 15575 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 4/7/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------|----------|------|-------|---------|-----------|-----------|----------|
| FPS166 CK FOR DEBRIS | 0 | | 0 | | | 3/24/2014 | OKAY |
| FPS167 CK FLOAT OPERATION | 0 | | 0 | | | 3/24/2014 | OKAY |
| FPS168 CK GATE OPERATION | 0 | | 0 | | | 3/24/2014 | OKAY |
| FPS169 LUBRICATE UNIT | 0 | | 0 | | | 3/24/2014 | OKAY |

Cost Summary

| | |
|--------------------|------|
| Estimated Costs | |
| Actual Costs | |
| Difference | |
| Actual Group Costs | |
| Contractor | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Fleet Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Plant Equipment | 0.00 |
| | 0.00 |
| | 0.00 |
| | 0.00 |
| Extra Item | 0.00 |
| | 0.00 |

| |
|----------|
| 0.00 |
| 0.00 |
| 0.00 |
| Labor |
| 0.00 |
| 243.32 |
| -243.32 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 243.32 |
| -243.32 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

Work Order Information

INFOR HANSEN8

6/30/2014 15:41

Work Order # 2136862

Plant Equipment
 CDS-REG-00
 CDS FLOW REGULATOR BOX QUARTER
 CDS FLOW REGULATOR BOX
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA37
 Asset

Summary

Initiated 3/28/2014 Start Now
 FLDOPS is responsible - Assigned to METRO OPS FLOOD PS Re-assign
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 21421
 Budget is 7478123.

Information

Work Order Information

Initiated 3/28/2014 00:00
 Source
 Authorization RFLYNN
 Schedule Start 4/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 5/13/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 21421
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By
 Hours 0.00
 Down Time 0.00
 Result
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started
 Linked Case
 QC Performed no
 Closed
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|-----------------|-----------|----------|
| FPSA37 | Labor | 15393 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 6/13/2014 00:00 | | |
| FPSA37 | Labor | 15575 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 6/13/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS166 CK FOR DEBRIS | 0 | 0 | 0 | 0 | | | |
| FPS167 CK FLOAT OPERATION | 0 | 0 | 0 | 0 | | | |
| FPS168 CK GATE OPERATION | 0 | 0 | 0 | 0 | | | |
| FPS169 LUBRICATE UNIT | 0 | 0 | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item

| |
|----------|
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Labor |
| 0.00 |
| 243.32 |
| -243.32 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 243.32 |
| -243.32 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

6/30/2014 15:42

Work Order # 2087643

Plant Equipment
 CDS-CTN-00
 CURTAIN WALL QUARTERLY
 CSO108 CURTAIN WALL
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA38
 Asset

Summary

Closed on 3/24/2014 by STEVEN WILLIAMS.
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20058
 Budget is 7478123.

Information

Work Order Information

Initiated 12/28/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 1/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 2/12/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 20058
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By 15575
 Hours 0.00
 Down Time 0.00
 Result WOCOM
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started 3/24/2014 08:00
 Linked Case
 QC Performed no
 Closed 3/24/2014 16:00
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage | Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------|-------|---------|------------|----------------|-----------|----------|
| FPSA38 | Labor | 15575 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 4/7/2014 00:00 | | |
| FPSA38 | Labor | 00049 REGULAR SALARY | 2 | Hours | 60.8300 | \$121.66 | 4/7/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected

1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|-----------|----------|
| FPS170 INSP CURTAIN WALLS FOR DEFECTS | 0 | | 0 | | | 3/24/2014 | OKAY |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor

0.00
243.32
-243.32
0.00
Material
0.00
0.00
0.00
0.00
Tools
0.00
0.00
0.00
0.00
Vehicle
0.00
0.00
0.00
0.00
Total
0.00
243.32
-243.32
0.00

Other Observation

Other Observation

1

(No Data)

Work Order Information

INFOR HANSEN8

6/30/2014 15:43

Work Order # 2136863

Plant Equipment
 CDS-CTN-00
 CURTAIN WALL QUARTERLY
 CSO108 CURTAIN WALL
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA38
 Asset

Summary

Initiated 3/28/2014 Start Now
 FLDOPS is responsible - Assigned to METRO OPS FLOOD PS Re-assign
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 21422
 Budget is 7478123.

Information

Work Order Information

Initiated 3/28/2014 00:00
 Source
 Authorization RFLYNN
 Schedule Start 4/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 5/13/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 21422
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By
 Hours 0.00
 Down Time 0.00
 Result
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started
 Linked Case
 QC Performed no
 Closed
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-----------------|-----------|----------|
| FPSA38 | Labor | 15393 REGULAR SALARY | 2 | Hours 60.8300 | \$121.66 | 6/13/2014 00:00 | | |
| FPSA38 | Labor | 15575 REGULAR SALARY | 2 | Hours 60.8300 | \$121.66 | 6/13/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|---------------------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS170 INSP CURTAIN WALLS FOR DEFECTS | 0 | | 0 | | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00

| |
|----------|
| Labor |
| 0.00 |
| 243.32 |
| -243.32 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 243.32 |
| -243.32 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)

INFOR HANSEN8

6/30/2014 15:43

Work Order # 2087239

Plant Equipment
 CDS-BFP-01
 BACKFLOW PREVENTER ANNUAL
 CDS BACKFLOW PREVENTER
 Address 2324 NEWBURG RD LOUISVILLE KY 40205-0000
 Activity Code FPSA02
 Asset

Summary

Initiated 12/28/2013 Start Now
 FLDOPS is responsible - Assigned to METRO OPS FLOOD PS Re-assign
 Authorized by RFLYNN.
 Maintenance Type is PM.
 Part of Group Project 20012
 Budget is 7478123.

Information

Work Order Information

Initiated 12/28/2013 00:00
 Source
 Authorization RFLYNN
 Schedule Start 1/1/2014 00:00
 Maint Type PM
 Assigned To FLOODPS-SUP
 Schedule Finish
 Problem
 Responsibility FLDOPS
 Due 5/7/2014 00:00
 Priority
 Reference #
 Initiated By MIDASSYS
 Service Request 0
 Project
 Estimated Cost 0.00
 Group Project 20012
 7478123
 Inspection# 0
 Budget Number
 Out of Service no
 Potential Service no
 Request no
 Incident 0

Create eB Container no
 Stoppage no
 Crew Days 0.00
 Flow Depth 0.00
 Measured Flow 0.00
 Closed By
 Hours 0.00
 Down Time 0.00
 Result
 Condition
 Actual Quantity 0.000
 Usage 0.000
 Distance 0.00
 Valuation Type
 Started
 Linked Case
 QC Performed no
 Closed
 QC By
 Major Failure no
 Cancel Work Order no

Work Order Information

Location

Address Information

Street # 2324
 Pre Dir
 Street Name NEWBURG
 Suffix RD
 Post Dir
 Subdesignation
 Address
 Cross Street
 Cross Street
 City, State, ZIP LOUISVILLE
 KY
 40205-0000

Location Information

Location

Resource Usage

1

Resource Usage

| Activity Task | Usage Type | Item Description | Usage Units | Rate | Total Cost | Charge From | Charge To | Comments |
|---------------|------------|----------------------|-------------|---------------|------------|-----------------|-----------|----------|
| FPSA02 | Labor | 00333 REGULAR SALARY | 3 | Hours 60.8300 | \$182.49 | 6/13/2014 00:00 | | |

Planned Tasks

Complete All
 Complete Selected
 1

Tasks

| Task Description | Duration | Days | Hours | Minutes | Completed | Date | Comments |
|-------------------------|----------|------|-------|---------|-----------|------|----------|
| FPS006 BACKFLOW TESTING | 0 | | 0 | 0 | | | |

Cost Summary

Cost Summary

Estimated Costs
 Actual Costs
 Difference
 Actual Group Costs
 Contractor
 0.00
 0.00
 0.00
 0.00
 Fleet Equipment
 0.00
 0.00
 0.00
 0.00
 Plant Equipment
 0.00
 0.00
 0.00
 0.00
 Extra Item
 0.00
 0.00
 0.00
 0.00
 Labor
 0.00

Work Order Information

| |
|----------|
| 182.49 |
| -182.49 |
| 0.00 |
| Material |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Tools |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Vehicle |
| 0.00 |
| 0.00 |
| 0.00 |
| 0.00 |
| Total |
| 0.00 |
| 182.49 |
| -182.49 |
| 0.00 |

Other Observation

Other Observation

1

(No Data)



MOU Semi-Annual Report #12
January 1, 2014 – June 30, 2014

ATTACHMENT "C"

CDS UNIT PUMP RUN TIMES

June 30, 2014

CSO 108 Underflow Pump Flow Meter Data

| Date | Daily Volume (MG) | Daily Volume (CF) | Daily Volume (gal) | Daily Volume Debris (gal) |
|------------------|-------------------|-------------------|--------------------|---------------------------|
| 12/25/13 1:00 AM | 0.00 | 169.86 | 1,270.61 | 1.27 |
| 12/26/13 1:00 AM | 0.00 | 518.16 | 3,876.11 | 3.88 |
| 12/27/13 1:00 AM | 0.00 | 165.44 | 1,237.58 | 1.24 |
| 12/28/13 1:00 AM | 0.00 | 164.31 | 1,229.09 | 1.23 |
| 12/29/13 1:00 AM | 0.00 | 163.96 | 1,226.50 | 1.23 |
| 12/30/13 1:00 AM | 0.00 | 164.22 | 1,228.43 | 1.23 |
| 12/31/13 1:00 AM | 0.00 | 166.92 | 1,248.61 | 1.25 |
| 1/1/14 1:00 AM | 0.00 | 166.26 | 1,243.72 | 1.24 |
| 1/2/14 1:00 AM | 0.00 | 161.94 | 1,211.39 | 1.21 |
| 1/3/14 1:00 AM | 0.00 | 175.52 | 1,312.95 | 1.31 |
| 1/4/14 1:00 AM | 0.00 | 170.40 | 1,274.70 | 1.27 |
| 1/5/14 1:00 AM | 0.00 | 167.16 | 1,250.43 | 1.25 |
| 1/6/14 1:00 AM | 0.00 | 168.15 | 1,257.82 | 1.26 |
| 1/7/14 1:00 AM | 0.00 | 182.44 | 1,364.74 | 1.36 |
| 1/8/14 1:00 AM | 0.00 | 172.16 | 1,287.87 | 1.29 |
| 1/9/14 1:00 AM | 0.00 | 163.35 | 1,221.92 | 1.22 |
| 1/10/14 1:00 AM | 0.00 | 162.49 | 1,215.51 | 1.22 |
| 1/11/14 1:00 AM | 0.00 | 159.14 | 1,190.42 | 1.19 |
| 1/12/14 1:00 AM | 0.00 | 161.93 | 1,211.36 | 1.21 |
| 1/13/14 1:00 AM | 0.00 | 159.54 | 1,193.41 | 1.19 |
| 1/14/14 1:00 AM | 0.00 | 159.14 | 1,190.42 | 1.19 |
| 1/15/14 1:00 AM | 0.00 | 161.53 | 1,208.32 | 1.21 |
| 1/16/14 1:00 AM | 0.00 | 166.85 | 1,248.12 | 1.25 |
| 1/17/14 1:00 AM | 0.00 | 166.59 | 1,246.17 | 1.25 |
| 1/18/14 1:00 AM | 0.00 | 174.90 | 1,308.36 | 1.31 |
| 1/19/14 1:00 AM | 0.00 | 163.53 | 1,223.31 | 1.22 |
| 1/20/14 1:00 AM | 0.00 | 162.68 | 1,216.96 | 1.22 |
| 1/21/14 1:00 AM | 0.00 | 161.03 | 1,204.61 | 1.20 |
| 1/22/14 1:00 AM | 0.00 | 173.95 | 1,301.23 | 1.30 |
| 1/23/14 1:00 AM | 0.00 | 172.81 | 1,292.74 | 1.29 |
| 1/24/14 1:00 AM | 0.00 | 175.90 | 1,315.79 | 1.32 |
| 1/25/14 1:00 AM | 0.00 | 168.42 | 1,259.87 | 1.26 |
| 1/26/14 1:00 AM | 0.00 | 169.25 | 1,266.04 | 1.27 |
| 1/27/14 1:00 AM | 0.00 | 159.76 | 1,195.07 | 1.20 |
| 1/28/14 1:00 AM | 0.00 | 173.33 | 1,296.58 | 1.30 |
| 1/29/14 1:00 AM | 0.00 | 174.01 | 1,301.66 | 1.30 |
| 1/30/14 1:00 AM | 0.00 | 170.94 | 1,278.70 | 1.28 |
| 1/31/14 1:00 AM | 0.00 | 159.54 | 1,193.43 | 1.19 |
| 2/1/14 1:00 AM | 0.00 | 159.59 | 1,193.83 | 1.19 |
| 2/2/14 1:00 AM | 0.00 | 159.14 | 1,190.42 | 1.19 |
| 2/3/14 1:00 AM | 0.00 | 165.26 | 1,236.21 | 1.24 |
| 2/4/14 1:00 AM | 0.00 | 167.10 | 1,250.00 | 1.25 |
| 2/5/14 1:00 AM | 0.00 | 526.69 | 3,939.93 | 3.94 |
| 2/6/14 1:00 AM | 0.00 | 165.24 | 1,236.07 | 1.24 |
| 2/7/14 1:00 AM | 0.00 | 167.70 | 1,254.52 | 1.25 |

CSO 108 Underflow Pump Flow Meter Data

| Date | Daily Volume (MG) | Daily Volume (CF) | Daily Volume (gal) | Daily Volume Debris (gal) |
|-----------------|-------------------|-------------------|--------------------|---------------------------|
| 2/8/14 1:00 AM | 0.00 | 165.64 | 1,239.06 | 1.24 |
| 2/9/14 1:00 AM | 0.00 | 164.16 | 1,228.02 | 1.23 |
| 2/10/14 1:00 AM | 0.00 | 166.16 | 1,242.98 | 1.24 |
| 2/11/14 1:00 AM | 0.00 | 171.43 | 1,282.37 | 1.28 |
| 2/12/14 1:00 AM | 0.00 | 169.43 | 1,267.41 | 1.27 |
| 2/13/14 1:00 AM | 0.00 | 166.60 | 1,246.25 | 1.25 |
| 2/14/14 1:00 AM | 0.00 | 163.09 | 1,219.97 | 1.22 |
| 2/15/14 1:00 AM | 0.00 | 167.04 | 1,249.57 | 1.25 |
| 2/16/14 1:00 AM | 0.00 | 161.21 | 1,205.92 | 1.21 |
| 2/17/14 1:00 AM | 0.00 | 165.63 | 1,239.00 | 1.24 |
| 2/18/14 1:00 AM | 0.00 | 162.09 | 1,212.48 | 1.21 |
| 2/19/14 1:00 AM | 0.00 | 155.68 | 1,164.54 | 1.16 |
| 2/20/14 1:00 AM | 0.00 | 159.14 | 1,190.42 | 1.19 |
| 2/21/14 1:00 AM | 0.00 | 155.68 | 1,164.54 | 1.16 |
| 2/22/14 1:00 AM | 0.00 | 162.18 | 1,213.20 | 1.21 |
| 2/23/14 1:00 AM | 0.00 | 159.16 | 1,190.57 | 1.19 |
| 2/24/14 1:00 AM | 0.00 | 165.07 | 1,234.80 | 1.23 |
| 2/25/14 1:00 AM | 0.00 | 164.35 | 1,229.40 | 1.23 |
| 2/26/14 1:00 AM | 0.00 | 458.29 | 3,428.21 | 3.43 |
| 2/27/14 1:00 AM | 0.00 | 165.12 | 1,235.22 | 1.24 |
| 2/28/14 1:00 AM | 0.00 | 168.45 | 1,260.11 | 1.26 |
| 3/1/14 1:00 AM | 0.00 | 162.94 | 1,218.88 | 1.22 |
| 3/2/14 1:00 AM | 0.00 | 155.68 | 1,164.54 | 1.16 |
| 3/3/14 1:00 AM | 0.00 | 165.06 | 1,234.75 | 1.23 |
| 3/4/14 1:00 AM | 0.00 | 171.37 | 1,281.93 | 1.28 |
| 3/5/14 1:00 AM | 0.00 | 165.63 | 1,238.97 | 1.24 |
| 3/6/14 1:00 AM | 0.00 | 163.35 | 1,221.92 | 1.22 |
| 3/7/14 1:00 AM | 0.00 | 162.03 | 1,212.06 | 1.21 |
| 3/8/14 1:00 AM | 0.00 | 162.91 | 1,218.65 | 1.22 |
| 3/9/14 1:00 AM | 0.00 | 159.49 | 1,193.06 | 1.19 |
| 3/10/14 1:00 AM | 0.04 | 4,939.65 | 36,951.15 | 36.95 |
| 3/11/14 1:00 AM | 0.04 | 5,522.84 | 41,313.74 | 41.31 |
| 3/12/14 1:00 AM | 0.04 | 4,888.19 | 36,566.22 | 36.57 |
| 3/13/14 1:00 AM | 0.04 | 5,518.49 | 41,281.19 | 41.28 |
| 3/14/14 1:00 AM | 0.04 | 4,989.34 | 37,322.87 | 37.32 |
| 3/15/14 1:00 AM | 0.04 | 4,940.17 | 36,955.04 | 36.96 |
| 3/16/14 1:00 AM | 0.04 | 4,890.32 | 36,582.11 | 36.58 |
| 3/17/14 1:00 AM | 0.04 | 4,972.47 | 37,196.65 | 37.20 |
| 3/18/14 1:00 AM | 0.04 | 5,638.99 | 42,182.61 | 42.18 |
| 3/19/14 1:00 AM | 0.04 | 4,929.83 | 36,877.70 | 36.88 |
| 3/20/14 1:00 AM | 0.04 | 4,891.65 | 36,592.11 | 36.59 |
| 3/21/14 1:00 AM | 0.04 | 4,915.69 | 36,771.95 | 36.77 |
| 3/22/14 1:00 AM | 0.04 | 5,513.43 | 41,243.35 | 41.24 |
| 3/23/14 1:00 AM | 0.04 | 4,891.66 | 36,592.18 | 36.59 |
| 3/24/14 1:00 AM | 0.04 | 4,921.93 | 36,818.58 | 36.82 |

CSO 108 Underflow Pump Flow Meter Data

| Date | Daily Volume (MG) | Daily Volume (CF) | Daily Volume (gal) | Daily Volume Debris (gal) |
|-----------------|-------------------|-------------------|--------------------|---------------------------|
| 3/25/14 1:00 AM | 0.05 | 6,363.32 | 47,600.95 | 47.60 |
| 3/26/14 1:00 AM | 0.04 | 5,001.19 | 37,411.50 | 37.41 |
| 3/27/14 1:00 AM | 0.04 | 4,991.08 | 37,335.87 | 37.34 |
| 3/28/14 1:00 AM | 0.04 | 4,935.71 | 36,921.71 | 36.92 |
| 3/29/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 3/30/14 1:00 AM | 0.04 | 5,932.89 | 44,381.13 | 44.38 |
| 3/31/14 1:00 AM | 0.05 | 6,156.06 | 46,050.51 | 46.05 |
| 4/1/14 1:00 AM | 0.04 | 5,054.81 | 37,812.61 | 37.81 |
| 4/2/14 1:00 AM | 0.04 | 5,243.34 | 39,222.88 | 39.22 |
| 4/3/14 1:00 AM | 0.04 | 5,183.40 | 38,774.51 | 38.77 |
| 4/4/14 1:00 AM | 0.21 | 28,638.67 | 214,232.16 | 214.23 |
| 4/5/14 1:00 AM | 0.50 | 67,271.04 | 503,222.35 | 503.22 |
| 4/6/14 1:00 AM | 0.08 | 10,438.58 | 78,086.00 | 78.09 |
| 4/7/14 1:00 AM | 0.06 | 8,055.67 | 60,260.59 | 60.26 |
| 4/8/14 1:00 AM | 0.19 | 24,915.88 | 186,383.75 | 186.38 |
| 4/9/14 1:00 AM | 0.07 | 8,980.30 | 67,177.27 | 67.18 |
| 4/10/14 1:00 AM | 0.06 | 7,742.55 | 57,918.29 | 57.92 |
| 4/11/14 1:00 AM | 0.05 | 6,841.27 | 51,176.26 | 51.18 |
| 4/12/14 1:00 AM | 0.05 | 6,061.46 | 45,342.90 | 45.34 |
| 4/13/14 1:00 AM | 0.05 | 6,374.14 | 47,681.91 | 47.68 |
| 4/14/14 1:00 AM | 0.04 | 5,556.84 | 41,568.02 | 41.57 |
| 4/15/14 1:00 AM | 0.04 | 5,421.06 | 40,552.32 | 40.55 |
| 4/16/14 1:00 AM | 0.05 | 6,185.59 | 46,271.44 | 46.27 |
| 4/17/14 1:00 AM | 0.05 | 6,153.02 | 46,027.79 | 46.03 |
| 4/18/14 1:00 AM | 0.04 | 5,540.75 | 41,447.71 | 41.45 |
| 4/19/14 1:00 AM | 0.04 | 5,470.62 | 40,923.05 | 40.92 |
| 4/20/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 4/21/14 1:00 AM | 0.04 | 5,508.50 | 41,206.44 | 41.21 |
| 4/22/14 1:00 AM | 0.04 | 4,888.19 | 36,566.18 | 36.57 |
| 4/23/14 1:00 AM | 0.04 | 4,888.19 | 36,566.18 | 36.57 |
| 4/24/14 1:00 AM | 0.04 | 4,888.34 | 36,567.32 | 36.57 |
| 4/25/14 1:00 AM | 0.04 | 5,483.11 | 41,016.50 | 41.02 |
| 4/26/14 1:00 AM | 0.04 | 4,891.65 | 36,592.06 | 36.59 |
| 4/27/14 1:00 AM | 0.04 | 4,881.27 | 36,514.43 | 36.51 |
| 4/28/14 1:00 AM | 0.06 | 7,501.11 | 56,112.17 | 56.11 |
| 4/29/14 1:00 AM | 0.18 | 24,472.16 | 183,064.48 | 183.06 |
| 4/30/14 1:00 AM | 0.05 | 6,720.48 | 50,272.65 | 50.27 |
| 5/1/14 1:00 AM | 0.05 | 6,068.09 | 45,392.46 | 45.39 |
| 5/2/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 5/3/14 1:00 AM | 0.04 | 5,507.48 | 41,198.83 | 41.20 |
| 5/4/14 1:00 AM | 0.04 | 4,884.82 | 36,540.99 | 36.54 |
| 5/5/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 5/6/14 1:00 AM | 0.04 | 4,888.19 | 36,566.18 | 36.57 |
| 5/7/14 1:00 AM | 0.04 | 5,471.63 | 40,930.62 | 40.93 |
| 5/8/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |

CSO 108 Underflow Pump Flow Meter Data

| Date | Daily Volume (MG) | Daily Volume (CF) | Daily Volume (gal) | Daily Volume Debris (gal) |
|-----------------|-------------------|-------------------|--------------------|---------------------------|
| 5/9/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 5/10/14 1:00 AM | 0.07 | 9,749.49 | 72,931.25 | 72.93 |
| 5/11/14 1:00 AM | 0.17 | 22,174.76 | 165,878.70 | 165.88 |
| 5/12/14 1:00 AM | 0.04 | 5,463.18 | 40,867.41 | 40.87 |
| 5/13/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 5/14/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 5/15/14 1:00 AM | 0.05 | 6,120.26 | 45,782.73 | 45.78 |
| 5/16/14 1:00 AM | 0.05 | 7,271.63 | 54,395.54 | 54.40 |
| 5/17/14 1:00 AM | 0.04 | 5,443.89 | 40,723.10 | 40.72 |
| 5/18/14 1:00 AM | 0.04 | 5,497.23 | 41,122.16 | 41.12 |
| 5/19/14 1:00 AM | 0.04 | 4,889.21 | 36,573.83 | 36.57 |
| 5/20/14 1:00 AM | 0.04 | 4,888.20 | 36,566.27 | 36.57 |
| 5/21/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 5/22/14 1:00 AM | 0.04 | 5,487.92 | 41,052.51 | 41.05 |
| 5/23/14 1:00 AM | 0.06 | 8,181.93 | 61,205.06 | 61.21 |
| 5/24/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 5/25/14 1:00 AM | 0.04 | 4,888.19 | 36,566.18 | 36.57 |
| 5/26/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 5/27/14 1:00 AM | 0.04 | 5,476.89 | 40,970.01 | 40.97 |
| 5/28/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 5/29/14 1:00 AM | 0.04 | 4,881.27 | 36,514.42 | 36.51 |
| 5/30/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 5/31/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/1/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/2/14 1:00 AM | 0.04 | 5,453.75 | 40,796.92 | 40.80 |
| 6/3/14 1:00 AM | 0.04 | 4,881.27 | 36,514.42 | 36.51 |
| 6/4/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/5/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/6/14 1:00 AM | 0.04 | 4,883.86 | 36,533.81 | 36.53 |
| 6/7/14 1:00 AM | 0.05 | 6,794.92 | 50,829.56 | 50.83 |
| 6/8/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/9/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/10/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/11/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/12/14 1:00 AM | 0.04 | 4,881.27 | 36,514.42 | 36.51 |
| 6/13/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/14/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/15/14 1:00 AM | 0.04 | 4,881.27 | 36,514.42 | 36.51 |
| 6/16/14 1:00 AM | 0.04 | 4,881.27 | 36,514.42 | 36.51 |
| 6/17/14 1:00 AM | 0.04 | 4,881.27 | 36,514.42 | 36.51 |
| 6/18/14 1:00 AM | 0.04 | 4,884.73 | 36,540.30 | 36.54 |
| 6/19/14 1:00 AM | 0.04 | 4,881.27 | 36,514.42 | 36.51 |
| 6/20/14 1:00 AM | 0.05 | 6,116.44 | 45,754.18 | 45.75 |
| 6/21/14 1:00 AM | 0.05 | 6,482.21 | 48,490.28 | 48.49 |
| 6/22/14 1:00 AM | 0.04 | 4,873.37 | 36,455.33 | 36.46 |

CSO 108 Underflow Pump Flow Meter Data

| Date | Daily Volume (MG) | Daily Volume (CF) | Daily Volume (gal) | Daily Volume Debris (gal) |
|-----------------|-------------------|-------------------|--------------------|---------------------------|
| 6/23/14 1:00 AM | 0.04 | 4,877.81 | 36,488.54 | |
| | | | | |
| | | | | 5,466.53 |

59,284.10 Pounds
29.64 **Tons**

PUMP RUN TIMES

| CSO 108 CDS Facility | | | |
|----------------------|------------------|------------------|------------------|
| Date | Pump 1 Run Hours | Pump 2 Run Hours | Pump 3 Run Hours |
| 12/25/2013 | 0.00 | 0.00 | 5.28 |
| 12/26/2013 | 0.00 | 0.00 | 0.23 |
| 12/27/2013 | 0.00 | 0.00 | 0.07 |
| 12/28/2013 | 0.00 | 0.00 | 0.05 |
| 12/29/2013 | 0.00 | 0.00 | 0.03 |
| 12/30/2013 | 0.00 | 0.00 | 0.03 |
| 12/31/2013 | 0.00 | 0.00 | 0.07 |
| 1/1/2014 | 0.00 | 0.00 | 6.48 |
| 1/2/2014 | 0.00 | 0.00 | 0.00 |
| 1/3/2014 | 0.00 | 0.00 | 0.05 |
| 1/4/2014 | 0.00 | 0.00 | 0.00 |
| 1/5/2014 | 0.00 | 0.00 | 0.03 |
| 1/6/2014 | 0.00 | 0.00 | 0.03 |
| 1/7/2014 | 0.00 | 0.00 | 0.00 |
| 1/8/2014 | 0.00 | 0.00 | 0.03 |
| 1/9/2014 | 0.00 | 0.00 | 0.03 |
| 1/10/2014 | 0.00 | 0.00 | 0.00 |
| 1/11/2014 | 0.00 | 0.00 | 0.03 |
| 1/12/2014 | 0.00 | 0.00 | 0.00 |
| 1/13/2014 | 0.00 | 0.00 | 0.27 |
| 1/14/2014 | 0.00 | 0.00 | 0.07 |
| 1/15/2014 | 0.00 | 0.00 | 0.02 |
| 1/16/2014 | 0.00 | 0.00 | 0.03 |
| 1/17/2014 | 0.00 | 0.00 | 0.00 |
| 1/18/2014 | 0.00 | 0.00 | 0.03 |
| 1/19/2014 | 0.00 | 0.00 | 0.00 |
| 1/20/2014 | 0.00 | 0.00 | 0.02 |
| 1/21/2014 | 0.00 | 0.00 | 0.00 |
| 1/22/2014 | 0.00 | 0.00 | 0.00 |
| 1/23/2014 | 0.00 | 0.00 | 0.00 |
| 1/24/2014 | 0.00 | 0.00 | 0.03 |
| 1/25/2014 | 0.00 | 0.00 | 0.00 |
| 1/26/2014 | 0.00 | 0.00 | 0.00 |
| 1/27/2014 | 0.00 | 0.00 | 0.00 |
| 1/28/2014 | 0.00 | 0.00 | 0.03 |
| 1/29/2014 | 0.00 | 0.00 | 0.00 |
| 1/30/2014 | 0.00 | 0.00 | 0.00 |
| 1/31/2014 | 0.00 | 0.00 | 0.00 |
| 2/1/2014 | 0.00 | 0.00 | 0.00 |
| 2/2/2014 | 0.00 | 0.00 | 0.03 |

PUMP RUN TIMES

| CSO 108 CDS Facility | | | |
|----------------------|------------------|------------------|------------------|
| Date | Pump 1 Run Hours | Pump 2 Run Hours | Pump 3 Run Hours |
| | | | |
| 2/3/2014 | 0.00 | 0.00 | 0.00 |
| 2/4/2014 | 0.00 | 0.00 | 0.00 |
| 2/5/2014 | 0.00 | 0.00 | 0.92 |
| 2/6/2014 | 0.03 | 1.28 | 1.65 |
| 2/7/2014 | 0.18 | 1.85 | 22.32 |
| 2/8/2014 | 0.00 | 0.00 | 11.53 |
| 2/9/2014 | 0.00 | 0.00 | 0.13 |
| 2/10/2014 | 0.00 | 0.00 | 0.10 |
| 2/11/2014 | 0.00 | 0.00 | 0.10 |
| 2/12/2014 | 0.00 | 0.00 | 0.05 |
| 2/13/2014 | 0.00 | 0.00 | 0.00 |
| 2/14/2014 | 0.00 | 0.00 | 0.03 |
| 2/15/2014 | 0.00 | 0.00 | 0.00 |
| 2/16/2014 | 0.00 | 0.00 | 0.05 |
| 2/17/2014 | 0.00 | 0.00 | 0.00 |
| 2/18/2014 | 0.00 | 0.00 | 0.05 |
| 2/19/2014 | 0.53 | 0.12 | 1.53 |
| 2/20/2014 | 0.00 | 0.00 | 0.20 |
| 2/21/2014 | 0.00 | 0.00 | 0.20 |
| 2/22/2014 | 0.00 | 0.00 | 0.17 |
| 2/23/2014 | 0.00 | 0.00 | 0.13 |
| 2/24/2014 | 0.00 | 0.00 | 0.15 |
| 2/25/2014 | 0.00 | 0.00 | 0.08 |
| 2/26/2014 | 0.00 | 0.00 | 0.03 |
| 2/27/2014 | 0.00 | 0.00 | 0.05 |
| 2/28/2014 | 0.00 | 0.00 | 0.03 |
| 3/1/2014 | 0.00 | 0.00 | 0.05 |
| 3/2/2014 | 0.00 | 0.00 | 0.00 |
| 3/3/2014 | 0.00 | 0.00 | 0.03 |
| 3/4/2014 | 0.00 | 0.00 | 0.07 |
| 3/5/2014 | 0.00 | 0.00 | 0.07 |
| 3/6/2014 | 0.00 | 0.00 | 0.00 |
| 3/7/2014 | 0.00 | 0.00 | 0.05 |
| 3/8/2014 | 0.00 | 0.00 | 0.07 |
| 3/9/2014 | 0.00 | 0.00 | 0.00 |
| 3/10/2014 | 0.00 | 0.00 | 0.05 |
| 3/11/2014 | 0.00 | 0.00 | 0.00 |
| 3/12/2014 | 0.00 | 0.00 | 0.05 |
| 3/13/2014 | 0.00 | 0.00 | 0.00 |
| 3/14/2014 | 0.00 | 0.00 | 0.05 |

PUMP RUN TIMES

| CSO 108 CDS Facility | | | |
|----------------------|------------------|------------------|------------------|
| Date | Pump 1 Run Hours | Pump 2 Run Hours | Pump 3 Run Hours |
| 3/15/2014 | 0.00 | 0.00 | 0.00 |
| 3/16/2014 | 0.00 | 0.00 | 0.00 |
| 3/17/2014 | 0.00 | 0.00 | 0.00 |
| 3/18/2014 | 0.00 | 0.00 | 0.00 |
| 3/19/2014 | 0.00 | 0.00 | 0.07 |
| 3/20/2014 | 0.00 | 0.00 | 0.00 |
| 3/21/2014 | 0.00 | 0.00 | 0.00 |
| 3/22/2014 | 0.00 | 0.00 | 0.00 |
| 3/23/2014 | 0.00 | 0.00 | 0.03 |
| 3/24/2014 | 0.00 | 0.00 | 0.00 |
| 3/25/2014 | 0.00 | 0.00 | 0.00 |
| 3/26/2014 | 0.00 | 0.00 | 0.12 |
| 3/27/2014 | 0.00 | 0.00 | 0.00 |
| 3/28/2014 | 0.00 | 0.00 | 0.00 |
| 3/29/2014 | 0.00 | 0.00 | 0.00 |
| 3/30/2014 | 0.00 | 0.00 | 0.00 |
| 3/31/2014 | 0.00 | 0.00 | 0.08 |
| 4/1/2014 | 0.00 | 0.00 | 0.13 |
| 4/2/2014 | 0.00 | 0.00 | 0.03 |
| 4/3/2014 | 0.00 | 0.00 | 0.08 |
| 4/4/2014 | 0.00 | 0.00 | 0.05 |
| 4/5/2014 | 0.80 | 1.13 | 3.13 |
| 4/6/2014 | 17.22 | 7.47 | 11.62 |
| 4/7/2014 | 0.00 | 0.00 | 0.52 |
| 4/8/2014 | 0.00 | 0.00 | 0.30 |
| 4/9/2014 | 0.93 | 1.43 | 2.27 |
| 4/10/2014 | 0.00 | 0.00 | 0.33 |
| 4/11/2014 | 0.00 | 0.00 | 0.23 |
| 4/12/2014 | 0.00 | 0.00 | 0.18 |
| 4/13/2014 | 0.00 | 0.00 | 0.13 |
| 4/14/2014 | 0.00 | 0.00 | 0.13 |
| 4/15/2014 | 0.00 | 0.00 | 0.08 |
| 4/16/2014 | 0.00 | 0.00 | 0.08 |
| 4/17/2014 | 0.00 | 0.00 | 0.13 |
| 4/18/2014 | 0.00 | 0.00 | 0.08 |
| 4/19/2014 | 0.00 | 0.00 | 0.05 |
| 4/20/2014 | 0.00 | 0.00 | 0.05 |
| 4/21/2014 | 0.00 | 0.00 | 0.00 |
| 4/22/2014 | 0.00 | 0.00 | 0.05 |
| 4/23/2014 | 0.00 | 0.00 | 0.00 |

PUMP RUN TIMES

| CSO 108 CDS Facility | | | |
|----------------------|------------------|------------------|------------------|
| Date | Pump 1 Run Hours | Pump 2 Run Hours | Pump 3 Run Hours |
| 4/24/2014 | 0.00 | 0.00 | 0.00 |
| 4/25/2014 | 0.00 | 0.00 | 0.00 |
| 4/26/2014 | 0.00 | 0.00 | 0.03 |
| 4/27/2014 | 0.00 | 0.00 | 0.00 |
| 4/28/2014 | 0.00 | 0.00 | 0.00 |
| 4/29/2014 | 0.52 | 0.23 | 4.37 |
| 4/30/2014 | 1.23 | 0.90 | 4.18 |
| 5/1/2014 | 0.00 | 0.00 | 0.18 |
| 5/2/2014 | 0.00 | 0.00 | 0.10 |
| 5/3/2014 | 0.00 | 0.00 | 0.00 |
| 5/4/2014 | 0.00 | 0.00 | 0.05 |
| 5/5/2014 | 0.00 | 0.00 | 0.00 |
| 5/6/2014 | 0.00 | 0.00 | 0.00 |
| 5/7/2014 | 0.00 | 0.00 | 0.00 |
| 5/8/2014 | 0.00 | 0.00 | 0.05 |
| 5/9/2014 | 0.00 | 0.00 | 0.00 |
| 5/10/2014 | 0.00 | 0.00 | 0.00 |
| 5/11/2014 | 0.22 | 0.50 | 1.12 |
| 5/12/2014 | 0.53 | 0.62 | 2.68 |
| 5/13/2014 | 0.00 | 0.00 | 0.05 |
| 5/14/2014 | 0.00 | 0.00 | 0.00 |
| 5/15/2014 | 0.00 | 0.00 | 0.00 |
| 5/16/2014 | 0.00 | 0.00 | 0.10 |
| 5/17/2014 | 0.00 | 0.00 | 0.18 |
| 5/18/2014 | 0.00 | 0.00 | 0.05 |
| 5/19/2014 | 0.00 | 0.00 | 0.03 |
| 5/20/2014 | 0.00 | 0.00 | 0.00 |
| 5/21/2014 | 0.00 | 0.00 | 0.00 |
| 5/22/2014 | 0.00 | 0.00 | 0.00 |
| 5/23/2014 | 0.00 | 0.00 | 0.05 |
| 5/24/2014 | 0.00 | 0.00 | 0.33 |
| 5/25/2014 | 0.00 | 0.00 | 0.00 |
| 5/26/2014 | 0.00 | 0.00 | 0.00 |
| 5/27/2014 | 0.00 | 0.00 | 0.00 |
| 5/28/2014 | 0.00 | 0.00 | 0.03 |
| 5/29/2014 | 0.00 | 0.00 | 0.00 |
| 5/30/2014 | 0.00 | 0.00 | 0.00 |
| 5/31/2014 | 0.00 | 0.00 | 0.00 |
| 6/1/2014 | 0.00 | 0.00 | 0.00 |
| 6/2/2014 | 0.00 | 0.00 | 0.00 |

PUMP RUN TIMES

| CSO 108 CDS Facility | | | |
|----------------------|------------------|------------------|------------------|
| Date | Pump 1 Run Hours | Pump 2 Run Hours | Pump 3 Run Hours |
| | | | |
| 6/3/2014 | 0.00 | 0.00 | 0.05 |
| 6/4/2014 | 0.00 | 0.00 | 0.00 |
| 6/5/2014 | 0.00 | 0.00 | 0.00 |
| 6/6/2014 | 0.00 | 0.00 | 0.00 |
| 6/7/2014 | 0.00 | 0.00 | 0.00 |
| 6/8/2014 | 0.00 | 0.00 | 0.17 |
| 6/9/2014 | 0.00 | 0.00 | 0.00 |
| 6/10/2014 | 0.00 | 0.00 | 0.00 |
| 6/11/2014 | 0.00 | 0.00 | 0.00 |
| 6/12/2014 | 0.00 | 0.00 | 0.00 |
| 6/13/2014 | 0.00 | 0.00 | 0.00 |
| 6/14/2014 | 0.00 | 0.00 | 0.00 |
| 6/15/2014 | 0.00 | 0.00 | 0.00 |
| 6/16/2014 | 0.00 | 0.00 | 0.00 |
| 6/17/2014 | 0.00 | 0.00 | 0.00 |
| 6/18/2014 | 0.00 | 0.00 | 0.00 |
| 6/19/2014 | 0.00 | 0.00 | 0.00 |
| 6/20/2014 | 0.00 | 0.00 | 0.00 |
| 6/21/2014 | 0.00 | 0.00 | 0.10 |
| 6/22/2014 | 0.00 | 0.00 | 0.32 |
| 6/23/2014 | 0.00 | 0.00 | 0.03 |



APPENDIX B-1 - DISCHARGE WORK ORDERS-WATERS OF THE UNITED STATES



APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|---------------------------|----------------------------|---------------------------|--------------------|-----------------------|-----------------|------------------------|---------------------|--|--------------------------------|-----------------------------|---------|---|--|
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 04/04/2014 | 04/04/14 10:00 PM | 195000 | Sewer Manhole | 24012 | DITCH | CHENOWETH RUN,UPPER | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141479 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1812 N ENGLISH STATION RD | 04/04/2014 | 04/04/14 04:15 PM | 10875 | Sewer Lift Station | MSD0073-LS | GROUND | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141467 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 10/06/2013 | 10/07/13 07:40 AM | 11900 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2031258 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 11/17/2013 | 11/18/13 07:45 AM | 2955 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF PLANT CAPACITY | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2060993 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 11/17/2013 | 11/18/13 07:45 AM | 2955 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF PLANT CAPACITY | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2060998 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 12/21/2013 | 12/23/13 08:25 AM | 11525 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | lack of system capacity caused by rain event made plant level rise to area where a hole was in clarifier | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2085476 | msd cleaned and sanitized area | msd made repairs to hole in top of clarifier |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 12/21/2013 | 12/23/13 08:25 AM | 11525 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | lack of system capacity caused by rain event made plant level rise to area where a hole was in clarifier | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2085477 | msd cleaned and sanitized area | msd made repairs to clarifier |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 01/11/2014 | 01/11/14 09:38 PM | 28700 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2095063 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 01/11/2014 | 01/11/14 09:38 PM | 18700 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2095073 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 02/05/2014 | 02/05/14 07:05 PM | 3175 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO WEATHER EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2107935 | NO DEBRIS | DECREASE FLOW |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 04/04/2014 | 04/04/14 04:45 PM | 62250 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2141357 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 04/04/2014 | 04/03/14 04:45 PM | 41750 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2141361 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 04/04/2014 | 04/04/14 10:00 PM | 190000 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2141473 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 04/04/2014 | 04/04/14 04:45 PM | 465 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2141490 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 05/15/2014 | 05/15/14 04:30 PM | 2350 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | HOLES IN CLARIFIER | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2161788 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| CEDAR CREEK | KY0098540 | 9517 PLUMWOOD RD | 04/04/2014 | 04/04/14 12:30 PM | 6625 | Sewer Manhole | 63094 | STREAM | CEDAR CREEK | lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141529 | msd to clean and sanitize affected area | area included in msd's ioap |
| CEDAR CREEK | KY0098540 | 9300 HAYES AVE | 04/04/2014 | 04/04/14 12:25 PM | 6620 | Sewer Manhole | 63095 | STREAM | CEDAR CREEK | lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141525 | msd to clean and sanitize affected area | area included in msd's ioap |
| CEDAR CREEK | KY0098540 | 9905 FAIRMOUNT RD | 10/06/2013 | 10/06/13 07:17 PM | 1504 | Sewer Manhole | 81710 | GROUND | BIG RUN | LACK OF CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031303 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| CEDAR CREEK | KY0098540 | 8605 CEDAR CREEK RD | 10/06/2013 | 10/06/13 10:10 AM | 80 | Sewer Treatment Plant | MSD0289 | GROUND | CEDAR CREEK | excessive flow came out of channel ahead of parshal flume | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2031221 | no clean up | no action rain event caused excessive flow |
| CEDAR CREEK | KY0098540 | 8605 CEDAR CREEK RD | 02/05/2014 | 02/05/14 02:45 AM | 100 | Sewer Treatment Plant | MSD0289 | GROUND | CEDAR CREEK | bypass gate failed to open Automatically causing 100 gallons to come out of the filter building and down the manhole | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2107913 | no debris ,processed water | manually opened filter bypass gate |
| CHENOWETH HILLS | KY0029459 | 4305 ST RENE CT | 10/06/2013 | 10/06/13 05:43 PM | 596 | Sewer Treatment Plant | MSD0263 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2031261 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| CHENOWETH HILLS | KY0029459 | 4305 ST RENE CT | 05/06/2014 | 05/07/14 10:45 AM | 5250 | Sewer Treatment Plant | MSD0263 | STREAM | CHENOWETH RUN | MSD contractor drilled through treatment center effluent force main. | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2158488 | Clean up of the impacted area will occur once repairs are completed. | MSD Contractor is installing band clamp to repair effluent force main. |
| CHENOWETH HILLS | KY0029459 | 4305 ST RENE CT | 06/16/2014 | 06/16/14 08:40 AM | 2174 | Sewer Treatment Plant | MSD0263 | STREAM | CHENOWETH RUN | SO2 TANKS EMPTY. | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2181384 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | CHANGED SO2 TANKS |
| DEREK R. GUTHRIE | KY0078956 | 2312 EMBASSY LN | 07/17/2013 | 07/17/13 02:35 PM | 15 | Sewer Manhole | 04775 | GROUND | MILL CREEK | Main sewer was obstructed with tree roots. While flushing main sewer to relieve the obstruction, sewage mixed with water discharged on the ground. | ROOTS | DISDW DRY WEATHER DISCHARGE | 1948643 | MSD personnel cleaned the impacted area, we raked and bagged the debris off the ground. | Flush work order # 1948651 was created to remove the tree root blockage in the main sewer. |
| DEREK R. GUTHRIE | KY0078956 | 9715 EL PRADO ST | 11/17/2013 | 11/17/13 11:30 AM | 3375 | Sewer Manhole | 09730 | GROUND | PONDER CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060838 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 6102 COOPER CHAPEL RD | 10/06/2013 | 10/06/13 04:50 PM | 20250 | Sewer Manhole | 25479 | CATCH BASIN | PENNSYLVANIA RUN | LACK OF SYSTEM CAPACITY DURING RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030737 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 6102 COOPER CHAPEL RD | 11/17/2013 | 11/17/13 04:00 PM | 7375 | Sewer Manhole | 25479 | CATCH BASIN | PENNSYLVANIA RUN | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060861 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 6102 COOPER CHAPEL RD | 12/21/2013 | 12/21/13 02:00 PM | 1400 | Sewer Manhole | 25479 | CATCH BASIN | PENNSYLVANIA RUN | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085444 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIRS. |
| DEREK R. GUTHRIE | KY0078956 | 6102 COOPER CHAPEL RD | 02/04/2014 | 02/05/14 08:25 AM | 33500 | Sewer Manhole | 25479 | CATCH BASIN | PENNSYLVANIA RUN | LACK OF CAPACITY DUE TO WEATHER EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107882 | NO DEBRIS | SITE FOUND DURING WEATHER EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 6102 COOPER CHAPEL RD | 02/17/2014 | 02/17/14 07:15 PM | 1200 | Sewer Manhole | 25479 | CATCH BASIN | PENNSYLVANIA RUN | raievent caused a lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2113277 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 6102 COOPER CHAPEL RD | 04/03/2014 | 04/04/14 06:00 PM | 52000 | Sewer Manhole | 25479 | CATCH BASIN | PENNSYLVANIA RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141547 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 6102 COOPER CHAPEL RD | 05/14/2014 | 05/15/14 05:10 AM | 12875 | Sewer Manhole | 25479 | CATCH BASIN | PENNSYLVANIA RUN | LACK OF CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161681 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 6112 COOPER CHAPEL RD | 12/21/2013 | 12/21/13 02:00 PM | 1800 | Sewer Manhole | 25480 | GROUND | FISHPOOL CREEK | RAIN EVENT & OBSTRUCTION IN LINE | OBSTRUCTION-NOT GREASE / ROOTS | DISREV RAIN EVENT DISCHARGE | 2085440 | MSD CLEANED & SANITIZED THE AREA | MSD PERSONNEL RODDED THE LINE |

**APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-----------------------|----------------------------|---------------------------|--------------------|-------------------|-----------------|------------------------|------------------|---|--------------------------------|-----------------------------|---------|---|--|
| DEREK R. GUTHRIE | KY0078956 | 6112 COOPER CHAPEL RD | 12/21/2013 | 12/21/13 02:00 PM | 2250 | Sewer Manhole | 25480 | GROUND | FISHPOOL CREEK | RAIN EVENT & OBSTRUCTION IN LINE | OBSTRUCTION-NOT GREASE / ROOTS | DISREV RAIN EVENT DISCHARGE | 2085439 | MSD CLEANED & SANITIZED THE AREA | MSD PERSONNEL RODDED THE LINE |
| DEREK R. GUTHRIE | KY0078956 | 9317 LANTANA DR | 10/06/2013 | 10/06/13 01:00 PM | 10500 | Sewer Manhole | 25484 | STREAM | PENNSYLVANIA RUN | rain event caused a lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030755 | msd cleaned & sanitized the area | site found during rain event recon- will monitor & evaluate for repair |
| DEREK R. GUTHRIE | KY0078956 | 9317 LANTANA DR | 11/17/2013 | 11/17/13 01:45 PM | 275 | Sewer Manhole | 25484 | STREAM | PENNSYLVANIA RUN | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060859 | MSD CLEANED & SANITIZED | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 9317 LANTANA DR | 12/22/2013 | 12/22/13 02:00 PM | 350 | Sewer Manhole | 25484 | STREAM | PENNSYLVANIA RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085563 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 9317 LANTANA DR | 04/04/2014 | 04/04/14 05:45 PM | 26750 | Sewer Manhole | 25484 | STREAM | PENNSYLVANIA RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141533 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 07/06/2013 | 07/06/13 02:55 PM | 30000 | Sewer Manhole | 27116 | STREAM | MUD CREEK | LACK OF SYSTEM CAPACITY - HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1944737 | CREATED DISCLN W/O#1944739 | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 09/21/2013 | 09/21/13 01:01 PM | 108001 | Sewer Manhole | 27116 | STREAM | MUD CREEK | lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2016708 | msd to clean and sanitize affected area | area included in the ioap |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 10/05/2013 | 10/05/13 06:30 PM | 6000 | Sewer Manhole | 27116 | STREAM | MUD CREEK | RAIN EVENT LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030641 | MSD PERSONNEL CLEANED AND SANITIZED THE AFFECTED AREA | LOCATION PART OF MSD IOAP |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 10/06/2013 | 10/07/13 07:00 AM | 43500 | Sewer Manhole | 27116 | STREAM | MUD CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030727 | MSD OBSERVED NO CLEAN UP NEEDED | INCLUDED IN IOAP |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 11/01/2013 | 11/01/13 04:30 AM | 3750 | Sewer Manhole | 27116 | STREAM | MUD CREEK | HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2048649 | CREATED DISCLN WORK ORDER | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 11/17/2013 | 11/18/13 07:20 AM | 31500 | Sewer Manhole | 27116 | STREAM | MUD CREEK | HEAVY RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060850 | msd cleaned and sanitized affected area | location included in ioap |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 12/21/2013 | 12/22/13 07:30 PM | 46750 | Sewer Manhole | 27116 | STREAM | MUD CREEK | HEAVY RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085425 | MSD CLEANED & SANITIZED AFFECTED AREA | LOCATION INCLUDED IN IOAP |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 01/11/2014 | 01/11/14 02:00 PM | 12000 | Sewer Manhole | 27116 | STREAM | MUD CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2095107 | NO CLEAN UP NEEDED | A SOLUTION FOR THIS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 02/04/2014 | 02/05/14 12:30 PM | 19500 | Sewer Manhole | 27116 | STREAM | MUD CREEK | LACK OF SYSTEM CAPACITY - HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107864 | MSD CLEANED AND SANITIZED THE IMPACTED AREA | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 04/03/2014 | 04/04/14 02:30 PM | 25500 | Sewer Manhole | 27116 | STREAM | MUD CREEK | LACK OF SYSTEM CAPACITY - HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141327 | msd to clean and sanitize affected area | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 04/28/2014 | 04/29/14 01:00 AM | 5000 | Sewer Manhole | 27116 | STREAM | MUD CREEK | LACK OF SYSTEM CAPACITY - HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2153499 | CREATED DISCLN WORK ORDER | A SOLUTION IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 10304 CAVEN AVE | 05/14/2014 | 05/15/14 06:40 AM | 15500 | Sewer Manhole | 27116 | STREAM | MUD CREEK | RAIN EVENT LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161683 | MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA | A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP. |
| DEREK R. GUTHRIE | KY0078956 | 6810 SANDSTONE BLVD | 10/05/2013 | 10/05/13 05:45 PM | 8040 | Sewer Manhole | 29948 | GROUND | FERN CREEK | RAIN EVENT LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030642 | MSD PERSONNEL TO CLEAN AND SANITIZE AFFECTED AREA | LOCATION PART OF MSD IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6810 SANDSTONE BLVD | 11/17/2013 | 11/17/13 01:00 PM | 9900 | Sewer Manhole | 29948 | GROUND | FERN CREEK | LACK OF SYSTEM CAPACITY --HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060845 | TAPE, TEMP SIGNS, ADVISED CUSTOMER TO AVOID DIRECT CONTACT WITH SEWAGE---CREATED DISCLN WO# 2060971 | A SOLUTION IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6810 SANDSTONE BLVD | 12/22/2013 | 12/22/13 07:40 AM | 10500 | Sewer Manhole | 29948 | GROUND | FERN CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085514 | MSD PERSONNEL WILL CLEAN THE AREA UNDER WORK ORDER NUMBER 2085643 | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6810 SANDSTONE BLVD | 02/04/2014 | 02/05/14 08:20 AM | 13500 | Sewer Manhole | 29948 | GROUND | FERN CREEK | LACK OF SYSTEM CAPACITY - HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107862 | MSD CLEANED AND SANITIZED THE IMPACTED AREA | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6810 SANDSTONE BLVD | 04/03/2014 | 04/04/14 05:00 PM | 30825 | Sewer Manhole | 29948 | GROUND | FERN CREEK | LACK OF SYSTEM CAPACITY- HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141323 | msd to clean and sanitize affected area | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6810 SANDSTONE BLVD | 09/21/2013 | 09/21/13 06:15 AM | 6750 | Sewer Main | 29949 | | | lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2016707 | msd to clean and sanitize affected area | location included in ioap |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 09/21/2013 | 09/21/13 09:30 AM | 23040 | Sewer Manhole | 31073 | DITCH | FERN CREEK | lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2016705 | msd to clean and sanitize affected area | location part of the ioap |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 10/05/2013 | 10/06/13 04:30 PM | 54510 | Sewer Manhole | 31073 | DITCH | FERN CREEK | RAIN EVENT LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030645 | MSD PERSONNEL CLEANED AND SANITIZED THE AFFECTED AREA | LOCATION PART OF MSD IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 11/17/2013 | 11/17/13 03:15 PM | 20250 | Sewer Manhole | 31073 | DITCH | FERN CREEK | SHAFT BROKE IN PUMP:GREASE BLOCKAGE | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060842 | CLEANUP WORK ORDER HAS BEEN CREATED TO CLEAN THE AREA | THIS SOLUTION IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 12/22/2013 | 12/22/13 03:40 PM | 22500 | Sewer Manhole | 31073 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085512 | CREATED DISCLN WO#2085643 | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 01/11/2014 | 01/11/14 06:35 AM | 1625 | Sewer Manhole | 31073 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2095053 | CREATED DISCLN WO | THIS SOLUTION IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 02/04/2014 | 02/05/14 08:20 AM | 13995 | Sewer Manhole | 31073 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY - HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107861 | MSD CLEANED AND SANITIZED THE IMPACTED AREA | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 04/03/2014 | 04/04/14 09:20 PM | 37500 | Sewer Manhole | 31073 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY- HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141322 | msd to clean and sanitize affected area | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 09/21/2013 | 09/21/13 09:30 AM | 34560 | Sewer Manhole | 31074 | DITCH | FERN CREEK | lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2016706 | msd to clean and sanitize affected area | location part of ioap |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 10/05/2013 | 10/05/13 05:50 PM | 13980 | Sewer Manhole | 31074 | DITCH | FERN CREEK | RAIN EVENT LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030643 | MSD PERSONNEL TO CLEAN AND SANITIZE AFFECTED AREA | LOCATION PART OF MSD IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 11/17/2013 | 11/17/13 06:00 PM | 48000 | Sewer Manhole | 31074 | DITCH | FERN CREEK | cap | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060844 | msd to clean and sanitize affected area | area included in ioap |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-----------------------|----------------------------|---------------------------|--------------------|-----------------------|-----------------|------------------------|------------------|--|-------------------------|-----------------------------|---------|--|---|
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 12/21/2013 | 12/22/13 03:40 PM | 36000 | Sewer Manhole | 31074 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085442 | CREATED DISCLN WO#2085696 | THIS SOLUTION IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 01/11/2014 | 01/11/14 06:35 AM | 1625 | Sewer Manhole | 31074 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2095056 | CREATED WO | A SOLUTION FOR THIS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 02/04/2014 | 02/05/14 08:20 AM | 27990 | Sewer Manhole | 31074 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY - HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107863 | MSD CLEANED AND SANITIZED THE IMPACTED AREA | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6808 SANDSTONE BLVD | 04/03/2014 | 04/04/14 09:20 PM | 7500 | Sewer Manhole | 31074 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY- HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141320 | msd to clean and sanitize affected area | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6924 SANDSTONE BLVD | 10/05/2013 | 10/06/13 10:00 AM | 36000 | Sewer Manhole | 31083 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY - HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030746 | DISCLN WO# | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6924 SANDSTONE BLVD | 04/04/2014 | 04/04/14 11:00 AM | 5250 | Sewer Manhole | 31083 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY - HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141389 | msd to clean and sanitize affected | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6707 W ORELL RD | 10/06/2013 | 10/07/13 09:00 AM | 855000 | Sewer Manhole | 32682 | STREAM | ALVEY DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031231 | DISCLN WO# 2032470 | LOCATION INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6707 W ORELL RD | 12/21/2013 | 12/22/13 12:05 PM | 100000 | Sewer Manhole | 32682 | STREAM | ALVEY DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085471 | DISCLN WO# 2089897 | LOCATION INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 6707 W ORELL RD | 02/04/2014 | 02/05/14 12:30 PM | 23000 | Sewer Manhole | 32682 | STREAM | ALVEY DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107890 | DISCLN WO# 2109291 | LOCATION INCLUDED IN THE IOAP |
| DEREK R. GUTHRIE | KY0078956 | 8707 WATTERSON TRL | 11/21/2013 | 11/21/13 01:20 PM | 110 | Sewer Manhole | 41583 | GROUND | FERN CREEK | ROOTS IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2062341 | MSD PERSONNEL CLEANED THE IMPACTED AREA | WORK ORDER 2062702, ROOT CUT THE MAIN LINE TO REOPEN |
| DEREK R. GUTHRIE | KY0078956 | 9114 CINDERELLA LN | 12/22/2013 | 12/22/13 07:40 PM | 20500 | Sewer Manhole | 60679 | DITCH | FISHPOOL CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085562 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 4005 KIRBY LN | 10/06/2013 | 10/06/13 01:00 PM | 4500 | Sewer Manhole | 61266 | DITCH | FERN CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031260 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 9718 TITAN DR | 10/06/2013 | 10/06/13 05:00 AM | 39000 | Sewer Manhole | 61667 | GROUND | MUD CREEK | RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030719 | MSD DID NOT OBSERVE ANY DEBRIS TO BE CLEANED IN AREA | NO REPAIRS NEEDED |
| DEREK R. GUTHRIE | KY0078956 | 9718 TITAN DR | 04/04/2014 | 04/04/14 03:00 PM | 45000 | Sewer Manhole | 61667 | GROUND | MUD CREEK | lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141545 | msd to clean and sanitize affected area | area included in ioap |
| DEREK R. GUTHRIE | KY0078956 | 3501 GRISSOM WAY | 10/06/2013 | 10/06/13 05:00 AM | 6000 | Sewer Manhole | 61687 | GROUND | MUD CREEK | lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030728 | msd to clean and sanitize affected area | area included in ioap |
| DEREK R. GUTHRIE | KY0078956 | 2423 LAMBORNE BLVD | 08/06/2013 | 08/07/13 01:35 AM | 30000 | Sewer Main | 79878 | GROUND | POND CREEK | STRUCTURE FAILURE OF MAIN SEWER | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 1992894 | MSD PERSONNEL CLEANED THE IMPACTED AREA | WORK ORDERS 1992573, FLUSHED AND REPAIRED THE MAIN SEWER |
| DEREK R. GUTHRIE | KY0078956 | 3721 DIXIE HWY | 07/21/2013 | 07/20/13 11:06 PM | 10 | Sewer Main | 06940B-AG | GROUND | UPPER MILL CREEK | FORCE MAIN BREAK | MECHANICAL FAILURE | DISDW DRY WEATHER DISCHARGE | 1949439 | NO DEBRIS | HAULED STATION WHILE REPAIRS WERE MADE |
| DEREK R. GUTHRIE | KY0078956 | 3721 DIXIE HWY | 04/21/2014 | 04/21/14 10:40 AM | 10 | Sewer Main | 06940B-AG | GROUND | UPPER MILL CREEK | FORCE MAIN BREAK | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2148362 | MSD CLEANED & SANITIZED THE AREA | CHEROKEE CONSTRUCTION REPAIRED THE FORCE MAIN |
| DEREK R. GUTHRIE | KY0078956 | 1720 SANDERS LN | 10/06/2013 | 10/06/13 03:30 PM | 164600 | Sewer Lift Station | MSD0053-PS | GROUND | UPPER MILL CREEK | RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY | PUMPED OVERFLOW | DISREV RAIN EVENT DISCHARGE | 2030739 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 6102 COOPER CHAPEL RD | 12/21/2013 | 12/21/13 05:15 PM | 8250 | Sewer Lift Station | MSD0130-PS | DITCH | FISHPOOL CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085443 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 10212 CAVEN AVE | 12/21/2013 | 12/21/13 07:45 PM | 22250 | Sewer Lift Station | MSD0133-PS | GROUND | MUD CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085446 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 9412 SLAYTON CT | 02/05/2014 | 02/06/14 07:00 AM | 100 | Sewer Treatment Plant | MSD0258 | STREAM | MUD CREEK | PLANT EFFLUENT LINE TO CREEK IS BROKEN | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2108069 | NO DEBRIS | CONTRACTOR WILL EXCAVATE AND REPAIR LINE |
| DEREK R. GUTHRIE | KY0078956 | 5006 LEA ANN WAY | 10/05/2013 | 10/05/13 05:35 PM | 60000 | Sewer Lift Station | MSD1010-PS | STREAM | NORTHERN DITCH | Rain event caused a lack of system capacity | PUMPED OVERFLOW | DISREV RAIN EVENT DISCHARGE | 2030637 | no debris to clean | site found during rain event recon. will evaluate monitor for repair |
| DEREK R. GUTHRIE | KY0078956 | 5006 LEA ANN WAY | 10/05/2013 | 10/06/13 06:30 PM | 1125000 | Sewer Lift Station | MSD1010-PS | STREAM | NORTHERN DITCH | RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY | PUMPED OVERFLOW | DISREV RAIN EVENT DISCHARGE | 2030741 | MSD CLEANED & SANITIZED THE AREA | TRASH PUMPS STARTED |
| DEREK R. GUTHRIE | KY0078956 | 5006 LEA ANN WAY | 10/05/2013 | 10/06/13 06:30 PM | 1125000 | Sewer Lift Station | MSD1010-PS | STREAM | NORTHERN DITCH | RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY | PUMPED OVERFLOW | DISREV RAIN EVENT DISCHARGE | 2030742 | MSD CLEANED & SANITIZED THE AREA | TRASH PUMPS SET UP |
| DEREK R. GUTHRIE | KY0078956 | 5006 LEA ANN WAY | 10/05/2013 | 10/06/13 06:30 PM | 1125000 | Sewer Lift Station | MSD1010-PS | STREAM | NORTHERN DITCH | RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY | PUMPED OVERFLOW | DISREV RAIN EVENT DISCHARGE | 2030743 | MSD CLEANED & SANITIZED THE AREA | TRASH PUMPS SET UP |
| DEREK R. GUTHRIE | KY0078956 | 5006 LEA ANN WAY | 11/17/2013 | 11/17/13 04:20 PM | 260000 | Sewer Lift Station | MSD1010-PS | STREAM | NORTHERN DITCH | LACK OF SYSTEM CAPACITY | PUMPED OVERFLOW | DISREV RAIN EVENT DISCHARGE | 2060864 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 5006 LEA ANN WAY | 11/17/2013 | 11/17/13 04:20 PM | 260000 | Sewer Lift Station | MSD1010-PS | STREAM | NORTHERN DITCH | LACK OF SYSTEM CAPACITY | PUMPED OVERFLOW | DISREV RAIN EVENT DISCHARGE | 2060866 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 5006 LEA ANN WAY | 11/17/2013 | 11/17/13 04:20 PM | 260000 | Sewer Lift Station | MSD1010-PS | STREAM | NORTHERN DITCH | LACK OF SYSTEM CAPACITY | PUMPED OVERFLOW | DISREV RAIN EVENT DISCHARGE | 2060868 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 5006 LEA ANN WAY | 04/04/2014 | 04/04/14 05:30 PM | 1650000 | Sewer Lift Station | MSD1010-PS | STREAM | NORTHERN DITCH | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | PUMPED OVERFLOW | DISREV RAIN EVENT DISCHARGE | 2141553 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 9114 CINDERELLA LN | 10/06/2013 | 10/06/13 12:29 PM | 39750 | Sewer Lift Station | MSD1013-PS | DITCH | FISHPOOL CREEK | RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030738 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 9114 CINDERELLA LN | 02/05/2014 | 02/05/14 08:15 AM | 12750 | Sewer Lift Station | MSD1013-PS | DITCH | FISHPOOL CREEK | LACK OF SYSTEM CAPACITY DUE TO WEATHER EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107897 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING WEATHER EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| DEREK R. GUTHRIE | KY0078956 | 9114 CINDERELLA LN | 04/04/2014 | 04/04/14 07:15 PM | 58500 | Sewer Lift Station | MSD1013-PS | DITCH | FISHPOOL CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141522 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-----------------------------|----------------------------|---------------------------|--------------------|-----------------------|-----------------|------------------------|----------------------|---|--------------------------------|-----------------------------|---------|---|--|
| DEREK R. GUTHRIE | KY0078956 | 4005 KIRBY LN | 05/14/2014 | 05/15/14 09:00 AM | 24500 | Sewer Lift Station | MSD1203-PS | STREAM | FERN CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161688 | no clean up required | mopnitor location during rain events |
| DEREK R. GUTHRIE | KY0078956 | 5602 OAKRIDGE PL | 04/04/2014 | 04/04/14 07:50 PM | 35 | Sewer Service Line | PD24870089 | GROUND | COOPER CHAPEL BRANCH | OBSTRUCTION IN MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISREV RAIN EVENT DISCHARGE | 2142100 | NO CLEANUP PERFORMED - PIPE DISCHARGING INTO STREAM | WORK ORDER 2142589; FLUSHED THE MAIN SEWER TO REMOVE BLOCKAGE. |
| FLOYDS FORK | KY0102784 | 815 TUCKER STATION RD | 10/06/2013 | 10/06/13 03:00 AM | 5250 | Sewer Manhole | 33003 | STREAM | POPE LICK | LACK OF SYSTEM CAPACITY - HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030715 | CREATED DISCLN WO#2030748 | A SOLUTION FOR THIS IS INCLUDED IN THE IOAP |
| FLOYDS FORK | KY0102784 | 815 TUCKER STATION RD | 04/04/2014 | 04/04/14 11:45 AM | 2625 | Sewer Manhole | 33003 | STREAM | POPE LICK | lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141538 | msd to clean and sanitize affected area | area included in ioap |
| FLOYDS FORK | KY0102784 | 15026 BIRCHAM RD | 10/06/2013 | 10/06/13 05:00 PM | 28500 | Sewer Manhole | 69305 | GROUND | FLOYDS FORK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030751 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| FLOYDS FORK | KY0102784 | 911 EASTWOOD FISHERVILLE RD | 07/25/2013 | 07/25/13 11:40 AM | 10000 | Sewer Main | 96911-W | | | STRUCTURAL FAILURE OF FORCE MAIN | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 1950885 | CONTRACTOR CLEANED & SANITIZED THE AREA | CONTRACTOR REPAIRING FORCE MAIN |
| HITE CREEK | KY0022420 | 7302 FLOYDSBURG RD | 12/22/2013 | 12/22/13 12:15 PM | 205 | Sewer Manhole | 108953 | DITCH | FLOYDS FORK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085580 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| HITE CREEK | KY0022420 | 7302 FLOYDSBURG RD | 12/22/2013 | 12/22/13 12:15 PM | 205 | Sewer Manhole | 108953 | DITCH | FLOYDS FORK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085624 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| HITE CREEK | KY0022420 | 7302 FLOYDSBURG RD | 12/22/2013 | 12/22/13 12:15 PM | 205 | Sewer Manhole | 108957 | DITCH | FLOYDS FORK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085581 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| HITE CREEK | KY0022420 | 7302 FLOYDSBURG RD | 12/22/2013 | 12/22/13 12:15 PM | 205 | Sewer Manhole | 108958 | CATCH BASIN | FLOYDS FORK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085582 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| HITE CREEK | KY0022420 | 7302 FLOYDSBURG RD | 04/04/2014 | 04/05/14 07:30 AM | 28250 | Sewer Manhole | 108958 | CATCH BASIN | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141372 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| HITE CREEK | KY0022420 | 10709 SEVENOAKS DR | 04/28/2014 | 04/28/14 09:15 AM | 25 | Sewer Node | 01083A-AG | GROUND | HITE CREEK | FORCE MAIN BREAK | STRUCTURAL FAILURE | DISREV RAIN EVENT DISCHARGE | 2153091 | MSD CLEANED & SANITIZED THE AREA | CONTRACTOR IS REPAIRING THE LINE |
| HITE CREEK | KY0022420 | 5500 HITT RD | 11/17/2013 | 11/17/13 12:10 PM | 25 | Sewer Manhole | 11877A | STREAM | HITE CREEK | HIGH WET WELL LEVEL | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060968 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| HUNTING CREEK NORTH | KY0029106 | 6701 GUNPOWDER LN | 04/05/2014 | 04/05/14 02:30 PM | 5500 | Sewer Main | 66761D-AG | GROUND | HARRODS CREEK | structural failure of forcemain | STRUCTURAL FAILURE | DISREV RAIN EVENT DISCHARGE | 2142163 | msd cleaned and sanitized area | hauling station until contractor makes reapirs . REPAIRS COMPLETED |
| HUNTING CREEK NORTH | KY0029106 | 9810 U S HIGHWAY 42 | 12/24/2013 | 12/24/13 09:55 AM | 4425 | Sewer Treatment Plant | MSD0291 | STREAM | HARRODS CREEK | stopped up returns on #2 clarifier caused solids to flow out plant effluent | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2086192 | msd cleaned and sanitized plant effluent area | unclogged returns on clarifier #2 |
| HUNTING CREEK SOUTH | KY0029114 | 6206 DEEP CREEK DR | 12/22/2013 | 12/23/13 05:30 AM | 21000 | Sewer Manhole | 62752 | GROUND | HARRODS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085615 | NONE NEEDED DUE TO MAGNITUDE OF STORM | MSD CREWS WORKING IN THE AREA. ROOTS CUT. SEE SERVICE REQUEST 4256142 |
| HUNTING CREEK SOUTH | KY0029114 | 6302 DEEP CREEK DR | 12/26/2013 | 12/26/13 10:33 AM | 500 | Sewer Manhole | 66585 | CATCH BASIN | HARRODS CREEK | ROOTS IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2086360 | MSD PERSONNEL CLEANED THE IMPACTED AREA | WORK ORDER #2086362, 2086393; ROOT CUT THE MAIN TO REOPEN |
| HUNTING CREEK SOUTH | KY0029114 | 6210 DEEP CREEK CT | 10/06/2013 | 10/06/13 04:45 PM | 92100 | Sewer Lift Station | MSD1063-PS | DITCH | HARRODS CREEK | rain event caused lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031287 | msd cleaned & sanitized the area | site found during rain event recon- will monitor & evaluate for repair |
| HUNTING CREEK SOUTH | KY0029114 | 6210 DEEP CREEK CT | 05/10/2014 | 05/10/14 06:01 PM | 1060 | Sewer Lift Station | MSD1063-PS | DITCH | HARRODS CREEK | LACK OF CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2160115 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| HUNTING CREEK SOUTH | KY0029114 | 8619 WESTOVER DR | 04/04/2014 | 04/04/14 01:17 PM | 5850 | Sewer Lift Station | MSD1064-PS | DITCH | HARRODS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141571 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| JEFFERSONTOWN | KY0025194 | 3258 RUCKRIEGEL PKY | 09/21/2013 | 09/21/13 08:44 AM | 1000 | Sewer Manhole | 28173 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2016709 | DISCLN WO# 2016795 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3258 RUCKRIEGEL PKY | 10/05/2013 | 10/06/13 10:00 PM | 106000 | Sewer Manhole | 28173 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030658 | DISCLN WO# 2031922 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3258 RUCKRIEGEL PKY | 11/01/2013 | 11/01/13 02:20 AM | 2100 | Sewer Manhole | 28173 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2048653 | DISCLN WO# 2048723 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3258 RUCKRIEGEL PKY | 11/17/2013 | 11/17/13 10:30 PM | 60000 | Sewer Manhole | 28173 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPCITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060899 | DISCLN WO# 2061264 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3258 RUCKRIEGEL PKY | 12/22/2013 | 12/23/13 06:30 AM | 29500 | Sewer Manhole | 28173 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY- HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085506 | DISCLN WO# 2085923 | LOCATION INCLUDE IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3258 RUCKRIEGEL PKY | 04/04/2014 | 04/06/14 08:15 AM | 65000 | Sewer Manhole | 28173 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141489 | DISCLN WO# 2142275 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3258 RUCKRIEGEL PKY | 05/14/2014 | 05/15/14 10:30 AM | 2200 | Sewer Manhole | 28173 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161705 | DISCLN WO# 2161970 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3506 CHARLANE PKY | 09/21/2013 | 09/21/13 09:50 AM | 3000 | Sewer Manhole | 28250 | DITCH | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2016717 | DISCLN WO# 2016810 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3506 CHARLANE PKY | 10/05/2013 | 10/06/13 06:51 PM | 52000 | Sewer Manhole | 28250 | DITCH | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030663 | DISCLN WO# 2031961 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3506 CHARLANE PKY | 11/17/2013 | 11/17/13 07:52 PM | 19500 | Sewer Manhole | 28250 | DITCH | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060905 | DISCLN WO# 2061274 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3506 CHARLANE PKY | 04/04/2014 | 04/06/14 08:20 AM | 19500 | Sewer Manhole | 28250 | DITCH | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141643 | DISCLN WO# 2142277 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3506 CHARLANE PKY | 05/14/2014 | 05/15/14 11:00 AM | 750 | Sewer Manhole | 28250 | DITCH | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161698 | DISCLN WO# 2161963 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 9707 WILLOWWOOD WAY | 09/21/2013 | 09/21/13 09:08 AM | 24500 | Sewer Manhole | 28336 | DITCH | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2016712 | DISCLN WO# 2016804 | LOCATION INCLUDED IN THE IOAP |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|---------------------------|----------------------------|---------------------------|--------------------|-----------------------|-----------------|------------------------|------------------|---|-------------------------|-----------------------------|---------|--|--|
| JEFFERSONTOWN | KY0025194 | 9707 WILLOWWOOD WAY | 10/06/2013 | 10/07/13 04:47 PM | 89000 | Sewer Manhole | 28336 | DITCH | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030665 | DISCLN WO# 2032007 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 9707 WILLOWWOOD WAY | 11/17/2013 | 11/17/13 06:55 PM | 30500 | Sewer Manhole | 28336 | DITCH | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060908 | DISCLN WO# 2061278 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 9707 WILLOWWOOD WAY | 04/04/2014 | 04/06/14 08:26 AM | 27000 | Sewer Manhole | 28336 | DITCH | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141651 | DISCLN WO# 2142281 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3620 CHARLANE PKY | 10/05/2013 | 10/06/13 04:48 PM | 67000 | Sewer Manhole | 28340 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030664 | DISCLN WO# 2031987 | LOATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3620 CHARLANE PKY | 11/17/2013 | 11/17/13 06:54 PM | 75000 | Sewer Manhole | 28340 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060906 | DISCLN WO# 2061277 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3620 CHARLANE PKY | 04/04/2014 | 04/06/14 08:22 AM | 22000 | Sewer Manhole | 28340 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141648 | DISCLN WO# 2142280 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3620 CHARLANE PKY | 05/14/2014 | 05/15/14 11:10 AM | 750 | Sewer Manhole | 28340 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161700 | DISCLN WO# 2161969 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 2901 LIVINGSTON AVE | 10/05/2013 | 10/06/13 06:55 PM | 101000 | Sewer Manhole | 28395 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030666 | DISCLN WO# 2032012 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 2901 LIVINGSTON AVE | 04/04/2014 | 04/06/14 08:40 AM | 24000 | Sewer Manhole | 28395 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141657 | DISCLN WO# 2142283 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3406 DELL RD | 10/05/2013 | 10/07/13 11:30 AM | 81000 | Sewer Manhole | 28415 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030758 | DISCLN WO# 2032117 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3501 MARLIN DR | 10/06/2013 | 10/07/13 11:30 AM | 29000 | Sewer Manhole | 28416 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030757 | DISCLN WO# 2032111 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3506 DELL RD | 10/06/2013 | 10/07/13 11:30 AM | 33000 | Sewer Manhole | 28417 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030756 | DISCLN WO# 2032096 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3406 CHARLANE PKY | 10/05/2013 | 10/06/13 06:57 PM | 47000 | Sewer Manhole | 28451 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030662 | DISCLN WO# 2031956 | LOATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3406 CHARLANE PKY | 12/22/2013 | 12/23/13 06:45 AM | 27000 | Sewer Manhole | 28451 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085507 | DISCLN WO# 2085926 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3406 CHARLANE PKY | 04/04/2014 | 04/04/14 07:08 PM | 24500 | Sewer Manhole | 28451 | GROUND | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141653 | DISCLN WO# 2142282 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 11401 GRAND AVE | 09/21/2013 | 09/21/13 07:00 AM | 31000 | Sewer Manhole | 28551 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2016711 | DISCLN WO# 2016799 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 11401 GRAND AVE | 10/05/2013 | 10/06/13 08:33 PM | 74000 | Sewer Manhole | 28551 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030661 | DISCLN WO# 2031927 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 11401 GRAND AVE | 11/17/2013 | 11/17/13 07:36 PM | 41000 | Sewer Manhole | 28551 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060904 | DISCLN WO# 2061270 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 11401 GRAND AVE | 12/22/2013 | 12/23/13 06:50 AM | 55000 | Sewer Manhole | 28551 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085508 | DISCLN WO# 2085928 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 11401 GRAND AVE | 02/04/2014 | 02/05/14 11:05 AM | 1750 | Sewer Manhole | 28551 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107912 | DISCLN WO# 2108288 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 11401 GRAND AVE | 04/04/2014 | 04/06/14 08:30 AM | 73000 | Sewer Manhole | 28551 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141359 | DISCLN WO# 2142274 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 9514 TAYLORSVILLE RD | 10/06/2013 | 10/07/13 12:00 PM | 27500 | Sewer Manhole | 28711 | DITCH | BEATTY BROOK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030760 | DISCLN WO# 2032153 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 11201 AMPERE CT | 11/26/2013 | 11/26/13 03:00 PM | 30 | Sewer Main | 29373 | DITCH | CHENOWETH RUN | STRUCTURAL FAILURE IN SANITARY SEWER JOINTS | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2067938 | MSD PERSONNEL CLEANED THE IMPACTED AREA; REMOVED CONTAMINATED MATERIAL FROM AREA | WORK ORDER 20687938; REPAIRED & SEALED DEFECTIVE CLAY JOINTS |
| JEFFERSONTOWN | KY0025194 | 2711 GRASSLAND DR | 10/06/2013 | 10/07/13 06:58 PM | 105000 | Sewer Manhole | 31733 | DITCH | BEATTY BROOK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030759 | DISCLN WO# 2032121 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 2711 GRASSLAND DR | 04/04/2014 | 04/06/14 08:42 AM | 32000 | Sewer Manhole | 31733 | DITCH | BEATTY BROOK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141677 | DISCLN WO# 2142284 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3200 RUCKRIEGEL PKY | 09/21/2013 | 09/21/13 08:48 AM | 9000 | Sewer Manhole | 64505 | STREAM | CHENOWETH RUN | LACK OF SYSEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2016710 | DISCLN WO# 2016796 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3200 RUCKRIEGEL PKY | 10/05/2013 | 10/06/13 10:09 PM | 77000 | Sewer Manhole | 64505 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030659 | DISCLN WO# 2031926 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 3200 RUCKRIEGEL PKY | 11/17/2013 | 11/17/13 10:34 PM | 45000 | Sewer Manhole | 64505 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060901 | DISCLN WO# 2061266 | LOCATION INCLUDED IN THE IOAP |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 07/06/2013 | 07/06/13 08:28 PM | 1318047 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 1944700 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | TEMPORARY BLENDING HAS BEEN NEGOTIATED AT THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER. |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 08/13/2013 | 08/13/13 08:00 AM | 82844 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 1995620 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | TEMPORARY BLENDING HAS BEEN NEGOTIATED AT THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 08/31/2013 | 09/01/13 03:01 PM | 227989 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | POWER OUTAGE DUE TO LIGHTENING AND HEAVY RAIN | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2005139 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | POWER RESTORED; RAIN SUBSIDED |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 09/21/2013 | 09/21/13 03:40 PM | 1778728 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY CAUSED BY STORM EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2016731 | NO CLEAN UP REQUIRED | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 10/05/2013 | 10/07/13 07:54 AM | 6345803 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2030627 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|---------------------------|----------------------------|---------------------------|--------------------|-----------------------|-----------------|------------------------|-----------------------------|---|-------------------------|-----------------------------|---------|---------------------------------------|---|
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 10/30/2013 | 10/30/13 09:38 AM | 37242 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2045155 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION. |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 10/31/2013 | 11/01/13 04:50 AM | 434117 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2048626 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 11/17/2013 | 11/18/13 02:54 AM | 1825854 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2060837 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 12/21/2013 | 12/22/13 07:35 PM | 2381265 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2085448 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 01/11/2014 | 01/11/14 09:34 PM | 1684349 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2095065 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION. |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 02/04/2014 | 02/05/14 04:51 PM | 1654887 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF CAPACITY DUE TO WEATHER EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2107883 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 04/03/2014 | 04/05/14 04:11 AM | 4306999 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2141311 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION. |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 04/28/2014 | 04/29/14 12:49 AM | 226760 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2153031 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 05/14/2014 | 05/15/14 03:28 PM | 2261866 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2161671 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| KEN CARLA | KY0022497 | 8701 LYNNHALL CT | 12/21/2013 | 12/22/13 01:00 PM | 38250 | Sewer Treatment Plant | MSD0208 | STREAM | HARRODS CREEK | Obstruction or blockage in plant effluent line caused an over flow of plant contact chamber | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2085427 | no clean up needed | MSD used TV camera and root cutter to clear obstruction |
| MCNEELY LAKE | KY0029416 | 10300 ROD N REEL RD | 06/16/2014 | 06/16/14 07:40 AM | 1359 | Sewer Treatment Plant | MSD0228 | STREAM | PENNSYLVANIA RUN | CL2 & SO2 TANKS NOT ON. | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2181192 | PIPE DSICHARGE SUBMERGED- NO CLEANUP | TURNED TANKS ON. |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 10/06/2013 | 10/07/13 01:30 AM | 36000 | Sewer Manhole | 00746 | DITCH | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031319 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 11/10/2013 | 11/18/13 03:40 AM | 4375 | Sewer Manhole | 00746 | DITCH | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060889 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 12/22/2013 | 12/22/13 08:15 AM | 600 | Sewer Manhole | 00746 | DITCH | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085569 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 01/11/2014 | 01/11/14 09:07 PM | 19175 | Sewer Manhole | 00746 | DITCH | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2095066 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 02/04/2014 | 02/05/14 03:48 PM | 12450 | Sewer Manhole | 00746 | DITCH | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO WEATHER EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107919 | NO DEBRIS | SITE FOUND DURING WEATHER EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 04/04/2014 | 04/04/14 10:00 PM | 54750 | Sewer Manhole | 00746 | DITCH | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141400 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 05/15/2014 | 05/15/14 01:53 PM | 16075 | Sewer Manhole | 00746 | DITCH | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161692 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 806 PINE WAY | 11/10/2013 | 11/18/13 01:15 AM | 7200 | Sewer Manhole | 00817 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060890 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 806 PINE WAY | 12/22/2013 | 12/22/13 07:39 AM | 9225 | Sewer Manhole | 00817 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085554 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 7900 SHELBYVILLE RD | 11/17/2013 | 11/17/13 07:43 PM | 13000 | Sewer Manhole | 02935 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061009 | DISCLN WO# 2061327 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 7900 SHELBYVILLE RD | 04/04/2014 | 04/05/14 08:19 AM | 1900 | Sewer Manhole | 02935 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141591 | DISCLN WO# 2142142 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4315 PRUITT CT | 04/04/2014 | 04/05/14 02:56 PM | 22000 | Sewer Manhole | 08426 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141556 | DISCLN WO# 2142204 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4313 PRUITT CT | 04/04/2014 | 04/05/14 02:56 PM | 7500 | Sewer Manhole | 08427 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141554 | DISCLN WO# 2142203 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4341 PRUITT CT | 10/06/2013 | 10/07/13 12:33 PM | 21000 | Sewer Manhole | 08430 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031267 | DISCLN WO# 2032173 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 07/22/2013 | 07/22/13 08:49 PM | 1000 | Sewer Manhole | 08717 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949744 | DISCLN WO# 1950057 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 10/05/2013 | 10/06/13 11:58 AM | 37000 | Sewer Manhole | 08717 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030667 | DISCLN WO# 2032057 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 10/30/2013 | 10/30/13 08:22 AM | 5000 | Sewer Manhole | 08717 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2045224 | DISCLN WO# 2048106 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 11/17/2013 | 11/18/13 06:10 PM | 249600 | Sewer Manhole | 08717 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060934 | DISCLN WO# 2061073 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 12/22/2013 | 12/23/13 01:24 AM | 6600 | Sewer Manhole | 08717 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085629 | DISCLN WO# 2085829 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 04/04/2014 | 04/04/14 01:55 PM | 21000 | Sewer Manhole | 08717 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141575 | DISCLN WO# 2142037 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2324 NEWBURG RD | 10/06/2013 | 10/06/13 01:00 PM | 15000 | Sewer Manhole | 08961 | STREAM | SOUTH FORK BEARGRASS CREEK | System Capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031288 | MSD raked the area and applied lime | None Needed. We had to wait till Beargrass Creek Lowered and the sewer receded. |
| MORRIS FORMAN | KY0022411 | 1562 MCKAY AVE | 10/05/2013 | 10/06/13 07:54 PM | 32000 | Sewer Manhole | 13931 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031246 | DISCLN WO# 2031915 | LOCATION INCLUDED IN THE IOAP |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|---------------------|----------------------------|---------------------------|--------------------|-------------------|-----------------|------------------------|----------------------------|------------------------------------|--------------------------------|-----------------------------|---------|--|--|
| MORRIS FORMAN | KY0022411 | 1562 MCKAY AVE | 12/22/2013 | 12/23/13 01:41 AM | 9000 | Sewer Manhole | 13931 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085642 | DISCLN WO# 2085856 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 07/22/2013 | 07/22/13 06:24 PM | 1000 | Sewer Manhole | 13943 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949941 | DISCLN WO# 1950076 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 08/12/2013 | 08/12/13 06:50 PM | 100 | Sewer Manhole | 13943 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1995559 | DISCLN WO# 1995626 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 10/05/2013 | 10/06/13 07:48 PM | 1500 | Sewer Manhole | 13943 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031235 | DISCLN WO# 2031527 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 11/17/2013 | 11/17/13 11:35 PM | 1500 | Sewer Manhole | 13943 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060984 | DISCLN WO# 2061388 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 12/22/2013 | 12/23/13 01:37 AM | 3000 | Sewer Manhole | 13943 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085636 | DISCLN WO# 2085845 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 04/28/2014 | 04/28/14 11:10 PM | 500 | Sewer Manhole | 13943 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2153210 | DISCLN WO# 2153569 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 04/28/2014 | 04/28/14 11:14 PM | 2700 | Sewer Manhole | 13943 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2153216 | DISCLN WO# 2153585 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1600 BELMAR DR | 10/06/2013 | 10/07/13 11:30 PM | 24000 | Sewer Manhole | 13946 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030675 | DISCLN WO# 2032092 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1600 BELMAR DR | 10/30/2013 | 10/30/13 12:14 PM | 6000 | Sewer Manhole | 13946 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2045201 | DISCLN WO# 2048099 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1600 BELMAR DR | 11/17/2013 | 11/18/13 01:12 AM | 72000 | Sewer Manhole | 13946 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061211 | DISCLN WO# 2061491 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1600 BELMAR DR | 12/22/2013 | 12/23/13 01:33 AM | 49500 | Sewer Manhole | 13946 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085645 | DISCLN WO# 2085861 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1913 CHARBDIN PL | 04/04/2014 | 04/04/14 07:40 PM | 32000 | Sewer Manhole | 16455 | GROUND | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141486 | DISCLN WO# 2142079 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1726 FRASER DR | 10/05/2013 | 10/07/13 10:48 AM | 75000 | Sewer Manhole | 16649 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031233 | DISCLN WO# 2031913 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1726 FRASER DR | 11/17/2013 | 11/18/13 10:15 AM | 72000 | Sewer Manhole | 16649 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060927 | DISCLN WO# 2061372 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1726 FRASER DR | 12/21/2013 | 12/23/13 12:21 PM | 26000 | Sewer Manhole | 16649 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085474 | DISCLN WO# 2085918 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1726 FRASER DR | 02/04/2014 | 02/05/14 10:10 AM | 2400 | Sewer Manhole | 16649 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107909 | DISCLN WO# 2108282 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1726 FRASER DR | 04/03/2014 | 04/06/14 03:20 PM | 38500 | Sewer Manhole | 16649 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141358 | DISCLN WO# 2142357 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1726 FRASER DR | 04/07/2014 | 04/08/14 01:30 PM | 16500 | Sewer Manhole | 16649 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142914 | DISCLN WO# 2143592 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2201 GERALD CT | 10/06/2013 | 10/06/13 07:11 PM | 2000 | Sewer Manhole | 18298 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031241 | DISCLN WO# 2031554 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2201 GERALD CT | 10/06/2013 | 10/06/13 07:13 PM | 2500 | Sewer Manhole | 18299 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031245 | DISCLN WO# 2031586 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4912 DELAWARE DR | 10/06/2013 | 10/07/13 12:30 PM | 78000 | Sewer Manhole | 18654 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031270 | DISCLN WO# 2032192 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 207 BRUNSWICK RD | 10/06/2013 | 10/06/13 01:13 PM | 29000 | Sewer Manhole | 21089 | CATCH BASIN | UPPER SINKING FORK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030767 | DISCLN WO# 2031869 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3302 TROUT CREEK DR | 10/05/2013 | 10/07/13 05:05 PM | 378000 | Sewer Manhole | 23211 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031237 | DISCLN WO# 2032277 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3302 TROUT CREEK DR | 11/17/2013 | 11/18/13 09:36 AM | 68400 | Sewer Manhole | 23211 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060995 | DISCLN WO# 2061489 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3302 TROUT CREEK DR | 12/22/2013 | 12/23/13 12:10 AM | 31000 | Sewer Manhole | 23211 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085639 | DISCLN WO# 2085851 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3302 TROUT CREEK DR | 04/04/2014 | 04/05/14 11:16 AM | 26500 | Sewer Manhole | 23211 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141579 | DISCLN WO# 2142212 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3925 MANNER DALE DR | 04/04/2014 | 04/04/14 11:30 AM | 400 | Sewer Manhole | 25407 | GROUND | SOUTH FORK BEARGRASS CREEK | OBSTRUCTION IN MSD MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISREV RAIN EVENT DISCHARGE | 2141703 | MSD CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDER 2141738: FLUSHED THE LINE TO REMOVE THE OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 3317 BROWNSBORO RD | 10/05/2013 | 10/08/13 02:45 AM | 226000 | Sewer Manhole | 26752 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030764 | DISCLN WO# 2034200 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3317 BROWNSBORO RD | 11/17/2013 | 11/17/13 07:30 PM | 79500 | Sewer Manhole | 26752 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060925 | DISCLN WO# 2061531 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3317 BROWNSBORO RD | 02/04/2014 | 02/05/14 10:44 AM | 7200 | Sewer Manhole | 26752 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107911 | DISCLN WO# 2108286 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3317 BROWNSBORO RD | 02/05/2014 | 02/05/14 10:46 AM | 1100 | Sewer Manhole | 26752 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107898 | DISCLN WO# 2108139 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3317 BROWNSBORO RD | 04/04/2014 | 04/06/14 08:30 AM | 36000 | Sewer Manhole | 26752 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141360 | NO DISCLN NEEDED DUE TO OVERLAP IN DISCHARGE REPORTING | LOCATION INCLUDED IN THE IOAP |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|---------------------------|----------------------------|---------------------------|--------------------|-------------------|-----------------|------------------------|-----------------------------|--|--------------------------------|-----------------------------|---------|--|--|
| MORRIS FORMAN | KY0022411 | 3317 BROWNSBORO RD | 04/04/2014 | 04/06/14 08:30 AM | 63000 | Sewer Manhole | 26752 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141460 | DISCLN WO# 2142169 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1012 ALTA CIR | 07/10/2013 | 07/10/13 06:07 PM | 4500 | Sewer Manhole | 27005 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1946003 | DISCLN WO# 1946005 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1012 ALTA CIR | 07/22/2013 | 07/22/13 06:20 PM | 22000 | Sewer Manhole | 27005 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949944 | DISCLN WO# 1950068 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1012 ALTA CIR | 10/05/2013 | 10/07/13 05:54 AM | 125000 | Sewer Manhole | 27005 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030763 | DISCLN WO# 2031818 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1012 ALTA CIR | 11/17/2013 | 11/18/13 06:28 AM | 100000 | Sewer Manhole | 27005 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060917 | DISCLN WO# 2061281 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1012 ALTA CIR | 01/11/2014 | 01/11/14 10:30 AM | 6000 | Sewer Manhole | 27005 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2095062 | DISCLN WO# 2095218 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1013 ALTA CIR | 02/05/2014 | 02/05/14 09:53 AM | 2200 | Sewer Manhole | 27007 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107891 | DISCLN WO# 2108088 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1013 ALTA CIR | 04/03/2014 | 04/05/14 07:50 AM | 76500 | Sewer Manhole | 27007 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141299 | DISCLN WO# 2142151 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1013 ALTA CIR | 04/07/2014 | 04/07/14 07:15 PM | 11500 | Sewer Manhole | 27007 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142915 | DISCLN WO# 2143010 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4818 PARTRIDGE RUN | 06/21/2014 | 06/21/14 07:40 PM | 10 | Sewer Main | 27923 | GROUND | POND CREEK | OBSTRUCTION IN MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2183507 | MSD PERSONNEL CLEANED THE IMPACTED AREA | WORK ORDER 2183503; FLUSHED AND ROOT CUT THE MAIN TO RELIEVE THE DISCHARGE |
| MORRIS FORMAN | KY0022411 | 8111 SHELBYVILLE RD | 10/06/2013 | 10/07/13 06:46 AM | 71000 | Sewer Manhole | 30376 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030772 | DISCLN WO# 2031909 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 8111 SHELBYVILLE RD | 04/04/2014 | 04/05/14 08:33 AM | 26000 | Sewer Manhole | 30376 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141640 | DISCLN WO# 2142146 | LOATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3420 FOUNTAIN DR | 10/06/2013 | 10/07/13 12:23 PM | 22500 | Sewer Manhole | 30680 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031263 | DISCLN WO# 30680 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3530 FINCASTLE RD | 07/22/2013 | 07/22/13 08:49 PM | 3000 | Sewer Manhole | 36763 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949942 | DISCLN WO# 1950079 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3530 FINCASTLE RD | 10/05/2013 | 10/06/13 07:39 PM | 4200 | Sewer Manhole | 36763 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030668 | DISCLN WO# 2032064 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3530 FINCASTLE RD | 10/30/2013 | 10/30/13 03:24 PM | 1500 | Sewer Manhole | 36763 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2045228 | DISCLN WO# 2048113 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3530 FINCASTLE RD | 11/17/2013 | 11/18/13 01:18 AM | 33600 | Sewer Manhole | 36763 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060937 | DISCLN WO# 2061350 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3530 FINCASTLE RD | 12/22/2013 | 12/23/13 01:19 AM | 39000 | Sewer Manhole | 36763 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085631 | DISCLN WO# 2085832 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3530 FINCASTLE RD | 02/04/2014 | 02/05/14 09:45 AM | 1500 | Sewer Manhole | 36763 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107903 | DISCLN WO# 2108155 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3530 FINCASTLE RD | 04/04/2014 | 04/05/14 11:50 AM | 32500 | Sewer Manhole | 36763 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141560 | DISCLN WO# 2142208 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3530 FINCASTLE RD | 04/07/2014 | 04/07/14 09:10 PM | 15000 | Sewer Manhole | 36763 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142918 | DISCLN WO# 2143022 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1227 LEXINGTON RD | 04/22/2014 | 04/22/14 07:05 PM | 16200 | Sewer Manhole | 37476 | STREAM | SOUTH FORK BEARGRASS CREEK | GREASE BLOCKAGE | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2149262 | DISCLN WO# 2149355 | MSD IS SURVEYING THE AREA |
| MORRIS FORMAN | KY0022411 | 1227 LEXINGTON RD | 04/23/2014 | 04/23/14 03:42 PM | 300 | Sewer Manhole | 37476 | STREAM | SOUTH FORK BEARGRASS CREEK | GREASE IN THE MSD MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2149917 | MSD CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDERS 2150055; 2150059; ROOT CUT AND FLUSHED THE MAIN SEWER |
| MORRIS FORMAN | KY0022411 | 2120 INDIAN HILLS TRL | 02/05/2014 | 02/05/14 10:10 AM | 33000 | Sewer Manhole | 40871 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO WEATHER EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107902 | CONTRACTOR CLEANED & SANITIZED THE AREA | SITE FOUND DURING WEATHER EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 2105 INDIAN HILLS TRL | 02/05/2014 | 02/05/14 10:10 AM | 33000 | Sewer Manhole | 40872 | GROUND | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DURING A WEATHER EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107900 | CONTRACTOR CLEANED & SANITIZED | SITE FOUND DURING WEATHER EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 5 RIO VISTA DR | 12/22/2013 | 12/23/13 03:25 AM | 131500 | Sewer Manhole | 40879 | STREAM | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085565 | CONTRACTOR CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 5 RIO VISTA DR | 05/03/2014 | 05/10/14 09:15 PM | 3375 | Sewer Manhole | 40879 | STREAM | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2160122 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 2 RIO VISTA DR | 11/17/2013 | 11/18/13 05:00 AM | 62250 | Sewer Manhole | 40880 | GROUND | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060965 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 2 RIO VISTA DR | 05/10/2014 | 05/10/14 09:15 PM | 3375 | Sewer Manhole | 40880 | GROUND | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2160123 | MSD CLEANED & SANITIAED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 300 MOCKINGBIRD VALLEY RD | 10/06/2013 | 10/07/13 06:19 AM | 74500 | Sewer Manhole | 41374 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030765 | DISCLN WO# 2031822 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 300 MOCKINGBIRD VALLEY RD | 12/22/2013 | 12/23/13 06:58 AM | 62000 | Sewer Manhole | 41374 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085617 | DISCLN WO# 2086054 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 300 MOCKINGBIRD VALLEY RD | 02/05/2014 | 02/05/14 10:45 AM | 1800 | Sewer Manhole | 41374 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107896 | DISCLN WO# 2108134 | LOCATION INCLUDE IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 300 MOCKINGBIRD VALLEY RD | 04/04/2014 | 04/06/14 08:30 AM | 10000 | Sewer Manhole | 41374 | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141458 | NO DISCLN NEEDED DUE TO MAGNITUDE OF STORM | LOCATION INCLUDED IN THE IOAP |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-----------------------|----------------------------|---------------------------|--------------------|-------------------|-----------------|------------------------|-----------------------------|---|-------------------------|-----------------------------|---------|---|---|
| MORRIS FORMAN | KY0022411 | 4640 BARBOUR LN | 12/22/2013 | 12/22/13 04:50 AM | 30000 | Sewer Manhole | 42680 | STREAM | LITTLE GOOSE CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085566 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 8409 SABERDEE DR | 10/06/2013 | 10/07/13 03:20 AM | 37750 | Sewer Manhole | 43472 | DITCH | GOOSE CREEK | rain event caused a lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031282 | msd cleaned & sanitized the area | site found during rain event recon- will monitor & evaluate for repair |
| MORRIS FORMAN | KY0022411 | 8409 SABERDEE DR | 11/17/2013 | 11/18/13 01:20 AM | 6700 | Sewer Manhole | 43472 | DITCH | GOOSE CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060960 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 8409 SABERDEE DR | 12/21/2013 | 12/21/13 04:40 PM | 250 | Sewer Manhole | 43472 | DITCH | GOOSE CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085466 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 8409 SABERDEE DR | 12/22/2013 | 12/23/13 04:10 PM | 105500 | Sewer Manhole | 43472 | DITCH | GOOSE CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085564 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 8409 SABERDEE DR | 05/10/2014 | 05/10/14 07:30 PM | 3275 | Sewer Manhole | 43472 | DITCH | GOOSE CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2160116 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 8409 SABERDEE DR | 05/15/2014 | 05/15/14 01:00 PM | 1650 | Sewer Manhole | 43472 | DITCH | GOOSE CREEK | raievent caused lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161736 | msd cleaned & sanitized the area | site found during rain event recon- will monitor & evaluate for repair |
| MORRIS FORMAN | KY0022411 | 1108 DUPONT CIR | 10/05/2013 | 10/07/13 06:19 AM | 74000 | Sewer Manhole | 43726 | GROUND | WEICHER CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030766 | DISCLN WO# 2031860 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1635 BELMAR DR | 04/04/2014 | 04/04/14 01:50 PM | 17500 | Sewer Manhole | 44396 | GROUND | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141582 | DISCLN WO# 2142043 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1635 BELMAR DR | 04/07/2014 | 04/07/14 05:05 PM | 6000 | Sewer Manhole | 44396 | GROUND | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142921 | DISCLN WO# 2143050 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1011 ALTA CIR | 04/03/2014 | 04/06/14 08:05 AM | 33500 | Sewer Manhole | 45796 | DITCH | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141300 | DISCLN WO# 2142270 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1011 ALTA CIR | 04/07/2014 | 04/08/14 05:46 AM | 110000 | Sewer Manhole | 45796 | DITCH | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142916 | DISCLN WO# 2143016 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1011 ALTA CIR | 05/10/2014 | 05/11/14 11:00 AM | 1000 | Sewer Manhole | 45796 | DITCH | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2160130 | DISCLN WO# 2160271 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2002 MILLVALE RD | 10/05/2013 | 10/07/13 05:48 AM | 60000 | Sewer Manhole | 45829 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030762 | DISCLN WO# 2031810 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2002 MILLVALE RD | 11/17/2013 | 11/17/13 07:30 PM | 9500 | Sewer Manhole | 45829 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060918 | DISCLN WO# 2061284 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1132 ROSTREVOR CIR | 07/22/2013 | 07/22/13 06:05 PM | 10500 | Sewer Manhole | 45835 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949943 | DISCLN WO# 1950084 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1132 ROSTREVOR CIR | 10/05/2013 | 10/07/13 05:40 AM | 72000 | Sewer Manhole | 45835 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030761 | DISCLN WO# 2031782 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1132 ROSTREVOR CIR | 11/17/2013 | 11/18/13 06:15 AM | 92000 | Sewer Manhole | 45835 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060920 | DISCLN WO# 2061290 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1132 ROSTREVOR CIR | 12/22/2013 | 12/23/13 06:30 AM | 55000 | Sewer Manhole | 45835 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085592 | NONE NEEDED-DUE TO MAGNITUDE OF STORM | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1132 ROSTREVOR CIR | 02/05/2014 | 02/05/14 12:30 PM | 11500 | Sewer Manhole | 45835 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107892 | DISCLN WO# 2108097 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1132 ROSTREVOR CIR | 04/03/2014 | 04/06/14 08:10 AM | 100000 | Sewer Manhole | 45835 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141303 | DISCLN WO# 2142273 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1132 ROSTREVOR CIR | 04/07/2014 | 04/07/14 05:42 AM | 52000 | Sewer Manhole | 45835 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142917 | DISCLN WO# 2143020 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1132 ROSTREVOR CIR | 04/28/2014 | 04/28/14 10:00 PM | 10800 | Sewer Manhole | 45835 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2153103 | DISCLN WO# 2153549 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2315 SENECA VALLEY RD | 03/25/2014 | 03/25/14 05:00 PM | 5 | Sewer Main | 45856 | GROUND | MIDDLE FORK BEARGRASS CREEK | STRUCTURAL FAILURE IN THE MAIN SEWER | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2133553 | MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA | WORK ORDERS 2133503; 2133499; ROOT CUT & REPAIRED MAIN SEWER; SEALED AN EXPOSED JOINT AS A PRECAUTION |
| MORRIS FORMAN | KY0022411 | 4801 CASSIA CT | 04/04/2014 | 04/05/14 09:12 AM | 27500 | Sewer Manhole | 46623 | STREAM | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141675 | DISCLN WO# 2142140 | LOACTION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 201 BULLITT LN | 07/06/2013 | 07/06/13 04:50 PM | 19000 | Sewer Manhole | 47582 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1944745 | DISCLN WO# 1944776 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 201 BULLITT LN | 10/05/2013 | 10/07/13 12:30 PM | 208000 | Sewer Manhole | 47582 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030768 | DISCLN WO# 2031872 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 201 BULLITT LN | 11/17/2013 | 11/18/13 05:35 AM | 120000 | Sewer Manhole | 47582 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061002 | DISCLN WO# 2061495 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 201 BULLITT LN | 12/21/2013 | 12/23/13 06:30 AM | 420000 | Sewer Manhole | 47582 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085470 | DISCLN WO# 2085916 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 201 BULLITT LN | 02/05/2014 | 02/05/14 10:15 AM | 1500 | Sewer Manhole | 47582 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107894 | DISCLN WO# 2108127 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 201 BULLITT LN | 04/03/2014 | 04/05/14 08:10 AM | 78500 | Sewer Manhole | 47582 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141306 | DISCLN WO# 2142145 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 202 OXMOOR LN | 07/06/2013 | 07/06/13 04:50 PM | 32500 | Sewer Manhole | 47583 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1944746 | DISCLN WO# 1944778 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 202 OXMOOR LN | 10/05/2013 | 10/07/13 12:30 PM | 86500 | Sewer Manhole | 47583 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030769 | DISCLN WO# 2031875 | LOCATION INCLUDED IN THE IOAP |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-----------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|------------------------|-----------------------------|---|---------------------------|-----------------------------|---------|---|--|
| MORRIS FORMAN | KY0022411 | 202 OXMOOR LN | 11/17/2013 | 11/17/13 07:45 PM | 108000 | Sewer Manhole | 47583 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061003 | DISCLN WO# 2061319 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 202 OXMOOR LN | 12/21/2013 | 12/23/13 06:30 AM | 355000 | Sewer Manhole | 47583 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085469 | DISCLN WO# 2085913 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 202 OXMOOR LN | 02/05/2014 | 02/05/14 10:15 AM | 1750 | Sewer Manhole | 47583 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107893 | DISCLN WO# 2108111 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 202 OXMOOR LN | 04/03/2014 | 04/04/14 06:26 PM | 19700 | Sewer Manhole | 47583 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141305 | DISCLN WO# 2142092 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 202 OXMOOR LN | 04/07/2014 | 04/08/14 06:00 AM | 8500 | Sewer Manhole | 47583 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2143125 | DISCLN WO# 2143129 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 202 OXMOOR LN | 05/14/2014 | 05/15/14 06:48 AM | 675 | Sewer Manhole | 47583 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161710 | DISCLN WO# 2161974 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 8021 CHRISTIAN CT | 10/06/2013 | 10/07/13 06:37 AM | 115000 | Sewer Manhole | 47593 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030771 | DISCLN WO# 2031879 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 8021 CHRISTIAN CT | 11/17/2013 | 11/17/13 07:52 PM | 45000 | Sewer Manhole | 47593 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061030 | DISCLN WO# 2061330 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 8021 CHRISTIAN CT | 04/04/2014 | 04/05/14 08:27 AM | 13000 | Sewer Manhole | 47593 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141449 | DISCLN WO# 2142148 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 7410 STEEPLCREST CIR | 02/05/2014 | 02/05/14 09:53 AM | 2000 | Sewer Manhole | 47596 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2108128 | DISCLN WO# | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2201 GERALD CT | 10/06/2013 | 10/06/13 07:12 PM | 2000 | Sewer Manhole | 48885 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031243 | DISCLN WO# 2031581 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2216 FAIRLAND AVE | 10/06/2013 | 10/06/13 06:59 PM | 31000 | Sewer Manhole | 49445 | GROUND | BUECHEL BRANCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031248 | DISCLN WO# 2031916 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2500 WYETH CT | 10/06/2013 | 10/07/13 01:24 PM | 34500 | Sewer Manhole | 49513 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031264 | DISCLN WO# 2032159 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3305 INDIAN CREEK CT | 10/05/2013 | 10/07/13 04:59 PM | 270000 | Sewer Manhole | 51160 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031236 | DISCLN WO# 2032267 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3305 INDIAN CREEK CT | 11/17/2013 | 11/18/13 09:39 AM | 199500 | Sewer Manhole | 51160 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060992 | DISCLN WO# 2061393 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3305 INDIAN CREEK CT | 12/22/2013 | 12/23/13 06:01 AM | 12000 | Sewer Manhole | 51160 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085638 | DISCLN WO# 2085785 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3305 INDIAN CREEK CT | 04/04/2014 | 04/05/14 11:19 AM | 19000 | Sewer Manhole | 51160 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141566 | DISCLN WO# 2142210 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3305 INDIAN CREEK CT | 04/07/2014 | 04/07/14 10:05 PM | 600 | Sewer Manhole | 51160 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142920 | DISCLN WO# 2143033 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2011 TERRIL LN | 04/04/2014 | 04/05/14 11:17 AM | 32000 | Sewer Manhole | 51180 | GROUND | BROOKLAWN TRIBUTARY | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141552 | DISCLN WO# 2142201 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1418 TREVILIAN WAY | 07/22/2013 | 07/22/13 09:00 PM | 6000 | Sewer Manhole | 51594 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949755 | DISCLN WO# 1950063 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1418 TREVILIAN WAY | 09/21/2013 | 09/21/13 05:10 AM | 19500 | Sewer Manhole | 51594 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2016716 | DISCLN WO# 2016808 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1418 TREVILIAN WAY | 10/05/2013 | 10/06/13 07:34 PM | 108000 | Sewer Manhole | 51594 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030671 | DISCLN WO# 2032086 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1418 TREVILIAN WAY | 10/30/2013 | 10/30/13 09:03 AM | 3000 | Sewer Manhole | 51594 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2045236 | DISCLN WO# 2048119 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1418 TREVILIAN WAY | 11/17/2013 | 11/17/13 11:29 PM | 12600 | Sewer Manhole | 51594 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060941 | DISCLN WO# 2061382 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1418 TREVILIAN WAY | 12/22/2013 | 12/23/13 12:49 AM | 21000 | Sewer Manhole | 51594 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085634 | DISCLN WO# 2085841 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1418 TREVILIAN WAY | 02/04/2014 | 02/05/14 10:08 AM | 4500 | Sewer Manhole | 51594 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107906 | DISCLN WO# 2108277 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1418 TREVILIAN WAY | 02/17/2014 | 02/17/14 06:45 PM | 1500 | Sewer Manhole | 51594 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2113302 | DISCLN WO# 2113332 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1418 TREVILIAN WAY | 04/03/2014 | 04/04/14 02:11 PM | 19000 | Sewer Manhole | 51594 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141297 | DISCLN WO# 2142031 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1418 TREVILIAN WAY | 04/28/2014 | 04/28/14 11:40 PM | 1500 | Sewer Manhole | 51594 | DITCH | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2153212 | DISCLN WO# 2153573 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1701 NORTHWESTERN PKY | 06/18/2014 | 06/18/14 02:00 PM | 30 | Sewer Manhole | 52508 | STREAM | OHIO RIVER | UTILITY DAMAGED MSD ASSET CAUSING SEWAGE WATER TO ESCAPED | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2182608 | MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA | THE PUMP WAS SHUT DOWN, AND 3 INCH PIPING WAS EXTENDED INTO THE DOWNSTREAM MANHOLE |
| MORRIS FORMAN | KY0022411 | 424 MAC BRAE RD | 05/06/2014 | 05/06/14 06:45 PM | 25 | Sewer Service Line | 64309 | GROUND | NORTHERN DITCH | GREASE & DEBRIS OBSTRUCTION IN MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2158279 | MSD PERSONNEL CLEANED THE IMPACTED AREA | WORK ORDER 2158294; FLUSHED TO REMOVE GREASE AND DEBRIS FROM THE MAIN |
| MORRIS FORMAN | KY0022411 | 1910 CHARBDIN PL | 10/06/2013 | 10/07/13 11:53 AM | 45000 | Sewer Manhole | 65606 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031229 | DISCLN WO# 2031912 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1910 CHARBDIN PL | 12/22/2013 | 12/23/13 12:10 AM | 15500 | Sewer Manhole | 65606 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085620 | DISCLN WO# 2085823 | LOCATION INCLUDED IN THE IOAP |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-----------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|------------------------|-----------------------------|---|-------------------------|-----------------------------|---------|--|---|
| MORRIS FORMAN | KY0022411 | 1910 CHARBDIN PL | 04/04/2014 | 04/05/14 08:37 AM | 14500 | Sewer Manhole | 65606 | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141453 | DISCLN WO# 2142149 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1804 ROUND RIDGE RD | 10/06/2013 | 10/07/13 11:50 AM | 47500 | Sewer Manhole | 65623 | STREAM | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031232 | DISCLN WO# 2031773 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1804 ROUND RIDGE RD | 11/17/2013 | 11/18/13 07:06 AM | 78000 | Sewer Manhole | 65623 | STREAM | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060999 | DISCLN WO# 2061294 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1804 ROUND RIDGE RD | 12/22/2013 | 12/23/13 06:47 AM | 60000 | Sewer Manhole | 65623 | STREAM | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085613 | DISCLN WO# 2085931 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1804 ROUND RIDGE RD | 02/05/2014 | 02/05/14 10:33 AM | 2700 | Sewer Manhole | 65623 | STREAM | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107895 | DISCLN WO# 2108131 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1804 ROUND RIDGE RD | 04/04/2014 | 04/06/14 08:31 AM | 11000 | Sewer Manhole | 65623 | STREAM | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141456 | NO DISCLN NEEDED DUE TO MAGNITUDE OF STORM | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4640 BARBOUR LN | 04/04/2014 | 04/05/14 07:30 AM | 129000 | Sewer Manhole | 65633 | STREAM | LITTLE GOOSE CREEK | LACK OF CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141587 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 2504 WYETH CT | 10/06/2013 | 10/07/13 01:25 PM | 37500 | Sewer Manhole | 66232 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031265 | DISCLN WO# 2032163 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 07/22/2013 | 07/22/13 08:47 PM | 12000 | Sewer Manhole | 66349 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949740 | DISCLN WO# 1950054 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 10/05/2013 | 10/06/13 07:44 PM | 7200 | Sewer Manhole | 66349 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030669 | DISCLN WO# 2032075 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 10/30/2013 | 10/30/13 03:24 PM | 1500 | Sewer Manhole | 66349 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2045206 | DISCLN WO# 2048102 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 11/17/2013 | 11/18/13 01:18 AM | 75000 | Sewer Manhole | 66349 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060932 | DISCLN WO# 2061255 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3726 FINCASTLE RD | 04/04/2014 | 04/04/14 01:54 PM | 20000 | Sewer Manhole | 66349 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141572 | DISCLN WO# 2142033 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2312 RODMAN ST | 12/22/2013 | 12/23/13 01:23 AM | 82500 | Sewer Manhole | 66394 | | | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085628 | DISCLN WO# 2085826 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1700 SULGRAVE RD | 10/05/2013 | 10/07/13 06:01 AM | 82000 | Sewer Manhole | 72289 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031228 | DISCLN WO# 2031910 | LOCATIO INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1700 SULGRAVE RD | 12/22/2013 | 12/23/13 10:17 AM | 62000 | Sewer Manhole | 72289 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085619 | DISCLN WO# 2086056 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1700 SULGRAVE RD | 04/04/2014 | 04/04/14 09:10 PM | 15700 | Sewer Manhole | 72289 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142083 | DISCLN WO# 2142084 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 200 OXMOOR LN | 06/07/2014 | 06/07/14 02:45 PM | 1000 | Sewer Manhole | 73006 | GROUND | MIDDLE FORK BEARGRASS CREEK | ROOT OBSTRUCTION IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2178613 | MSD PERSONNEL CLEANED THE IMPACTED AREA | WORK ORDERS 2178637; 2178619; FLUSHED, ROOT CUT TO OPEN THE LINE; DILUTED THE CREEK AND ADDED LIME TO THE BANK OF THE CREEK IN THE DISCHARGED |
| MORRIS FORMAN | KY0022411 | 7913 SHELBYVILLE RD | 10/06/2013 | 10/07/13 06:55 AM | 55000 | Sewer Manhole | 84155 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030773 | DISCLN WO# 2031363 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 7913 SHELBYVILLE RD | 11/17/2013 | 11/17/13 07:55 PM | 19500 | Sewer Manhole | 84155 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061034 | DISCLN WO# 2061079 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 7913 SHELBYVILLE RD | 12/22/2013 | 12/23/13 06:30 AM | 12000 | Sewer Manhole | 84155 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085618 | DISCLN WO# 2085788 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 7913 SHELBYVILLE RD | 04/04/2014 | 04/05/14 08:37 AM | 17500 | Sewer Manhole | 84155 | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141451 | DISCLN WO# 2142138 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4307 PRUITT CT | 10/06/2013 | 10/07/13 12:32 PM | 19000 | Sewer Service Line | 85065 | GROUND | BUECHEL BRANCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031266 | DISCLN WO# 2032167 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4317 PRUITT CT | 10/06/2013 | 10/07/13 12:35 PM | 22000 | Sewer Service Line | 85075 | GROUND | BUECHEL BRANCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031268 | DISCLN WO# 2032180 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4319 PRUITT CT | 10/06/2013 | 10/07/13 12:34 PM | 22500 | Sewer Service Line | 85076 | GROUND | BUECHEL BRANCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031269 | DISCLN WO# 2032187 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2140 INDIAN HILLS TRL | 04/03/2014 | 04/06/14 08:00 AM | 636000 | Sewer Manhole | 89641 | GROUND | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141318 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 37 ARROWHEAD RD | 12/22/2013 | 12/23/13 12:25 AM | 19500 | Sewer Manhole | 89791 | GROUND | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085614 | NONE NEEDED DUE TO MAGNITUDE OF THE STORM | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 37 ARROWHEAD RD | 04/04/2014 | 04/04/14 08:10 PM | 22500 | Sewer Manhole | 89791 | GROUND | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141457 | DISCLN WO# 2142091 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 8021 CHRISTIAN CT | 10/06/2013 | 10/07/13 06:30 AM | 62000 | Sewer Manhole | 90700 | CATCH BASIN | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030770 | DISCLN WO# 2031364 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 8021 CHRISTIAN CT | 11/17/2013 | 11/17/13 07:49 PM | 21000 | Sewer Manhole | 90700 | CATCH BASIN | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061028 | DISCLN WO# 2061077 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2420 SENECA VALLEY RD | 04/04/2014 | 04/04/14 09:05 PM | 300 | Sewer Service Line | 93336 | GROUND | MIDDLE FORK BEARGRASS CREEK | ROOT OBSTRUCTION IN MAIN SEWER | ROOTS | DISREV RAIN EVENT DISCHARGE | 2142093 | MSD PERSONNEL CLEANED THE IMPACTED AREA | WORK ORDERS 2142221; 2147151; FLUSHED, ROOT CUT TO REMOVE THE ROOTS |
| MORRIS FORMAN | KY0022411 | 3536 FINCASTLE RD | 07/22/2013 | 07/22/13 08:50 PM | 1000 | Sewer Manhole | 99259 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949748 | DISCLN WO# 1950059 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3536 FINCASTLE RD | 10/05/2013 | 10/06/13 07:40 PM | 1500 | Sewer Manhole | 99259 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030670 | DISCLN WO# 2032081 | LOCATION INCLUDED IN THE IOAP |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|--------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|------------------------|-----------------------------|---|-------------------------|-----------------------------|---------|---|--|
| MORRIS FORMAN | KY0022411 | 3536 FINCASTLE RD | 10/30/2013 | 10/30/13 12:10 PM | 6000 | Sewer Manhole | 99259 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2045232 | DISCLN WO# 2048118 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3536 FINCASTLE RD | 11/17/2013 | 11/18/13 01:19 AM | 4800 | Sewer Manhole | 99259 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060940 | DISCLN WO# 2061380 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3536 FINCASTLE RD | 12/22/2013 | 12/23/13 02:06 AM | 5700 | Sewer Manhole | 99259 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085633 | DISCLN WO# 2085834 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3536 FINCASTLE RD | 02/04/2014 | 02/05/14 09:46 AM | 1000 | Sewer Manhole | 99259 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107905 | DISCLN WO# 2108160 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3536 FINCASTLE RD | 04/04/2014 | 04/05/14 11:51 AM | 29000 | Sewer Manhole | 99259 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141564 | DISCLN WO# 2142209 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3536 FINCASTLE RD | 04/07/2014 | 04/07/14 09:11 PM | 600 | Sewer Manhole | 99259 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142919 | DISCLN WO# 2143028 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 07/22/2013 | 07/22/13 10:40 PM | 40500 | Sewer Manhole | 104231 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949736 | DISCLN WO# 1950031 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 10/05/2013 | 10/06/13 07:47 PM | 180000 | Sewer Manhole | 104231 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031234 | DISCLN WO# 2031510 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 12/22/2013 | 12/23/13 01:36 AM | 15000 | Sewer Manhole | 104231 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085635 | DISCLN WO# 2085844 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4119 LEE AVE | 04/28/2014 | 04/28/14 11:05 PM | 500 | Sewer Manhole | 104231 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2153209 | DISCLN WO# 2153563 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 7713 WESTPORT RD | 10/06/2013 | 10/07/13 11:36 AM | 64000 | Sewer Manhole | 105936 | GROUND | GOOSE CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031230 | DISCLN WO# 2034113 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 7713 WESTPORT RD | 11/17/2013 | 11/17/13 08:17 PM | 32500 | Sewer Manhole | 105936 | GROUND | GOOSE CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060929 | DISCLN WO# 2061076 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 7713 WESTPORT RD | 04/04/2014 | 04/05/14 10:05 AM | 67500 | Sewer Manhole | 105936 | GROUND | GOOSE CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141656 | DISCLN WO# 2142082 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 7713 WESTPORT RD | 04/04/2014 | 04/06/14 08:40 AM | 114000 | Sewer Manhole | 105936 | GROUND | GOOSE CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141502 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 6619 STRAWBERRY LN | 05/03/2014 | 05/03/14 10:27 PM | 200 | Sewer Service Line | 176120 | GROUND | NORTHERN DITCH | OBSTRUCTION OF GREASE IN MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2157286 | MSD PERSONNEL CLEANED THE IMPACTED AREA | WORK ORDER 2157534; 2157552; ROOT CUT THE MAIN SEWER TO OPEN |
| MORRIS FORMAN | KY0022411 | 3540 FINCASTLE RD | 11/17/2013 | 11/18/13 01:20 AM | 5700 | Sewer Service Line | 34093540 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061206 | DISCLN WO# 2061493 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3540 FINCASTLE RD | 12/22/2013 | 12/23/13 12:20 AM | 5400 | Sewer Service Line | 34093540 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085644 | DISCLN WO# 2085898 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3540 FINCASTLE RD | 02/04/2014 | 02/05/14 09:42 AM | 1450 | Sewer Service Line | 34093540 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107901 | DISCLN WO# 2108151 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3540 FINCASTLE RD | 04/04/2014 | 04/05/14 11:46 AM | 16500 | Sewer Service Line | 34093540 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141569 | DISCLN WO# 2142211 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3540 FINCASTLE RD | 04/07/2014 | 04/07/14 09:15 PM | 600 | Sewer Service Line | 34093540 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142923 | DISCLN WO# 2143114 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3542 FINCASTLE RD | 11/17/2013 | 11/18/13 09:26 AM | 39400 | Sewer Service Line | 34093542 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061204 | DISCLN WO# 2061494 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3542 FINCASTLE RD | 12/22/2013 | 12/23/13 05:25 AM | 28500 | Sewer Service Line | 34093542 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085646 | DISCLN WO# 2085900 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3542 FINCASTLE RD | 02/04/2014 | 02/05/14 09:43 AM | 1500 | Sewer Service Line | 34093542 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107899 | DISCLN WO# 2108144 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3542 FINCASTLE RD | 04/03/2014 | 04/06/14 05:52 PM | 39500 | Sewer Service Line | 34093542 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141298 | DISCLN WO# 2142355 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3542 FINCASTLE RD | 04/07/2014 | 04/07/14 09:14 PM | 8400 | Sewer Service Line | 34093542 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142922 | DISCLN WO# 2143096 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3412 FOUNTAIN DR | 10/06/2013 | 10/07/13 12:29 PM | 32000 | Sewer Service Line | 39453412 | GROUND | BUECHEL BRANCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031252 | DISCLN WO# 2031918 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 10/06/2013 | 10/06/13 07:47 AM | 4020 | Sewer Manhole | 00056-W | GROUND | MIDDLE FORK BEARGRASS CREEK | RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030747 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 11/01/2013 | 11/01/13 02:00 AM | 1335 | Sewer Manhole | 00056-W | GROUND | MIDDLE FORK BEARGRASS CREEK | POWER FAIL | POWER OUTAGE (LG&E) | DISREV RAIN EVENT DISCHARGE | 2048658 | MSD CLEANED & SANITIZED THE AREA | INSTALLED GENERATOR TO RESTORE POWER |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 11/10/2013 | 11/18/13 03:40 AM | 8750 | Sewer Manhole | 00056-W | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060887 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 12/22/2013 | 12/22/13 08:15 AM | 500 | Sewer Manhole | 00056-W | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085573 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 01/11/2014 | 01/11/14 02:45 PM | 25250 | Sewer Manhole | 00056-W | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2095067 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 02/05/2014 | 02/05/14 03:20 PM | 25 | Sewer Manhole | 00056-W | GROUND | MIDDLE FORK BEARGRASS CREEK | LG&E POWER FAIL | POWER OUTAGE (LG&E) | DISREV RAIN EVENT DISCHARGE | 2108237 | MSD CLEANED AND SANITIZED AREA | INSTALLED GENERATOR TILL POWER RESTORED |
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 04/04/2014 | 04/04/14 10:00 PM | 82125 | Sewer Manhole | 00056-W | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141396 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|--------------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|------------------------|-----------------------------|--|--------------------------------|-----------------------------|---------|--|--|
| MORRIS FORMAN | KY0022411 | 804 N ARBOR DR | 05/15/2014 | 05/15/14 01:53 PM | 22505 | Sewer Manhole | 00056-W | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161690 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 806 PINE WAY | 10/06/2013 | 10/06/13 07:45 AM | 2700 | Sewer Manhole | 0057-W | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030750 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 806 PINE WAY | 04/03/2014 | 04/03/14 05:38 PM | 33575 | Sewer Manhole | 0057-W | GROUND | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141310 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 1001 BRECKENRIDGE LN | 07/06/2013 | 07/06/13 02:07 PM | 126702 | Sewer Manhole | 08935-SM | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1944748 | NO CLEAN UP PERFORMED - PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1001 BRECKENRIDGE LN | 10/05/2013 | 10/07/13 01:13 PM | 11307180 | Sewer Manhole | 08935-SM | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031222 | NO CLEAN UP OCCURRED - PIPE DISCHARGE SUBMERGED | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1001 BRECKENRIDGE LN | 11/17/2013 | 11/18/13 11:26 AM | 5019348 | Sewer Manhole | 08935-SM | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060923 | NO CLEAN UP POSSIBLE - PIPE DISCHARGE SUBMERGED | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1001 BRECKENRIDGE LN | 12/21/2013 | 12/23/13 01:16 AM | 6282652 | Sewer Manhole | 08935-SM | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085473 | NO CLEANUP POSSIBLE, PIPE DISCHARGE SUBMERGED | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1001 BRECKENRIDGE LN | 02/04/2014 | 02/05/14 02:09 PM | 932029 | Sewer Manhole | 08935-SM | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107908 | NO CLEAN UP PERFORMED - PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1001 BRECKENRIDGE LN | 04/03/2014 | 04/05/14 06:27 PM | 11883310 | Sewer Manhole | 08935-SM | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141165 | NO CLEAN UP PERFORMED - PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1001 BRECKENRIDGE LN | 04/07/2014 | 04/08/14 02:20 AM | 1548371 | Sewer Manhole | 08935-SM | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142913 | NO CLEAN UP PERFORMED - PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM | LOCATIOLN INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1001 BRECKENRIDGE LN | 05/14/2014 | 05/15/14 03:20 AM | 115530 | Sewer Manhole | 08935-SM | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161723 | NO CLEAN UP PERFORMED - PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM | LOACTION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1001 BRECKENRIDGE LN | 05/21/2014 | 05/21/14 10:39 PM | 1143 | Sewer Manhole | 08935-SM | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2164545 | NO CLEAN UP PERFORMED - PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 2324 NEWBURG RD | 10/06/2013 | 10/06/13 01:00 PM | 15000 | Sewer Manhole | 08961A | STREAM | SOUTH FORK BEARGRASS CREEK | System Capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031289 | MSD raked the area and applied lime. | None Needed. We had to wait till Beargrass Creek Lowered and the sewer receded. |
| MORRIS FORMAN | KY0022411 | 3305 BENT CREEK CT | 10/05/2013 | 10/07/13 12:12 PM | 26000 | Sewer Service Line | BU05074039 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031238 | DISCLN WO# 2031914 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3305 BENT CREEK CT | 11/17/2013 | 11/18/13 09:43 AM | 75000 | Sewer Service Line | BU05074039 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060997 | DISCLN WO# 2061490 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3305 BENT CREEK CT | 12/22/2013 | 12/23/13 12:12 AM | 67500 | Sewer Service Line | BU05074039 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085641 | DISCLN WO# 2085854 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3305 BENT CREEK CT | 04/04/2014 | 04/05/14 11:21 AM | 19000 | Sewer Service Line | BU05074039 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141585 | DISCL WO# 2142213 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 3303 TROUT CREEK DR | 10/05/2013 | 10/06/13 07:18 PM | 1500 | Sewer Service Line | BU05091039 | GROUND | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031240 | DISCLN WO# 2031536 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4010 BELLS LN | 09/10/2013 | 09/10/13 01:09 PM | 6000000 | Sewer Manhole | CSO015 | STREAM | OHIO RIVER | LG&E WORKING - SCHEDULED POWER OUTAGE TO BELLS LN PS, SYSTEM PUT IN MANUAL MODE; POWER CAME BACK; SYSTEM FAILED OPEN | ELECTRICAL PROBLEMS AT MSD | DISDW DRY WEATHER DISCHARGE | 2008030 | PIPE DISCHARGE SUBMERGED; CLEANUP NOT POSSIBLE | PUT GATES IN MANUAL MODE AT PS AND FORCED GATES CLOSED |
| MORRIS FORMAN | KY0022411 | 816 N 34TH ST | 01/07/2014 | 01/07/14 06:30 AM | 63633 | Sewer Manhole | CSO019 | STREAM | OHIO RIVER | WATER MAIN BREAK AT 34TH AND GRIFFITHS | UTILITY DAMAGED MSD ASSET | DISREV RAIN EVENT DISCHARGE | 2093436 | PIPE DISCHARGE SUBMERGED - NO CLEANUP POSSIBLE | LWC SHUT DOWN WATER MAIN TO MAKE REPAIRS |
| MORRIS FORMAN | KY0022411 | 1212 ROYAL AVE | 12/02/2013 | 12/02/13 01:24 PM | 13 | Sewer Manhole | CSO106 | STREAM | SOUTH FORK BEARGRASS CREEK | DEBRIS WAS CAUGHT UP IN DROP INLET AREA OF NEXT MANHOLE DOWNSTREAM. | ROOTS | DISDW DRY WEATHER DISCHARGE | 2069980 | NONE REQUIRED. DISCHARGE FLOWING DIRECTLY TO CREEK. | FLUSHED LINE AND GOT OPEN. |
| MORRIS FORMAN | KY0022411 | 1215 ELLISON AVE | 07/26/2013 | 07/26/13 10:30 AM | 2000 | Sewer Manhole | CSO113 | STREAM | SOUTH FORK BEARGRASS CREEK | OBSTRUCTION AT LOW FLOW MOUTH OF PIPE. LARGE NUMBER OF BRICKS AND STONE PILED UP AT MOUTH OF PIPE. | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1951096 | NO CLEAN UP NECESSARY, CSO DISCHARGES DIRECTLY INTO IMPROVED CHANNEL OF BEARGRASS CREEK. | LOW FLOW PIPE WAS FLUSHED TO MITIGATE OVERFLOW, INITIATING A TVI WORK ORDER TO TRY TO DETERMINE WHERE BRICK CAME FROM. |
| MORRIS FORMAN | KY0022411 | 1215 ELLISON AVE | 08/15/2013 | 08/15/13 01:26 PM | 925 | Sewer Manhole | CSO113 | STREAM | SOUTH FORK BEARGRASS CREEK | OBSTRUCTION AT LOW FLOW MOUTH OF PIPE. LARGE NUMBER OF BRICKS AND STONE PILED UP AT MOUTH OF PIPE. | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1996574 | NO CLEAN UP NECESSARY, CSO DISCHARGES DIRECTLY INTO IMPROVED CHANNEL OF BEARGRASS CREEK. | LOW FLOW PIPE WAS FLUSHED TO MITIGATE OVERFLOW, INITIATING A TVI WORK ORDER TO TRY TO DETERMINE WHERE BRICK CAME FROM. |
| MORRIS FORMAN | KY0022411 | 1215 ELLISON AVE | 01/23/2014 | 01/23/14 11:05 AM | 100 | Sewer Manhole | CSO113 | STREAM | SOUTH FORK BEARGRASS CREEK | LARGE HANDBAG BLOCKING LOW-FLOW LINE. | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2100558 | NONE NECESSARY. DISCHARGE OCCURED DIRECTLY INTO IMPROVED CHANNEL. | REMOVED HANDBAG FROM MOUTH OF THE LO-FLOW. |
| MORRIS FORMAN | KY0022411 | 914 E BROADWAY | 06/05/2014 | 06/05/14 11:15 PM | 2000 | Sewer Manhole | CSO118 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-WATER MAIN BREAK | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2177176 | NONE NEEDED DUE TO FRESH WATER MAIN BREAK | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1919 BROWNSBORO RD | 01/07/2014 | 01/07/14 03:00 PM | 37833 | Sewer Manhole | CSO132 | STREAM | MUDDY FORK BEARGRASS CREEK | Water Main Break in Brownsboro Rd | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2094679 | Pipe Discharge Submerged - No cleanup | Water Company making repairs |
| MORRIS FORMAN | KY0022411 | 1258 ROYAL AVE | 04/24/2014 | 04/24/14 04:00 PM | 4222000 | Sewer Manhole | CSO137 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-LOUISVILLE WATER MAIN BREAK ON BAXTER AVE AND EASTERN PARKWAY | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2150497 | NO CLEAN-UP NEEDED DUE TO THE MAGNITUDE OF CLEAN WATER FROM MAIN BREAK | WATER MAIN REPAIRED |
| MORRIS FORMAN | KY0022411 | 361 BAXTER AVE | 06/05/2014 | 06/05/14 04:45 PM | 5000 | Sewer Manhole | CSO141 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-WATER MAIN BREAK | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2177174 | NONE NEEDED DUE TO FRESH WATER MAIN BREAK | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1316 CASTLEWOOD DELL | 04/24/2014 | 04/25/14 02:30 AM | 2472069 | Sewer Manhole | CSO151 | STREAM | SOUTH FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY-LOUISVILLE WATER COMPANY WATER MAIN BREAK | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2150470 | NO DISCLN NEEDED DUE TO MAGNITUDE OF EVENT | LOCATION IS INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 1820 DRESCHER BRIDGE AVE | 12/13/2013 | 12/13/13 09:45 AM | 64656 | Sewer Manhole | CSO167 | STREAM | MUDDY FORK BEARGRASS CREEK | WATER MAIN BREAK AT BROWNSBORO RD AND DRESCHER BRIDGE AVE | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2080482 | NO CLEANUP INITIATED UNTIL WATER MAINS REPAIRED | WATER MAIN SHUT DOWN, WATER MAIN REPAIRS UNDERWAY |
| MORRIS FORMAN | KY0022411 | 1700 SPRING DR | 01/09/2014 | 01/09/14 06:45 AM | 531500 | Sewer Manhole | CSO206 | STREAM | MIDDLE FORK BEARGRASS CREEK | Water Main Break | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2094671 | Will be initiated once repairs are completed | Water Company on site making repairs |
| MORRIS FORMAN | KY0022411 | 1700 SPRING DR | 01/30/2014 | 01/30/14 09:00 AM | 469198 | Sewer Manhole | CSO206 | STREAM | MIDDLE FORK BEARGRASS CREEK | Water Main Break | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2103385 | Louisville Water Company will be contacted | No repairs needed |
| MORRIS FORMAN | KY0022411 | 4108 LEE AVE | 07/22/2013 | 07/22/13 10:42 PM | 600 | Sewer Service Line | KK14815019 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949738 | DISCLN WO# 1950036 | LOCATION INCLUDED IN THE IOAP |

APPENDIX B-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-----------------------|----------------------------|---------------------------|--------------------|-----------------------|-----------------|------------------------|-----------------------------|--|--------------------------------|-----------------------------|---------|---|--|
| MORRIS FORMAN | KY0022411 | 4108 LEE AVE | 11/17/2013 | 11/17/13 06:31 PM | 1200 | Sewer Service Line | KK14815019 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060988 | DISCLN WO# 2061391 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4108 LEE AVE | 12/22/2013 | 12/23/13 01:38 AM | 1000 | Sewer Service Line | KK14815019 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085637 | DISCLN WO# 2085848 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4108 LEE AVE | 04/04/2014 | 04/04/14 01:47 PM | 7500 | Sewer Service Line | KK14815019 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141589 | DISCLN WO# 2142048 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 4108 LEE AVE | 04/28/2014 | 04/28/14 11:12 PM | 200 | Sewer Service Line | KK14815019 | GROUND | CAMP TAYLOR DITCH | LACK OF SYSTEM CAPACITY-HEAVY RAIN | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2153214 | DISCLN WO# 2153579 | LOCATION INCLUDED IN THE IOAP |
| MORRIS FORMAN | KY0022411 | 7404 ARROWWOOD RD | 10/05/2013 | 10/07/13 02:20 AM | 83700 | Sewer Lift Station | MSD0040-PS | DITCH | GOOSE CREEK | rain event caused lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031284 | msd cleaned & sanitized the area | site found during rain event recon- will monitor & evaluate for repair |
| MORRIS FORMAN | KY0022411 | 7404 ARROWWOOD RD | 11/17/2013 | 11/18/13 01:40 AM | 7000 | Sewer Lift Station | MSD0040-PS | DITCH | GOOSE CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060958 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 7404 ARROWWOOD RD | 12/21/2013 | 12/22/13 04:20 PM | 109200 | Sewer Lift Station | MSD0040-PS | DITCH | GOOSE CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085549 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 7404 ARROWWOOD RD | 04/04/2014 | 04/04/14 09:30 PM | 30000 | Sewer Lift Station | MSD0040-PS | DITCH | GOOSE CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141377 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 7404 ARROWWOOD RD | 05/30/2014 | 05/30/14 12:25 AM | 625 | Sewer Lift Station | MSD0040-PS | DITCH | GOOSE CREEK | pumps air locked during rain event. | MECHANICAL FAILURE | DISREV RAIN EVENT DISCHARGE | 2168884 | no clean up required . only clear sewage observed . | pumps cleaned and put back in service |
| MORRIS FORMAN | KY0022411 | 1701 SONNE AVE | 12/22/2013 | 12/22/13 03:15 AM | 5 | Sewer Lift Station | MSD0042-PS | GROUND | PADDY RUN | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085561 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 806 PINE WAY | 05/14/2014 | 05/15/14 01:49 PM | 26600 | Sewer Lift Station | MSD0057-LS | STREAM | MIDDLE FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2161677 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 4200 RETREAT RD | 10/06/2013 | 10/06/13 04:00 PM | 132000 | Sewer Lift Station | MSD0119-PS | GROUND | BLUE SPRING DITCH | RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY | PUMPED OVERFLOW | DISREV RAIN EVENT DISCHARGE | 2030740 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 3602 TRAIL RIDGE RD | 08/27/2013 | 08/27/13 12:36 PM | 50 | Sewer Lift Station | MSD0125-PS | STREAM | LITTLE GOOSE CREEK | FORCE MAIN BREAK | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2001991 | MSD CLEANED & SANITIZED THE AREA | CONTRACTOR REPAIRING FORCE MAIN; MSD HAULING |
| MORRIS FORMAN | KY0022411 | 2120 INDIAN HILLS TRL | 10/06/2013 | 10/07/13 03:00 AM | 5850 | Sewer Lift Station | MSD0186-PS | DITCH | MUDDY FORK BEARGRASS CREEK | lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031223 | contractor cleaned & sanitized the area | site found during rain event recon- will monitor & evaluate for repair |
| MORRIS FORMAN | KY0022411 | 2120 INDIAN HILLS TRL | 02/05/2014 | 02/05/14 02:45 AM | 750 | Sewer Lift Station | MSD0186-PS | DITCH | MUDDY FORK BEARGRASS CREEK | NO PUMPS RUNNING | MECHANICAL FAILURE | DISREV RAIN EVENT DISCHARGE | 2107885 | NO DEBRIS | TURN PUMPS ON |
| MORRIS FORMAN | KY0022411 | 2120 INDIAN HILLS TRL | 04/04/2014 | 04/06/14 08:00 AM | 1270 | Sewer Lift Station | MSD0186-PS | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141562 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 2120 INDIAN HILLS TRL | 05/10/2014 | 05/10/14 09:15 PM | 24000 | Sewer Lift Station | MSD0186-PS | DITCH | MUDDY FORK BEARGRASS CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2160121 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 4640 BARBOUR LN | 11/17/2013 | 11/17/13 04:34 PM | 20550 | Sewer Lift Station | MSD0192-PS | STREAM | LITTLE GOOSE CREEK | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060955 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 8410 SAUREL DR | 02/05/2014 | 02/05/14 04:15 PM | 46250 | Sewer Lift Station | MSD1024-PS | DITCH | GOOSE CREEK | LACK OF SYSTEM CAPACITY DUE TO WEATHER EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2107884 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING WEATHER EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 8410 SAUREL DR | 04/04/2014 | 04/03/14 07:45 PM | 73120 | Sewer Lift Station | MSD1024-PS | DITCH | GOOSE CREEK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141390 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| NO PLANT-GOES TO STREAM/RIVER | | 2324 NEWBURG RD | 10/06/2013 | 10/06/13 01:00 PM | 30000 | Sewer Manhole | 93135 | GROUND | SOUTH FORK BEARGRASS CREEK | System Capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031290 | MSD raked the area and applied lime | None Needed. We had to wait until Beargrass Creek Lowered and the sewer receded. |
| SHADOW WOOD | KY0031810 | 5489 FOREST LAKE DR | 05/22/2014 | 05/22/14 10:42 AM | 620 | Sewer Manhole | 47148 | GROUND | HARRODS CREEK | ROCK FROM CONSTRUCTION FOUND IN SEWER OBSTRUCTING FLOW | OBSTRUCTION-NOT GREASE / ROOTS | DISREV RAIN EVENT DISCHARGE | 2164659 | MSD CLEANED AND SANITIZED THE AREA | CONTRACTOR REMOVED ROCKS FROM SEWER |
| SHADOW WOOD | KY0031810 | 5489 FOREST LAKE DR | 11/08/2013 | 11/08/13 07:00 PM | 500 | Sewer Treatment Plant | MSD0404 | GROUND | HARRODS CREEK | LAGOON LEAKING | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2050519 | MSD CLEANED & SANITIZED | PUMPED DOWN LAGOON & CONTRACTOR REPAIRED |
| SHADOW WOOD | KY0031810 | 5489 FOREST LAKE DR | 11/21/2013 | 11/21/13 07:30 PM | 100 | Sewer Treatment Plant | MSD0404 | GROUND | HARRODS CREEK | LAGOON LEAKING | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2062347 | MSD CLEANED & SANITIZED THE AREA | PUMPED DOWN LAGOON & CONTRACTOR REPAIRED |
| SHADOW WOOD | KY0031810 | 5489 FOREST LAKE DR | 12/03/2013 | 12/03/13 06:57 PM | 407 | Sewer Treatment Plant | MSD0404 | GROUND | HARRODS CREEK | LAGOON LEAKING | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2070396 | MSD CLEANED & SANITIZED THE AREA | MSD EMPLOYEES PUMPED THE LAGOON DOWN |
| STARVIEW | KY0031712 | 423 BERMUDA WAY | 04/04/2014 | 04/04/14 06:10 PM | 300 | Sewer Treatment Plant | MSD0247 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2141531 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| TIMBERLAKE | KY0043087 | 5504 TIMBER RIDGE DR | 01/05/2014 | 01/05/14 01:54 PM | 121 | Sewer Treatment Plant | MSD0293 | GROUND | HARRODS CREEK | debris blocking splitter box caused overflow of plant #2 | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2091866 | msd cleaned and sanitized area | msd removed and cleared blockage |



APPENDIX B-2 - DISCHARGE WORK ORDERS-BYPASS



APPENDIX B-2
BYPASS EVENTS AT WQTC'S
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|----------------------|----------------------------|---------------------------|--------------------|-----------------------|-----------------|------------------------|------------------|--|----------------|-----------------------------|---------|--|--|
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 10/06/13 11:50 AM | 10/07/13 07:40 AM | 11900 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2031258 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 11/17/13 3:20 PM | 11/18/13 07:45 AM | 2955 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF PLANT CAPACITY | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2060993 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 11/17/13 3:20 PM | 11/18/13 07:45 AM | 2955 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF PLANT CAPACITY | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2060998 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 12/21/13 6:00 PM | 12/23/13 08:25 AM | 11525 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | lack of system capacity caused by rain event made plant level rise to area where a hole was in clarifier | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2085476 | msd cleaned and sanitized area | msd made repairs to hole in top of clarifier |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 12/21/13 6:00 PM | 12/23/13 08:25 AM | 11525 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | lack of system capacity caused by rain event made plant level rise to area where a hole was in clarifier | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2085477 | msd cleaned and sanitized area | msd made repairs to clarifier |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 01/11/14 2:30 AM | 01/11/14 09:38 PM | 28700 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2095063 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 01/11/14 9:10 AM | 01/11/14 09:38 PM | 18700 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2095073 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 02/05/14 8:30 AM | 02/05/14 07:05 PM | 3175 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO WEATHER EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2107935 | NO DEBRIS | DECREASE FLOW |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 04/04/14 2:55 AM | 04/04/14 04:45 PM | 62250 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2141357 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 04/04/14 2:55 AM | 04/03/14 04:45 PM | 41750 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2141361 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 04/04/14 9:20 AM | 04/04/14 10:00 PM | 190000 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2141473 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 04/04/14 9:20 AM | 04/04/14 04:45 PM | 465 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2141490 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| BERRYTOWN | KY0036501 | 1203 HEAFER RD | 05/15/14 8:40 AM | 05/15/14 04:30 PM | 2350 | Sewer Treatment Plant | MSD0209 | STREAM | FLOYDS FORK | HOLES IN CLARIFIER | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2161788 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| CEDAR CREEK | KY0098540 | 8605 CEDAR CREEK RD | 10/06/13 10:02 AM | 10/06/13 10:10 AM | 80 | Sewer Treatment Plant | MSD0289 | GROUND | CEDAR CREEK | excessive flow came out of channel ahead of parshal flume | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2031221 | no clean up | no action rain event caused excessive flow |
| CEDAR CREEK | KY0098540 | 8605 CEDAR CREEK RD | 02/05/14 2:30 AM | 02/05/14 02:45 AM | 100 | Sewer Treatment Plant | MSD0289 | GROUND | CEDAR CREEK | bypass gate failed to open Automatically causing 100 gallons to come out of the filter building and down the manhole | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2107913 | no debris ,processed water | manually opened filter bypass gate |
| CHENOWETH HILLS | KY0029459 | 4305 ST RENE CT | 10/06/13 12:45 PM | 10/06/13 05:43 PM | 596 | Sewer Treatment Plant | MSD0263 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2031261 | NO DEBRIS | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| CHENOWETH HILLS | KY0029459 | 4305 ST RENE CT | 05/06/14 6:20 PM | 05/07/14 10:45 AM | 5250 | Sewer Treatment Plant | MSD0263 | STREAM | CHENOWETH RUN | MSD contractor drilled through treatment center effluent force main. | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2158488 | Clean up of the impacted area will occur once repairs are completed. | MSD Contractor is installing band clamp to repair effluent force main. |
| CHENOWETH HILLS | KY0029459 | 4305 ST RENE CT | 06/16/14 8:17 AM | 06/16/14 08:40 AM | 2174 | Sewer Treatment Plant | MSD0263 | STREAM | CHENOWETH RUN | SO2 TANKS EMPTY. | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2181384 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | CHANGED SO2 TANKS |
| DEREK R. GUTHRIE | KY0078956 | 9412 SLAYTON CT | 02/05/14 9:45 AM | 02/06/14 07:00 AM | 100 | Sewer Treatment Plant | MSD0258 | STREAM | MUD CREEK | PLANT EFFLUENT LINE TO CREEK IS BROKEN | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2108069 | NO DEBRIS | CONTRACTOR WILL EXCAVATE AND REPAIR LINE |
| HUNTING CREEK NORTH | KY0029106 | 9810 U S HIGHWAY 42 | 12/24/13 9:40 AM | 12/24/13 09:55 AM | 4425 | Sewer Treatment Plant | MSD0291 | STREAM | HARRODS CREEK | stopped up returns on #2 clarifier caused solids to flow out plant effluent | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2086192 | msd cleaned and sanitized plant effluent area | unclogged returns on clarifier #2 |
| KEN CARLA | KY0022497 | 8701 LYNNHALL CT | 12/21/13 11:30 AM | 12/22/13 01:00 PM | 38250 | Sewer Treatment Plant | MSD0208 | STREAM | HARRODS CREEK | Obstruction or blockage in plant effluent line caused an over flow of plant contact chamber | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2085427 | no clean up needed | MSD used TV camera and root cutter to clear obstruction |
| MCNEELY LAKE | KY0029416 | 10300 ROD N REEL RD | 06/16/14 7:10 AM | 06/16/14 07:40 AM | 1359 | Sewer Treatment Plant | MSD0228 | STREAM | PENNSYLVANIA RUN | CL2 & SO2 TANKS NOT ON. | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2181192 | PIPE DSICHARGE SUBMERGED- NO CLEANUP | TURNED TANKS ON. |
| SHADOW WOOD | KY0031810 | 5489 FOREST LAKE DR | 11/08/13 12:30 PM | 11/08/13 07:00 PM | 500 | Sewer Treatment Plant | MSD0404 | GROUND | HARRODS CREEK | LAGOON LEAKING | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2050519 | MSD CLEANED & SANITIZED | PUMPED DOWN LAGOON & CONTRACTOR REPAIRED |
| SHADOW WOOD | KY0031810 | 5489 FOREST LAKE DR | 11/21/13 1:44 PM | 11/21/13 07:30 PM | 100 | Sewer Treatment Plant | MSD0404 | GROUND | HARRODS CREEK | LAGOON LEAKING | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2062347 | MSD CLEANED & SANITIZED THE AREA | PUMPED DOWN LAGOON & CONTRACTOR REPAIRED |
| SHADOW WOOD | KY0031810 | 5489 FOREST LAKE DR | 12/03/13 12:10 PM | 12/03/13 06:57 PM | 407 | Sewer Treatment Plant | MSD0404 | GROUND | HARRODS CREEK | LAGOON LEAKING | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2070396 | MSD CLEANED & SANITIZED THE AREA | MSD EMPLOYEES PUMPED THE LAGOON DOWN |
| STARVIEW | KY0031712 | 423 BERMUDA WAY | 04/04/14 10:00 AM | 04/04/14 06:10 PM | 300 | Sewer Treatment Plant | MSD0247 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BYPASS AT WQTC | DISREV RAIN EVENT DISCHARGE | 2141531 | MSD CLEANED & SANITIZED THE AREA | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| TIMBERLAKE | KY0043087 | 5504 TIMBER RIDGE DR | 01/05/14 1:50 PM | 01/05/14 01:54 PM | 121 | Sewer Treatment Plant | MSD0293 | GROUND | HARRODS CREEK | debris blocking splitter box caused overflow of plant #2 | BYPASS AT WQTC | DISDW DRY WEATHER DISCHARGE | 2091866 | msd cleaned and sanitized area | msd removed and cleared blockage |

APPENDIX B-3 - DISCHARGE WORK ORDERS-BLENDING

BLENDING EVENTS AT JEFFERSONTOWN WQTC

JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Facility Discharges To | Receiving Stream | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|---------------------------|----------------------------|---------------------------|--------------------|-----------------------|-----------------|------------------------|------------------|---|------------------------|-----------------------------|---------|---------------------------------------|--|
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 07/06/13 5:27 AM | 07/06/13 08:28 PM | 1318047 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 1944700 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | TEMPORARY BLENDING HAS BEEN NEGOTIATED AT THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER. |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 08/13/13 5:03 AM | 08/13/13 08:00 AM | 82844 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 1995620 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | TEMPORARY BLENDING HAS BEEN NEGOTIATED AT THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 08/31/13 9:00 PM | 09/01/13 03:01 PM | 227989 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | POWER OUTAGE DUE TO LIGHTENING AND HEAVY RAIN | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2005139 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | POWER RESTORED; RAIN SUBSIDED |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 09/21/13 12:31 AM | 09/21/13 03:40 PM | 1778728 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY CAUSED BY STORM EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2016731 | NO CLEAN UP REQUIRED | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 10/05/13 2:48 PM | 10/07/13 07:54 AM | 6345803 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2030627 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 10/30/13 7:17 AM | 10/30/13 09:38 AM | 37242 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2045155 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION. |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 10/31/13 10:13 PM | 11/01/13 04:50 AM | 434117 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2048626 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 11/17/13 8:48 AM | 11/18/13 02:54 AM | 1825854 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2060837 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 12/21/13 11:04 AM | 12/22/13 07:35 PM | 2381265 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2085448 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 01/11/14 3:31 AM | 01/11/14 09:34 PM | 1684349 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2095065 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION. |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 02/04/14 9:30 PM | 02/05/14 04:51 PM | 1654887 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF CAPACITY DUE TO WEATHER EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2107883 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 04/03/14 8:10 PM | 04/05/14 04:11 AM | 4306999 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2141311 | PIPE DISCHARGE SUBMERGED- NO CLEAN UP | NEGOTIATIONS ARE UNDER WAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION. |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 04/28/14 8:25 AM | 04/29/14 12:49 AM | 226760 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2153031 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 05/14/14 6:00 PM | 05/15/14 03:28 PM | 2261866 | Sewer Treatment Plant | MSD0255 | STREAM | CHENOWETH RUN | LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT | BLENDING AT JTOWN WQTC | DISREV RAIN EVENT DISCHARGE | 2161671 | PIPE DISCHARGE SUBMERGED- NO CLEANUP | NEGOTIATIONS ARE UNDERWAY TO ALLOW TEMPORARY BLENDING AT THIS LOCATION |



APPENDIX B-4 - DISCHARGE WORK ORDERS-GROUND



**APPENDIX B-4
OVERFLOWS TO GROUND
JULY 1, 2013 THROUGH JUNE 30, 2014**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|---------------------------|----------------------------|---------------------------|--------------------|-----------------------|-----------------|---|--------------------------------|-----------------------------|---------|---|--|
| CEDAR CREEK | KY0098540 | 8611 CEDAR CREEK RD | 12/16/13 12:05 AM | 12/16/13 12:10 AM | 100 | Sewer Manhole | 64026 | BACK FLUSHING SAND FILTERS THE SAME TIME AS DRAINING CLARIFIER | MECHANICAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2080637 | CONTRACTOR CLEANED & SANITIZED THE AREA | STOPPED DRAINING CLARIFIER & ADJUSTED SAND FILTER |
| CEDAR CREEK | KY0098540 | 8003 DAMASCUS RD | 05/12/14 1:45 PM | 05/12/14 02:14 PM | 1 | Sewer Service Line | BW05212529 | FURTHER INVESTIGATION REQUIRED | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2160550 | MSD PERSONNEL CLEANED THE IMPACTED AREA | REFERRED TO SUPERVISOR TO MAKE NEEDED REPAIRS |
| CHENOWETH HILLS | KY0029459 | 4305 ST RENE CT | 03/25/14 8:30 AM | 03/25/14 08:33 AM | 50 | Sewer Treatment Plant | MSD0263 | BLOCKAGE BETWEEN CONTACT TANKS | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2133316 | MSD CLEANED & SANITIZED THE AREA | 5 GALLON BUCKET WAS REMOVED FROM PIPE |
| DEREK R. GUTHRIE | KY0078956 | 6117 COOPER CHAPEL RD | 12/21/13 10:31 AM | 12/21/13 02:30 PM | 2 | Sewer Service Line | 101586117 | MAIN SEWER WAS STOPPED UP | ROOTS | DISREV RAIN EVENT DISCHARGE | 2085421 | MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA | WORK ORDER 2085430; ROOT CUT MAIN SEWER TO REMOVE BLOCKAGE |
| DEREK R. GUTHRIE | KY0078956 | 6613 LOWER HUNTERS TRCE | 01/05/14 10:31 AM | 01/05/14 11:51 AM | 30 | Sewer Manhole | 105590A | MANHOLE LID OBSTRUCTING THE MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2091870 | MSD PERSONNEL CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDER 2091864; MH LID TO BE REPLACED |
| DEREK R. GUTHRIE | KY0078956 | 5807 BRANDYWYNE CT | 05/13/14 8:30 AM | 05/13/14 08:35 AM | 10 | Sewer Node | 70160B-AG | F/M BREAK | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2160842 | MSD CLEANED & SANITIZED THE AREA | CONTRACTOR REPAIRED THE PIPE |
| DEREK R. GUTHRIE | KY0078956 | 9001 MAPLECREEK DR | 10/06/13 5:13 PM | 10/06/13 05:17 PM | 1 | Sewer Service Line | PC07243099 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031305 | MSD PERSONNEL CLEANED & SANITIZED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| HITE CREEK | KY0022420 | 5500 HITT RD | 07/16/13 3:16 PM | 07/16/13 02:50 PM | 50 | Sewer Treatment Plant | MSD0202 | Pipe mechanical malfunction | MECHANICAL FAILURE | DISDW DRY WEATHER DISCHARGE | 1948319 | MSD cleaned and sanitized | Contractor repaired pipe. |
| HITE CREEK | KY0022420 | 5500 HITT RD | 11/10/13 12:00 PM | 11/17/13 02:35 PM | 300 | Sewer Treatment Plant | MSD0202 | HIGH WET WELL DURING RAIN EVENT | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061051 | NO CLEAN UP- DRAINED BACK INTO TEH INFLUENT LINE | SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR |
| HITE CREEK | KY0022420 | 5500 HITT RD | 11/12/13 7:30 AM | 11/12/13 07:35 AM | 30 | Sewer Treatment Plant | MSD0202 | FOAM BUILD UP IN PLANT | MECHANICAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2056966 | CONTRACTOR CLEANED & MSD SANITIZED | LOWERED D.O.'S & WASTED MORE ON THE PLANT |
| HITE CREEK | KY0022420 | 5500 HITT RD | 11/25/13 12:20 AM | 11/25/13 08:07 AM | 30 | Sewer Treatment Plant | MSD0202 | FOAM BUILDUP IN THE PLANT | MECHANICAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2064967 | MSD CLEANED & SANITIZED | DROPPED DO'S & WASTED |
| HITE CREEK | KY0022420 | 5500 HITT RD | 12/02/13 8:55 AM | 12/02/13 10:38 AM | 103 | Sewer Treatment Plant | MSD0202 | FOAM LEAVING MANHOLE | MECHANICAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2069908 | CONTRACTOR CLEANED & SANITIZED | LOWERED DO'S & WASTED |
| JEFFERSONTOWN | KY0025194 | 11700 PLANTSIDE DR | 06/05/14 2:45 PM | 06/05/14 05:00 PM | 200 | Sewer Manhole | 42193 | GREASE AND DEBRIS IN THE MSD MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2175916 | MSD CLEANED THE IMPACTED AREA | WORK ORDER 2175919; FLUSHED AND OPEN THE LINE |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 09/01/13 4:25 AM | 09/01/13 05:11 AM | 500 | Sewer Treatment Plant | MSD0255 | Back up generator ran out of fuel . Shut off UV channels and effluent pumps and shut down pump station. | ELECTRICAL PROBLEMS AT MSD | DISREV RAIN EVENT DISCHARGE | 2005146 | CONTRACTOR CLEANED & SANITIZED | GENERATOR FUELED |
| JEFFERSONTOWN | KY0025194 | 10725 OLD TAYLORSVILLE RD | 02/13/14 7:35 AM | 02/13/14 07:40 AM | 200 | Sewer Treatment Plant | MSD0255 | CONTRACTORS BACK DUMP VALVE WAS OPEN | MECHANICAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2112243 | CONTRACTOR CLEANED 7 SANITIZED THE AREA | SUPERVISOR TALKED TO CONTRACTOR |
| MORRIS FORMAN | KY0022411 | 231 E CHESTNUT ST | 09/30/13 10:30 AM | 09/30/13 11:05 AM | 6960 | Sewer Main | 25072 | private contractor drove I beam through 12" sewer | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2022868 | pipe discharge submerged; no clean up required | opened pipe and drained to |
| MORRIS FORMAN | KY0022411 | 12119 SHELBYVILLE RD | 04/18/14 6:50 PM | 04/18/14 09:06 PM | 150 | Sewer Manhole | 32628 | GREASE IN MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2148006 | MSD PERSONNEL CLEANED AND SANITIZED AREA | WORK ORDER 2148344, ROOT CUT TO OPEN THE LINE |
| MORRIS FORMAN | KY0022411 | 413 MAC BRAE RD | 05/06/14 8:05 PM | 05/06/14 06:45 PM | 1 | Sewer Service Line | 64347 | GREASE OBSTRUCTION IN MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2158289 | MSD PERSONNEL CLEANED THE IMPACTED AREA | WORK ORDER 2158294; FLUSHED TO REMOVE GREASE AND DEBRIS FROM THE MAIN |
| MORRIS FORMAN | KY0022411 | 425 MAC BRAE RD | 05/06/14 3:10 PM | 05/06/14 06:45 PM | 200 | Sewer Manhole | 79588 | GREASE OBSTRUCTION IN MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2158276 | MSD PERSONNEL CLEANED THE IMPACTED AREA | WORK ORDER 2158294; FLUSHED TO REMOVE GREASE AND DEBRIS FROM THE MAIN |
| MORRIS FORMAN | KY0022411 | 1362 S 6TH ST | 12/24/13 6:20 PM | 12/24/13 06:20 PM | 5 | Sewer Service Line | 19931362 | OBSTRUCTION IN MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2086212 | CUSTOMER CLEANED UP IMPACTED AREA | WORK ORDER 2086213; ROOT CUT PROPERTY SERVICE CONNECTION |
| MORRIS FORMAN | KY0022411 | 3022 BETTY LN | 03/24/14 7:10 PM | 03/24/14 07:13 PM | 1 | Sewer Service Line | 081H01190000A | GREASE BLOCKAGE ON MSD PORTION OF THE PROPERTY SERVICE CONNECTION | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2133229 | MSD CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDER 2133219; FLUSHED SERVICE CONNECTION TO REOPEN |
| MORRIS FORMAN | KY0022411 | 1473 FRANKFORT AVE | 10/06/13 8:45 AM | 10/06/13 12:00 PM | 10000 | Sewer Manhole | 100756A-X | Capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031283 | MSD will flush the street work order 2032559 | None. The sewer caught up after the heavy rain event. |
| MORRIS FORMAN | KY0022411 | 1473 FRANKFORT AVE | 04/07/14 11:32 AM | 04/07/14 06:45 PM | 500000 | Sewer Manhole | 100756A-X | Flood Sluice Gate to River was closed due to elevated Ohio River causing a capacity issue | PUMPED DUE TO COE MANUAL | DISREV RAIN EVENT DISCHARGE | 2142894 | Flusher will be cleaning the street and we are raking and spreading lime on the grassy area | We had to wait for capacity in the gravity sewer system |
| MORRIS FORMAN | KY0022411 | 3104 HADDON RD | 09/17/13 10:05 PM | 09/18/13 10:10 PM | 3 | Sewer Main | 20154-AG | Structural failure of the force main | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2015458 | MSD personnel cleaned and sanitized the impacted area | Referred to supervisor to make needed repairs |
| MORRIS FORMAN | KY0022411 | 601 E BROADWAY | 05/28/14 8:30 PM | 05/28/14 09:30 PM | 250 | Sewer Manhole | 25534B | WORK ON MAIN LINE | STRUCTURAL FAILURE | DISREV RAIN EVENT DISCHARGE | 2168086 | CONTRACTOR CLEANED AND SANITIZED AREA | PIPE LINE WAS OPENED UP |
| MORRIS FORMAN | KY0022411 | 416 W MUHAMMAD ALI BLVD | 07/21/13 2:58 AM | 07/21/13 06:08 AM | 100 | Sewer Main | 25865-AG | Obstruction in the main sewer | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1949443 | MSD personnel cleaned and sanitized the area | work orders 19499462;; flushed to remove the obstruction |
| MORRIS FORMAN | KY0022411 | 6524 LONGVIEW LN | 04/24/14 11:40 AM | 04/24/14 12:00 PM | 750 | Sewer Valve | 69045A-V | LEAKING ARV | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2150304 | MSD CLEANED & SANITIZED THE AREA | CONTRACTOR REPAIRING ARV |

APPENDIX B-4
OVERFLOWS TO GROUND
JULY 1, 2013 THROUGH JUNE 30, 2014

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-----------------------|----------------------------|---------------------------|--------------------|-----------------------|-----------------|--|--------------------------------|-----------------------------|---------|--|--|
| MORRIS FORMAN | KY0022411 | 5301 GARDEN GREEN WAY | 12/29/13 5:28 PM | 12/29/13 05:33 PM | 1 | Sewer Service Line | BU06857019 | GREASE BLOCKAGE AT THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2088509 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2088507; FLUSHED SERVICE CONNECTION TO REOPEN |
| MORRIS FORMAN | KY0022411 | 11621 LOWER RIVER RD | 05/07/14 7:30 AM | 05/07/14 08:00 AM | 10 | Sewer Treatment Plant | MSD0277 | COMPACTOR DRAIN IN SCREEN BUILDING CLOGGED AND RAN OUT OF BUILDING INTO STREET | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2158412 | CONTRACTOR CLEANED & SANITIZED THE AREA | CONTRACTOR CLEANED DRAIN |
| SHADOW WOOD | KY0031810 | 5807 RIVER CREEK DR | 10/24/13 11:30 AM | 10/24/13 12:15 PM | 50 | Sewer Main | 41867F-V | contractor hit force main | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2042064 | contractor to clean and sanitize affected area | contractor to repair fm |
| TIMBERLAKE | KY0043087 | 5504 TIMBER RIDGE DR | 12/13/13 10:05 AM | 12/13/13 10:07 AM | 20 | Sewer Treatment Plant | MSD0293 | #1 PLANT DIGESTER SPLIT AT SEAM | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2080438 | MSD CLEANED & SANITIZED THE AREA | THE TANK WALL BEING REPAIRED |
| TIMBERLAKE | KY0043087 | 5504 TIMBER RIDGE DR | 12/13/13 10:05 AM | 12/12/13 12:00 PM | 5 | Sewer Treatment Plant | MSD0293 | #2 PLANT DIGESTER SPLIT AT SEAM | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2080439 | MSD CLEANED & SANITIZED THE AREA | TANK WALL BEING REPAIRED |
| TIMBERLAKE | KY0043087 | 5504 TIMBER RIDGE DR | 01/08/14 12:40 PM | 01/08/14 05:10 PM | 75 | Sewer Treatment Plant | MSD0293 | #1 PLANT CLARIFIER LEAKING | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2094040 | MSD CLEANED & SANITIZED THE AREA | MAINTENANCE WILL REPAIR THE CLARIFIER |

APPENDIX B-5 - DISCHARGE WORK ORDERS-INTERIOR

**APPENDIX B-5
OVERFLOWS TO INTERIOR
JULY 1, 2012 THROUGH JUNE 30, 2013**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|----------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|---|--------------------------------|-----------------------------|---------|---|--|
| CEDAR CREEK | KY0098540 | 10201 EL VENTOSO CT | 04/17/14 1:41 AM | 04/17/14 01:47 AM | 1 | Sewer Service Line | BE06237239 | OBSTRUCTION IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2146970 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2151336; ROOT CUT TO REMOVE THE ROOTS FROM THE LINE |
| CEDAR CREEK | KY0098540 | 5605 HOFELICH CT | 02/19/14 10:51 PM | 11/22/54 10:51 PM | 1 | Sewer Service Line | BE09194289 | ROOTS IN MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2114313 | CUSTOMER CLEANED IMPACTED AREA | REFERRED TO A SUPERVISOR TO MAKE NEEDED REPAIRS |
| CEDAR CREEK | KY0098540 | 9606 HOFELICH LN | 10/06/13 4:10 AM | 10/06/13 04:15 AM | 1 | Sewer Service Line | BE09196029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031479 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| CEDAR CREEK | KY0098540 | 9606 HOFELICH LN | 11/17/13 3:06 PM | 11/17/13 03:10 PM | 1 | Sewer Service Line | BE09196029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060898 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| CEDAR CREEK | KY0098540 | 9606 HOFELICH LN | 12/21/13 2:40 PM | 12/21/13 03:37 PM | 1 | Sewer Service Line | BE09196029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085454 | CUSTOMER CLEANED THE IMPACTED AREA | WO 2085455 FLUSHED & ADVISED CUSTOMER TO CALL BACK IF BACKUP CONTINUES |
| CEDAR CREEK | KY0098540 | 9606 HOFELICH LN | 02/05/14 5:23 AM | 02/05/14 05:26 AM | 1 | Sewer Service Line | BE09196029 | ROOTS IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2107877 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDERS 2108028; 2107881; ROOT CUT; FLUSHED TO REOPEN THE LINE |
| CEDAR CREEK | KY0098540 | 8014 MARY SUE DR | 12/07/13 2:00 PM | 12/07/13 02:30 PM | 5 | Sewer Service Line | BW05554099 | ROOT OBSTRUCTION IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2078844 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2078884; REMOVED ROOT OBSTRUCTION FROM THE SHARED JOINT |
| CEDAR CREEK | KY0098540 | 8711 REDCOAT CT | 11/17/13 7:29 PM | 11/17/13 07:32 PM | 1 | Sewer Service Line | BW0706903 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061020 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| CHENOWETH HILLS | KY0029459 | 10308 LARK PARK DR | 11/17/13 5:02 PM | 11/17/13 05:05 PM | 1 | Sewer Service Line | BE07749239 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060956 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| DEREK R. GUTHRIE | KY0078956 | 4401 LEEDS RD | 07/24/13 9:30 AM | 07/24/13 11:37 AM | 1 | Sewer Service Line | 59048 | ROOTS IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 1950520 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 1950513,1950888,1950522; ROOT CUT, REMOVED ROOTS FROM THE LINE |
| DEREK R. GUTHRIE | KY0078956 | 2601 LEGENE DR | 07/22/13 10:00 AM | 07/22/13 10:47 AM | 1 | Sewer Service Line | 59135 | ROOTS IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 1949632 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 1949630; ROOT CUT AND OPEN THE MAIN SEWER |
| DEREK R. GUTHRIE | KY0078956 | 2010 SAN JOSE AVE | 01/11/14 1:05 PM | 01/11/14 02:11 PM | 2 | Sewer Service Line | 92281 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2095118 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| DEREK R. GUTHRIE | KY0078956 | 2010 SAN JOSE AVE | 01/20/14 11:00 PM | 01/21/14 12:45 AM | 1 | Sewer Service Line | 92281 | ROOTS IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2099961 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDERS 2099972;2100680; ROOT CUT & FLUSHED TO REMOVE THE ROOT OBSTRUCTION |
| DEREK R. GUTHRIE | KY0078956 | 2236 THISTLEDAWN DR | 08/23/13 10:22 AM | 08/23/13 12:07 PM | 6 | Sewer Service Line | 103836 | Roots in the main sewer | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1998798 | Customer cleaned the impacted area | Work order 1998771; flushed the line to remove the obstruction |
| DEREK R. GUTHRIE | KY0078956 | 1056 SOUTHACRES DR | 10/06/13 4:00 AM | 10/06/13 04:05 AM | 1 | Sewer Service Line | 111803 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031503 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 1054 SOUTHACRES DR | 10/06/13 3:55 AM | 10/06/13 03:55 AM | 1 | Sewer Service Line | 111804 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031535 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 4910 FEYS CREEK PL | 12/18/13 2:40 PM | 12/18/13 03:00 PM | 1 | Sewer Service Line | 146699 | BLOCKAGE IN MSD MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2082964 | MSD CONTRACTOR CLEANED THE IMPACTED AREA | WORK ORDER 2083203; FLUSHED TO REMOVE THE OBSTRUCTION |
| DEREK R. GUTHRIE | KY0078956 | 7612 COVE DR | 11/27/13 8:30 AM | 11/27/13 08:57 AM | 1 | Sewer Service Line | 159704 | OBSTRUCTION IN MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2068081 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2068073; FLUSHED MAIN SEWER |
| DEREK R. GUTHRIE | KY0078956 | 2713 GRANGER RD | 03/24/14 9:05 PM | 03/24/14 09:08 PM | 1 | Sewer Service Line | 173710 | PRIVATE PROPERTY ISSUE | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2133232 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2133231; FLUSHED & ADVISED CUSTOMER TO CONTACT A PLUMBER |
| DEREK R. GUTHRIE | KY0078956 | 4702 ROSSMOOR DR | 10/06/13 3:00 AM | 10/06/13 03:00 AM | 1 | Sewer Service Line | 177204 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031576 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 8908 3RD STREET RD | 09/25/13 11:33 PM | 09/25/13 11:40 PM | 1 | Sewer Service Line | 178493 | PRIVATE PROPERTY ISSUE | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2020575 | CUSTOMER CLEANED IMPACTED AREA | REFER TO CREW FOR TV INSPECTION |
| DEREK R. GUTHRIE | KY0078956 | 6105 DIABLO CT | 06/09/14 7:06 PM | 06/09/14 07:09 PM | 1 | Sewer Service Line | 181158 | ROOTS IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2179060 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2179175; ROOT CUT TO OPEN THE LINE |
| DEREK R. GUTHRIE | KY0078956 | 9214 TALITHA DR | 06/10/14 2:25 PM | 06/10/14 02:51 PM | 1 | Sewer Service Line | 607594 | ROOTS AT THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2179372 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2179553; ROOT CUT, REMOVED ROOTS FROM THE LINE |
| DEREK R. GUTHRIE | KY0078956 | 7520 DISTRIBUTION DR | 12/26/13 11:11 AM | 12/26/13 12:00 PM | 1 | Sewer Service Line | 913860 | STRUCTURAL FAILURE IN THE PROPERTY SERVICE CONNECTION | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2086397 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2086398;2086599; VACTOR, REMOVED ROOTS & INSTALLED 2-WAY CLEANOUT |
| DEREK R. GUTHRIE | KY0078956 | 7301 WINDEMERE DR | 02/18/14 12:45 PM | 02/18/14 01:07 PM | 1 | Sewer Service Line | 1197301 | PRIVATE PROPERTY ISSUE | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2113607 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL PLUMBER |
| DEREK R. GUTHRIE | KY0078956 | 7000 LINK WAY | 10/06/13 12:16 PM | 10/06/13 12:26 PM | 1 | Sewer Service Line | 102677000 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031226 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 8309 MILLINGTON CT | 10/06/13 11:18 AM | 10/06/13 11:18 AM | 1 | Sewer Service Line | 103218309 | ROOTS IN MAIN SEWER | ROOTS | DISREV RAIN EVENT DISCHARGE | 2031708 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDER 2031538; MSD FLUSHED /VACTORED THE MAIN LINE TO REMOVE DEBRIS FROM MAIN SEWER |

**APPENDIX B-5
OVERFLOWS TO INTERIOR
JULY 1, 2012 THROUGH JUNE 30, 2013**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-------------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|--|--------------------------------|-----------------------------|---------|--|--|
| DEREK R. GUTHRIE | KY0078956 | 8313 MILLINGTON CT | 10/06/13 12:30 PM | 10/06/13 12:35 PM | 1 | Sewer Service Line | 103218313 | LACK OF SYSTEM CAPACITY; ROOTS IN THE MAIN SEWER | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031754 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2031745; ROOT CUT TO OPEN THE LINE |
| DEREK R. GUTHRIE | KY0078956 | 5252 BARDSTOWN RD | 10/29/13 7:02 PM | 10/29/13 07:24 PM | 2 | Sewer Service Line | 106565252 | Obstruction in the main sewer | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2045145 | Customer cleaned the impacted area | Work order 2945293; flushed to open the line |
| DEREK R. GUTHRIE | KY0078956 | 5252 BARDSTOWN RD | 02/06/14 7:39 PM | 02/06/14 07:42 PM | 1 | Sewer Service Line | 106565252 | LOCATED GREASE BLOCKAGE IN MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2109658 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2109660; FLUSHED MAIN SEWER TO REOPEN |
| DEREK R. GUTHRIE | KY0078956 | 6613 LOWER HUNTERS TRCE | 01/05/14 10:31 AM | 01/05/14 11:51 AM | 4 | Sewer Service Line | 124366613 | OBSTRUCTION IN MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2091869 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| DEREK R. GUTHRIE | KY0078956 | 3109 ROCKFORD LN | 02/22/14 9:26 PM | 02/22/14 09:29 PM | 1 | Sewer Service Line | 124373109 | GREASE BLOCKAGE ON MSD'S PORTION OF SERVICE CONNECTION | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2116987 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2116986; FLUSHED TO REOPEN SERVICE CONNECTION |
| DEREK R. GUTHRIE | KY0078956 | 8203 TERRY RD | 10/06/13 10:41 AM | 10/06/13 10:44 AM | 1 | Sewer Service Line | 125168203 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031721 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 5415 COUNT FLEET DR | 03/11/14 10:11 PM | 03/11/14 10:14 PM | 1 | Sewer Service Line | 125565415 | further investigation required | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2125386 | customer cleaned impacted area | referred for tvlis |
| DEREK R. GUTHRIE | KY0078956 | 3401 RICHELLE DR | 02/12/14 10:23 PM | 02/12/14 10:26 PM | 1 | Sewer Service Line | 140013401 | GREASE BLOCKAGE ON MSD'S PORTION OF SERVICE CONNECTION | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2112212 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2112211; FLUSHED SERVICE CONNECTION TO REOPEN |
| DEREK R. GUTHRIE | KY0078956 | 8311 MILLINGTON CT | 10/06/13 10:55 AM | 10/06/13 11:00 AM | 1 | Sewer Service Line | 1032114134 | ROOTS IN MAIN SEWER | ROOTS | DISREV RAIN EVENT DISCHARGE | 2031620 | MSD CONTRACTOR CLEANED AND SANITIZED AREA | MSD PERSONNEL ADVISED THE CUSTOMER TO AVOID CONTACT WITH SEWAGE |
| DEREK R. GUTHRIE | KY0078956 | 8311 MILLINGTON CT | 02/17/14 7:44 PM | 02/17/14 07:47 PM | 1 | Sewer Service Line | 1032114134 | ROOTS IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2113292 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDERS 2116295;2113502; ROOT CUT, FLUSHED TO REMOVED THE ROOTS |
| DEREK R. GUTHRIE | KY0078956 | 4911 GRANADA DR | 07/02/13 8:52 PM | 07/02/13 09:42 PM | 1 | Sewer Service Line | 011100340105A | Obstruction in the main sewer | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1943864 | Customer cleaned the impacted area | Work order 1943992, root cut to remove the obstruction |
| DEREK R. GUTHRIE | KY0078956 | 1103 FRANELM RD | 10/06/13 12:30 PM | 10/06/13 12:30 PM | 1 | Sewer Service Line | 062L02560000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031748 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 1603 MELODY LN | 10/06/13 12:02 AM | 10/06/13 12:10 AM | 30 | Sewer Service Line | 067K00420000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030681 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 8315 MILLINGTON CT | 10/07/13 12:14 PM | 10/07/13 12:15 PM | 1 | Sewer Service Line | 103218315A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031615 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 2800 RALPH AVE | 02/10/14 12:20 PM | 02/10/14 03:30 PM | 3 | Sewer Service Line | 108500310000A | ROOTS IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2110318 | MSD CONTRACTOR CLEANED THE IMPACTED AREA | WORK ORDER 2110315; ROOT CUT MAIN SEWER |
| DEREK R. GUTHRIE | KY0078956 | 3200 JUDY LN | 07/22/13 11:32 PM | 07/22/12 11:43 PM | 1 | Sewer Service Line | 108501030000A | Further investigation required | OBSTRUCTION-NOT GREASE / ROOTS | DISREV RAIN EVENT DISCHARGE | 1949946 | Customer cleaned the impacted area | Referred to crew for TV inspection |
| DEREK R. GUTHRIE | KY0078956 | 2003 SAN JOSE AVE | 12/23/13 4:42 PM | 12/23/13 05:44 PM | 3 | Sewer Service Line | 109300250000A | GREASE IN THE MAIN SEWER | GREASE BLOCKAGE | DISREV RAIN EVENT DISCHARGE | 2086093 | MSD CLEANED AND SANITIZED THE IMPACTED AREA | WORK ORDER 2086227; REMOVED OBSTRUCTION AND REOPEN THE LINE |
| DEREK R. GUTHRIE | KY0078956 | 2003 SAN JOSE AVE | 01/21/14 11:00 PM | 01/21/14 01:05 AM | 1 | Sewer Service Line | 109300250000A | ROOTS IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2099969 | MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA | WORK ORDERS 2099972;2100680; ROOT CUT & FLUSHED TO REMOVE THE ROOT OBSTRUCTION |
| DEREK R. GUTHRIE | KY0078956 | 4904 LIBBY LN | 04/09/14 6:50 PM | 04/09/14 06:50 PM | 15 | Sewer Service Line | 122500790000A | OBSTRUCTION IN THE MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2144114 | MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA | WORK ORDER 2144113; FLUSHED TO OPEN THE LINE |
| DEREK R. GUTHRIE | KY0078956 | 1616 CRISTLAND RD | 05/12/14 8:50 AM | 05/12/14 09:10 AM | 1 | Sewer Service Line | 232000100000A | STRUCTURAL FAILURE IN THE PROPERTY SERVICE CONNECTION, LINE BROKEN DOWN | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2160306 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2160359; 2161526; REPAIRED LINE & INSTALLED 2-WAY CLEANOUT |
| DEREK R. GUTHRIE | KY0078956 | 607 AUBURN OAKS DR | 10/06/13 11:50 AM | 10/06/13 10:50 AM | 1 | Sewer Service Line | 264100360000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031727 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 704 MOUNT HOLLY RD | 03/08/14 3:41 PM | 03/08/14 03:41 PM | 41 | Sewer Service Line | AU13890029 | OBSTRUCTION IN MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2124400 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDER 2124394; FLUSH MAIN SEWER TO REMOVE OBSTRUCTION , |
| DEREK R. GUTHRIE | KY0078956 | 11103 STALWERT PL | 10/06/13 3:39 AM | 10/06/13 03:41 AM | 50 | Sewer Service Line | DD40018019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030714 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF WATER HAS RECEDED |
| DEREK R. GUTHRIE | KY0078956 | 5404 CHESTNUTWOOD WAY | 08/19/13 1:38 PM | 08/19/13 02:10 PM | 1 | Sewer Service Line | DD87411019 | ROOTS & GREASE IN THE MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 1997296 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 1997597; ROOT CUT TO REMOVE THE GREASE |
| DEREK R. GUTHRIE | KY0078956 | 6802 TRIANGLE DR | 10/31/13 12:33 PM | 10/31/13 12:57 PM | 1 | Sewer Service Line | DE30844019 | Obstruction in the main sewer due to MSD personnel performing preventive maintenance on sewers | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2048484 | MSD contractor cleaned and sanitized the impacted area | Investigation indicated that additional repairs were not required by MSD |
| DEREK R. GUTHRIE | KY0078956 | 6804 TRIANGLE DR | 04/24/14 12:35 PM | 04/24/14 01:19 PM | 1 | Sewer Service Line | DE30846019 | ROOTS IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2150322 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2150323, REMOVED ROOTS AND & INSTALLED 2-WAY CLEANOUT |
| DEREK R. GUTHRIE | KY0078956 | 7919 NOTTOWAY CIR | 10/06/13 12:41 AM | 10/06/13 12:48 AM | 1 | Sewer Service Line | DE31278019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030676 | MSD PERSONNEL ADVISED CUSTOMER THEY ARE RESPONSIBLE TO CLEAN IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |

**APPENDIX B-5
OVERFLOWS TO INTERIOR
JULY 1, 2012 THROUGH JUNE 30, 2013**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|--------------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|---|--------------------------------|-----------------------------|---------|--|--|
| DEREK R. GUTHRIE | KY0078956 | 1715 SADIE LN | 10/07/13 4:05 PM | 10/07/13 04:05 PM | 1 | Sewer Service Line | DE36200019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032379 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 5603 MINYARD DR | 05/06/14 7:56 PM | 05/06/14 09:54 PM | 1 | Sewer Service Line | PB11775019 | ROOTS IN MSD.S MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2158285 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDERS 2158299; 2158300, FLUSHED, ROOT CUT, REMOVED ROOTS |
| DEREK R. GUTHRIE | KY0078956 | 6502 MANDEVILLE CT | 03/22/14 6:00 PM | 03/22/14 07:00 PM | 3 | Sewer Service Line | PB17129029 | ROOTS IN THE MSD MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2132543 | MSD CONTRACTOR CLEANED THE IMPACTED AREA | WORK ORDER 2132525; ROOT CUT AND OPEN THE MAIN SEWER |
| DEREK R. GUTHRIE | KY0078956 | 6203 PORT ANTONIO RD | 08/15/13 12:30 PM | 08/15/13 01:18 PM | 1 | Sewer Service Line | PB17435019 | OBSTRUCTION IN MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1996526 | MSD CLEANED THE IMPACTED AREA | WORK ORDER 1996521; MSD FLUSHED AND OPEN THE MAIN SEWER |
| DEREK R. GUTHRIE | KY0078956 | 6021 MOORHAVEN DR | 09/26/13 11:21 PM | 09/26/13 11:24 PM | 1 | Sewer Service Line | PB17497019 | PRIVATE PROPERTY ISSUE | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2020898 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CONTACT A PLUMBER |
| DEREK R. GUTHRIE | KY0078956 | 6903 ROCK HOLLOW DR | 02/05/14 1:30 PM | 02/05/14 01:54 PM | 1 | Sewer Service Line | PB17675019 | ROOTS IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2108132 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2108129; ROOT CUT TO REMOVED THE ROOTS FROM MSD'S LINE |
| DEREK R. GUTHRIE | KY0078956 | 6802 ORANGE BLOSSOM RD | 10/06/13 4:07 AM | 10/06/13 04:09 AM | 1 | Sewer Service Line | PB18080039 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030722 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 4817 SUNDAY DR | 10/06/13 4:03 AM | 10/06/13 04:05 AM | 1 | Sewer Service Line | PB18082029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030721 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 4610 SUNDAY DR | 10/06/13 12:00 AM | 10/06/13 12:10 PM | 1 | Sewer Service Line | PB18154029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031738 | MSD CONTRACTOR CLEANED & SANTIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 4905 MILE OF SUNSHINE DR | 10/06/13 3:05 AM | 10/06/13 03:05 AM | 1 | Sewer Service Line | PB18209019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031585 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 4815 MILE OF SUNSHINE DR | 10/06/13 2:50 AM | 10/06/13 02:50 AM | 1 | Sewer Service Line | PB18217019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031540 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 4807 MILE OF SUNSHINE DR | 10/06/13 1:48 AM | 10/06/13 01:49 AM | 1 | Sewer Service Line | PB18221019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031815 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 4803 MILE OF SUNSHINE DR | 10/06/13 1:36 AM | 10/06/13 01:26 AM | 1 | Sewer Service Line | PB18223019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031806 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 6803 TROPIC CT | 10/06/13 3:59 AM | 10/06/13 04:01 AM | 1 | Sewer Service Line | PB18314019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030720 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK AFTER WATER RECEDES IF NEEDED |
| DEREK R. GUTHRIE | KY0078956 | 5102 BARNES DR | 10/07/13 9:40 AM | 10/07/13 10:20 AM | 1 | Sewer Service Line | PB18730029 | MAIN SEWER WAS OBSTRUCTED | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2031521 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2031480; FLUSHED THE MAIN SEWER & ADVISED CUSTOMER TO CONTACT A PLUMBER |
| DEREK R. GUTHRIE | KY0078956 | 8510 CLAUDIA DR | 10/30/13 5:27 PM | 10/30/13 05:30 PM | 1 | Sewer Service Line | PC11489029 | ROOTS IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2048057 | CUSTOMER CLEANED UP IMPACTED AREA | WORK ORDER 2048326; ROOT CUT TO OPEN THE LINE |
| DEREK R. GUTHRIE | KY0078956 | 8209 SIESTA WAY | 11/17/13 2:00 PM | 11/17/13 02:03 PM | 1 | Sewer Service Line | PC12113029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060874 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| DEREK R. GUTHRIE | KY0078956 | 4505 ST RITA DR | 10/06/13 2:36 AM | 10/06/13 02:41 AM | 1 | Sewer Service Line | PC12371019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030694 | MSD PERSONNEL ADVISED CUSTOMER THEY ARE RESPONSIBLE TO CLEAN THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| DEREK R. GUTHRIE | KY0078956 | 9724 TITAN DR | 04/04/14 8:43 AM | 04/04/14 08:46 AM | 2 | Sewer Service Line | PD01658039 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141418 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| DEREK R. GUTHRIE | KY0078956 | 5811 MEDTREE PL | 09/03/13 1:00 PM | 09/03/13 01:33 PM | 1 | Sewer Service Line | PD20298019 | OBSTRUCTION IN MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2005610 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2005608; FLUSHED MAIN SEWER AND REMOVED OBSTRUCTION |
| DEREK R. GUTHRIE | KY0078956 | 2401 WAYNE RD | 06/16/14 12:45 AM | 06/16/14 03:28 AM | 75 | Sewer Service Line | RR13093059 | ROOTS IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2181118 | MSD CONTRACTOR CLEANED THE IMPACTED AREA | WORK ORDER 2181109; FLUSHED TO OPEN THE MAIN SEWER |
| DEREK R. GUTHRIE | KY0078956 | 7804 DAVHAL DR | 10/08/13 7:00 PM | 10/08/13 07:56 PM | 1 | Sewer Service Line | T10827804 | GREASE ON PRIVATE PROPERTY; OBSTRUCTION ON MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2032416 | CUSTOMER HAS CLEANED UP THE IMPACTED AREA | WORK ORDERS 2033106;2032736; FLUSHED, REMOVED OBSTRUCTION FROM THE LINE & INSTALLED 2-WAY CLENAOUT |
| DEREK R. GUTHRIE | KY0078956 | 3913 STONY BROOK DR | 02/04/14 3:00 PM | 02/04/14 03:19 PM | 1 | Sewer Service Line | T168A3913A | OBSTRUCTION IN THE MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2107776 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2108054;2108073L ROOT CUT, REMOVED OBSTRUCTION |
| DEREK R. GUTHRIE | KY0078956 | 8217 GLIMMER WAY | 10/17/13 1:55 PM | 10/17/13 02:03 PM | 1 | Sewer Service Line | WW09274049 | PRIVATE PROPERTY ISSUE | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2040060 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CONTACT A PLUMBER |
| FLOYDS FORK | KY0102784 | 11710 ROBINDALE RD | 06/04/14 6:25 PM | 06/04/14 06:47 PM | 1 | Sewer Service Line | MT11775039 | FURTHER INVESTIGATION REQUIRED | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2172626 | CUSTOMER CLEANED THE IMPACTED AREA | REFERRED TO TV CREW FOR FURTHER INSPECTION |
| HITE CREEK | KY0022420 | 11116 OAK BEND CT | 10/06/13 12:46 PM | 10/06/13 12:46 PM | 1 | Sewer Service Line | 12977122 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031789 | MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| HITE CREEK | KY0022420 | 11118 OAK BEND CT | 04/04/14 10:50 AM | 04/04/14 11:05 AM | 1 | Sewer Service Line | 12977123 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142424 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |

**APPENDIX B-5
OVERFLOWS TO INTERIOR
JULY 1, 2012 THROUGH JUNE 30, 2013**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-------------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|---|--------------------------------|-----------------------------|---------|---|---|
| HITE CREEK | KY0022420 | 5900 LAUREL LN | 03/02/14 2:10 PM | 03/02/14 02:30 PM | 1 | Sewer Service Line | 14813652 | AT&T BORED THROUGH MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2120912 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2121033; REMOVED THE OBSTRUCTION & INSTALLED 2-WAY CLEANOUT |
| HITE CREEK | KY0022420 | 5828 LAUREL LN | 03/02/14 2:30 PM | 03/02/14 02:50 PM | 1 | Sewer Service Line | 14813653 | AT&T BORED THROUGH MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2120913 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2121679; 2121034; FLUSHED, REMOVED THE OBSTRUCTION |
| HITE CREEK | KY0022420 | 4901 SPRINGLET CT | 10/09/13 12:45 PM | 10/09/13 01:15 PM | 1 | Sewer Service Line | 71864901 | OBSTRUCTION IN THE MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2032983 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDER 2032989; ROOT CUT TO OPEN THE LINE |
| HITE CREEK | KY0022420 | 13201 MAGISTERIAL DR | 11/20/13 7:56 PM | 11/20/13 07:55 PM | 1 | Sewer Service Line | 1352113201 | UTILITY CO DAMAGED MSD'S ASSET WITH FIBER OPTIC LINE THROUGH THE SEWER MAIN | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2062118 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDERS 2062117L 2062377; FLUSHED, VACTOR & REPAIRED THE MAIN SEWER |
| HITE CREEK | KY0022420 | 4940 WINDING SPRING CIR | 08/31/13 12:44 PM | 08/31/13 01:40 PM | 1 | Sewer Service Line | 172703790000A | Grease on private property | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2005130 | Customer cleaned the impacted area | Advised customer to contact a plumber |
| JEFFERSONTOWN | KY0025194 | 3004 TREE LN | 10/07/13 10:15 AM | 10/07/13 10:15 AM | 1 | Sewer Service Line | 113673004 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032916 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| JEFFERSONTOWN | KY0025194 | 3615 ST EDWARDS DR | 10/09/13 11:45 AM | 10/09/13 11:45 AM | 1 | Sewer Service Line | 058700780000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032922 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| JEFFERSONTOWN | KY0025194 | 4103 CHENWOOD LN | 09/21/13 11:16 AM | 09/21/13 11:33 AM | 2 | Sewer Service Line | 258502480000A | Grease in MSD's portion of the property service connection | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2016734 | Customer cleaned the impacted area | Work order 2016758; removed grease, roots from the line & installed 2-way cleanout |
| JEFFERSONTOWN | KY0025194 | 9807 ROWNTREE RD | 11/07/13 1:15 PM | 11/07/13 01:36 PM | 1 | Sewer Service Line | JT00494839 | ROOTS IN THE SHARED JOINT OF THE SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2050294 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2050490,2050696; ROOT CUT, REMOVED ROOTS FROM THE LINE & INSTALLED 2-WAY CLEANOUT |
| JEFFERSONTOWN | KY0025194 | 10609 PARK AVE | 04/04/14 8:38 AM | 04/04/14 08:40 AM | 1 | Sewer Service Line | JT13773019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142413 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| JEFFERSONTOWN | KY0025194 | 9309 GALENE DR | 10/07/13 12:11 PM | 10/07/13 12:12 PM | 1 | Sewer Service Line | P4247 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031613 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 3908 BANTAM CT | 06/02/14 5:54 PM | 06/02/14 05:57 PM | 1 | Sewer Service Line | 343 | GREASE BLOCKAGE ON MSD 'S PORTION OF MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2171228 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2171229; FLUSHED TO REOPEN MAIN SEWER |
| MORRIS FORMAN | KY0022411 | 1831 BANK ST | 01/22/14 7:05 PM | 01/22/14 07:05 PM | 1 | Sewer Service Line | 2071 | further investigation required | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2100446 | customer cleaned impacted area | referred to tvlis |
| MORRIS FORMAN | KY0022411 | 2013 BASHFORD MANOR LN | 07/09/13 11:25 PM | 07/09/13 11:54 PM | 2 | Sewer Service Line | 7176 | Grease in main sewer | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 1945621 | Customer cleaned the impacted area | Work orders 1945623,1946693; root cut & flushed the main |
| MORRIS FORMAN | KY0022411 | 105 ALVINA WAY | 01/14/14 9:00 AM | 01/11/14 09:39 AM | 2 | Sewer Service Line | 9379 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2095132 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 3008 BOBOLINK RD | 03/06/14 9:20 PM | 03/06/14 09:23 PM | 1 | Sewer Service Line | 10431 | ROOTS IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2123950 | MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA | WORK ORDERS 2123951; 2124069; ROOT CUT, FLUSHED TO REMOVED ROOTS |
| MORRIS FORMAN | KY0022411 | 1331 CASTLEWOOD AVE | 03/29/14 10:30 AM | 03/29/14 10:33 AM | 20 | Sewer Service Line | 18786 | LACK OF SYSTEM OF CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2138584 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 5312 DAHL RD | 10/06/13 11:38 AM | 10/06/13 11:40 AM | 1 | Sewer Service Line | 23652 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031717 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 5309 DAHL RD | 11/17/13 11:12 AM | 11/17/13 11:20 AM | 2 | Sewer Service Line | 23693 | Lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061045 | Customer cleaned the impacted area | Investigation indicated that additional repairs were not required by MSD |
| MORRIS FORMAN | KY0022411 | 5309 DAHL RD | 04/04/14 12:57 PM | 04/04/14 01:00 PM | 1 | Sewer Service Line | 23693 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141706 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED |
| MORRIS FORMAN | KY0022411 | 600 EASTERN PKY | 05/30/14 12:10 PM | 05/30/14 12:40 PM | 1 | Sewer Service Line | 28700 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2169427 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CONTACT A PLUMBER |
| MORRIS FORMAN | KY0022411 | 300 DORSEY LN | 08/08/13 12:40 PM | 08/08/13 01:47 PM | 1 | Sewer Service Line | 28911 | ROOTS IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 1993518 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 1993522, REMOVED ROOTS FROM THE LINE & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 305 DORSEY WAY | 07/11/13 5:15 PM | 07/11/13 06:15 PM | 1 | Sewer Service Line | 29088 | SLUDGE IN THE SHARED JOINT OF THE IN THE PROPERTY SERVICE CONNECTION | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1946933 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 1947128,1946931; FLUSHED AND REMOVED OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 1848 FRANKFORT AVE | 03/12/14 10:40 AM | 03/12/14 10:54 AM | 1 | Sewer Service Line | 32865 | GREASE AND ROOTS IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2125558 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 21255060; FLUSHED TO REMOVE GREASE OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 7302 GREENLAWN RD | 02/27/14 12:49 AM | 02/27/14 12:52 AM | 1 | Sewer Service Line | 34123 | ROOTS AND GREASE IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2118824 | CUSTOMER CLEANED SOME OF THE IMPACTED AREA | WORK ORDERS 2118872; 2118822; FLUSHED; ROOT CUT & REOPEN THE LINE |
| MORRIS FORMAN | KY0022411 | 2928 FIELD AVE | 11/18/13 3:54 AM | 11/18/13 04:00 AM | 1 | Sewer Service Line | 40486 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061069 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDERS 2061070,2061434; FLUSHED; ROOTS. ROOT CUT |
| MORRIS FORMAN | KY0022411 | 3521 GRAHAM RD | 07/22/13 11:00 AM | 07/22/13 11:45 AM | 1 | Sewer Service Line | 42710 | ROOTS IN THE MAIN SEER | ROOTS | DISDW DRY WEATHER DISCHARGE | 1949678 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 1950027; ROOT CUT TO REMOVE THE ROOTS FROM THE LINE |

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OVERFLOWS TO INTERIOR
JULY 1, 2012 THROUGH JUNE 30, 2013**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|-----------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|---|--------------------------------|-----------------------------|---------|---|--|
| MORRIS FORMAN | KY0022411 | 1930 GARDINER LN | 10/09/13 4:10 PM | 10/09/13 04:10 PM | 1 | Sewer Service Line | 43150 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032923 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 2700 HIKES LN | 11/25/13 6:40 PM | 11/25/13 07:00 PM | 1 | Sewer Service Line | 46548 | ROOTS IN MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2079698 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2068453,2065366; FLUSHED, REMOVED ROOTS & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 609 E HILL ST | 12/12/13 2:45 PM | 12/12/13 03:15 PM | 1 | Sewer Service Line | 46666 | STRUCTURAL FAILURE IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2080298 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2080447; REMOVED OBSTRUCTION & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 2313 W JEFFERSON ST | 07/29/13 7:02 PM | 07/29/13 07:04 PM | 1 | Sewer Service Line | 51767 | Unknown at this time | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1987015 | Unknown at this time | Refer to tv |
| MORRIS FORMAN | KY0022411 | 3606 JOHNSTON WAY | 03/28/14 1:40 PM | 03/28/14 02:10 PM | 1 | Sewer Service Line | 52836 | PRIVATE PROPERTY ISSUE | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2137972 | ADVISED CUSTOMER THEY ARE RESPONSIBLE FOR CLEAN UP | ADVISED CUSTOMER TO CONTACT PLUMBER BY DOOR CARD |
| MORRIS FORMAN | KY0022411 | 3024 KLONWAY DR | 10/06/13 1:01 PM | 10/06/13 01:01 PM | 1 | Sewer Service Line | 53665 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031802 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 3034 KLONWAY DR | 11/18/13 12:47 AM | 11/18/13 12:52 AM | 1 | Sewer Service Line | 53677 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061063 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 1212 W ASHLAND AVE | 10/06/13 3:49 AM | 10/06/13 03:51 AM | 50 | Sewer Service Line | 54809 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030717 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF WATER HAS NOT RECEDED |
| MORRIS FORMAN | KY0022411 | 844 LINWOOD AVE | 12/22/13 2:45 PM | 12/22/13 02:47 PM | 1 | Sewer Service Line | 61173 | | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2085677 | | |
| MORRIS FORMAN | KY0022411 | 1707 LONEY LN | 11/17/13 12:33 PM | 11/17/13 12:53 PM | 2 | Sewer Service Line | 62296 | Lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061019 | Customer cleaned the impacted area | Investigation indicated that additional repairs were not required by MSD |
| MORRIS FORMAN | KY0022411 | 1905 LYNN WAY | 02/28/14 5:16 PM | 02/28/14 05:19 PM | 1 | Sewer Service Line | 63435 | ROOTS IN MSD'S MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2120725 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2120790; ROOT CUT TO OPEN THE LINE |
| MORRIS FORMAN | KY0022411 | 312 MAC BRAE RD | 11/05/13 5:01 PM | 11/04/13 05:33 PM | 1 | Sewer Service Line | 64261 | Roots at the shared joint of the property service connection | ROOTS | DISDW DRY WEATHER DISCHARGE | 2049763 | Customer cleaned impacted area | Work orders 2049765,1250030,2050071; vactor, root cut, flushed, removed roots & installed 2-way cleanout |
| MORRIS FORMAN | KY0022411 | 700 W MAIN ST | 10/12/13 10:27 AM | 10/12/13 10:45 AM | 10 | Sewer Service Line | 65480 | Grease on private property | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2034130 | Customer cleaned the impacted area | Advised Customer to contact a plumber |
| MORRIS FORMAN | KY0022411 | 3408 NELINDA MAY DR | 10/06/13 11:09 AM | 10/06/13 12:00 AM | 1 | Sewer Service Line | 75287 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031626 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 3409 NELINDA MAY DR | 10/06/13 2:50 AM | 10/06/13 02:50 AM | 1 | Sewer Service Line | 75300 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031548 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 6811 NORWAY DR | 10/28/13 2:45 PM | 10/28/13 03:15 PM | 2 | Sewer Service Line | 76875 | ROOTS IN MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2043169 | MSD CONTRACTOR CLEANED THE IMPACTED AREA | WORK ORDER 2043171; REMOVED ROOTS FROM MSD'S LINE & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 3102 RADIANCE RD | 12/31/13 1:00 PM | 12/31/13 01:25 PM | 1 | Sewer Service Line | 85955 | ROOTS IN THE MSD PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2089546 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2089542; ROOT CUT AND OPEN THE PROPERTY SERVICE CONNECTION |
| MORRIS FORMAN | KY0022411 | 501 ROLLING LN | 03/13/14 5:45 PM | 03/13/14 06:10 PM | 1 | Sewer Service Line | 89624 | UTILITY DAMAGE TO MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2126057 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2126195; 2126572; ROOT CUT, REMOVED OBSTRUCTION & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 1881 RUTHERFORD AVE | 09/02/13 7:13 PM | 09/02/13 08:43 PM | 0 | Sewer Service Line | 91243 | | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2005209 | | |
| MORRIS FORMAN | KY0022411 | 5705 W SOUTHLAND BLVD | 04/04/14 2:15 PM | 04/07/14 02:55 PM | 1 | Sewer Service Line | 96254 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142434 | LACK OF SYSTEM CAPACITY | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 4510 STATTON RD | 01/24/14 3:00 PM | 01/24/14 04:00 PM | 1 | Sewer Service Line | 99228 | ROOTS IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2101034 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2101038; , REMOVED ROOTS & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 3504 SUSANNA DR | 10/06/13 4:10 AM | 10/06/13 04:12 AM | 1 | Sewer Service Line | 101206 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030723 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 1915 SWAINSBORO DR | 10/06/13 2:45 AM | 10/06/13 03:25 AM | 50 | Sewer Service Line | 101586 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030712 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 2506 TALBOTT AVE | 10/06/13 4:30 AM | 10/06/13 04:43 AM | 1 | Sewer Service Line | 102109 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031457 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 2506 TALBOTT AVE | 10/30/13 8:50 AM | 10/30/13 09:20 AM | 1 | Sewer Service Line | 102109 | STRUCTURAL FAILURE OF MAIN SEWER, UTILITY DAMAGED MSD ASSET | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2045226 | CUSTOMER HAD INSURANCE COMPANY CLEAN | WORK ORDERS 2045393,2047945,2048433; FLUSHED, VACTOR & REPAIRED THE MAIN SEWER |
| MORRIS FORMAN | KY0022411 | 3762 TAYLORSVILLE RD | 09/17/13 11:30 AM | 09/17/13 11:50 AM | 1 | Sewer Service Line | 102449 | ROOTS IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2015313 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2015337; REMOVED ROOTS, INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 3700 TEMPLEWOOD DR | 04/04/14 9:42 AM | 04/04/14 09:45 AM | 2 | Sewer Service Line | 102917 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141483 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NO REQUIRED BY MSD |

**APPENDIX B-5
OVERFLOWS TO INTERIOR
JULY 1, 2012 THROUGH JUNE 30, 2013**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|------------------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|---|--------------------------------|-----------------------------|---------|---|---|
| MORRIS FORMAN | KY0022411 | 3015 VOGUE AVE | 06/11/14 4:00 PM | 06/11/14 04:17 PM | 1 | Sewer Service Line | 106483 | OBSTRUCION IN THE MSD MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2179846 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDER 2179854; ROOT CUT AND OPEN THE PROPERTY SERVICE CONNECTION |
| MORRIS FORMAN | KY0022411 | 2302 WOODLAND AVE | 12/26/13 5:12 PM | 12/26/13 05:12 PM | 1 | Sewer Service Line | 113851 | GREASE ON PRIVATE PROPERTY | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2086470 | CUSTOMER CLEANED UP THE IMPACTED AREA | WORK ORDERS 2085866 2086689; FLUSHED, REMOVED OBSTRUCTION FROM MSD;S LINE & ADVISED CUSTOMER TO C CONTACT A PLUMBER |
| MORRIS FORMAN | KY0022411 | 1123 LOUIS COLEMAN JR DR | 04/04/14 1:45 PM | 04/04/14 02:23 PM | 1 | Sewer Service Line | 126941 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141787 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CONTACT A PLUMBER |
| MORRIS FORMAN | KY0022411 | 105 N 44TH ST | 09/03/13 12:00 PM | 09/03/13 12:16 PM | 1 | Sewer Service Line | 130217 | UTILITY DAMAGED MSD ASSET | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2005575 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2007084,2006545,2005578; FLUSHED, MADE REPAIRS, & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 1733 BARDSTOWN RD | 07/11/13 3:45 PM | 07/12/13 10:00 AM | 20 | Sewer Service Line | 130887 | ROOTS IN THE MSD MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 1947126 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 1947137; ROOT CUT AND OPEN THE LINE |
| MORRIS FORMAN | KY0022411 | 4411 ESTATE DR | 10/05/13 6:05 PM | 10/07/13 08:26 AM | 1 | Sewer Service Line | 131444 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030646 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 215 HILLCREST AVE | 03/03/14 3:10 PM | 03/03/14 03:26 PM | 1 | Sewer Service Line | 135402 | ROOTS ON MSD PORTION OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISREV RAIN EVENT DISCHARGE | 2121109 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2121224; REMOVED ROOTS & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 61 WINIFREDE LN | 07/28/13 1:09 PM | 07/28/13 01:27 PM | 8 | Sewer Service Line | 152922 | OBSTRUCTION IN THE MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1951411 | MSD CLEANED AND SANITIZED THE IMPACTED AREA | WORK ORDER#1951408; ROOT CUT TO REMOVED THE ROOT OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 3048 WICKLAND RD | 10/06/13 4:15 AM | 10/06/13 04:25 AM | 1 | Sewer Service Line | 160875 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031468 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 5219 WOLFPEN WOODS DR | 10/05/13 9:55 PM | 10/05/13 10:00 PM | 1 | Sewer Service Line | 174007 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030674 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 7913 SHELBYVILLE RD | 11/17/13 6:04 PM | 11/17/13 06:06 PM | 1 | Sewer Service Line | 175599 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060990 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 5804 ROBINHOOD LN | 10/06/13 3:04 AM | 10/06/13 03:10 AM | 1 | Sewer Service Line | 177126 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030713 | MSD PERSONNEL ADVISED CUSTOMER THEY ARE RESPONSIBLE TO CLEAN IMPACTED AREA | DISREP ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 1212 ABBEYWOOD RD | 12/27/13 11:30 AM | 12/27/13 11:51 AM | 1 | Sewer Service Line | 177946 | UTILITY DAMAGED MSD ASSET | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2086593 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2088440,2088439,2086630; FLUSHED, VACTORED, REMOVED OBSTRUCTION & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 1007 CLERKENWELL RD | 05/27/14 6:30 PM | 05/27/14 06:56 PM | 1 | Sewer Service Line | 181487 | ROOTS IN MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2166171 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2167713; 2167770; 2172304; FLUSHED, VACTOR, ROOT CUT, REMOVED ROOTS & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 5005 MONTICELLO AVE | 10/09/13 5:10 PM | 10/09/13 05:10 PM | 1 | Sewer Service Line | 181866 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032926 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 5013 MONTICELLO AVE | 10/07/13 2:05 PM | 10/07/13 02:05 PM | 1 | Sewer Service Line | 181870 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032341 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTING AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 1801 WILLIAM E SUMMERS II CT | 10/06/13 12:40 PM | 10/06/13 12:40 PM | 1 | Sewer Service Line | 1399011 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031779 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 5590 BRUCE AVE | 10/05/13 2:49 PM | 10/05/13 03:14 PM | 8 | Sewer Service Line | 52115590 | Lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030628 | Customer cleaned the impacted area | Investigation indicated that additional repairs were not required by MSD |
| MORRIS FORMAN | KY0022411 | 3402 PRESTWOOD DR | 10/06/13 3:40 PM | 10/06/13 03:40 PM | 1 | Sewer Service Line | 57113402 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032910 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 6019 PRESTON HWY | 10/06/13 3:45 PM | 10/06/13 03:45 PM | 1 | Sewer Service Line | 57116019 | ADVISED CUSTOMER BY TELEPHONE | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032913 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 9800 WHIPPS MILL RD | 06/01/14 4:40 PM | 06/01/14 05:23 PM | 1 | Sewer Service Line | 101869800 | PRIVATE PROPERTY ISSUE | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2169658 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED PROPERTY OWNER TO CONTACT A PLUMBER |
| MORRIS FORMAN | KY0022411 | 12111 SHELBYVILLE RD | 03/06/14 3:10 PM | 03/06/14 05:30 PM | 1 | Sewer Service Line | 121117426 | OBSTRUCION IN THE MSD MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2124492 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2123936; 2123935; FLUSHED; VACTOR AND OPEN THE MAIN SEWER |
| MORRIS FORMAN | KY0022411 | 312 RIDGEWAY AVE | 01/09/14 1:00 PM | 01/09/14 02:16 PM | 1 | Sewer Service Line | 001902550000A | OBSTRUCION IN THE MSD PROPERTY SERVICE CONNECTION | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2094572 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2094573; FLUSHED AND OPEN THE SERVICE CONNECTION |
| MORRIS FORMAN | KY0022411 | 3938 ELMWOOD AVE | 03/29/14 11:47 AM | 03/29/14 11:50 AM | 5 | Sewer Service Line | 023400900000A | ROOTS IN MSD MAIN SEWER | ROOTS | DISREV RAIN EVENT DISCHARGE | 2138129 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDER 2138595; ROOT CUT TO REOPEN THE LINE |
| MORRIS FORMAN | KY0022411 | 9842 LONGWOOD CIR | 10/07/13 3:40 PM | 10/07/13 05:00 PM | 1 | Sewer Service Line | 038700740000A | PRIVATE PROPERTY ISSUE | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2031889 | CUSTOMER CLEANED IMPACTED AREA | ADVISED CUSTOMER TO CONTACT A PLUMBER |
| MORRIS FORMAN | KY0022411 | 3516 WILLIS AVE | 10/06/13 11:35 AM | 10/06/13 11:35 AM | 1 | Sewer Service Line | 041200010000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031712 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 2316 MANCHESTER RD | 10/06/13 3:55 AM | 10/06/13 04:00 AM | 1 | Sewer Service Line | 046400320000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031514 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA DISCZ MSD PERSONNEL ADVISED THE CUSTOMER TO AVOID | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |

**APPENDIX B-5
OVERFLOWS TO INTERIOR
JULY 1, 2012 THROUGH JUNE 30, 2013**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|--------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|--|--------------------------------|-----------------------------|---------|---|--|
| MORRIS FORMAN | KY0022411 | 230 HEMINGWAY RD | 10/07/13 12:00 AM | 10/07/13 03:15 PM | 1 | Sewer Service Line | 053600330000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032371 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 4519 BELLEVUE AVE | 11/17/13 10:00 PM | 11/17/13 10:05 PM | 1 | Sewer Service Line | 053D00320000A | UTILITY COMPANY DAMAGED MSD ASSET | STRUCTURAL FAILURE | DISREV RAIN EVENT DISCHARGE | 2061053 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDERS 2061184; REMOVED OBSTRUCTION & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 4611 BELLEVUE AVE | 02/18/14 12:38 AM | 02/18/14 12:40 AM | 1 | Sewer Service Line | 053J00550000A | STRUCTURAL FAILURE IN MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | STRUCTURAL FAILURE | DISDW DRY WEATHER DISCHARGE | 2113319 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDERS 2114216;2113423; VACTOR; MADE REPAIRS TO THE SERVICE LINE |
| MORRIS FORMAN | KY0022411 | 3702 PLYMOUTH RD | 07/10/13 9:30 AM | 07/10/13 10:30 AM | 1 | Sewer Service Line | 055000270000A | ROOTS IN MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 1945673 | MSD CONTRACTOR CLEANED THE IMPACTED AREA | WORK ORDERS 1945744,1945670; FLUSHED & ROOT CUT TO REMOVE OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 4725 S 3RD ST | 11/17/13 9:28 PM | 11/17/13 09:30 PM | 5 | Sewer Service Line | 058C00400000A | UTILITY COMPANY DAMAGED MSD'S ASSET WITH ASPHALT | UTILITY DAMAGED MSD ASSET | DISREV RAIN EVENT DISCHARGE | 2061050 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2061450,2061947,2061738, VACTOR, FLUSHED, REMOVED OBSTRUCTION & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 5102 LAUGHLIN AVE | 04/15/14 10:30 AM | 04/15/14 11:05 AM | 1 | Sewer Service Line | 061J00370000A | ROOTS IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2146100 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2146792; 2146106; FLUSHED, REMOVED ROOTS & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 1234 DAHL RD | 11/17/13 4:01 PM | 11/17/13 04:05 PM | 1 | Sewer Service Line | 062302570000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2060921 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 1234 DAHL RD | 04/04/14 1:20 PM | 04/04/14 01:23 PM | 1 | Sewer Service Line | 062302570000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141732 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 5508 SHOREWOOD DR | 10/18/13 5:00 PM | 10/18/13 05:30 PM | 5 | Sewer Service Line | 062N00500000B | PRIVATE PROPERTY ISSUE | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2040617 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL PLUMBER |
| MORRIS FORMAN | KY0022411 | 7209 IVAN CT | 11/18/13 5:20 PM | 11/18/13 05:27 PM | 1 | Sewer Service Line | 062R00490000A | Lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061502 | Customer cleaned the impacted area | Investigation indicated that additional repairs were not required by MSD |
| MORRIS FORMAN | KY0022411 | 7211 IVAN CT | 12/21/13 5:26 PM | 12/21/13 05:30 PM | 1 | Sewer Service Line | 062R00500000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085467 | CUSTOMER CLEANED UP IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 7211 IVAN CT | 01/11/14 9:00 AM | 01/11/14 09:39 AM | 2 | Sewer Service Line | 062R00500000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2095134 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 3761 POWELL AVE | 03/01/14 1:50 PM | 03/01/14 02:10 PM | 1 | Sewer Service Line | 065D01320000A | OBSTRUCTION IN THE MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2120800 | MSD CLEANED AND SANITIZED THE IMPACTED AREA | WORK ORDER 2120799; FLUSHED TO REMOVE THE OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 1254 BASSETT AVE | 02/02/14 12:39 PM | 02/02/14 12:48 PM | 2 | Sewer Service Line | 075G01010000A | UTILITY DAMAGED MSD ASSET | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2105519 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2105528;2106506;2106509; FLUSHED, VACTOR, REMOVED ROOTS & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 2615 LANDOR AVE | 04/04/14 6:37 PM | 04/04/14 06:50 PM | 2 | Sewer Service Line | 078L00400000A | ROOTS IN MAIN SEWER | ROOTS | DISREV RAIN EVENT DISCHARGE | 2142059 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2142062; ROOT CUT TO OPEN THE LINE |
| MORRIS FORMAN | KY0022411 | 1710 CALDER CT | 10/10/13 3:25 PM | 10/10/13 03:25 PM | 1 | Sewer Service Line | 080J01820000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2033261 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 3030 DARTMOUTH AVE | 10/06/13 4:19 AM | 10/06/13 04:20 AM | 1 | Sewer Service Line | 081F01630000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030725 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 2716 GOLDSMITH LN | 10/06/13 1:00 PM | 10/06/13 01:00 PM | 1 | Sewer Service Line | 081J00580000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031795 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 2705 ALICE AVE | 10/07/13 3:10 PM | 10/07/13 03:10 PM | 1 | Sewer Service Line | 081J01100000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032360 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 909 WICKSBURY PL | 05/20/14 12:50 PM | 05/20/14 01:42 PM | 1 | Sewer Service Line | 082X00170000A | ROOTS IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2163982 | MSD CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDERS 2164149; 2164183; FLUSHED, & ROOT CUT TO REMOVE THE OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 2805 SHANNON DR | 10/06/13 11:14 AM | 10/06/13 11:15 AM | 1 | Sewer Service Line | 082Y02500000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031705 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 3469 ILLINOIS AVE | 06/24/14 10:04 PM | 06/24/14 10:07 PM | 1 | Sewer Service Line | 086D00350000A | ROOTS IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2184560 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2185295; ROOT CUT MAIN SEWER & ADVISE TO CONTACT A PLUMBER |
| MORRIS FORMAN | KY0022411 | 3524 WEXFORD DR | 02/20/14 10:18 PM | 02/20/14 10:20 PM | 1 | Sewer Service Line | 087F00720000A | ROOTS IN MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2116435 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDERS 2117193; 2116600; ROOT CUT, REMOVED ROOTS & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 3403 GLADDEN DR | 10/06/13 3:44 AM | 10/06/13 03:45 AM | 1 | Sewer Service Line | 087J00190000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031557 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 5102 ROOKWOOD AVE | 12/22/13 2:26 PM | 12/22/13 02:32 PM | 2 | Sewer Service Line | 089703990000A | Lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2085679 | Customer cleaned the impacted area | Investigation indicated that additional repairs were not required by MSD |
| MORRIS FORMAN | KY0022411 | 5812 ROBINHOOD LN | 10/10/13 4:15 PM | 10/10/13 04:25 PM | 1 | Sewer Service Line | 091000150000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2033268 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 3033 KLONWAY DR | 10/06/13 12:05 PM | 10/05/13 12:05 PM | 1 | Sewer Service Line | 091H01010101A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031734 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |

**APPENDIX B-5
OVERFLOWS TO INTERIOR
JULY 1, 2012 THROUGH JUNE 30, 2013**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|--------------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|--|--------------------------------|-----------------------------|---------|---|---|
| MORRIS FORMAN | KY0022411 | 3507 TARRAGON RD | 10/06/13 12:55 PM | 10/06/13 12:55 PM | 1 | Sewer Service Line | 096201340000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031792 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 5710 SPICEWOOD LN | 10/06/13 11:50 AM | 10/06/13 11:50 AM | 1 | Sewer Service Line | 096201400000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031728 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 5811 SPICEWOOD LN | 10/06/13 12:36 PM | 10/06/13 12:40 PM | 1 | Sewer Service Line | 096202390000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031765 | MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 5804 SPICEWOOD LN | 10/06/13 11:06 AM | 10/06/13 11:10 AM | 1 | Sewer Service Line | 096202620000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031664 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 5706 SPICEWOOD LN | 10/06/13 12:12 PM | 10/06/13 12:12 PM | 1 | Sewer Service Line | 096202900000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031740 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 7259 SOUTHSIDE DR | 12/26/13 1:30 PM | 12/26/13 02:05 PM | 1 | Sewer Service Line | 103501320000A | UTILITY DAMAGED MSD ASSED | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2086458 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2086480;2086557; VACTOR, REMOVED ROOTS & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 3110 LONGFORD LN | 12/31/13 11:00 AM | 12/31/13 11:30 AM | 1 | Sewer Service Line | 156000660000A | ROOTS IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2089634 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2089516,2089676; 2089677; FLUSHED, ROOT CUT, REMOVED ROOTS |
| MORRIS FORMAN | KY0022411 | 1106 GIRARD DR | 10/07/13 11:00 AM | 10/07/13 12:08 PM | 2 | Sewer Service Line | 156802980000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031610 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 1106 GIRARD DR | 12/22/13 8:32 PM | 12/22/13 08:35 PM | 1 | Sewer Service Line | 156802980000A | ROOTS IN MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2085699 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2085699; FLUSHED & VACTORED OBSTRUCTION FROM MAIN SEWER. |
| MORRIS FORMAN | KY0022411 | 9607 TAMARISK PKY | 12/29/13 6:36 PM | 12/29/13 06:38 PM | 1 | Sewer Service Line | 174001180000A | ROOTS IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2088521 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDERS 2088776,2088684; , ROOT CUT, REMOVED ROOTS & INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 430 BLANKENBAKER LN | 04/01/14 9:40 AM | 04/01/14 10:08 AM | 3 | Sewer Service Line | 178700600000A | UNKOWN AT THIS TIME | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2139688 | MSD PERSONNEL ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | REFERRED TO CREW FOR REPAIR |
| MORRIS FORMAN | KY0022411 | 4418 MANNER DALE DR | 07/12/13 1:19 PM | 07/12/13 02:16 PM | 10 | Sewer Service Line | 186004960000A | Roots in the main sewer | ROOTS | DISDW DRY WEATHER DISCHARGE | 1947378 | MSD contractor cleaned and sanitized the impacted area | Work order 1948277, root cut to remove the roots |
| MORRIS FORMAN | KY0022411 | 9100 DENINGTON DR | 04/08/14 11:40 AM | 04/08/14 04:37 PM | 5 | Sewer Service Line | 186204070000A | OBSTRUCTION IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2143385 | MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA | WORK ORDER 2143407; ROOT CUT TO REMOVE THE ROOT OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 503 WESTERHAM CT | 04/07/14 7:03 PM | 04/07/14 07:06 PM | 1 | Sewer Service Line | 186204170000A | LACK OF CAPACITY; ROOTS IN THE MAIN SEWER | ROOTS | DISREV RAIN EVENT DISCHARGE | 2142911 | MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA | WORK ORDER 2142910; 2143693; FLUSHED; ROOT CUT TO OPEN THE LINE |
| MORRIS FORMAN | KY0022411 | 3224 EASTSIDE DR | 08/02/13 3:45 PM | 08/02/13 04:14 PM | 1 | Sewer Service Line | 189203780000A | OBSTRUCTION IN MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1991256 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 1991255;FLUSHED MAIN SEWER TO REMOVE THE OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 2914 CHIMNEY ROCK LN | 06/10/14 11:20 AM | 06/10/14 12:00 PM | 1 | Sewer Service Line | 191201380000A | ROOTS IN THE MSD MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2179447 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2179229; ROOT CUT AND OPEN THE MAIN SEWER |
| MORRIS FORMAN | KY0022411 | 402 PENNYROYAL WAY | 04/04/14 9:51 PM | 04/04/14 10:00 PM | 1 | Sewer Service Line | 191902380000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142094 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 311 CAMBRIDGE STATION RD | 02/08/14 9:55 PM | 02/08/14 09:58 PM | 1 | Sewer Service Line | 191902780000A | BLOCKAGE ON MSD PORTION OF SERVICE CONNECTION | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2109982 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDER 2109983; FLUSHED SERVICE CONNECTION TO REOPEN |
| MORRIS FORMAN | KY0022411 | 308 ALCOTT RD | 04/04/14 7:54 PM | 04/04/14 07:57 PM | 1 | Sewer Service Line | 197500590000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142074 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 2806 SIX MILE LN | 09/12/13 3:00 PM | 09/12/13 03:50 PM | 1 | Sewer Service Line | 221500010000A | GREASE OBSTRUCTION ON PRIVATE PROPERTY AND IN THE MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2011496 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2011519;2011520; MSD FLUSHED AS A COURTESY AND OPEN THE LINE |
| MORRIS FORMAN | KY0022411 | 2417 URSULINE RD | 04/14/14 7:11 PM | 04/14/14 07:14 PM | 1 | Sewer Service Line | 241715279A | OBSTRUCTION IN THE MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2145865 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2146180; FLUSHED AND GOT THE MAIN SEWER FLOWING |
| MORRIS FORMAN | KY0022411 | 7703 NEVIA WAY | 10/07/13 3:46 PM | 10/07/13 03:50 PM | 1 | Sewer Service Line | 251801480000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032372 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 3901 MELDA LN | 10/08/13 4:30 PM | 10/08/13 04:30 PM | 1 | Sewer Service Line | 281500380000A | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032920 | MSD PERSONNEL ADVISED THE CUSTOMER TO AVOID CONTACT WITH SEWAGE | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 1550 TWIN DR | 08/28/13 8:03 PM | 08/28/13 08:11 PM | 1 | Sewer Service Line | 34091550A | ROOTS ON PRIVATE PROPERTY; ROOTS ON MSD PORTION OF THE PIPE | ROOTS | DISDW DRY WEATHER DISCHARGE | 2002969 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDERS 2004438,2004425; FLUSHED & ROOT CUT TO REMOVE THE ROOTS |
| MORRIS FORMAN | KY0022411 | 4223 NORTHWESTERN PKY | 10/06/13 11:35 AM | 10/06/13 11:40 AM | 2 | Sewer Service Line | A10315029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031445 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 324 SHAWNEE DR | 04/28/14 9:25 AM | 04/28/14 09:47 AM | 1 | Sewer Service Line | B07013019 | BLOCKAGE IN MSD PORTION OF LINE | OBSTRUCTION-NOT GREASE / ROOTS | DISREV RAIN EVENT DISCHARGE | 2153101 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDER 2153570; ROOT CUT THE LINE |
| MORRIS FORMAN | KY0022411 | 6919 HEAVRIN AVE | 09/19/13 10:10 AM | 09/19/13 10:40 AM | 1 | Sewer Service Line | BE10205249 | GREASE & ROOTS IN THE MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2016109 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2016461; ROOT CUT TO REOPEN THE LINE |

**APPENDIX B-5
OVERFLOWS TO INTERIOR
JULY 1, 2012 THROUGH JUNE 30, 2013**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|--------------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|---|--------------------------------|-----------------------------|---------|---|---|
| MORRIS FORMAN | KY0022411 | 7042 BRONNER CIR | 10/06/13 2:00 PM | 10/06/13 02:00 PM | 1 | Sewer Service Line | BE10345649 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032908 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 7608 PETTY JAY CT | 07/29/13 4:30 PM | 07/29/13 04:43 PM | 1 | Sewer Service Line | BJ12864029 | Unknown At this Time | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 1986924 | Customer Cleaned the impacted area | Refer to tv for inspection |
| MORRIS FORMAN | KY0022411 | 3425 EASTSIDE DR | 09/16/13 8:24 PM | 09/16/13 09:30 PM | 3 | Sewer Service Line | BJ13017059 | Roots in MSD's portion of the property service connection | ROOTS | DISDW DRY WEATHER DISCHARGE | 2015174 | Customer cleaned the impacted area | Work order 2015175; root cut to reopen the line |
| MORRIS FORMAN | KY0022411 | 2321 BRADFORD DR | 10/06/13 11:09 AM | 10/06/13 11:20 AM | 5 | Sewer Service Line | BJ14414019 | Lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030774 | Customer cleaned the impacted area | Advised customer to call back if the backup continues |
| MORRIS FORMAN | KY0022411 | 6305 MILO CT | 10/08/13 5:36 PM | 10/08/13 05:40 PM | 1 | Sewer Service Line | BJ14534039 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032921 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 2210 STEIER LN | 05/09/14 10:10 PM | 05/09/14 05:14 PM | 1 | Sewer Service Line | BU09652029 | FURTHER INVESTIGATION REQUIRED | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2159975 | CUSTOMER CLEANED IMPACTED AREA | REFERRED TO TV CREW FOR FURTHER INVESTIGATION |
| MORRIS FORMAN | KY0022411 | 2330 W MUHAMMAD ALI BLVD | 10/30/13 11:00 AM | 10/30/13 11:30 AM | 1 | Sewer Service Line | C13833019 | UTILITY COMPANY DAMAGED MSD ASSET | UTILITY DAMAGED MSD ASSET | DISDW DRY WEATHER DISCHARGE | 2045384 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2048469, 2045387; VACTOR, MADE REPAIRS 7 INSTALLED 2-WAY CLEANOUT |
| MORRIS FORMAN | KY0022411 | 9800 SPRINGBARK DR | 06/16/14 1:45 PM | 06/16/14 02:05 PM | 1 | Sewer Service Line | HP09905019 | OBSTRUCTION IN MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2181539 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDERS 2181713; 2181714; ROOT CUT & FLUSHED TO CLEAR THE LINE |
| MORRIS FORMAN | KY0022411 | 3408 CROSS POINTE RD | 03/14/14 12:01 AM | 03/14/14 12:04 AM | 1 | Sewer Service Line | HP11073029 | ROOTS IN THE MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2126067 | MSD CONTRACTOR CLEANED & SANITIZED THE IMPACTED AREA | WORK ORDERS 2126064;2126170; ROOT CUT, FLUSHED TO REOPEN THE LINE |
| MORRIS FORMAN | KY0022411 | 8502 RHETT BUTLER DR | 11/17/13 1:18 PM | 11/17/13 01:36 PM | 3 | Sewer Service Line | HP12270019 | Lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061044 | Customer cleaned the impacted area | Investigation indicated that additional repairs were not required by MSD |
| MORRIS FORMAN | KY0022411 | 914 GIRARD DR | 04/04/14 3:37 PM | 04/04/14 03:46 PM | 10 | Sewer Service Line | HP14245059 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142073 | CUSTOMER CLEANED IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 1001 KING ARTHUR LN | 04/04/14 3:55 PM | 04/04/14 04:14 PM | 1 | Sewer Service Line | HP14377049 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2144459 | CUSTOMER CLEANED IMPACTED AREA | ADVISED CUSTOMER TO CONTACT A PLUMBER |
| MORRIS FORMAN | KY0022411 | 9104 GLOVER LN | 04/04/14 2:50 PM | 04/04/14 03:00 PM | 1 | Sewer Service Line | HP15400019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142427 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 1514 HEPBURN AVE | 05/30/14 5:55 PM | 05/30/14 06:21 PM | 1 | Sewer Service Line | J06032029 | FURTHER INVESTIGATION REQUIRED | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2169584 | CUSTOMER CLEANED THE IMPACTED AREA | REFERRED TO TV CREW FOR FURTHER INSPECTION |
| MORRIS FORMAN | KY0022411 | 3298 ILLINOIS AVE | 12/21/13 11:55 PM | 12/22/13 02:22 AM | 5 | Sewer Service Line | KK09875019 | UNKNOWN OBSTRUCTION IN THE MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISREV RAIN EVENT DISCHARGE | 2085546 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2085548; ROOT CUT TO REMOVE THE OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 1106 ENGLISH AVE | 05/03/14 4:35 PM | 05/03/14 05:10 PM | 1 | Sewer Service Line | KK10974029 | FURTHER INVESTIGATION REQUIRED | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2157279 | CUSTOMER CLEANED THE IMPACTED AREA | REFERRED TO TV CREW FOR FURTHER INVESTIGATION |
| MORRIS FORMAN | KY0022411 | 1244 SPRINGDALE DR | 09/30/13 8:45 AM | 09/30/13 09:15 AM | 1 | Sewer Service Line | KK13390319 | OBSTRUCTION IN MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2022806 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2022807;FLUSHED MAIN SEWER |
| MORRIS FORMAN | KY0022411 | 1244 SPRINGDALE DR | 11/17/13 10:14 AM | 11/17/13 10:32 AM | 2 | Sewer Service Line | KK13390319 | Obstruction in the main sewer | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2061036 | Customer cleaned the impacted area | Work orders 2061535,2061039; flushed, root cut to open the line |
| MORRIS FORMAN | KY0022411 | 3421 FAYETTE AVE | 05/14/14 10:40 PM | 05/14/14 11:22 PM | 1 | Sewer Service Line | KK13960019 | ROOT IN MSD PORTION OF PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2161686 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2161685; , ROOT CUT, REMOVED ROOTS FROM THE LINE |
| MORRIS FORMAN | KY0022411 | 1113 CARDINAL DR | 04/04/14 11:00 AM | 04/04/14 11:45 AM | 1 | Sewer Service Line | KK14415019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2142418 | CUSTOMER CLEANED THE IMPACTED AREA | INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD |
| MORRIS FORMAN | KY0022411 | 4308 SHERMAN AVE | 02/06/14 10:00 AM | 02/06/14 11:45 AM | 1 | Sewer Service Line | KK15144039 | ROOTS IN THE MSD MAIN SEWER | ROOTS | DISDW DRY WEATHER DISCHARGE | 2109215 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2109219; ROOT CUT AND OPEN THE MAIN SEWER |
| MORRIS FORMAN | KY0022411 | 684 ATWOOD ST | 05/30/14 11:15 AM | 05/30/14 12:03 PM | 5 | Sewer Service Line | L15373079 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2169413 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CONTACT A PLUMBER |
| MORRIS FORMAN | KY0022411 | 3919 WARNER AVE | 10/29/13 12:50 PM | 10/29/13 01:20 PM | 1 | Sewer Service Line | MA11692019 | ROOTS IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | ROOTS | DISDW DRY WEATHER DISCHARGE | 2044509 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2044503; ROOT CUT AND OPEN THE LINE |
| MORRIS FORMAN | KY0022411 | 1101 TIMBER OAK DR | 01/04/14 10:36 PM | 01/04/14 10:40 PM | 1 | Sewer Service Line | MT29248019 | GREASE IN THE SHARED JOINT OF THE PROPERTY SERVICE CONNECTION | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2091843 | CUSTOMER CLEANED IMPACTED AREA | WORK ORDER 2091842; FLUSHED TO REOPEN SERVICE LINE |
| MORRIS FORMAN | KY0022411 | 1633 CYPRESS ST | 10/06/13 12:45 PM | 10/06/13 12:45 PM | 1 | Sewer Service Line | O01042029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031786 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 1633 CYPRESS ST | 10/10/13 9:45 AM | 10/10/13 10:11 AM | 5 | Sewer Service Line | O01042029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032943 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 2224 OSAGE AVE | 10/10/13 5:29 PM | 10/10/13 05:31 PM | 1 | Sewer Service Line | O02887359 | PRIVATE PROPERTY ISSUE | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2033167 | CUSTOMER CLEANED IMPACTED AREA | ADVISED CUSTOMER TO CONTACT A PLUMBER |

**APPENDIX B-5
OVERFLOWS TO INTERIOR
JULY 1, 2012 THROUGH JUNE 30, 2013**

| Associated Wastewater Treatment Plant Name | Associated Treatment Plant KPDES # | Overflow Location | Overflow Start Date & Time | Overflow Stop Date & Time | Volume of Overflow | Source Asset Type | Source Asset ID | Cause of Overflow | Due To | Weather | WO # | Cleanup Efforts by MSD | Repair Efforts by MSD |
|--|------------------------------------|---------------------|----------------------------|---------------------------|--------------------|--------------------|-----------------|---|--------------------------------|-----------------------------|---------|---|--|
| MORRIS FORMAN | KY0022411 | 5504 PINE TREE DR | 10/06/13 3:43 AM | 10/06/13 03:45 AM | 1 | Sewer Service Line | PA06260019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030716 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 3616 E INDIAN TRL | 10/06/13 9:15 AM | 10/06/13 12:00 AM | 1 | Sewer Service Line | PA06705029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031611 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 3903 DELLAFAY DR | 10/06/13 4:13 AM | 10/06/13 04:15 AM | 1 | Sewer Service Line | PA07195079 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030724 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 3311 NELINDA MAY DR | 10/06/13 4:08 AM | 10/06/13 04:12 AM | 1 | Sewer Service Line | PA11215039 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031484 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 1221 KRUPP PARK DR | 10/07/13 11:35 AM | 10/07/13 11:35 AM | 1 | Sewer Service Line | PA11260019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2032318 | MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 4556 S 2ND ST | 07/22/13 7:20 PM | 07/22/13 07:26 PM | 1 | Sewer Service Line | V09508029 | Lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 1949953 | Customer cleaned the impacted area | Investigation indicated that additional repairs were not required by MSD |
| MORRIS FORMAN | KY0022411 | 4433 CHURCHMAN AVE | 10/30/13 9:50 AM | 10/30/13 10:30 AM | 1 | Sewer Service Line | W09864039 | GREASE IN MAIN SEWER | GREASE BLOCKAGE | DISDW DRY WEATHER DISCHARGE | 2045312 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2045290, FLUSHED MAIN SEWER TO REMOVE THE OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 4807 LAWRIE LN | 04/04/14 3:50 PM | 04/04/14 04:14 PM | 1 | Sewer Service Line | W09980019 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2141979 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CONTACT A PLUMBER |
| MORRIS FORMAN | KY0022411 | 2360 ASHWOOD DR | 10/06/13 5:38 AM | 10/06/13 05:38 AM | 1 | Sewer Service Line | X02902399 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2031593 | ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 2813 SHEILA DR | 01/11/14 11:09 AM | 01/11/14 11:23 AM | 2 | Sewer Service Line | XX11707019 | OBSTRUCTION IN MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2095125 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDER 2095126; FLUSHED TO REMOVE THE OBSTRUCTION |
| MORRIS FORMAN | KY0022411 | 7206 GERBER AVE | 11/17/13 2:47 PM | 11/17/13 03:04 PM | 8 | Sewer Service Line | Y08954019 | Lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061006 | Customer cleaned the impacted area | Investigation indicated that additional repairs were not required by MSD |
| MORRIS FORMAN | KY0022411 | 7208 GERBER AVE | 10/06/13 3:53 AM | 10/06/13 03:55 AM | 50 | Sewer Service Line | Y08955029 | LACK OF SYSTEM CAPACITY | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2030718 | CUSTOMER CLEANED THE IMPACTED AREA | ADVISED CUSTOMER TO CALL BACK IF THE BACKUP CONTINUES |
| MORRIS FORMAN | KY0022411 | 7208 GERBER AVE | 11/17/13 2:22 PM | 11/17/13 02:38 PM | 2 | Sewer Service Line | Y08955029 | Lack of system capacity | LACK OF SYSTEM CAPACITY | DISREV RAIN EVENT DISCHARGE | 2061048 | Customer cleaned the impacted area | Investigation indicated that additional repairs were not required by MSD |
| MORRIS FORMAN | KY0022411 | 337 POSSUM PATH | 02/04/14 8:26 PM | 02/04/14 08:34 PM | 2 | Sewer Service Line | Y12165019 | OBSTRUCTION IN THE MAIN SEWER | OBSTRUCTION-NOT GREASE / ROOTS | DISDW DRY WEATHER DISCHARGE | 2107860 | CUSTOMER CLEANED THE IMPACTED AREA | WORK ORDERS 2108228;2109609; ROOT CUT & FLUSHED TO REOPEN THE LINE |

APPENDIX C – ANNUAL AVERAGE OVERFLOW VOLUME

APPENDIX C - Average Annual Overflow Volume

| CSO | CSO Name | Associated Project | Drainage Area | Model Gauged Link | December 2014 Initial Conditions | | December 2014 Current Conditions | | December 2014 Baseline Conditions | | December 2014 LTCP Conditions | |
|-----|-------------------------------|--|---------------|--------------------------|----------------------------------|----------------|----------------------------------|----------------|-----------------------------------|----------------|-------------------------------|----------------|
| | | | | | Total Overflow = 6114 MG | # of Overflows | Total Overflow = 3634 MG | # of Overflows | Total Overflow = 3441 MG | # of Overflows | Total Overflow = 343 MG | # of Overflows |
| 015 | SOUTHWESTERN PS | Paddy's Run Wet Weather Treatment Facility | 7417.3 | 85205-T.w >> 50946A-Ta.2 | 2781.03 | 76 | 872.97 | 30 | 792.60 | 43 | 150.22 | 6 |
| 016 | MILES PARK BYPASS | SORI/SOR2 Inline Storage | 3.6 | CSO016.w | 447.85 | 48 | 127.08 | 34 | 123.42 | 33 | 0.41 | 6 |
| 018 | NIGHTINGALE PS | Nightingale PS Replacement | | CSO018.s | 163.19 | 34 | 67.10 | 25 | 35.98 | 20 | 0.62 | 1 |
| 019 | 34th STREET PS | Portland Wharf Storage Basin | 1094.7 | CSO019a.w | 192.43 | 66 | 192.50 | 66 | 192.51 | 66 | 4.41 | 3 |
| 020 | BUCHANAN PS | Story Avenue and Main Street Storage Basin | 64.1 | 08789.3 | 429.59 | 74 | 391.72 | 72 | 331.23 | 71 | 14.44 | 3 |
| 022 | FOURTH ST PS | CSO022 | 63.4 | CSO022.w | 4.50 | 16 | 4.51 | 16 | 4.51 | 16 | 3.15 | 8 |
| 023 | ORI @ 4th ST PS | 13th Street and Rowan Street Storage Basin | 15.2 | CSO023-Out.1 | 5.95 | 10 | 6.11 | 12 | 5.83 | 10 | 0.00 | 0 |
| 027 | CRD 7th & BROADWAY | CRD | 8.5 | CSO027.w | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 028 | CRD 6th & YORK | CRD | 19.9 | 028D7A-T.2 + 028D7A-T.3 | 1.08 | 20 | 1.08 | 20 | 1.08 | 20 | 0.00 | 0 |
| 029 | CRD 8th & YORK | CRD | 0.0 | CSO029.w | 4.59 | 40 | 4.59 | 40 | 4.59 | 40 | 0.05 | 1 |
| 031 | CRD 6th & BRECKINRIDGE | CRD | 9.1 | CSO031.1 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 034 | CRD 4th & YORK | CRD | 5.2 | CSO034.1 + CSO034.2 | 2.99 | 39 | 3.01 | 39 | 3.01 | 39 | 0.08 | 4 |
| 035 | CRD 2nd & BROADWAY NO 1 | CRD | 16.0 | CSO035.w | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.01 | 0 |
| 036 | CRD 3rd & BROADWAY | CRD | 29.5 | CSO036.w | 0.21 | 7 | 0.21 | 7 | 0.21 | 7 | 0.12 | 4 |
| 038 | CRD 5th & BROADWAY | CRD | 8.9 | CSO038.w | 0.11 | 5 | 0.11 | 5 | 0.11 | 5 | 0.13 | 5 |
| 050 | 12th STREET | 13th Street and Rowan Street Storage Basin | 39.3 | CSO050a.2 | 28.52 | 54 | 23.83 | 54 | 23.03 | 54 | 4.05 | 1 |
| 051 | 11th STREET | 13th Street and Rowan Street Storage Basin | 5.8 | CSO051a.2 | 1.47 | 14 | 0.80 | 11 | 0.75 | 11 | 0.00 | 0 |
| 052 | 10th STREET | 13th Street and Rowan Street Storage Basin | 9.7 | CSO052a.2 | 4.37 | 26 | 3.66 | 25 | 3.44 | 24 | 0.48 | 1 |
| 053 | 8th STREET | 13th Street and Rowan Street Storage Basin | 34.8 | CSO053.w >> CSO150.1 | 7.66 | 50 | 7.69 | 50 | 7.69 | 50 | 0.00 | 0 |
| 054 | 7th STREET | 13th Street and Rowan Street Storage Basin | 3.8 | CSO054a.2 | 2.81 | 35 | 2.54 | 35 | 2.41 | 35 | 0.00 | 0 |
| 055 | 6th STREET | 13th Street and Rowan Street Storage Basin | 16.0 | CSO055a.2 | 9.61 | 25 | 8.10 | 23 | 7.49 | 23 | 0.01 | 0 |
| 056 | 5th STREET | 13th Street and Rowan Street Storage Basin | 36.4 | CSO056a.2 | 4.88 | 25 | 5.04 | 26 | 4.81 | 25 | 0.07 | 2 |
| 057 | FIRST STREET OVFL WEIR | | 76.0 | 057R1.c | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 058 | PRESTON ST OVFL WEIR | 13th Street and Rowan Street Storage Basin | 121.3 | CSO058.w | 53.59 | 68 | 69.74 | 67 | 60.99 | 65 | 2.27 | 8 |
| 062 | LOGAN COMPANY | | 106.6 | CSO062.w | 0.19 | 3 | 0.05 | 1 | 0.00 | 0 | 0.58 | 4 |
| 082 | BGI AT BGC | Lexington Road and Payne Street Storage Basin | 12.9 | CSO082-Over.1 | 29.63 | 50 | 23.81 | 50 | 20.61 | 48 | 0.00 | 0 |
| 083 | BRENT ST & BROADWAY CONNECT | Lexington Road and Payne Street Storage Basin | 30.5 | | 0.47 | 7 | 0.47 | 7 | 0.47 | 7 | 0.00 | 0 |
| 084 | BRENT ST @ BGC | Lexington Road and Payne Street Storage Basin | 146.3 | cs0084b.2 | 19.11 | 45 | 19.24 | 46 | 19.21 | 46 | 0.00 | 0 |
| 086 | PAYNE AT SPRING | | 3.3 | CSO086.2 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 088 | MELLWOOD AVE INT | Clifton Heights Storage Basin | 2.3 | CSO088a.3 | 10.21 | 45 | 10.08 | 46 | 9.96 | 46 | 0.00 | 0 |
| 091 | SCHILLER AVE OVFL | Logan Street and Breckinridge Street Storage Basin | 14.2 | DIVERSION-E.2 | 9.58 | 88 | 9.59 | 88 | 9.59 | 88 | 0.00 | 0 |
| 092 | ST CATHERINE @ BGC | | 10.3 | CSO092.2 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 093 | SPRING STREET | CSO093 Sewer Separation | 17.5 | CSO093.1 | 0.01 | 0 | 0.01 | 0 | 0.01 | 0 | 0.00 | 0 |
| 097 | CANTONMENT SIPHON NO 2 | Logan Street and Breckinridge Street Storage Basin | | CSO097.5 | 16.29 | 47 | 11.64 | 44 | 10.12 | 43 | 0.00 | 0 |
| 104 | SW PKWY SEWER @ BROADWAY | Southwestern Parkway Storage Basin | 68.5 | CSO104.w >> 08638-T.2 | 9.73 | 21 | 9.55 | 20 | 9.55 | 20 | 1.70 | 8 |
| 105 | WESTERN OUTFALL @ BROADWAY | Southwestern Parkway Storage Basin | 1087.8 | CSO105a.w >> 08638-T.2 | 270.04 | 46 | 263.60 | 45 | 263.26 | 47 | 19.64 | 8 |
| 106 | ROYAL - NEFF | Logan Street and Breckinridge Street Storage Basin | 9.9 | | 0.28 | 10 | 0.28 | 10 | 0.28 | 10 | | |
| 108 | REG NO 1 - NEWBURG | CSO108 Dam Modification | 507.5 | CSO108.1 | 15.70 | 23 | 9.72 | 21 | 6.28 | 20 | 3.75 | 8 |
| 109 | REG NO 2 - DEER PARK | Logan Street and Breckinridge Street Storage Basin | 101.0 | CSO109.4 | 1.71 | 12 | 1.43 | 11 | 1.29 | 11 | 1.17 | 8 |
| 110 | REG NO 3 - GOSS AVE | Logan Street and Breckinridge Street Storage Basin | 92.9 | CSO110-Div.2 | 19.06 | 46 | 16.12 | 43 | 15.28 | 43 | 1.61 | 5 |
| 111 | EMERSON STREET SEWER | Logan Street and Breckinridge Street Storage Basin | 87.5 | D-Str 111.4 | 5.02 | 32 | 4.84 | 30 | 4.76 | 29 | 0.00 | 0 |
| 113 | ELLISON AVENUE SEWER | Logan Street and Breckinridge Street Storage Basin | 67.2 | D-Str 113.2 | 6.13 | 27 | 6.03 | 27 | 5.96 | 26 | 0.09 | 3 |
| 117 | REG NO 11 - DRY RUN | Logan Street and Breckinridge Street Storage Basin | 73.2 | D-Str 117.1 | 86.24 | 59 | 85.27 | 59 | 84.86 | 59 | 22.92 | 7 |
| 118 | REG NO 15 - E BRDWAY | Lexington Road and Payne Street Storage Basin | 339.1 | 08868.3 | 118.44 | 60 | 117.36 | 60 | 116.76 | 60 | 0.00 | 0 |
| 119 | BRENT STREET SEWER | Lexington Road and Payne Street Storage Basin | 4.5 | CSO119-wier.1 | 10.42 | 53 | 10.27 | 52 | 10.19 | 51 | 0.00 | 0 |
| 120 | PHOENIX HILL SEWER | Lexington Road and Payne Street Storage Basin | 15.4 | CSO120b.2 | 7.45 | 52 | 7.47 | 52 | 7.44 | 52 | 0.00 | 0 |
| 121 | REG NO 18 - GREEN ST | Lexington Road and Payne Street Storage Basin | 101.6 | CSO121-Over.1 | 5.81 | 22 | 5.64 | 23 | 5.54 | 22 | 0.00 | 0 |
| 125 | REG NO 24 - GRINSTEAD DR | I-64 and Grinstead Drive Storage Basin | 359.3 | 68334-CB.2 | 24.42 | 43 | 24.41 | 43 | 23.79 | 43 | 0.30 | 1 |
| 126 | REG NO 26 - RAYMOND AVE | I-64 and Grinstead Drive Storage Basin | 37.4 | CSO126.W | 3.90 | 21 | 3.62 | 21 | 1.53 | 13 | 0.13 | 3 |
| 127 | ETLEY AVENUE | I-64 and Grinstead Drive Storage Basin | 216.0 | CSO127a.2 | 12.02 | 39 | 12.02 | 39 | 11.48 | 39 | 0.00 | 0 |
| 130 | WEBSTER STREET | Story Avenue and Spring Street Storage Basin | 16.0 | 12834.1 | 3.98 | 34 | 2.99 | 27 | 1.85 | 20 | 0.02 | 0 |
| 131 | REG NO 33 - MELWD & FRANKFORT | Clifton Heights Storage Basin | 30.5 | CSO131.O.w | 2.69 | 23 | 2.73 | 23 | 2.72 | 23 | 0.02 | 1 |
| 132 | REG NO 35 - BROWNSBORO | Clifton Heights Storage Basin | 674.0 | CSO132a.3 >> 40269.2 | 83.30 | 61 | 85.74 | 61 | 78.99 | 60 | 0.90 | 2 |
| 137 | CALVARY CEMETARY | Logan Street and Breckinridge Street Storage Basin | 72.2 | | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | | |
| 140 | LOCUST STREET | CSO140 Sewer Separation | 77.9 | CSO140.w | 2.63 | 29 | 2.65 | 29 | 2.65 | 29 | 0.00 | 0 |
| 141 | BAXTER AVE @ BGC | Lexington Road and Payne Street Storage Basin | 8.8 | CSO141.2 | 0.66 | 20 | 0.66 | 20 | 0.66 | 20 | 0.00 | 0 |
| 144 | VANCE ST REGULATOR | | 11.6 | CSO144.w | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |

APPENDIX C - Average Annual Overflow Volume

| CSO | CSO Name | Associated Project | Drainage Area | Model Gauged Link | December 2014 Initial Conditions | | December 2014 Current Conditions | | December 2014 Baseline Conditions | | December 2014 LTCP Conditions | |
|--------------------------------|-----------------------------|--|-------------------------|-------------------------|----------------------------------|----------------|----------------------------------|----------------|-----------------------------------|----------------|-------------------------------|----------------|
| | | | | | Total Overflow = 6114 MG | | Total Overflow = 3634 MG | | Total Overflow = 3441 MG | | Total Overflow = 343 MG | |
| | | | | | Overflow Vol. (MG) | # of Overflows | Overflow Vol. (MG) | # of Overflows | Overflow Vol. (MG) | # of Overflows | Overflow Vol. (MG) | # of Overflows |
| 146 | SNEADS BRANCH DIVERSION | Logan Street and Breckinridge Street Storage Basin | 97.5 | D-Str 146.1 | 37.39 | 40 | 37.15 | 39 | 37.05 | 39 | 0.56 | 4 |
| 148 | EASTERN PKWY DIVERSION | Logan Street and Breckinridge Street Storage Basin | 26.2 | CSO148.w | 0.74 | 17 | 0.73 | 17 | 0.73 | 17 | 0.00 | 0 |
| 149 | DRY RUN DIVERSION | Logan Street and Breckinridge Street Storage Basin | 417.9 | CSO149.w >> D-Str 149.1 | 138.53 | 47 | 137.87 | 47 | 137.62 | 47 | 20.68 | 7 |
| 150 | 8th ST @ COMMON PLACE | 13th Street and Rowan Street Storage Basin | 1.7 | 088308.w >> CSO150.1 | 1.92 | 21 | 1.48 | 19 | 1.35 | 18 | 0.00 | 0 |
| 151 | REG NO 5 - CASTLEWOOD | Logan Street and Breckinridge Street Storage Basin | 245.4 | 30437.1 | 94.23 | 69 | 81.59 | 69 | 78.28 | 68 | 0.01 | 0 |
| 152 | REG NO 7 - SOUTHEASTERN | Logan Street and Breckinridge Street Storage Basin | 242.3 | CSO152a.2 | 58.21 | 62 | 57.18 | 59 | 56.86 | 59 | 3.98 | 5 |
| 153 | COOPER STREET | Lexington Road and Payne Street Storage Basin | 41.2 | CSO153-Over.1 | 19.15 | 71 | 18.90 | 71 | 18.71 | 71 | 0.00 | 0 |
| 154 | MELLWOOD @ SCHOEFFEL | Clifton Heights Storage Basin | 34.7 | 12496-T.2 | 23.47 | 55 | 23.72 | 53 | 27.04 | 52 | 3.28 | 2 |
| 155 | ROWAN ST @ 12th ST | 13th Street and Rowan Street Storage Basin | 4.9 | CSO155a.2 | 0.38 | 9 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 160 | SEWER IN ALLEY SAN DIV | CSO160 Sewer Separation | 2.3 | CSO160.w | 0.05 | 1 | 0.05 | 0 | 0.05 | 1 | 0.00 | 0 |
| 161 | MARKET ST SAN DIV | 1.5 | CSO161.w | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | |
| 166 | BEALS BRANCH SAN DIV | I-64 and Grinstead Drive Storage Basin | 751.6 | 68304-J.2 | 52.73 | 46 | 52.59 | 46 | 48.41 | 44 | 0.00 | 0 |
| 167 | BROWNSBORO LAT NO 2 | Clifton Heights Storage Basin | 21.1 | CSO167.2 >> 40269.2 | 0.47 | 11 | 0.49 | 11 | 0.45 | 10 | 0.10 | 2 |
| 172 | ADAMS STREET | Adams Street Storage Basin | 10.3 | | 0.81 | 18 | 0.00 | 0 | 0.80 | 18 | | |
| 178 | CRD 9th & YORK "B" | CRD | 39.3 | CSO178.w | 19.88 | 58 | 19.88 | 58 | 19.88 | 58 | 0.64 | 7 |
| 179 | KENTUCKY ST SEWER OVFL | 223.3 | CSO179.w >> D-Str 149.1 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | |
| 181 | CRD 2nd & BROADWAY NO 2 | CRD | 42.5 | CSO181.w | 3.80 | 42 | 3.81 | 42 | 3.81 | 42 | 0.00 | 0 |
| 189 | NORTHWESTERN SAN DIV | Southwestern Parkway Storage Basin | 1186.4 | 52002-D.1 | 302.65 | 52 | 254.85 | 52 | 254.26 | 52 | 30.95 | 8 |
| 190 | SEVENTEENTH ST SAN DIV | 18th and Northwestern Pky Storage Basin | 142.4 | CSO190a.w | 30.10 | 57 | 30.10 | 57 | 30.10 | 57 | 0.00 | 0 |
| 191 | ALGONQUIN PKWY SAN DIV | Paddy's Run Wet Weather Treatment Facility | 334.4 | CSO191.w >> 50946A-Ta.2 | 4.31 | 16 | 26.08 | 30 | 24.31 | 29 | 12.98 | 6 |
| 193 | CRD S 6th & KENTUCKY | CRD | 17.8 | CSO193.w | 0.09 | 4 | 0.09 | 4 | 0.09 | 4 | 0.10 | 4 |
| 195 | CRD S 4th & OAK | CRD | 5.7 | CSO195.w | 2.78 | 44 | 2.79 | 44 | 2.79 | 44 | 0.01 | 0 |
| 196 | CRD S 3rd & OAK | CRD | 4.0 | CSO196.w | 0.04 | 1 | 0.04 | 1 | 0.04 | 1 | 0.02 | 0 |
| 197 | CRD S 3rd S OF OAK | CRD | 3.7 | CSO197.w | 2.83 | 43 | 2.84 | 43 | 2.84 | 43 | 0.07 | 4 |
| 198 | CRD S 3rd & ORMSBY | CRD | 3.6 | CSO198.w | 0.09 | 5 | 0.08 | 5 | 0.08 | 5 | 0.06 | 2 |
| 199 | CRD S 3rd N OF MAGNOLIA | CRD | 2.0 | CSO199.w | 0.72 | 23 | 0.73 | 24 | 0.73 | 24 | 0.04 | 1 |
| 200 | CRD S 3rd & MAGNOLIA | CRD | 7.6 | CSO200.w | 2.22 | 45 | 2.23 | 45 | 2.23 | 45 | 0.00 | 0 |
| 201 | CRD S 5th & KENTUCKY | CRD | 10.0 | CSO201.w | 0.68 | 11 | 0.69 | 11 | 0.69 | 11 | 0.42 | 7 |
| 202 | CRD S ORMSBY W OF 3rd | CRD | 5.9 | CSO202.w | 0.15 | 6 | 0.15 | 6 | 0.15 | 6 | 0.04 | 1 |
| 203 | CRD S 4th & ORMSBY | CRD | 8.5 | CSO203.w | 0.02 | 0 | 0.02 | 0 | 0.02 | 0 | 0.02 | 0 |
| 206 | CHEROKEE PARK @ SPRING DR | CSO206 Sewer Separation | 8.4 | | 28.92 | 70 | 0.00 | 0 | 29.10 | 70 | 0.00 | 0 |
| 207 | 2nd & JEFFERSON | | 2.1 | CSO207.w | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 208 | 12th & JEFFERSON | | 9.9 | CSO208.w | 0.73 | 21 | 0.73 | 21 | 0.73 | 21 | 0.25 | 7 |
| 210 | 45th STREET-GREENWOOD | SOR1/SOR2 Inline Storage | 181.2 | CSO210a.1 | 35.01 | 48 | 24.30 | 32 | 23.73 | 32 | 0.53 | 5 |
| 211 | MAIN DIVERSION STRUCTURE | SOR1/SOR2 Inline Storage | 3709.2 | CSO211b.W | 285.00 | 32 | 304.76 | 25 | 299.11 | 25 | 34.88 | 6 |
| 142 | SBR LOGAN ST @ ST CATHERINE | | 4.7 | CSO142.w | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 174 | SBR GOSS & BOYLE | | 160.4 | CSO174.w | 14.10 | 40 | 14.11 | 40 | 14.11 | 40 | 9.13 | 37 |
| 180 | SBR ORMSBY AVE RELIEF | | 30.9 | CSO180.w | 0.04 | 1 | 0.04 | 1 | 0.04 | 1 | 0.02 | 1 |
| 182 | SBR SHELBY & BURNETT | | 172.1 | CSO182.w | 30.95 | 38 | 30.96 | 38 | 30.96 | 38 | 24.98 | 35 |
| 183 | SBR ALEXANDER & KESWICK | | 4.0 | CSO183.3 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 184 | SBR FETTER & ALEXANDER | | 100.8 | CSO184.w | 0.31 | 7 | 0.31 | 7 | 0.31 | 7 | 0.26 | 7 |
| 185 | SBR SHELBY & KESWICK | | 163.9 | CSO185.w | 1.57 | 16 | 1.58 | 16 | 1.58 | 16 | 1.47 | 16 |
| 186 | SBR LOGAN & OAK | | 4.4 | CSO186.w | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 187 | SBR SHELBY & CAMP | | 6.1 | CSO187.w | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 188 | SBR SHELBY & CLAY | | 13.7 | CSO188.w | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| 205 | SBR MORGAN STREET RELIEF | | | CSO205.2 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 |
| Snead's Branch Overflow Volume | | | | 71909B-AGa.w | 44.65 | 38 | 8.62 | 10 | 8.04 | 9 | 2.66 | 4 |

APPENDIX D – CSO FLOW MONITORING DATA

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO015 | 1/5/14 7:00 PM | 1/5/14 9:00 PM | 0.08 | 551,695 | 0.48 | 1,149,365 | 0.75 | 0.24 | 3 hr | CloudBurst |
| CSO015 | 1/11/14 2:00 AM | 1/11/14 7:15 AM | 0.22 | 1,799,373 | 0.85 | 2,116,910 | 1.35 | 0.45 | 6 hr | CloudBurst |
| CSO015 | 2/2/14 4:45 AM | 2/2/14 4:45 AM | 0.00 | 9,621 | 0.62 | 15,518 | 0.17 | 0.23 | 24 hr | CloudBurst |
| CSO015 | 2/4/14 8:45 PM | 2/5/14 2:15 PM | 0.73 | 4,285,297 | 0.67 | 6,395,965 | 1.29 | 0.33 | 6 hr | CloudBurst |
| CSO015 | 2/17/14 4:45 PM | 2/18/14 1:00 AM | 0.34 | 1,463,329 | 0.62 | 2,360,207 | 0.89 | 0.38 | 3 hr | CloudBurst |
| CSO015 | 2/18/14 6:30 PM | 2/18/14 7:15 PM | 0.03 | 46,443 | 1.56 | 29,771 | 0.89 | 0.38 | 3 hr | CloudBurst |
| CSO015 | 3/2/14 11:45 AM | 3/2/14 12:30 PM | 0.03 | 222,738 | 0.51 | 436,741 | 0.28 | 0.19 | 24 hr | CloudBurst |
| CSO015 | 3/29/14 8:00 AM | 3/29/14 2:00 PM | 0.25 | 943,500 | 0.89 | 1,060,112 | 1.22 | 0.41 | 12 hr | CloudBurst |
| CSO015 | 7/1/13 7:45 PM | 7/1/13 8:15 PM | 0.02 | 105,085 | 0.27 | 389,203 | 2.90 | 0.10 | 3 hr | CloudBurst |
| CSO015 | 7/6/13 4:30 AM | 7/6/13 9:45 AM | 0.22 | 707,278 | 0.46 | 1,537,560 | 1.94 | 0.20 | 12 hr | CloudBurst |
| CSO015 | 7/10/13 2:45 PM | 7/10/13 4:00 PM | 0.05 | 120,298 | 0.46 | 261,516 | 1.54 | 0.36 | 1 hr | CloudBurst |
| CSO015 | 7/21/13 8:30 PM | 7/21/13 10:00 PM | 0.06 | 298,758 | 2.65 | 112,739 | 1.90 | 1.90 | 3 hr | Atlas14 |
| CSO015 | 7/22/13 7:45 AM | 7/22/13 4:15 PM | 0.35 | 4,639,373 | 2.65 | 1,750,707 | 2.80 | 1.90 | 3 hr | Atlas14 |
| CSO015 | 8/9/13 5:30 PM | 8/9/13 7:30 PM | 0.08 | 665,450 | 0.11 | 6,049,547 | 0.15 | 0.06 | 3 hr | CloudBurst |
| CSO015 | 8/10/13 4:30 PM | 8/10/13 5:30 PM | 0.04 | 52,224 | 0.09 | 580,271 | 0.24 | 0.05 | 3 hr | CloudBurst |
| CSO015 | 8/12/13 3:00 PM | 8/12/13 4:30 PM | 0.06 | 930,519 | 1.12 | 830,821 | 1.16 | 0.63 | 1 hr | CloudBurst |
| CSO015 | 8/13/13 4:00 AM | 8/13/13 5:00 AM | 0.04 | 204,625 | 1.12 | 182,701 | 1.36 | 0.63 | 1 hr | CloudBurst |
| CSO015 | 8/31/13 9:15 PM | 9/1/13 4:45 AM | 0.31 | 311,713 | 1.14 | 273,432 | 1.14 | 0.53 | 12 hr | CloudBurst |
| CSO015 | 9/2/13 2:15 PM | 9/2/13 4:00 PM | 0.07 | 248,709 | 0.68 | 365,748 | 1.82 | 0.59 | 1 hr | CloudBurst |
| CSO015 | 9/10/13 11:30 AM | 9/10/13 12:00 PM | 0.02 | 397,716 | Discharge | | 0.07 | DWO | | |
| CSO015 | 9/20/13 4:30 PM | 9/21/13 6:30 AM | 0.58 | 2,240,885 | 2.06 | 1,087,808 | 2.07 | 0.87 | 12 hr | CloudBurst |
| CSO015 | 10/4/13 6:45 PM | 10/4/13 8:15 PM | 0.06 | 158,143 | 0.20 | 790,715 | 0.26 | 0.17 | 1 hr | CloudBurst |
| CSO015 | 10/5/13 12:45 PM | 10/6/13 7:15 PM | 1.27 | 78,745,609 | 4.54 | 17,344,848 | 4.80 | 10.17 | 24 hr | CloudBurst |
| CSO015 | 10/30/13 5:00 AM | 10/30/13 10:30 AM | 0.23 | 4,358,030 | 1.32 | 3,301,538 | 1.33 | 0.67 | 6 hr | CloudBurst |
| CSO015 | 10/31/13 9:45 PM | 11/1/13 12:00 AM | 0.09 | 226,106 | 0.88 | 256,939 | 2.20 | 0.36 | 12 hr | CloudBurst |
| CSO015 | 11/17/13 6:30 AM | 11/18/13 1:15 AM | 0.78 | 27,702,277 | 2.65 | 10,453,689 | 2.87 | 2.12 | 6 hr | CloudBurst |
| CSO015 | 11/26/13 7:45 AM | 11/26/13 12:30 PM | 0.20 | 1,611,822 | 0.05 | 32,236,448 | 0.17 | 0.02 | 48 hr | CloudBurst |
| CSO015 | 12/14/13 11:15 AM | 12/14/13 2:30 PM | 0.14 | 316,173 | 0.78 | 405,350 | 1.27 | 0.33 | 6 hr | CloudBurst |
| CSO015 | 12/21/13 8:30 AM | 12/22/13 4:15 PM | 1.32 | 24,638,050 | 1.37 | 17,983,978 | 3.31 | 0.63 | 12 hr | CloudBurst |
| CSO015 | 4/3/14 1:15 PM | 4/5/14 3:00 AM | 1.57 | 27,977,190 | 2.77 | 10,100,069 | 3.99 | 0.96 | 24 hr | CloudBurst |
| CSO015 | 4/7/14 11:30 AM | 4/7/14 9:00 PM | 0.40 | 3,252,984 | 1.11 | 2,930,616 | 3.95 | 0.76 | 1 hr | CloudBurst |
| CSO015 | 4/14/14 10:00 PM | 4/15/14 3:15 AM | 0.22 | 472,650 | 0.61 | 774,836 | 1.12 | 0.29 | 6 hr | CloudBurst |
| CSO015 | 4/28/14 5:00 AM | 4/28/14 10:45 PM | 0.74 | 5,253,741 | 1.81 | 2,902,619 | 1.96 | 0.73 | 3 hr | Atlas14 |
| CSO015 | 5/9/14 8:00 PM | 5/10/14 8:30 PM | 1.02 | 3,196,069 | 2.04 | 1,566,700 | 2.11 | 0.79 | 24 hr | CloudBurst |
| CSO015 | 5/14/14 7:15 PM | 5/15/14 2:30 AM | 0.30 | 1,140,711 | 1.13 | 1,009,479 | 3.28 | 0.43 | 24 hr | CloudBurst |
| CSO015 | 5/22/14 3:45 AM | 5/22/14 5:00 AM | 0.05 | 920,119 | 0.36 | 2,555,886 | 0.47 | 0.23 | 1 hr | CloudBurst |
| CSO015 | 5/28/14 8:00 PM | 5/28/14 10:30 PM | 0.10 | 4,199,777 | 0.28 | 14,999,205 | 0.64 | 0.23 | 1 hr | CloudBurst |
| CSO015 | 5/29/14 9:30 PM | 5/29/14 9:45 PM | 0.01 | 121,560 | 0.27 | 450,223 | 0.55 | 0.23 | 1 hr | CloudBurst |
| CSO016 | 1/11/14 1:15 AM | 1/11/14 6:00 AM | 0.20 | 1,491,657 | 0.97 | 1,537,791 | 1.44 | 0.52 | 6 hr | CloudBurst |
| CSO016 | 2/2/14 6:00 AM | 2/2/14 6:45 AM | 0.03 | 4,708 | 0.62 | 7,593 | 0.24 | 0.24 | 24 hr | CloudBurst |
| CSO016 | 2/4/14 8:30 PM | 2/5/14 7:30 AM | 0.46 | 15,849,921 | 0.62 | 25,564,389 | 1.24 | 0.30 | 6 hr | CloudBurst |
| CSO016 | 2/17/14 4:30 PM | 2/17/14 8:45 PM | 0.18 | 3,519,418 | 0.57 | 6,174,417 | 0.84 | 0.34 | 3 hr | CloudBurst |
| CSO016 | 3/2/14 11:30 AM | 3/2/14 1:00 PM | 0.06 | 312,082 | 0.49 | 636,901 | 0.28 | 0.18 | 24 hr | CloudBurst |
| CSO016 | 3/29/14 7:30 AM | 3/29/14 2:30 PM | 0.29 | 1,918,145 | 0.96 | 1,998,067 | 1.30 | 0.45 | 6 hr | CloudBurst |
| CSO016 | 7/2/13 2:15 PM | 7/2/13 2:45 PM | 0.02 | 77,566 | 0.02 | 3,878,307 | 3.23 | 0.02 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO016 | 7/6/13 4:45 AM | 7/6/13 7:00 AM | 0.09 | 523,385 | 0.48 | 1,090,385 | 1.96 | 0.21 | 12 hr | CloudBurst |
| CSO016 | 7/10/13 2:15 PM | 7/10/13 4:45 PM | 0.10 | 2,379,611 | 0.63 | 3,777,161 | 1.73 | 0.50 | 1 hr | CloudBurst |
| CSO016 | 7/14/13 8:30 PM | 7/14/13 9:30 PM | 0.04 | 106,341 | 0.06 | 1,772,351 | 0.72 | 0.05 | 1 hr | CloudBurst |
| CSO016 | 7/21/13 8:30 PM | 7/21/13 11:30 PM | 0.13 | 1,891,616 | 2.85 | 663,725 | 2.26 | 3.07 | 3 hr | Atlas14 |
| CSO016 | 7/22/13 7:45 AM | 7/22/13 4:45 PM | 0.38 | 6,105,209 | 2.85 | 2,142,178 | 3.00 | 3.07 | 3 hr | Atlas14 |
| CSO016 | 8/12/13 2:45 PM | 8/12/13 5:00 PM | 0.09 | 1,649,260 | 1.33 | 1,240,045 | 1.38 | 0.82 | 1 hr | CloudBurst |
| CSO016 | 8/13/13 4:00 AM | 8/13/13 5:00 AM | 0.04 | 195,869 | 1.33 | 147,270 | 1.56 | 0.82 | 1 hr | CloudBurst |
| CSO016 | 8/31/13 8:45 PM | 9/1/13 4:00 AM | 0.30 | 1,330,382 | 1.49 | 892,874 | 1.46 | 0.69 | 6 hr | CloudBurst |
| CSO016 | 9/2/13 2:15 PM | 9/2/13 4:30 PM | 0.09 | 1,637,370 | 0.56 | 2,923,875 | 2.05 | 0.49 | 1 hr | CloudBurst |
| CSO016 | 9/20/13 5:45 PM | 9/21/13 7:15 AM | 0.56 | 12,287,330 | 1.82 | 6,751,280 | 1.84 | 0.76 | 12 hr | CloudBurst |
| CSO016 | 10/5/13 1:15 PM | 10/6/13 12:00 PM | 0.95 | 19,629,167 | 4.50 | 4,362,037 | 4.73 | 9.84 | 24 hr | CloudBurst |
| CSO016 | 10/30/13 3:00 AM | 11/1/13 11:00 AM | 2.33 | 5,085,625 | 1.47 | 3,459,609 | 2.42 | 0.75 | 6 hr | CloudBurst |
| CSO016 | 11/17/13 5:30 AM | 12/2/13 12:15 PM | 15.28 | 9,200,417 | 2.84 | 3,239,583 | 3.19 | 2.12 | 6 hr | CloudBurst |
| CSO016 | 12/5/13 7:30 AM | 12/12/13 7:15 AM | 6.99 | 985,521 | 0.81 | 1,216,692 | 1.27 | 0.26 | 48 hr | CloudBurst |
| CSO016 | 12/14/13 10:30 AM | 12/17/13 6:30 AM | 2.83 | 527,708 | 0.74 | 713,119 | 1.20 | 0.31 | 12 hr | CloudBurst |
| CSO016 | 12/21/13 7:30 AM | 12/30/13 2:45 PM | 9.30 | 11,136,875 | 3.19 | 3,491,183 | 4.07 | 1.90 | 24 hr | CloudBurst |
| CSO016 | 4/3/14 12:45 PM | 4/4/14 11:00 AM | 0.93 | 15,179,780 | 2.56 | 5,929,602 | 3.86 | 0.88 | 24 hr | CloudBurst |
| CSO016 | 4/7/14 10:45 AM | 4/7/14 3:00 PM | 0.18 | 3,955,708 | 1.09 | 3,629,090 | 3.72 | 0.69 | 1 hr | CloudBurst |
| CSO016 | 4/14/14 9:15 PM | 4/15/14 2:45 AM | 0.23 | 296,480 | 1.02 | 290,667 | 1.07 | 0.39 | 24 hr | CloudBurst |
| CSO016 | 4/28/14 9:45 AM | 4/28/14 7:15 PM | 0.40 | 7,808,865 | 1.80 | 4,338,258 | 1.97 | 0.72 | 3 hr | CloudBurst |
| CSO016 | 5/9/14 8:30 PM | 5/9/14 9:00 PM | 0.02 | 197,564 | 1.64 | 120,466 | 0.35 | 0.64 | 24 hr | CloudBurst |
| CSO016 | 5/10/14 6:00 AM | 5/10/14 5:45 PM | 0.49 | 5,142,036 | 1.64 | 3,135,388 | 1.71 | 0.64 | 24 hr | CloudBurst |
| CSO016 | 5/14/14 9:30 AM | 5/14/14 10:45 PM | 0.55 | 2,272,305 | 1.07 | 2,123,649 | 2.82 | 0.41 | 24 hr | CloudBurst |
| CSO016 | 5/22/14 3:45 AM | 5/22/14 6:00 AM | 0.09 | 1,527,187 | 0.41 | 3,724,847 | 0.54 | 0.27 | 1 hr | CloudBurst |
| CSO016 | 5/28/14 8:30 PM | 5/28/14 10:30 PM | 0.08 | 820,249 | 0.39 | 2,103,202 | 0.79 | 0.32 | 1 hr | CloudBurst |
| CSO016 | 5/29/14 9:30 PM | 5/29/14 11:15 PM | 0.07 | 607,144 | 0.11 | 5,519,494 | 0.51 | 0.09 | 1 hr | CloudBurst |
| CSO018 | 1/11/14 3:15 AM | 1/11/14 3:30 AM | 0.01 | 3,836 | 1.21 | 3,170 | 1.58 | 0.66 | 6 hr | CloudBurst |
| CSO018 | 2/4/14 10:30 PM | 2/5/14 2:45 PM | 0.68 | 1,126,036 | 0.58 | 1,941,441 | 1.03 | 0.27 | 6 hr | CloudBurst |
| CSO018 | 7/10/13 2:30 PM | 7/10/13 3:00 PM | 0.02 | 20,605 | 0.76 | 27,112 | 2.30 | 0.50 | 3 hr | Atlas14 |
| CSO018 | 7/21/13 7:15 PM | 7/21/13 8:15 PM | 0.04 | 84,449 | 3.65 | 23,137 | 2.75 | 10.00 | 1 hr | CloudBurst |
| CSO018 | 7/22/13 7:45 AM | 7/22/13 6:30 PM | 0.45 | 487,103 | 3.65 | 133,453 | 3.86 | 10.00 | 1 hr | CloudBurst |
| CSO018 | 8/9/13 5:30 PM | 8/9/13 5:45 PM | 0.01 | 3,470 | 0.48 | 7,228 | 0.51 | 0.30 | 1 hr | CloudBurst |
| CSO018 | 8/12/13 3:15 PM | 8/12/13 4:00 PM | 0.03 | 16,437 | 1.01 | 16,274 | 1.25 | 0.47 | 1 hr | CloudBurst |
| CSO018 | 8/13/13 4:00 AM | 8/13/13 4:00 AM | 0.01 | 1,817 | 1.01 | 1,800 | 1.63 | 0.47 | 1 hr | CloudBurst |
| CSO018 | 9/2/13 2:15 PM | 9/2/13 2:30 PM | 0.01 | 9,895 | 0.68 | 14,552 | 1.99 | 0.59 | 1 hr | CloudBurst |
| CSO018 | 9/21/13 2:45 AM | 9/21/13 2:45 AM | 0.01 | 1,817 | 1.70 | 1,069 | 1.44 | 0.75 | 12 hr | CloudBurst |
| CSO018 | 10/5/13 1:00 PM | 10/7/13 12:15 PM | 1.97 | 2,815,104 | 5.29 | 532,156 | 5.52 | 22.17 | 24 hr | CloudBurst |
| CSO018 | 10/30/13 5:00 AM | 10/30/13 7:15 AM | 0.09 | 72,083 | 1.57 | 45,913 | 1.58 | 0.82 | 1 hr | CloudBurst |
| CSO018 | 11/17/13 6:30 AM | 11/18/13 11:15 AM | 1.20 | 1,954,792 | 2.88 | 678,747 | 3.06 | 2.52 | 6 hr | CloudBurst |
| CSO018 | 12/21/13 11:15 AM | 12/22/13 11:00 PM | 1.49 | 2,247,604 | 3.51 | 640,343 | 3.58 | 4.64 | 3 hr | Atlas14 |
| CSO018 | 4/3/14 7:00 PM | 4/5/14 4:30 PM | 1.90 | 3,526,941 | 2.57 | 1,372,351 | 4.30 | 0.92 | 24 hr | CloudBurst |
| CSO018 | 4/7/14 11:00 AM | 4/8/14 2:00 AM | 0.63 | 875,661 | 0.73 | 1,199,536 | 3.45 | 0.44 | 1 hr | CloudBurst |
| CSO018 | 4/28/14 6:30 AM | 4/28/14 8:15 AM | 0.07 | 81,491 | 1.64 | 49,690 | 1.42 | 0.65 | 3 hr | Atlas14 |
| CSO018 | 5/15/14 12:45 AM | 5/15/14 5:45 AM | 0.21 | 153,176 | 1.22 | 125,554 | 3.22 | 0.43 | 24 hr | CloudBurst |
| CSO019 | 1/2/14 3:30 AM | 1/2/14 12:45 PM | 0.39 | 75,023 | 0.22 | 341,015 | 0.72 | 0.10 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO019 | 1/5/14 2:45 PM | 1/6/14 2:45 AM | 0.50 | 1,681,757 | 0.46 | 3,655,993 | 0.68 | 0.22 | 6 hr | CloudBurst |
| CSO019 | 1/7/14 4:45 AM | 1/7/14 5:30 AM | 0.03 | 63,634 | Discharge | | 0.68 | DWO | | |
| CSO019 | 1/11/14 12:00 AM | 1/11/14 4:15 PM | 0.68 | 4,379,269 | 0.87 | 5,033,642 | 1.34 | 0.48 | 6 hr | CloudBurst |
| CSO019 | 1/13/14 2:30 PM | 1/14/14 3:00 AM | 0.52 | 184,928 | 0.25 | 739,712 | 1.13 | 0.12 | 6 hr | CloudBurst |
| CSO019 | 1/17/14 8:30 AM | 1/17/14 8:30 AM | 0.00 | 1,065 | 0.01 | 106,503 | 1.16 | 0.01 | 6 hr | CloudBurst |
| CSO019 | 1/25/14 2:30 PM | 1/25/14 3:00 PM | 0.02 | 8,868 | 0.05 | 177,364 | 0.23 | 0.02 | 48 hr | CloudBurst |
| CSO019 | 2/2/14 3:00 AM | 2/2/14 9:45 PM | 0.78 | 898,721 | 0.55 | 1,634,038 | 0.38 | 0.21 | 24 hr | CloudBurst |
| CSO019 | 2/3/14 7:15 AM | 2/3/14 8:45 PM | 0.56 | 84,351 | 0.55 | 153,366 | 0.55 | 0.21 | 24 hr | CloudBurst |
| CSO019 | 2/4/14 7:15 PM | 2/5/14 8:30 PM | 1.05 | 6,574,705 | 0.67 | 9,812,993 | 1.23 | 0.34 | 6 hr | CloudBurst |
| CSO019 | 2/14/14 4:00 PM | 2/15/14 3:00 AM | 0.46 | 63,336 | 0.20 | 316,679 | 0.25 | 0.11 | 3 hr | CloudBurst |
| CSO019 | 2/17/14 3:00 PM | 2/18/14 1:30 AM | 0.44 | 3,538,023 | 0.57 | 6,207,057 | 0.80 | 0.34 | 3 hr | CloudBurst |
| CSO019 | 2/20/14 7:30 PM | 2/21/14 4:15 AM | 0.36 | 338,797 | 0.26 | 1,303,067 | 1.07 | 0.14 | 6 hr | CloudBurst |
| CSO019 | 3/2/14 10:30 AM | 3/2/14 4:15 PM | 0.24 | 852,948 | 0.39 | 2,187,045 | 0.21 | 0.15 | 24 hr | CloudBurst |
| CSO019 | 3/12/14 7:15 AM | 3/12/14 8:30 AM | 0.05 | 32,704 | 0.10 | 327,038 | 0.10 | 0.05 | 1 hr | CloudBurst |
| CSO019 | 3/28/14 4:00 AM | 3/28/14 7:15 AM | 0.14 | 897,432 | 0.35 | 2,564,093 | 0.42 | 0.18 | 6 hr | CloudBurst |
| CSO019 | 3/29/14 6:15 AM | 3/29/14 4:30 PM | 0.43 | 2,976,723 | 0.75 | 3,968,964 | 1.17 | 0.35 | 12 hr | CloudBurst |
| CSO019 | 10/17/13 9:45 AM | 10/17/13 11:45 AM | 0.08 | 5,622 | 0.03 | 187,405 | 0.07 | 0.02 | 6 hr | CloudBurst |
| CSO019 | 10/19/13 7:15 AM | 10/19/13 1:00 PM | 0.24 | 93,994 | 0.16 | 587,466 | 0.23 | 0.08 | 6 hr | CloudBurst |
| CSO019 | 10/29/13 9:15 PM | 10/30/13 2:00 PM | 0.70 | 6,647,436 | 1.21 | 5,493,749 | 1.22 | 0.59 | 6 hr | CloudBurst |
| CSO019 | 10/31/13 11:15 AM | 11/1/13 1:00 PM | 1.07 | 5,367,723 | 0.96 | 5,591,378 | 2.17 | 0.41 | 1 hr | CloudBurst |
| CSO019 | 11/6/13 4:45 PM | 11/7/13 8:00 AM | 0.64 | 239,328 | 0.25 | 957,311 | 1.25 | 0.11 | 12 hr | CloudBurst |
| CSO019 | 11/12/13 5:45 AM | 11/12/13 5:45 AM | 0.00 | 7,710 | 0.05 | 154,192 | 0.30 | 0.02 | 48 hr | CloudBurst |
| CSO019 | 11/15/13 6:45 PM | 11/15/13 8:15 PM | 0.06 | 12,111 | 0.11 | 110,097 | 0.16 | 0.09 | 1 hr | CloudBurst |
| CSO019 | 11/17/13 3:30 AM | 11/18/13 3:30 PM | 1.50 | 24,651,710 | 3.43 | 7,187,088 | 3.59 | 8.37 | 6 hr | CloudBurst |
| CSO019 | 11/21/13 7:15 PM | 11/22/13 10:45 AM | 0.65 | 35,764 | 0.14 | 255,459 | 3.68 | 0.09 | 3 hr | CloudBurst |
| CSO019 | 11/26/13 3:45 AM | 11/26/13 5:15 AM | 0.06 | 6,714 | 0.05 | 134,282 | 0.19 | 0.03 | 1 hr | CloudBurst |
| CSO019 | 12/5/13 5:30 AM | 12/7/13 6:30 AM | 2.04 | 1,842,353 | 0.77 | 2,392,666 | 0.77 | 0.25 | 48 hr | CloudBurst |
| CSO019 | 12/13/13 8:30 PM | 12/15/13 1:15 AM | 1.20 | 1,772,505 | 0.68 | 2,606,625 | 1.03 | 0.28 | 12 hr | CloudBurst |
| CSO019 | 12/20/13 12:00 PM | 12/20/13 12:00 PM | 0.00 | 1,280 | 0.06 | 21,327 | 0.76 | 0.03 | 12 hr | CloudBurst |
| CSO019 | 12/21/13 2:00 AM | 12/22/13 11:15 PM | 1.89 | 28,043,799 | 3.32 | 8,446,927 | 4.01 | 2.24 | 24 hr | CloudBurst |
| CSO019 | 12/29/13 1:00 AM | 12/29/13 5:15 PM | 0.68 | 379,055 | 0.52 | 728,953 | 0.76 | 0.23 | 12 hr | CloudBurst |
| CSO019 | 4/3/14 7:45 AM | 4/4/14 6:30 PM | 1.45 | 23,138,616 | 3.21 | 7,208,292 | 4.42 | 1.63 | 24 hr | CloudBurst |
| CSO019 | 4/7/14 8:30 AM | 4/8/14 3:45 AM | 0.80 | 7,324,897 | 1.05 | 6,976,092 | 4.35 | 0.60 | 3 hr | CloudBurst |
| CSO019 | 4/14/14 4:00 AM | 4/14/14 12:00 PM | 0.33 | 279,610 | 0.41 | 681,975 | 1.53 | 0.22 | 6 hr | CloudBurst |
| CSO019 | 4/14/14 8:15 PM | 4/15/14 5:00 AM | 0.36 | 2,419,887 | 0.54 | 4,481,272 | 1.04 | 0.25 | 12 hr | CloudBurst |
| CSO019 | 4/28/14 4:00 AM | 4/29/14 8:45 AM | 1.20 | 10,664,383 | 1.91 | 5,583,447 | 2.05 | 0.86 | 3 hr | CloudBurst |
| CSO019 | 5/9/14 7:15 PM | 5/11/14 12:45 AM | 1.23 | 10,039,007 | 1.40 | 7,170,720 | 1.47 | 0.64 | 1 hr | CloudBurst |
| CSO019 | 5/14/14 7:30 AM | 5/15/14 12:45 PM | 1.22 | 2,253,467 | 0.99 | 2,276,229 | 2.53 | 0.37 | 24 hr | CloudBurst |
| CSO019 | 5/16/14 3:45 AM | 5/16/14 11:30 AM | 0.32 | 73,961 | 0.13 | 568,932 | 2.66 | 0.10 | 1 hr | CloudBurst |
| CSO019 | 5/21/14 9:30 PM | 5/22/14 12:00 PM | 0.60 | 2,246,928 | 0.89 | 2,524,638 | 1.09 | 0.45 | 1 hr | CloudBurst |
| CSO019 | 5/28/14 8:15 PM | 5/29/14 3:30 AM | 0.30 | 5,708,165 | 0.49 | 11,649,317 | 1.39 | 0.31 | 1 hr | CloudBurst |
| CSO019 | 6/1/14 4:30 PM | 6/2/14 2:30 AM | 0.42 | 293,879 | 0.12 | 2,448,996 | 0.64 | 0.06 | 6 hr | CloudBurst |
| CSO019 | 6/10/14 6:00 AM | 6/10/14 7:00 PM | 0.54 | 18,425 | 0.07 | 263,209 | 0.19 | 0.04 | 6 hr | CloudBurst |
| CSO019 | 6/11/14 1:45 PM | 6/11/14 4:30 PM | 0.11 | 1,199,679 | 0.14 | 8,569,138 | 0.33 | 0.10 | 1 hr | CloudBurst |
| CSO019 | 6/20/14 5:15 PM | 6/20/14 7:00 PM | 0.07 | 1,207,554 | 0.15 | 8,050,357 | 0.16 | 0.10 | 3 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO019 | 6/24/14 1:30 PM | 6/24/14 8:15 PM | 0.28 | 96,742 | 0.17 | 569,068 | 0.42 | 0.09 | 6 hr | CloudBurst |
| CSO020 | 1/5/14 4:00 PM | 1/5/14 10:45 PM | 0.28 | 11,330,962 | 0.52 | 21,790,311 | 0.72 | 0.26 | 6 hr | CloudBurst |
| CSO020 | 1/11/14 12:45 AM | 1/11/14 2:45 PM | 0.58 | 18,362,822 | 0.79 | 23,244,078 | 1.32 | 0.43 | 6 hr | CloudBurst |
| CSO020 | 1/13/14 3:30 PM | 1/13/14 7:30 PM | 0.17 | 2,718,036 | 0.21 | 12,943,029 | 1.01 | 0.10 | 12 hr | CloudBurst |
| CSO020 | 2/2/14 4:45 AM | 2/2/14 10:45 AM | 0.25 | 8,353,218 | 0.48 | 17,402,537 | 0.21 | 0.18 | 24 hr | CloudBurst |
| CSO020 | 2/4/14 7:45 PM | 2/7/14 1:30 AM | 2.24 | 74,145,206 | 0.50 | 148,290,413 | 0.99 | 0.25 | 6 hr | CloudBurst |
| CSO020 | 2/14/14 5:30 PM | 2/14/14 9:00 PM | 0.15 | 2,871,280 | 0.48 | 5,981,833 | 0.52 | 0.25 | 6 hr | CloudBurst |
| CSO020 | 2/17/14 4:00 PM | 2/19/14 4:30 PM | 2.02 | 27,193,633 | 0.64 | 42,490,052 | 1.19 | 0.39 | 3 hr | CloudBurst |
| CSO020 | 2/20/14 8:45 PM | 2/21/14 11:15 PM | 1.10 | 13,133,438 | 0.17 | 77,255,517 | 1.36 | 0.09 | 6 hr | CloudBurst |
| CSO020 | 3/2/14 10:45 AM | 3/2/14 12:30 PM | 0.07 | 1,525,495 | 0.48 | 3,178,114 | 0.22 | 0.18 | 24 hr | CloudBurst |
| CSO020 | 3/28/14 3:30 AM | 3/28/14 6:45 AM | 0.14 | 86,746,436 | 0.31 | 279,827,212 | 0.37 | 0.16 | 6 hr | CloudBurst |
| CSO020 | 3/29/14 6:30 AM | 3/29/14 4:00 PM | 0.40 | 22,957,116 | 0.92 | 24,953,387 | 1.29 | 0.43 | 6 hr | CloudBurst |
| CSO020 | 7/1/13 7:30 PM | 7/1/13 9:00 PM | 0.06 | 682,883 | 0.27 | 2,529,195 | 4.17 | 0.15 | 3 hr | Atlas14 |
| CSO020 | 7/2/13 1:45 PM | 7/2/13 3:00 PM | 0.05 | 335,002 | 0.15 | 2,233,349 | 4.32 | 0.13 | 1 hr | CloudBurst |
| CSO020 | 7/4/13 8:00 AM | 7/4/13 7:00 PM | 0.46 | 6,763,504 | 0.50 | 13,527,009 | 1.51 | 0.22 | 12 hr | CloudBurst |
| CSO020 | 7/6/13 1:30 AM | 7/6/13 12:15 PM | 0.45 | 13,109,690 | 0.64 | 20,483,891 | 2.16 | 0.28 | 12 hr | CloudBurst |
| CSO020 | 7/10/13 2:00 PM | 7/10/13 7:00 PM | 0.21 | 6,307,709 | 0.96 | 6,570,530 | 2.20 | 0.69 | 1 hr | CloudBurst |
| CSO020 | 7/14/13 7:45 PM | 7/14/13 9:45 PM | 0.08 | 2,634,839 | 0.20 | 13,174,195 | 1.24 | 0.17 | 1 hr | CloudBurst |
| CSO020 | 7/21/13 8:00 PM | 7/21/13 9:45 PM | 0.07 | 4,461,160 | 1.88 | 2,372,958 | 1.01 | 0.73 | 24 hr | CloudBurst |
| CSO020 | 7/22/13 7:30 AM | 7/22/13 11:45 PM | 0.68 | 30,525,873 | 1.88 | 16,237,166 | 2.06 | 0.73 | 24 hr | CloudBurst |
| CSO020 | 8/12/13 2:45 PM | 8/12/13 5:45 PM | 0.13 | 3,224,746 | 0.57 | 5,657,449 | 0.59 | 0.22 | 24 hr | CloudBurst |
| CSO020 | 8/13/13 3:30 AM | 8/13/13 5:15 AM | 0.07 | 1,890,774 | 0.57 | 3,317,147 | 0.79 | 0.22 | 24 hr | CloudBurst |
| CSO020 | 8/20/13 6:45 PM | 8/20/13 8:00 PM | 0.05 | 620,272 | 0.17 | 3,648,656 | 0.19 | 0.09 | 6 hr | CloudBurst |
| CSO020 | 8/31/13 8:00 PM | 9/1/13 5:15 AM | 0.39 | 27,851,938 | 1.23 | 22,643,852 | 1.23 | 0.58 | 3 hr | Atlas14 |
| CSO020 | 9/2/13 2:15 PM | 9/2/13 4:00 PM | 0.07 | 2,214,448 | 0.13 | 17,034,217 | 1.36 | 0.11 | 1 hr | CloudBurst |
| CSO020 | 9/20/13 7:45 PM | 9/21/13 8:45 AM | 0.54 | 24,315,157 | 1.22 | 19,930,457 | 1.28 | 0.51 | 12 hr | CloudBurst |
| CSO020 | 10/5/13 1:15 PM | 10/7/13 11:00 PM | 2.41 | 176,025,546 | 3.64 | 48,358,667 | 3.77 | 4.00 | 24 hr | CloudBurst |
| CSO020 | 10/30/13 2:15 AM | 10/30/13 11:15 AM | 0.38 | 16,913,964 | 1.39 | 12,168,319 | 1.39 | 0.69 | 6 hr | CloudBurst |
| CSO020 | 10/31/13 8:00 PM | 11/1/13 1:00 AM | 0.21 | 8,845,282 | 0.68 | 13,007,768 | 2.07 | 0.26 | 24 hr | CloudBurst |
| CSO020 | 11/17/13 5:45 AM | 11/18/13 11:30 PM | 1.74 | 90,650,953 | 2.31 | 39,242,837 | 2.43 | 0.99 | 6 hr | CloudBurst |
| CSO020 | 12/5/13 7:45 AM | 12/5/13 1:15 PM | 0.23 | 5,815,678 | 0.83 | 7,006,841 | 0.29 | 0.27 | 48 hr | CloudBurst |
| CSO020 | 12/6/13 12:30 PM | 12/6/13 2:45 PM | 0.09 | 1,301,337 | 0.83 | 1,567,876 | 0.65 | 0.27 | 48 hr | CloudBurst |
| CSO020 | 12/14/13 8:00 AM | 12/14/13 7:15 PM | 0.47 | 10,123,684 | 0.77 | 13,147,642 | 1.14 | 0.31 | 12 hr | CloudBurst |
| CSO020 | 12/21/13 6:15 AM | 12/23/13 11:30 PM | 2.72 | 113,814,492 | 2.85 | 39,934,909 | 3.32 | 1.27 | 24 hr | CloudBurst |
| CSO020 | 12/29/13 4:00 AM | 12/29/13 9:30 AM | 0.23 | 6,759,372 | 0.47 | 14,381,642 | 0.48 | 0.21 | 12 hr | CloudBurst |
| CSO020 | 4/3/14 12:30 PM | 4/5/14 10:45 PM | 2.43 | 171,491,065 | 2.36 | 72,665,706 | 3.69 | 0.82 | 24 hr | CloudBurst |
| CSO020 | 4/7/14 8:30 AM | 4/8/14 1:00 PM | 1.19 | 152,705,201 | 0.80 | 190,881,502 | 3.26 | 0.47 | 3 hr | CloudBurst |
| CSO020 | 4/28/14 4:15 AM | 4/28/14 10:15 PM | 0.75 | 22,603,987 | 1.59 | 14,216,344 | 1.66 | 0.65 | 3 hr | Atlas14 |
| CSO020 | 5/9/14 8:15 PM | 5/9/14 8:15 PM | 0.01 | 658 | 1.62 | 406 | 0.25 | 0.63 | 24 hr | CloudBurst |
| CSO020 | 5/10/14 6:00 AM | 5/10/14 6:15 PM | 0.51 | 9,784,723 | 1.62 | 6,039,952 | 1.70 | 0.63 | 24 hr | CloudBurst |
| CSO020 | 5/14/14 6:30 PM | 5/15/14 12:30 AM | 0.25 | 1,688,470 | 0.85 | 1,986,435 | 2.61 | 0.32 | 24 hr | CloudBurst |
| CSO020 | 5/22/14 3:00 AM | 5/22/14 5:15 AM | 0.09 | 1,415,141 | 0.52 | 2,721,425 | 0.59 | 0.24 | 1 hr | CloudBurst |
| CSO020 | 5/29/14 8:45 PM | 5/29/14 10:45 PM | 0.08 | 1,503,206 | 0.10 | 15,032,056 | 0.35 | 0.08 | 1 hr | CloudBurst |
| CSO027 | 7/2/13 1:15 PM | 7/2/13 1:15 PM | 0.01 | 1,364 | 0.17 | 8,025 | 3.84 | 0.15 | 1 hr | CloudBurst |
| CSO027 | 7/18/13 4:00 PM | 7/18/13 4:00 PM | 0.01 | 1,230 | 0.40 | 3,076 | 0.59 | 0.30 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO027 | 8/12/13 2:45 PM | 8/12/13 2:45 PM | 0.01 | 6,259 | 0.78 | 8,024 | 0.78 | 0.34 | 1 hr | CloudBurst |
| CSO027 | 4/28/14 6:00 AM | 4/28/14 6:00 AM | 0.01 | 2,451 | 1.63 | 1,504 | 1.15 | 0.66 | 3 hr | Atlas14 |
| CSO027 | 5/28/14 8:15 PM | 5/28/14 8:15 PM | 0.01 | 3,104 | 0.43 | 7,218 | 1.01 | 0.37 | 1 hr | CloudBurst |
| CSO028 | 7/2/13 1:15 PM | 7/2/13 1:15 PM | 0.01 | 28,321 | 0.17 | 166,596 | 3.84 | 0.15 | 1 hr | CloudBurst |
| CSO028 | 7/10/13 2:00 PM | 7/10/13 2:15 PM | 0.01 | 55,059 | 0.76 | 72,447 | 1.94 | 0.50 | 3 hr | Atlas14 |
| CSO028 | 7/22/13 8:00 AM | 7/22/13 1:45 PM | 0.24 | 88,484 | 2.15 | 41,156 | 2.56 | 0.83 | 24 hr | CloudBurst |
| CSO028 | 8/12/13 2:45 PM | 8/12/13 2:45 PM | 0.01 | 938 | 0.78 | 1,203 | 0.78 | 0.34 | 1 hr | CloudBurst |
| CSO028 | 9/2/13 1:45 PM | 9/2/13 1:45 PM | 0.01 | 527 | 0.42 | 1,254 | 1.75 | 0.37 | 1 hr | CloudBurst |
| CSO028 | 10/5/13 9:00 PM | 10/5/13 11:30 PM | 0.10 | 15,937 | 3.21 | 4,965 | 2.24 | 2.28 | 24 hr | CloudBurst |
| CSO028 | 10/30/13 5:00 AM | 10/30/13 5:00 AM | 0.00 | 787 | 1.41 | 558 | 1.11 | 0.72 | 1 hr | CloudBurst |
| CSO028 | 12/21/13 10:30 PM | 12/21/13 10:45 PM | 0.01 | 5,895 | 1.77 | 3,330 | 2.46 | 0.96 | 6 hr | CloudBurst |
| CSO028 | 4/28/14 6:00 AM | 4/28/14 6:15 AM | 0.01 | 8,185 | 1.63 | 5,021 | 1.16 | 0.66 | 3 hr | Atlas14 |
| CSO028 | 5/28/14 8:30 PM | 5/28/14 8:30 PM | 0.01 | 754 | 0.43 | 1,754 | 1.01 | 0.37 | 1 hr | CloudBurst |
| CSO029 | 1/11/14 12:15 AM | 1/11/14 12:15 AM | 0.00 | 13,095 | 0.97 | 13,500 | 0.84 | 0.52 | 6 hr | CloudBurst |
| CSO029 | 2/4/14 8:15 PM | 2/4/14 8:15 PM | 0.00 | 541 | 0.47 | 1,151 | 0.74 | 0.24 | 6 hr | CloudBurst |
| CSO029 | 2/17/14 4:00 PM | 2/17/14 4:15 PM | 0.01 | 10,364 | 0.48 | 21,591 | 0.79 | 0.28 | 3 hr | CloudBurst |
| CSO029 | 3/29/14 6:30 AM | 3/29/14 6:45 AM | 0.01 | 22,125 | 0.84 | 26,339 | 0.66 | 0.39 | 6 hr | CloudBurst |
| CSO029 | 11/17/13 5:30 AM | 11/17/13 9:15 AM | 0.16 | 76,948 | 2.38 | 32,331 | 2.06 | 1.11 | 6 hr | CloudBurst |
| CSO029 | 11/17/13 5:45 PM | 11/17/13 6:00 PM | 0.01 | 17,293 | 2.38 | 7,266 | 2.52 | 1.11 | 6 hr | CloudBurst |
| CSO029 | 12/5/13 7:30 AM | 12/5/13 7:30 AM | 0.00 | 8,107 | 0.80 | 10,133 | 0.15 | 0.26 | 48 hr | CloudBurst |
| CSO029 | 12/21/13 8:00 AM | 12/21/13 8:00 AM | 0.00 | 8,882 | 1.11 | 8,002 | 0.91 | 0.51 | 12 hr | CloudBurst |
| CSO029 | 12/21/13 9:15 PM | 12/21/13 11:15 PM | 0.08 | 1,233,806 | 1.77 | 697,066 | 2.50 | 0.96 | 6 hr | CloudBurst |
| CSO029 | 4/3/14 12:00 PM | 4/3/14 7:00 PM | 0.29 | 28,789 | 2.72 | 10,584 | 2.70 | 0.96 | 24 hr | CloudBurst |
| CSO029 | 4/4/14 3:15 AM | 4/4/14 3:15 AM | 0.01 | 4,761 | 2.72 | 1,750 | 3.29 | 0.96 | 24 hr | CloudBurst |
| CSO029 | 4/7/14 10:30 AM | 4/7/14 11:45 AM | 0.05 | 24,135 | 0.66 | 36,568 | 3.48 | 0.38 | 3 hr | Atlas14 |
| CSO029 | 4/28/14 4:00 AM | 4/28/14 6:15 AM | 0.09 | 395,227 | 1.63 | 242,470 | 1.16 | 0.66 | 3 hr | Atlas14 |
| CSO029 | 4/28/14 5:30 PM | 4/28/14 5:30 PM | 0.01 | 3,558 | 1.63 | 2,183 | 1.61 | 0.66 | 3 hr | Atlas14 |
| CSO029 | 5/9/14 7:15 PM | 5/10/14 3:00 PM | 0.82 | 117,759 | 1.63 | 72,245 | 1.71 | 0.63 | 24 hr | CloudBurst |
| CSO029 | 5/22/14 2:30 AM | 5/22/14 3:15 AM | 0.03 | 23,314 | 0.59 | 39,516 | 0.62 | 0.27 | 12 hr | CloudBurst |
| CSO029 | 5/28/14 8:00 PM | 5/28/14 8:30 PM | 0.02 | 256,863 | 0.43 | 597,356 | 1.01 | 0.37 | 1 hr | CloudBurst |
| CSO029 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 6,240 | 0.09 | 69,335 | 0.23 | 0.06 | 1 hr | CloudBurst |
| CSO029 | 6/20/14 5:30 PM | 6/20/14 5:30 PM | 0.01 | 332 | 0.29 | 1,145 | 0.29 | 0.19 | 3 hr | CloudBurst |
| CSO031 | 7/1/13 7:30 PM | 7/2/13 2:00 AM | 0.27 | 10,650 | 0.23 | 46,305 | 3.67 | 0.10 | 3 hr | CloudBurst |
| CSO031 | 7/2/13 12:30 PM | 7/2/13 2:30 PM | 0.08 | 50,159 | 0.17 | 295,050 | 3.84 | 0.15 | 1 hr | CloudBurst |
| CSO031 | 7/4/13 6:45 AM | 7/5/13 12:30 AM | 0.74 | 178,638 | 0.52 | 343,534 | 1.48 | 0.22 | 12 hr | CloudBurst |
| CSO031 | 7/6/13 1:15 AM | 7/6/13 2:00 PM | 0.53 | 86,506 | 0.59 | 146,621 | 2.09 | 0.25 | 12 hr | CloudBurst |
| CSO031 | 7/10/13 2:15 PM | 7/10/13 2:30 PM | 0.01 | 16,200 | 0.76 | 21,316 | 1.94 | 0.50 | 3 hr | Atlas14 |
| CSO031 | 7/14/13 7:45 PM | 7/15/13 9:15 AM | 0.56 | 118,567 | 0.12 | 988,059 | 0.92 | 0.10 | 1 hr | CloudBurst |
| CSO031 | 7/18/13 4:30 PM | 7/18/13 4:30 PM | 0.01 | 3,463 | 0.40 | 8,658 | 0.60 | 0.30 | 1 hr | CloudBurst |
| CSO031 | 7/21/13 8:30 PM | 7/23/13 1:00 PM | 1.69 | 1,066,762 | 2.15 | 496,168 | 2.62 | 0.83 | 24 hr | CloudBurst |
| CSO031 | 8/31/13 10:45 PM | 9/1/13 4:15 AM | 0.23 | 15,330 | 1.33 | 11,526 | 1.32 | 0.62 | 6 hr | CloudBurst |
| CSO031 | 9/2/13 2:00 PM | 9/2/13 2:30 PM | 0.02 | 85,017 | 0.42 | 202,420 | 1.75 | 0.37 | 1 hr | CloudBurst |
| CSO031 | 10/5/13 10:30 PM | 10/6/13 6:30 AM | 0.33 | 37,757 | 3.21 | 11,762 | 2.82 | 2.28 | 24 hr | CloudBurst |
| CSO031 | 10/30/13 5:00 AM | 10/30/13 5:00 AM | 0.00 | 8,506 | 1.41 | 6,033 | 1.11 | 0.72 | 1 hr | CloudBurst |
| CSO034 | 7/2/13 1:15 PM | 7/2/13 1:15 PM | 0.01 | 142,183 | 0.17 | 836,371 | 3.84 | 0.15 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO034 | 7/10/13 2:00 PM | 7/11/13 11:15 AM | 0.89 | 3,635,942 | 0.76 | 4,784,134 | 1.98 | 0.50 | 3 hr | Atlas14 |
| CSO034 | 7/21/13 8:15 PM | 7/22/13 1:45 PM | 0.73 | 155,770 | 2.15 | 72,451 | 2.56 | 0.83 | 24 hr | CloudBurst |
| CSO034 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 169,892 | 0.78 | 217,810 | 0.78 | 0.34 | 1 hr | CloudBurst |
| CSO034 | 8/31/13 8:00 PM | 8/31/13 8:15 PM | 0.01 | 14,517 | 1.33 | 10,915 | 0.65 | 0.62 | 6 hr | CloudBurst |
| CSO034 | 9/2/13 1:45 PM | 9/2/13 2:00 PM | 0.01 | 13,438 | 0.42 | 31,996 | 1.75 | 0.37 | 1 hr | CloudBurst |
| CSO034 | 10/5/13 2:15 PM | 10/5/13 11:30 PM | 0.39 | 85,787 | 3.21 | 26,725 | 2.24 | 2.28 | 24 hr | CloudBurst |
| CSO034 | 10/30/13 4:45 AM | 10/30/13 5:00 AM | 0.01 | 20,543 | 1.41 | 14,569 | 1.11 | 0.72 | 1 hr | CloudBurst |
| CSO034 | 11/17/13 6:00 AM | 11/17/13 8:15 AM | 0.09 | 11,077 | 2.38 | 4,654 | 1.84 | 1.11 | 6 hr | CloudBurst |
| CSO034 | 11/17/13 6:00 PM | 11/17/13 6:00 PM | 0.00 | 6,934 | 2.38 | 2,914 | 2.52 | 1.11 | 6 hr | CloudBurst |
| CSO034 | 12/21/13 10:00 PM | 12/21/13 10:45 PM | 0.03 | 72,977 | 1.77 | 41,230 | 2.46 | 0.96 | 6 hr | CloudBurst |
| CSO034 | 4/4/14 3:15 AM | 4/4/14 3:15 AM | 0.01 | 10,723 | 2.72 | 3,942 | 3.29 | 0.96 | 24 hr | CloudBurst |
| CSO034 | 4/7/14 11:30 AM | 4/7/14 11:30 AM | 0.01 | 656 | 0.66 | 994 | 3.46 | 0.38 | 3 hr | Atlas14 |
| CSO034 | 4/28/14 4:15 AM | 4/28/14 6:15 AM | 0.08 | 19,625 | 1.63 | 12,040 | 1.16 | 0.66 | 3 hr | Atlas14 |
| CSO034 | 5/10/14 5:45 AM | 5/10/14 5:45 AM | 0.01 | 30,975 | 1.63 | 19,003 | 0.94 | 0.63 | 24 hr | CloudBurst |
| CSO034 | 5/10/14 2:15 PM | 5/10/14 2:15 PM | 0.01 | 6,755 | 1.63 | 4,144 | 1.53 | 0.63 | 24 hr | CloudBurst |
| CSO034 | 5/28/14 8:15 PM | 5/28/14 8:30 PM | 0.01 | 19,242 | 0.43 | 44,748 | 1.01 | 0.37 | 1 hr | CloudBurst |
| CSO036 | 1/5/14 4:45 PM | 1/5/14 4:45 PM | 0.00 | 1,324 | 0.51 | 2,597 | 0.59 | 0.26 | 6 hr | CloudBurst |
| CSO036 | 1/11/14 12:15 AM | 1/11/14 4:00 AM | 0.16 | 37,890 | 1.01 | 37,515 | 1.43 | 0.55 | 6 hr | CloudBurst |
| CSO036 | 2/2/14 4:00 AM | 2/2/14 5:15 AM | 0.05 | 6,301 | 0.24 | 26,255 | 0.17 | 0.13 | 6 hr | CloudBurst |
| CSO036 | 2/4/14 7:00 PM | 2/4/14 11:30 PM | 0.19 | 38,488 | 0.50 | 76,975 | 1.00 | 0.25 | 6 hr | CloudBurst |
| CSO036 | 2/17/14 4:00 PM | 2/17/14 4:45 PM | 0.03 | 14,490 | 0.63 | 23,000 | 1.13 | 0.37 | 3 hr | CloudBurst |
| CSO036 | 2/21/14 6:45 AM | 2/21/14 6:45 AM | 0.00 | 33,092 | 0.18 | 183,842 | 1.38 | 0.10 | 6 hr | CloudBurst |
| CSO036 | 3/12/14 7:15 AM | 3/12/14 7:15 AM | 0.00 | 732 | 0.08 | 9,156 | 0.08 | 0.04 | 1 hr | CloudBurst |
| CSO036 | 3/28/14 4:30 AM | 3/28/14 4:45 AM | 0.01 | 5,002 | 0.26 | 19,237 | 0.31 | 0.12 | 12 hr | CloudBurst |
| CSO036 | 3/29/14 6:15 AM | 3/29/14 8:30 AM | 0.09 | 7,679 | 0.86 | 8,929 | 0.91 | 0.40 | 6 hr | CloudBurst |
| CSO036 | 8/31/13 8:15 PM | 8/31/13 11:30 PM | 0.14 | 17,081 | 1.34 | 12,747 | 1.02 | 0.62 | 6 hr | CloudBurst |
| CSO036 | 9/2/13 1:45 PM | 9/2/13 2:00 PM | 0.01 | 38,975 | 0.51 | 76,421 | 1.85 | 0.44 | 1 hr | CloudBurst |
| CSO036 | 9/20/13 4:30 PM | 9/21/13 1:00 AM | 0.35 | 7,358 | 1.22 | 6,031 | 1.01 | 0.51 | 12 hr | CloudBurst |
| CSO036 | 10/5/13 1:00 PM | 10/6/13 6:00 AM | 0.71 | 363,820 | 4.10 | 88,737 | 3.60 | 6.53 | 24 hr | CloudBurst |
| CSO036 | 10/30/13 2:15 AM | 10/30/13 5:45 AM | 0.15 | 35,934 | 1.51 | 23,797 | 1.49 | 0.75 | 6 hr | CloudBurst |
| CSO036 | 10/31/13 7:30 PM | 10/31/13 7:30 PM | 0.00 | 1,884 | 0.71 | 2,653 | 2.07 | 0.28 | 24 hr | CloudBurst |
| CSO036 | 11/17/13 5:30 AM | 11/17/13 8:45 AM | 0.14 | 28,698 | 2.16 | 13,286 | 1.76 | 0.94 | 6 hr | CloudBurst |
| CSO036 | 12/5/13 7:30 AM | 12/5/13 7:30 AM | 0.00 | 706 | 0.84 | 841 | 0.18 | 0.27 | 48 hr | CloudBurst |
| CSO036 | 12/21/13 8:15 AM | 12/21/13 10:45 AM | 0.10 | 1,732 | 2.56 | 677 | 1.12 | 0.97 | 24 hr | CloudBurst |
| CSO036 | 12/21/13 9:15 PM | 12/22/13 12:00 AM | 0.11 | 175,725 | 2.56 | 68,643 | 2.37 | 0.97 | 24 hr | CloudBurst |
| CSO036 | 4/3/14 12:00 PM | 4/4/14 6:45 AM | 0.78 | 28,878 | 2.80 | 10,313 | 3.86 | 1.00 | 24 hr | CloudBurst |
| CSO036 | 4/7/14 9:15 AM | 4/7/14 3:15 PM | 0.25 | 37,876 | 0.70 | 54,108 | 3.63 | 0.40 | 3 hr | Atlas14 |
| CSO036 | 4/14/14 3:30 AM | 4/14/14 10:15 AM | 0.28 | 2,371 | 0.34 | 6,975 | 1.06 | 0.17 | 6 hr | CloudBurst |
| CSO036 | 4/14/14 8:00 PM | 4/15/14 1:15 AM | 0.22 | 26,360 | 0.58 | 45,448 | 0.88 | 0.27 | 6 hr | CloudBurst |
| CSO036 | 4/28/14 4:00 AM | 4/28/14 7:30 AM | 0.15 | 127,426 | 1.62 | 78,658 | 1.22 | 0.62 | 3 hr | CloudBurst |
| CSO036 | 4/28/14 5:30 PM | 4/28/14 5:30 PM | 0.01 | 4,033 | 1.62 | 2,490 | 1.53 | 0.62 | 3 hr | CloudBurst |
| CSO036 | 5/9/14 7:15 PM | 5/10/14 3:00 PM | 0.82 | 66,295 | 1.68 | 39,462 | 1.74 | 0.65 | 24 hr | CloudBurst |
| CSO036 | 5/14/14 7:00 AM | 5/14/14 8:15 AM | 0.05 | 40,142 | 0.96 | 41,814 | 1.99 | 0.37 | 24 hr | CloudBurst |
| CSO036 | 5/14/14 6:00 PM | 5/14/14 8:15 PM | 0.09 | 1,592 | 0.96 | 1,658 | 2.65 | 0.37 | 24 hr | CloudBurst |
| CSO036 | 5/28/14 8:30 PM | 5/28/14 8:30 PM | 0.01 | 292 | 0.40 | 731 | 0.85 | 0.34 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO036 | 5/29/14 8:45 PM | 5/29/14 8:45 PM | 0.01 | 493 | 0.39 | 1,263 | 0.73 | 0.30 | 1 hr | CloudBurst |
| CSO036 | 6/11/14 2:00 PM | 6/11/14 9:00 PM | 0.29 | 59,996 | 0.07 | 857,080 | 0.22 | 0.03 | 3 hr | CloudBurst |
| CSO036 | 6/20/14 5:15 PM | 6/20/14 7:00 PM | 0.07 | 37,509 | 0.20 | 187,547 | 0.20 | 0.13 | 3 hr | CloudBurst |
| CSO036 | 6/24/14 1:30 PM | 6/24/14 2:15 PM | 0.03 | 13,240 | 0.10 | 132,404 | 0.33 | 0.05 | 12 hr | CloudBurst |
| CSO038 | 2/4/14 7:30 PM | 2/5/14 3:30 AM | 0.33 | 440,890 | 0.47 | 938,063 | 0.96 | 0.24 | 6 hr | CloudBurst |
| CSO038 | 2/17/14 8:30 PM | 2/17/14 10:45 PM | 0.09 | 40,070 | 0.48 | 83,479 | 0.90 | 0.28 | 3 hr | CloudBurst |
| CSO038 | 2/20/14 7:15 PM | 2/20/14 10:30 PM | 0.14 | 15,750 | 0.16 | 98,438 | 1.00 | 0.09 | 6 hr | CloudBurst |
| CSO038 | 7/2/13 1:15 PM | 7/2/13 1:15 PM | 0.01 | 82,226 | 0.17 | 483,683 | 3.84 | 0.15 | 1 hr | CloudBurst |
| CSO038 | 7/10/13 2:15 PM | 7/10/13 2:15 PM | 0.01 | 16,539 | 0.76 | 21,761 | 1.94 | 0.50 | 3 hr | Atlas14 |
| CSO038 | 7/18/13 4:00 PM | 7/18/13 4:00 PM | 0.01 | 1,914 | 0.40 | 4,786 | 0.59 | 0.30 | 1 hr | CloudBurst |
| CSO038 | 7/22/13 1:30 PM | 7/22/13 1:30 PM | 0.01 | 120,938 | 2.15 | 56,250 | 2.55 | 0.83 | 24 hr | CloudBurst |
| CSO038 | 8/12/13 2:45 PM | 8/12/13 2:45 PM | 0.01 | 116,854 | 0.78 | 149,813 | 0.78 | 0.34 | 1 hr | CloudBurst |
| CSO038 | 9/2/13 2:00 PM | 9/2/13 2:00 PM | 0.01 | 1,651 | 0.42 | 3,931 | 1.75 | 0.37 | 1 hr | CloudBurst |
| CSO038 | 5/28/14 8:30 PM | 5/28/14 8:30 PM | 0.01 | 1,853 | 0.43 | 4,309 | 1.01 | 0.37 | 1 hr | CloudBurst |
| CSO050 | 1/5/14 2:45 PM | 1/5/14 7:00 PM | 0.18 | 40,494 | 0.52 | 77,874 | 0.66 | 0.27 | 3 hr | CloudBurst |
| CSO050 | 1/11/14 12:00 AM | 1/11/14 5:15 AM | 0.22 | 186,265 | 0.77 | 241,903 | 1.29 | 0.41 | 6 hr | CloudBurst |
| CSO050 | 1/13/14 2:30 PM | 1/13/14 5:15 PM | 0.11 | 3,931 | 0.22 | 17,868 | 1.00 | 0.10 | 12 hr | CloudBurst |
| CSO050 | 1/14/14 6:30 PM | 1/14/14 6:30 PM | 0.00 | 312 | 0.03 | 10,399 | 1.03 | 0.03 | 1 hr | CloudBurst |
| CSO050 | 2/2/14 3:00 AM | 2/2/14 7:15 AM | 0.18 | 30,258 | 0.52 | 58,188 | 0.22 | 0.20 | 24 hr | CloudBurst |
| CSO050 | 2/4/14 6:45 PM | 2/5/14 1:15 AM | 0.27 | 215,590 | 0.62 | 347,726 | 1.13 | 0.30 | 6 hr | CloudBurst |
| CSO050 | 2/14/14 4:15 PM | 2/14/14 5:30 PM | 0.05 | 4,447 | 0.28 | 15,883 | 0.26 | 0.15 | 6 hr | CloudBurst |
| CSO050 | 2/17/14 3:30 PM | 2/17/14 6:15 PM | 0.11 | 125,992 | 0.52 | 242,291 | 0.85 | 0.30 | 3 hr | CloudBurst |
| CSO050 | 3/2/14 9:30 AM | 3/2/14 11:30 AM | 0.08 | 46,345 | 0.45 | 102,989 | 0.22 | 0.17 | 24 hr | CloudBurst |
| CSO050 | 3/12/14 7:15 AM | 3/12/14 7:30 AM | 0.01 | 12,993 | 0.10 | 129,932 | 0.08 | 0.04 | 1 hr | CloudBurst |
| CSO050 | 3/19/14 8:45 AM | 3/19/14 8:45 AM | 0.00 | 874 | 0.07 | 12,485 | 0.14 | 0.04 | 6 hr | CloudBurst |
| CSO050 | 3/27/14 9:45 AM | 3/27/14 9:45 AM | 0.00 | 503 | 0.03 | 16,760 | 0.06 | 0.02 | 6 hr | CloudBurst |
| CSO050 | 3/28/14 4:00 AM | 3/28/14 5:00 AM | 0.04 | 33,200 | 0.34 | 97,647 | 0.40 | 0.18 | 6 hr | CloudBurst |
| CSO050 | 3/29/14 5:15 AM | 3/29/14 1:00 PM | 0.32 | 142,055 | 0.82 | 173,238 | 1.19 | 0.38 | 12 hr | CloudBurst |
| CSO050 | 7/1/13 6:45 PM | 7/1/13 8:00 PM | 0.05 | 31,051 | 0.26 | 119,426 | 3.72 | 0.13 | 3 hr | Atlas14 |
| CSO050 | 7/2/13 1:15 PM | 7/2/13 1:45 PM | 0.02 | 261,667 | 0.05 | 5,233,346 | 3.78 | 0.04 | 1 hr | CloudBurst |
| CSO050 | 7/3/13 5:15 PM | 7/3/13 5:15 PM | 0.01 | 1,637 | 0.09 | 18,189 | 1.87 | 0.07 | 1 hr | CloudBurst |
| CSO050 | 7/4/13 6:30 AM | 7/4/13 12:00 PM | 0.23 | 25,273 | 0.51 | 49,555 | 1.32 | 0.22 | 12 hr | CloudBurst |
| CSO050 | 7/6/13 12:30 AM | 7/6/13 8:00 AM | 0.31 | 87,056 | 0.56 | 155,457 | 2.06 | 0.25 | 12 hr | CloudBurst |
| CSO050 | 7/10/13 2:00 PM | 7/10/13 3:00 PM | 0.04 | 499,462 | 0.68 | 734,503 | 1.86 | 0.44 | 3 hr | Atlas14 |
| CSO050 | 7/14/13 7:30 PM | 7/14/13 8:00 PM | 0.02 | 16,245 | 0.06 | 270,742 | 0.78 | 0.05 | 1 hr | CloudBurst |
| CSO050 | 7/18/13 3:45 PM | 7/18/13 5:15 PM | 0.06 | 719,422 | 0.34 | 2,115,948 | 0.48 | 0.26 | 1 hr | CloudBurst |
| CSO050 | 7/21/13 8:00 PM | 7/22/13 2:30 PM | 0.77 | 681,723 | 1.85 | 368,499 | 2.23 | 0.72 | 24 hr | CloudBurst |
| CSO050 | 8/12/13 2:45 PM | 8/12/13 4:15 PM | 0.06 | 175,395 | 1.04 | 168,649 | 0.88 | 0.50 | 1 hr | CloudBurst |
| CSO050 | 8/13/13 2:30 AM | 8/13/13 3:45 AM | 0.05 | 42,928 | 1.04 | 41,277 | 1.19 | 0.50 | 1 hr | CloudBurst |
| CSO050 | 8/20/13 6:30 PM | 8/20/13 6:45 PM | 0.01 | 6,073 | 0.22 | 27,603 | 0.23 | 0.12 | 6 hr | CloudBurst |
| CSO050 | 8/31/13 8:00 PM | 9/1/13 3:45 AM | 0.32 | 353,978 | 1.38 | 256,506 | 1.33 | 0.64 | 12 hr | CloudBurst |
| CSO050 | 9/2/13 1:30 PM | 9/2/13 2:45 PM | 0.05 | 452,851 | 0.40 | 1,132,128 | 1.78 | 0.35 | 1 hr | CloudBurst |
| CSO050 | 9/19/13 11:00 AM | 9/19/13 11:15 AM | 0.01 | 3,460 | 0.11 | 31,450 | 0.16 | 0.10 | 1 hr | CloudBurst |
| CSO050 | 9/20/13 4:30 PM | 9/21/13 5:30 AM | 0.54 | 289,126 | 1.57 | 184,157 | 1.71 | 0.65 | 12 hr | CloudBurst |
| CSO050 | 10/3/13 2:45 AM | 10/3/13 2:45 AM | 0.00 | 995 | 0.09 | 11,056 | 0.15 | 0.04 | 12 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO050 | 10/5/13 12:15 PM | 10/6/13 3:15 PM | 1.13 | 3,604,758 | 4.32 | 834,435 | 4.50 | 8.63 | 24 hr | CloudBurst |
| CSO050 | 10/19/13 7:30 AM | 10/19/13 7:30 AM | 0.00 | 394 | 0.20 | 1,968 | 0.17 | 0.10 | 6 hr | CloudBurst |
| CSO050 | 10/29/13 9:30 PM | 10/30/13 6:45 AM | 0.39 | 474,485 | 1.27 | 373,610 | 1.28 | 0.61 | 6 hr | CloudBurst |
| CSO050 | 10/31/13 12:00 PM | 10/31/13 9:00 PM | 0.38 | 298,454 | 0.80 | 373,068 | 2.02 | 0.34 | 12 hr | CloudBurst |
| CSO050 | 11/6/13 7:15 PM | 11/6/13 7:15 PM | 0.00 | 901 | 0.24 | 3,752 | 0.90 | 0.11 | 12 hr | CloudBurst |
| CSO050 | 11/15/13 6:15 PM | 11/15/13 6:45 PM | 0.02 | 3,382 | 0.10 | 33,818 | 0.14 | 0.08 | 1 hr | CloudBurst |
| CSO050 | 11/17/13 4:15 AM | 11/17/13 7:15 PM | 0.63 | 1,817,018 | 2.95 | 615,938 | 3.09 | 2.00 | 6 hr | CloudBurst |
| CSO050 | 12/5/13 5:30 AM | 12/5/13 11:45 AM | 0.26 | 84,443 | 0.79 | 106,890 | 0.26 | 0.26 | 48 hr | CloudBurst |
| CSO050 | 12/6/13 2:45 AM | 12/6/13 11:45 AM | 0.38 | 4,997 | 0.79 | 6,326 | 0.46 | 0.26 | 48 hr | CloudBurst |
| CSO050 | 12/14/13 4:15 AM | 12/14/13 11:30 AM | 0.30 | 21,755 | 0.67 | 32,471 | 1.05 | 0.27 | 12 hr | CloudBurst |
| CSO050 | 12/20/13 7:30 AM | 12/20/13 7:30 AM | 0.00 | 3,516 | 0.07 | 50,223 | 0.73 | 0.04 | 6 hr | CloudBurst |
| CSO050 | 12/21/13 2:00 AM | 12/21/13 1:00 PM | 0.46 | 252,111 | 3.11 | 81,065 | 1.73 | 1.82 | 24 hr | CloudBurst |
| CSO050 | 12/21/13 9:15 PM | 12/22/13 3:30 AM | 0.26 | 1,341,953 | 3.11 | 431,496 | 3.17 | 1.82 | 24 hr | CloudBurst |
| CSO050 | 12/29/13 5:00 AM | 12/29/13 6:30 AM | 0.06 | 4,066 | 0.50 | 8,132 | 0.38 | 0.22 | 12 hr | CloudBurst |
| CSO050 | 4/3/14 5:30 AM | 4/4/14 8:45 AM | 1.14 | 1,794,141 | 3.33 | 538,781 | 4.64 | 1.88 | 24 hr | CloudBurst |
| CSO050 | 4/7/14 8:00 AM | 4/7/14 3:30 PM | 0.31 | 753,846 | 0.89 | 847,018 | 4.33 | 0.55 | 1 hr | CloudBurst |
| CSO050 | 4/14/14 3:30 AM | 4/14/14 10:30 AM | 0.29 | 10,519 | 1.15 | 9,147 | 1.42 | 0.44 | 24 hr | CloudBurst |
| CSO050 | 4/14/14 7:30 PM | 4/15/14 1:30 AM | 0.25 | 92,912 | 1.15 | 80,793 | 1.15 | 0.44 | 24 hr | CloudBurst |
| CSO050 | 4/28/14 4:00 AM | 4/28/14 8:00 PM | 0.67 | 1,047,933 | 1.90 | 551,543 | 2.00 | 0.76 | 3 hr | CloudBurst |
| CSO050 | 4/29/14 7:00 PM | 4/29/14 7:30 PM | 0.02 | 1,439 | 0.20 | 7,195 | 2.10 | 0.09 | 12 hr | CloudBurst |
| CSO050 | 5/9/14 7:15 PM | 5/10/14 4:15 PM | 0.88 | 763,591 | 1.49 | 512,477 | 1.56 | 0.58 | 1 hr | CloudBurst |
| CSO050 | 5/14/14 7:15 AM | 5/15/14 1:15 AM | 0.75 | 253,264 | 0.74 | 342,249 | 2.36 | 0.29 | 24 hr | CloudBurst |
| CSO050 | 5/16/14 3:45 AM | 5/16/14 4:15 AM | 0.02 | 7,393 | 0.12 | 61,607 | 2.46 | 0.08 | 1 hr | CloudBurst |
| CSO050 | 5/21/14 9:00 PM | 5/22/14 5:00 AM | 0.33 | 84,586 | 0.65 | 130,132 | 0.85 | 0.30 | 12 hr | CloudBurst |
| CSO050 | 5/28/14 8:15 PM | 5/28/14 8:45 PM | 0.02 | 174,204 | 0.65 | 268,006 | 1.30 | 0.55 | 1 hr | CloudBurst |
| CSO050 | 6/1/14 4:00 PM | 6/1/14 10:15 PM | 0.26 | 9,734 | 0.12 | 81,113 | 0.77 | 0.06 | 12 hr | CloudBurst |
| CSO050 | 6/10/14 3:30 PM | 6/10/14 5:00 PM | 0.06 | 6,115 | 0.09 | 67,945 | 0.18 | 0.06 | 3 hr | CloudBurst |
| CSO050 | 6/11/14 2:00 PM | 6/11/14 2:30 PM | 0.02 | 235,772 | 0.15 | 1,571,815 | 0.33 | 0.12 | 1 hr | CloudBurst |
| CSO050 | 6/20/14 4:00 PM | 6/20/14 5:45 PM | 0.07 | 84,745 | 0.23 | 368,455 | 0.24 | 0.15 | 3 hr | CloudBurst |
| CSO050 | 6/23/14 4:00 PM | 6/23/14 4:00 PM | 0.01 | 9,399 | 0.09 | 104,435 | 0.27 | 0.05 | 6 hr | CloudBurst |
| CSO050 | 6/24/14 1:45 PM | 6/24/14 2:15 PM | 0.02 | 14,798 | 0.10 | 147,982 | 0.37 | 0.05 | 12 hr | CloudBurst |
| CSO050 | 6/29/14 3:30 PM | 6/29/14 4:15 PM | 0.03 | 12,212 | 0.03 | 407,052 | 0.24 | 0.03 | 1 hr | CloudBurst |
| CSO051 | 1/11/14 12:30 AM | 1/11/14 10:45 PM | 0.93 | 892 | 0.77 | 1,158 | 1.30 | 0.41 | 6 hr | CloudBurst |
| CSO051 | 2/17/14 4:00 PM | 2/17/14 4:00 PM | 0.00 | 5,503 | 0.52 | 10,583 | 0.71 | 0.30 | 3 hr | CloudBurst |
| CSO051 | 2/20/14 10:45 PM | 2/20/14 10:45 PM | 0.00 | 84 | 0.18 | 466 | 1.00 | 0.09 | 6 hr | CloudBurst |
| CSO051 | 3/29/14 6:30 AM | 3/29/14 6:30 AM | 0.00 | 63 | 0.82 | 77 | 0.66 | 0.38 | 12 hr | CloudBurst |
| CSO051 | 7/1/13 6:30 PM | 7/1/13 6:30 PM | 0.01 | 816 | 0.26 | 3,140 | 3.65 | 0.13 | 3 hr | Atlas14 |
| CSO051 | 7/2/13 1:00 PM | 7/2/13 1:00 PM | 0.01 | 26,544 | 0.05 | 530,880 | 3.77 | 0.04 | 1 hr | CloudBurst |
| CSO051 | 7/10/13 1:45 PM | 7/10/13 2:00 PM | 0.01 | 35,292 | 0.68 | 51,901 | 1.82 | 0.44 | 3 hr | Atlas14 |
| CSO051 | 7/18/13 3:30 PM | 7/18/13 4:00 PM | 0.02 | 50,702 | 0.34 | 149,124 | 0.47 | 0.26 | 1 hr | CloudBurst |
| CSO051 | 7/21/13 8:15 PM | 7/21/13 8:15 PM | 0.01 | 488 | 1.85 | 264 | 1.17 | 0.72 | 24 hr | CloudBurst |
| CSO051 | 7/22/13 6:45 AM | 7/22/13 1:30 PM | 0.28 | 27,816 | 1.85 | 15,036 | 2.23 | 0.72 | 24 hr | CloudBurst |
| CSO051 | 8/12/13 2:30 PM | 8/12/13 2:30 PM | 0.01 | 11,764 | 1.04 | 11,311 | 0.82 | 0.50 | 1 hr | CloudBurst |
| CSO051 | 8/13/13 2:15 AM | 8/13/13 2:15 AM | 0.01 | 386 | 1.04 | 371 | 1.08 | 0.50 | 1 hr | CloudBurst |
| CSO051 | 8/31/13 7:45 PM | 8/31/13 11:00 PM | 0.14 | 20,945 | 1.38 | 15,178 | 0.96 | 0.64 | 12 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO051 | 9/2/13 1:15 PM | 9/2/13 1:30 PM | 0.01 | 23,100 | 0.40 | 57,749 | 1.72 | 0.35 | 1 hr | CloudBurst |
| CSO051 | 9/19/13 11:00 AM | 9/19/13 12:15 PM | 0.05 | 8 | 0.11 | 69 | 0.16 | 0.10 | 1 hr | CloudBurst |
| CSO051 | 9/20/13 4:15 PM | 9/20/13 10:30 PM | 0.26 | 2,789 | 1.57 | 1,777 | 1.03 | 0.65 | 12 hr | CloudBurst |
| CSO051 | 10/5/13 1:00 PM | 10/6/13 6:15 AM | 0.72 | 238,572 | 4.32 | 55,225 | 3.91 | 8.63 | 24 hr | CloudBurst |
| CSO051 | 10/30/13 2:30 AM | 11/2/13 8:45 PM | 3.76 | 47,917 | 1.27 | 37,730 | 2.09 | 0.61 | 6 hr | CloudBurst |
| CSO051 | 11/17/13 4:15 AM | 11/18/13 10:00 PM | 1.74 | 166,144 | 2.95 | 56,320 | 3.09 | 2.00 | 6 hr | CloudBurst |
| CSO051 | 12/5/13 5:30 AM | 12/5/13 11:30 PM | 0.75 | 1,040 | 0.79 | 1,317 | 0.31 | 0.26 | 48 hr | CloudBurst |
| CSO051 | 12/21/13 7:30 AM | 12/22/13 12:00 AM | 0.69 | 81,883 | 3.11 | 26,329 | 3.08 | 1.82 | 24 hr | CloudBurst |
| CSO051 | 4/3/14 11:45 AM | 4/4/14 3:30 AM | 0.66 | 21,360 | 3.33 | 6,414 | 4.04 | 1.88 | 24 hr | CloudBurst |
| CSO051 | 4/7/14 10:30 AM | 4/7/14 11:45 AM | 0.05 | 27,604 | 0.89 | 31,016 | 4.32 | 0.55 | 1 hr | CloudBurst |
| CSO051 | 4/28/14 3:45 AM | 4/28/14 6:45 AM | 0.13 | 47,844 | 1.90 | 25,181 | 1.41 | 0.76 | 3 hr | CloudBurst |
| CSO051 | 5/9/14 7:00 PM | 5/10/14 5:30 AM | 0.44 | 17,627 | 1.49 | 11,830 | 0.68 | 0.58 | 1 hr | CloudBurst |
| CSO051 | 5/10/14 1:45 PM | 5/10/14 3:00 PM | 0.05 | 16,900 | 1.49 | 11,342 | 1.55 | 0.58 | 1 hr | CloudBurst |
| CSO051 | 5/21/14 8:45 PM | 5/22/14 3:15 AM | 0.27 | 5,164 | 0.65 | 7,944 | 0.84 | 0.30 | 12 hr | CloudBurst |
| CSO051 | 5/28/14 8:00 PM | 5/28/14 8:15 PM | 0.01 | 6,989 | 0.65 | 10,753 | 1.26 | 0.55 | 1 hr | CloudBurst |
| CSO051 | 6/11/14 2:00 PM | 6/11/14 2:15 PM | 0.01 | 20,729 | 0.15 | 138,191 | 0.33 | 0.12 | 1 hr | CloudBurst |
| CSO051 | 6/20/14 5:15 PM | 6/20/14 5:30 PM | 0.01 | 4,109 | 0.23 | 17,867 | 0.24 | 0.15 | 3 hr | CloudBurst |
| CSO051 | 6/24/14 1:45 PM | 6/24/14 2:15 PM | 0.02 | 1,622 | 0.10 | 16,224 | 0.37 | 0.05 | 12 hr | CloudBurst |
| CSO053 | 1/5/14 3:00 PM | 1/5/14 5:45 PM | 0.11 | 7,497 | 0.48 | 15,618 | 0.59 | 0.25 | 3 hr | CloudBurst |
| CSO053 | 1/11/14 12:15 AM | 1/11/14 4:00 AM | 0.16 | 115,045 | 0.75 | 153,394 | 1.17 | 0.40 | 6 hr | CloudBurst |
| CSO053 | 2/2/14 3:00 AM | 2/2/14 5:15 AM | 0.09 | 18,028 | 0.21 | 85,847 | 0.16 | 0.11 | 6 hr | CloudBurst |
| CSO053 | 2/4/14 7:00 PM | 2/4/14 11:45 PM | 0.20 | 168,403 | 0.53 | 317,741 | 1.00 | 0.26 | 6 hr | CloudBurst |
| CSO053 | 2/17/14 4:15 PM | 2/17/14 4:45 PM | 0.02 | 90,564 | 0.49 | 184,824 | 0.80 | 0.28 | 3 hr | CloudBurst |
| CSO053 | 2/20/14 11:00 PM | 2/20/14 11:15 PM | 0.01 | 30,833 | 0.20 | 154,166 | 1.05 | 0.11 | 6 hr | CloudBurst |
| CSO053 | 3/2/14 9:45 AM | 3/2/14 11:15 AM | 0.06 | 30,358 | 0.45 | 67,463 | 0.22 | 0.17 | 24 hr | CloudBurst |
| CSO053 | 3/12/14 7:30 AM | 3/12/14 7:30 AM | 0.00 | 884 | 0.10 | 8,840 | 0.10 | 0.05 | 1 hr | CloudBurst |
| CSO053 | 3/28/14 4:15 AM | 3/28/14 4:45 AM | 0.02 | 16,397 | 0.29 | 56,542 | 0.35 | 0.15 | 3 hr | Atlas14 |
| CSO053 | 3/29/14 5:15 AM | 3/29/14 8:30 AM | 0.14 | 80,855 | 0.79 | 102,348 | 0.84 | 0.37 | 12 hr | CloudBurst |
| CSO053 | 7/1/13 6:45 PM | 7/1/13 7:30 PM | 0.03 | 13,196 | 0.25 | 52,782 | 4.02 | 0.12 | 3 hr | CloudBurst |
| CSO053 | 7/2/13 1:15 PM | 7/2/13 1:30 PM | 0.01 | 232,102 | 0.09 | 2,578,911 | 4.12 | 0.08 | 1 hr | CloudBurst |
| CSO053 | 7/3/13 5:15 PM | 7/3/13 5:15 PM | 0.01 | 155 | 0.06 | 2,590 | 1.81 | 0.04 | 3 hr | CloudBurst |
| CSO053 | 7/4/13 6:45 AM | 7/4/13 6:45 AM | 0.01 | 4,449 | 0.51 | 8,724 | 1.14 | 0.21 | 12 hr | CloudBurst |
| CSO053 | 7/6/13 1:00 AM | 7/6/13 5:15 AM | 0.18 | 21,014 | 0.56 | 37,525 | 1.96 | 0.25 | 12 hr | CloudBurst |
| CSO053 | 7/10/13 2:00 PM | 7/10/13 2:30 PM | 0.02 | 343,018 | 0.64 | 535,965 | 1.76 | 0.43 | 1 hr | CloudBurst |
| CSO053 | 7/14/13 7:45 PM | 7/14/13 7:45 PM | 0.01 | 50,654 | 0.08 | 633,181 | 0.76 | 0.07 | 1 hr | CloudBurst |
| CSO053 | 7/18/13 3:45 PM | 7/18/13 4:30 PM | 0.03 | 420,537 | 0.29 | 1,450,126 | 0.40 | 0.23 | 1 hr | CloudBurst |
| CSO053 | 7/21/13 8:15 PM | 7/21/13 8:45 PM | 0.02 | 72,134 | 1.96 | 36,803 | 1.20 | 0.76 | 24 hr | CloudBurst |
| CSO053 | 7/22/13 6:30 AM | 7/22/13 2:00 PM | 0.31 | 533,651 | 1.96 | 272,271 | 2.27 | 0.76 | 24 hr | CloudBurst |
| CSO053 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 190,744 | 0.83 | 229,812 | 0.66 | 0.37 | 1 hr | CloudBurst |
| CSO053 | 8/13/13 2:30 AM | 8/13/13 3:30 AM | 0.04 | 72,173 | 0.83 | 86,955 | 1.01 | 0.37 | 1 hr | CloudBurst |
| CSO053 | 8/20/13 6:30 PM | 8/20/13 6:30 PM | 0.01 | 4,176 | 0.17 | 24,565 | 0.18 | 0.09 | 6 hr | CloudBurst |
| CSO053 | 8/31/13 8:00 PM | 9/1/13 12:30 AM | 0.19 | 211,701 | 1.34 | 157,985 | 1.08 | 0.63 | 1 hr | CloudBurst |
| CSO053 | 9/2/13 1:45 PM | 9/2/13 2:00 PM | 0.01 | 210,664 | 0.25 | 842,655 | 1.59 | 0.22 | 1 hr | CloudBurst |
| CSO053 | 9/20/13 4:30 PM | 9/21/13 4:00 AM | 0.48 | 221,573 | 1.36 | 162,921 | 1.30 | 0.56 | 12 hr | CloudBurst |
| CSO053 | 10/5/13 12:30 PM | 10/6/13 12:15 PM | 0.99 | 1,489,167 | 4.23 | 352,049 | 4.38 | 7.98 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO053 | 10/30/13 1:30 AM | 10/30/13 5:45 AM | 0.18 | 252,474 | 1.06 | 238,183 | 1.03 | 0.50 | 6 hr | CloudBurst |
| CSO053 | 10/31/13 7:00 PM | 10/31/13 8:00 PM | 0.04 | 110,372 | 0.71 | 155,453 | 1.71 | 0.28 | 24 hr | CloudBurst |
| CSO053 | 11/15/13 6:30 PM | 11/15/13 6:30 PM | 0.00 | 640 | 0.10 | 6,396 | 0.14 | 0.09 | 1 hr | CloudBurst |
| CSO053 | 11/17/13 4:30 AM | 11/17/13 7:15 PM | 0.61 | 919,605 | 2.59 | 355,060 | 2.73 | 1.61 | 6 hr | CloudBurst |
| CSO053 | 12/5/13 5:30 AM | 12/5/13 7:45 AM | 0.09 | 45,396 | 0.76 | 59,732 | 0.16 | 0.25 | 48 hr | CloudBurst |
| CSO053 | 12/14/13 5:15 AM | 12/14/13 10:45 AM | 0.23 | 99,320 | 0.64 | 155,187 | 0.99 | 0.26 | 12 hr | CloudBurst |
| CSO053 | 12/21/13 3:45 AM | 12/21/13 12:30 PM | 0.36 | 136,554 | 2.75 | 49,656 | 1.71 | 1.08 | 24 hr | CloudBurst |
| CSO053 | 12/21/13 9:15 PM | 12/22/13 12:45 AM | 0.15 | 731,344 | 2.75 | 265,943 | 2.62 | 1.08 | 24 hr | CloudBurst |
| CSO053 | 4/3/14 7:45 AM | 4/4/14 7:15 AM | 0.98 | 496,576 | 2.91 | 170,645 | 4.05 | 1.04 | 24 hr | CloudBurst |
| CSO053 | 4/7/14 8:00 AM | 4/7/14 3:30 PM | 0.31 | 321,682 | 0.82 | 392,295 | 3.84 | 0.52 | 1 hr | CloudBurst |
| CSO053 | 4/14/14 3:30 AM | 4/14/14 3:45 AM | 0.01 | 3,916 | 1.14 | 3,435 | 1.08 | 0.43 | 24 hr | CloudBurst |
| CSO053 | 4/14/14 7:30 PM | 4/15/14 12:45 AM | 0.22 | 51,807 | 1.14 | 45,445 | 1.06 | 0.43 | 24 hr | CloudBurst |
| CSO053 | 4/28/14 4:00 AM | 4/28/14 7:15 AM | 0.14 | 401,100 | 1.69 | 237,337 | 1.29 | 0.64 | 24 hr | CloudBurst |
| CSO053 | 4/28/14 4:45 PM | 4/28/14 5:45 PM | 0.04 | 15,350 | 1.69 | 9,083 | 1.71 | 0.64 | 24 hr | CloudBurst |
| CSO053 | 5/9/14 7:15 PM | 5/10/14 3:15 PM | 0.83 | 481,074 | 1.47 | 327,261 | 1.53 | 0.57 | 24 hr | CloudBurst |
| CSO053 | 5/14/14 7:15 AM | 5/14/14 11:15 PM | 0.67 | 57,320 | 0.72 | 79,611 | 2.31 | 0.28 | 24 hr | CloudBurst |
| CSO053 | 5/16/14 3:45 AM | 5/16/14 3:45 AM | 0.01 | 4,304 | 0.10 | 43,042 | 2.40 | 0.07 | 1 hr | CloudBurst |
| CSO053 | 5/21/14 9:00 PM | 5/22/14 3:30 AM | 0.27 | 120,728 | 0.73 | 165,381 | 0.88 | 0.34 | 12 hr | CloudBurst |
| CSO053 | 5/28/14 8:15 PM | 5/28/14 8:30 PM | 0.01 | 143,449 | 0.49 | 292,753 | 1.22 | 0.41 | 1 hr | CloudBurst |
| CSO053 | 6/11/14 2:00 PM | 6/11/14 2:15 PM | 0.01 | 79,915 | 0.13 | 614,728 | 0.29 | 0.10 | 1 hr | CloudBurst |
| CSO053 | 6/20/14 4:00 PM | 6/20/14 5:30 PM | 0.06 | 62,418 | 0.18 | 346,766 | 0.17 | 0.12 | 3 hr | CloudBurst |
| CSO053 | 6/24/14 1:45 PM | 6/24/14 2:15 PM | 0.02 | 60,561 | 0.07 | 865,160 | 0.30 | 0.03 | 24 hr | CloudBurst |
| CSO054 | 1/5/14 2:30 PM | 1/5/14 6:45 PM | 0.18 | 3,356 | 0.48 | 6,991 | 0.61 | 0.25 | 3 hr | CloudBurst |
| CSO054 | 1/10/14 11:45 PM | 1/11/14 5:45 AM | 0.25 | 9,217 | 0.75 | 12,290 | 1.24 | 0.40 | 6 hr | CloudBurst |
| CSO054 | 1/13/14 2:00 PM | 1/13/14 5:00 PM | 0.13 | 1,135 | 0.20 | 5,674 | 0.96 | 0.09 | 12 hr | CloudBurst |
| CSO054 | 1/14/14 6:15 PM | 1/14/14 6:15 PM | 0.00 | 416 | 0.02 | 20,779 | 0.98 | 0.02 | 1 hr | CloudBurst |
| CSO054 | 2/2/14 2:30 AM | 2/2/14 8:00 AM | 0.23 | 4,403 | 0.21 | 20,966 | 0.22 | 0.11 | 6 hr | CloudBurst |
| CSO054 | 2/4/14 6:45 PM | 2/5/14 12:15 AM | 0.23 | 6,776 | 0.53 | 12,785 | 1.02 | 0.26 | 6 hr | CloudBurst |
| CSO054 | 2/14/14 3:45 PM | 2/14/14 5:45 PM | 0.08 | 1,435 | 0.32 | 4,486 | 0.30 | 0.17 | 6 hr | CloudBurst |
| CSO054 | 2/17/14 2:15 PM | 2/17/14 5:15 PM | 0.13 | 6,247 | 0.49 | 12,749 | 0.83 | 0.28 | 3 hr | CloudBurst |
| CSO054 | 2/20/14 10:30 PM | 2/20/14 11:30 PM | 0.04 | 788 | 0.20 | 3,940 | 1.06 | 0.11 | 6 hr | CloudBurst |
| CSO054 | 3/2/14 9:15 AM | 3/2/14 12:00 PM | 0.11 | 2,752 | 0.45 | 6,115 | 0.23 | 0.17 | 24 hr | CloudBurst |
| CSO054 | 3/12/14 7:00 AM | 3/12/14 7:15 AM | 0.01 | 910 | 0.10 | 9,099 | 0.10 | 0.05 | 1 hr | CloudBurst |
| CSO054 | 3/28/14 3:45 AM | 3/28/14 5:45 AM | 0.08 | 3,027 | 0.29 | 10,437 | 0.35 | 0.15 | 3 hr | Atlas14 |
| CSO054 | 3/29/14 5:00 AM | 3/29/14 12:15 PM | 0.30 | 8,198 | 0.79 | 10,377 | 1.06 | 0.37 | 12 hr | CloudBurst |
| CSO054 | 7/1/13 6:30 PM | 7/1/13 7:30 PM | 0.04 | 2,266 | 0.25 | 9,065 | 4.02 | 0.12 | 3 hr | CloudBurst |
| CSO054 | 7/2/13 1:00 PM | 7/2/13 1:15 PM | 0.01 | 37,247 | 0.09 | 413,857 | 4.12 | 0.08 | 1 hr | CloudBurst |
| CSO054 | 7/3/13 5:00 PM | 7/3/13 5:00 PM | 0.01 | 254 | 0.06 | 4,229 | 1.88 | 0.04 | 3 hr | CloudBurst |
| CSO054 | 7/4/13 6:15 AM | 7/4/13 11:15 AM | 0.21 | 6,271 | 0.51 | 12,297 | 1.26 | 0.21 | 12 hr | CloudBurst |
| CSO054 | 7/6/13 12:15 AM | 7/6/13 7:00 AM | 0.28 | 2,571 | 0.56 | 4,592 | 2.01 | 0.25 | 12 hr | CloudBurst |
| CSO054 | 7/10/13 1:45 PM | 7/10/13 2:45 PM | 0.04 | 50,759 | 0.64 | 79,311 | 1.76 | 0.43 | 1 hr | CloudBurst |
| CSO054 | 7/14/13 7:15 PM | 7/14/13 8:00 PM | 0.03 | 5,039 | 0.08 | 62,993 | 0.76 | 0.07 | 1 hr | CloudBurst |
| CSO054 | 7/18/13 3:30 PM | 7/18/13 5:00 PM | 0.06 | 63,935 | 0.29 | 220,466 | 0.40 | 0.23 | 1 hr | CloudBurst |
| CSO054 | 7/21/13 7:45 PM | 7/22/13 3:45 PM | 0.83 | 86,163 | 1.96 | 43,961 | 2.28 | 0.76 | 24 hr | CloudBurst |
| CSO054 | 7/30/13 6:00 PM | 7/30/13 6:00 PM | 0.01 | 1,553 | 0.11 | 14,117 | 0.12 | 0.06 | 3 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO054 | 8/12/13 11:45 AM | 8/12/13 2:45 PM | 0.13 | 43,976 | 0.83 | 52,984 | 0.66 | 0.37 | 1 hr | CloudBurst |
| CSO054 | 8/13/13 2:15 AM | 8/13/13 3:15 AM | 0.04 | 17,484 | 0.83 | 21,065 | 1.00 | 0.37 | 1 hr | CloudBurst |
| CSO054 | 8/20/13 6:00 PM | 8/20/13 7:15 PM | 0.05 | 3,790 | 0.17 | 22,296 | 0.19 | 0.09 | 6 hr | CloudBurst |
| CSO054 | 8/31/13 7:30 PM | 9/1/13 3:15 AM | 0.32 | 53,605 | 1.34 | 40,004 | 1.28 | 0.63 | 1 hr | CloudBurst |
| CSO054 | 9/2/13 1:30 PM | 9/2/13 1:45 PM | 0.01 | 37,686 | 0.25 | 150,744 | 1.59 | 0.22 | 1 hr | CloudBurst |
| CSO054 | 9/12/13 12:45 PM | 9/12/13 12:45 PM | 0.01 | 695 | 0.02 | 34,732 | 0.04 | 0.02 | 1 hr | CloudBurst |
| CSO054 | 9/19/13 10:45 AM | 9/19/13 10:45 AM | 0.01 | 1,175 | 0.03 | 39,165 | 0.08 | 0.03 | 1 hr | CloudBurst |
| CSO054 | 9/20/13 4:15 PM | 9/21/13 5:15 AM | 0.54 | 19,320 | 1.36 | 14,206 | 1.42 | 0.56 | 12 hr | CloudBurst |
| CSO054 | 10/5/13 12:00 PM | 10/6/13 12:00 PM | 1.00 | 501,263 | 4.23 | 118,502 | 4.38 | 7.98 | 24 hr | CloudBurst |
| CSO054 | 10/17/13 9:30 AM | 10/17/13 9:30 AM | 0.00 | 8 | 0.03 | 280 | 0.05 | 0.03 | 1 hr | CloudBurst |
| CSO054 | 10/19/13 7:00 AM | 10/19/13 9:30 AM | 0.10 | 882 | 0.19 | 4,640 | 0.20 | 0.10 | 6 hr | CloudBurst |
| CSO054 | 10/29/13 8:45 PM | 10/30/13 7:15 AM | 0.44 | 26,795 | 1.06 | 25,279 | 1.06 | 0.50 | 6 hr | CloudBurst |
| CSO054 | 10/31/13 11:30 AM | 10/31/13 8:45 PM | 0.39 | 14,544 | 0.71 | 20,484 | 1.72 | 0.28 | 24 hr | CloudBurst |
| CSO054 | 11/6/13 7:00 PM | 11/6/13 9:00 PM | 0.08 | 390 | 0.25 | 1,559 | 0.87 | 0.12 | 12 hr | CloudBurst |
| CSO054 | 11/15/13 6:00 PM | 11/15/13 6:15 PM | 0.01 | 547 | 0.10 | 5,472 | 0.14 | 0.09 | 1 hr | CloudBurst |
| CSO054 | 11/17/13 3:00 AM | 11/17/13 7:45 PM | 0.70 | 218,958 | 2.59 | 84,540 | 2.73 | 1.61 | 6 hr | CloudBurst |
| CSO054 | 11/21/13 6:45 PM | 11/21/13 7:00 PM | 0.01 | 187 | 0.13 | 1,436 | 2.79 | 0.09 | 1 hr | CloudBurst |
| CSO054 | 12/5/13 5:15 AM | 12/6/13 1:45 PM | 1.35 | 17,467 | 0.76 | 22,982 | 0.49 | 0.25 | 48 hr | CloudBurst |
| CSO054 | 12/14/13 5:45 AM | 12/14/13 12:00 PM | 0.26 | 4,260 | 0.64 | 6,657 | 0.99 | 0.26 | 12 hr | CloudBurst |
| CSO054 | 12/20/13 7:15 AM | 12/20/13 7:15 AM | 0.00 | 175 | 0.07 | 2,497 | 0.71 | 0.05 | 1 hr | CloudBurst |
| CSO054 | 12/21/13 1:45 AM | 12/21/13 12:30 PM | 0.45 | 8,235 | 2.75 | 2,994 | 1.74 | 1.08 | 24 hr | CloudBurst |
| CSO054 | 12/21/13 9:00 PM | 12/22/13 2:45 AM | 0.24 | 179,517 | 2.75 | 65,279 | 2.77 | 1.08 | 24 hr | CloudBurst |
| CSO054 | 12/29/13 1:30 AM | 12/29/13 9:30 AM | 0.33 | 5,398 | 0.49 | 11,016 | 0.60 | 0.21 | 12 hr | CloudBurst |
| CSO054 | 4/1/14 8:30 PM | 4/1/14 8:30 PM | 0.01 | 125 | 0.09 | 1,392 | 1.21 | 0.06 | 3 hr | CloudBurst |
| CSO054 | 4/3/14 4:45 AM | 4/4/14 9:15 AM | 1.19 | 61,588 | 2.91 | 21,164 | 4.12 | 1.04 | 24 hr | CloudBurst |
| CSO054 | 4/7/14 7:45 AM | 4/7/14 3:15 PM | 0.31 | 58,241 | 0.82 | 71,025 | 3.84 | 0.52 | 1 hr | CloudBurst |
| CSO054 | 4/14/14 3:30 AM | 4/14/14 10:15 AM | 0.28 | 1,959 | 1.14 | 1,719 | 1.32 | 0.43 | 24 hr | CloudBurst |
| CSO054 | 4/14/14 7:30 PM | 4/15/14 1:15 AM | 0.24 | 2,771 | 1.14 | 2,430 | 1.12 | 0.43 | 24 hr | CloudBurst |
| CSO054 | 4/25/14 2:30 AM | 4/25/14 2:45 AM | 0.01 | 246 | 0.13 | 1,893 | 0.07 | 0.07 | 6 hr | CloudBurst |
| CSO054 | 4/28/14 3:45 AM | 4/28/14 7:45 AM | 0.17 | 65,933 | 1.69 | 39,013 | 1.34 | 0.64 | 24 hr | CloudBurst |
| CSO054 | 4/28/14 4:45 PM | 4/28/14 8:00 PM | 0.14 | 2,149 | 1.69 | 1,272 | 1.80 | 0.64 | 24 hr | CloudBurst |
| CSO054 | 4/29/14 7:00 PM | 4/29/14 7:30 PM | 0.02 | 340 | 0.18 | 1,890 | 1.90 | 0.08 | 12 hr | CloudBurst |
| CSO054 | 5/9/14 7:15 PM | 5/10/14 4:15 PM | 0.88 | 82,348 | 1.47 | 56,019 | 1.54 | 0.57 | 24 hr | CloudBurst |
| CSO054 | 5/14/14 7:00 AM | 5/15/14 12:45 AM | 0.74 | 4,573 | 0.72 | 6,351 | 2.31 | 0.28 | 24 hr | CloudBurst |
| CSO054 | 5/16/14 3:15 AM | 5/16/14 3:45 AM | 0.02 | 265 | 0.10 | 2,654 | 2.40 | 0.07 | 1 hr | CloudBurst |
| CSO054 | 5/21/14 9:00 PM | 5/22/14 4:45 AM | 0.32 | 5,061 | 0.73 | 6,933 | 0.90 | 0.34 | 12 hr | CloudBurst |
| CSO054 | 5/28/14 8:15 PM | 5/28/14 9:15 PM | 0.04 | 15,795 | 0.49 | 32,236 | 1.22 | 0.41 | 1 hr | CloudBurst |
| CSO054 | 6/1/14 2:15 PM | 6/1/14 10:15 PM | 0.33 | 388 | 0.12 | 3,234 | 0.63 | 0.05 | 24 hr | CloudBurst |
| CSO054 | 6/10/14 5:45 AM | 6/10/14 6:00 AM | 0.01 | 647 | 0.05 | 12,940 | 0.07 | 0.03 | 6 hr | CloudBurst |
| CSO054 | 6/10/14 3:30 PM | 6/10/14 5:00 PM | 0.06 | 740 | 0.09 | 8,225 | 0.16 | 0.06 | 3 hr | CloudBurst |
| CSO054 | 6/11/14 2:00 PM | 6/11/14 2:45 PM | 0.03 | 11,052 | 0.13 | 85,017 | 0.29 | 0.10 | 1 hr | CloudBurst |
| CSO054 | 6/20/14 4:00 PM | 6/20/14 6:00 PM | 0.08 | 1,681 | 0.18 | 9,337 | 0.17 | 0.12 | 3 hr | CloudBurst |
| CSO054 | 6/24/14 1:30 PM | 6/24/14 2:30 PM | 0.04 | 2,364 | 0.07 | 33,770 | 0.30 | 0.03 | 24 hr | CloudBurst |
| CSO055 | 1/11/14 12:15 AM | 1/11/14 12:15 AM | 0.00 | 372 | 0.75 | 497 | 0.69 | 0.40 | 6 hr | CloudBurst |
| CSO055 | 2/4/14 10:45 PM | 2/4/14 11:30 PM | 0.03 | 9,367 | 0.53 | 17,674 | 1.00 | 0.26 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO055 | 2/17/14 4:15 PM | 2/17/14 4:15 PM | 0.00 | 3,071 | 0.49 | 6,268 | 0.76 | 0.28 | 3 hr | CloudBurst |
| CSO055 | 3/12/14 9:00 AM | 3/12/14 9:00 AM | 0.00 | 2,165 | 0.10 | 21,654 | 0.10 | 0.05 | 1 hr | CloudBurst |
| CSO055 | 3/29/14 6:30 AM | 3/29/14 6:45 AM | 0.01 | 4,162 | 0.79 | 5,268 | 0.67 | 0.37 | 12 hr | CloudBurst |
| CSO055 | 7/2/13 1:15 PM | 7/2/13 1:15 PM | 0.01 | 117,154 | 0.09 | 1,301,711 | 4.12 | 0.08 | 1 hr | CloudBurst |
| CSO055 | 7/10/13 2:00 PM | 7/10/13 2:45 PM | 0.03 | 168,165 | 0.64 | 262,758 | 1.76 | 0.43 | 1 hr | CloudBurst |
| CSO055 | 7/14/13 7:30 PM | 7/14/13 7:30 PM | 0.01 | 13,491 | 0.08 | 168,639 | 0.76 | 0.07 | 1 hr | CloudBurst |
| CSO055 | 7/18/13 3:45 PM | 7/18/13 4:00 PM | 0.01 | 200,836 | 0.29 | 692,538 | 0.39 | 0.23 | 1 hr | CloudBurst |
| CSO055 | 7/21/13 8:15 PM | 7/21/13 8:15 PM | 0.01 | 2,760 | 1.96 | 1,408 | 1.16 | 0.76 | 24 hr | CloudBurst |
| CSO055 | 7/22/13 7:00 AM | 7/22/13 2:15 PM | 0.30 | 384,501 | 1.96 | 196,174 | 2.27 | 0.76 | 24 hr | CloudBurst |
| CSO055 | 8/12/13 2:45 PM | 8/12/13 2:45 PM | 0.01 | 81,684 | 0.83 | 98,415 | 0.66 | 0.37 | 1 hr | CloudBurst |
| CSO055 | 8/13/13 2:30 AM | 8/13/13 2:30 AM | 0.01 | 22,969 | 0.83 | 27,673 | 0.93 | 0.37 | 1 hr | CloudBurst |
| CSO055 | 8/20/13 6:15 PM | 8/20/13 6:15 PM | 0.01 | 11,055 | 0.17 | 65,027 | 0.18 | 0.09 | 6 hr | CloudBurst |
| CSO055 | 8/31/13 7:45 PM | 8/31/13 11:15 PM | 0.15 | 93,819 | 1.34 | 70,014 | 0.98 | 0.63 | 1 hr | CloudBurst |
| CSO055 | 9/2/13 1:45 PM | 9/2/13 1:45 PM | 0.01 | 87,917 | 0.25 | 351,670 | 1.59 | 0.22 | 1 hr | CloudBurst |
| CSO055 | 9/20/13 4:30 PM | 9/20/13 11:00 PM | 0.27 | 56,444 | 1.36 | 41,503 | 0.83 | 0.56 | 12 hr | CloudBurst |
| CSO055 | 10/5/13 1:15 PM | 10/6/13 8:45 AM | 0.81 | 322,152 | 4.23 | 76,159 | 4.37 | 7.98 | 24 hr | CloudBurst |
| CSO055 | 10/30/13 2:15 AM | 10/30/13 5:45 AM | 0.15 | 34,201 | 1.06 | 32,265 | 1.03 | 0.50 | 6 hr | CloudBurst |
| CSO055 | 10/31/13 7:30 PM | 10/31/13 7:30 PM | 0.00 | 3,709 | 0.71 | 5,224 | 1.70 | 0.28 | 24 hr | CloudBurst |
| CSO055 | 11/17/13 6:00 AM | 11/17/13 6:00 PM | 0.50 | 211,775 | 2.59 | 81,766 | 2.47 | 1.61 | 6 hr | CloudBurst |
| CSO055 | 12/5/13 7:30 AM | 12/5/13 7:30 AM | 0.00 | 403 | 0.76 | 530 | 0.16 | 0.25 | 48 hr | CloudBurst |
| CSO055 | 12/6/13 10:45 AM | 12/6/13 10:45 AM | 0.00 | 438 | 0.76 | 577 | 0.41 | 0.25 | 48 hr | CloudBurst |
| CSO055 | 12/21/13 12:30 PM | 12/21/13 12:45 PM | 0.01 | 760 | 2.75 | 276 | 1.18 | 1.08 | 24 hr | CloudBurst |
| CSO055 | 12/21/13 9:15 PM | 12/22/13 12:45 AM | 0.15 | 95,520 | 2.75 | 34,735 | 2.62 | 1.08 | 24 hr | CloudBurst |
| CSO055 | 4/3/14 12:15 PM | 4/4/14 3:45 AM | 0.65 | 40,153 | 2.91 | 13,798 | 3.59 | 1.04 | 24 hr | CloudBurst |
| CSO055 | 4/7/14 10:45 AM | 4/7/14 1:15 PM | 0.10 | 56,948 | 0.82 | 69,449 | 3.82 | 0.52 | 1 hr | CloudBurst |
| CSO055 | 4/28/14 4:15 AM | 4/28/14 8:15 AM | 0.17 | 70,321 | 1.69 | 41,610 | 1.34 | 0.64 | 24 hr | CloudBurst |
| CSO055 | 5/10/14 5:45 AM | 5/10/14 3:45 PM | 0.42 | 31,828 | 1.47 | 21,652 | 1.53 | 0.57 | 24 hr | CloudBurst |
| CSO055 | 5/14/14 10:45 AM | 5/14/14 11:30 AM | 0.03 | 1,166 | 0.72 | 1,620 | 1.87 | 0.28 | 24 hr | CloudBurst |
| CSO055 | 5/14/14 8:15 PM | 5/14/14 11:30 PM | 0.14 | 7,971 | 0.72 | 11,070 | 2.31 | 0.28 | 24 hr | CloudBurst |
| CSO055 | 5/21/14 9:00 PM | 5/21/14 9:00 PM | 0.01 | 5,101 | 0.73 | 6,987 | 0.37 | 0.34 | 12 hr | CloudBurst |
| CSO055 | 5/28/14 8:30 PM | 5/28/14 8:30 PM | 0.01 | 8,633 | 0.49 | 17,619 | 1.22 | 0.41 | 1 hr | CloudBurst |
| CSO055 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 458 | 0.13 | 3,522 | 0.29 | 0.10 | 1 hr | CloudBurst |
| CSO055 | 6/20/14 5:30 PM | 6/20/14 5:30 PM | 0.01 | 3,405 | 0.18 | 18,919 | 0.17 | 0.12 | 3 hr | CloudBurst |
| CSO057 | 1/11/14 12:15 AM | 1/11/14 12:15 AM | 0.00 | 3 | 0.87 | 4 | 0.79 | 0.47 | 6 hr | CloudBurst |
| CSO057 | 2/17/14 4:15 PM | 2/17/14 4:15 PM | 0.00 | 2 | 0.71 | 2 | 1.06 | 0.42 | 3 hr | CloudBurst |
| CSO057 | 3/2/14 9:30 AM | 3/2/14 9:30 AM | 0.00 | 3 | 0.55 | 6 | 0.08 | 0.21 | 24 hr | CloudBurst |
| CSO057 | 3/29/14 6:15 AM | 3/29/14 6:30 AM | 0.01 | 341 | 1.15 | 296 | 0.91 | 0.56 | 3 hr | Atlas14 |
| CSO057 | 7/1/13 7:00 PM | 7/1/13 7:15 PM | 0.01 | 11 | 0.26 | 41 | 3.64 | 0.13 | 3 hr | CloudBurst |
| CSO057 | 7/2/13 1:15 PM | 7/2/13 2:15 PM | 0.04 | 1,040 | 0.12 | 8,670 | 3.80 | 0.10 | 1 hr | CloudBurst |
| CSO057 | 7/3/13 5:15 PM | 7/3/13 5:45 PM | 0.02 | 46 | 0.05 | 915 | 1.56 | 0.03 | 6 hr | CloudBurst |
| CSO057 | 7/10/13 2:00 PM | 7/10/13 2:15 PM | 0.01 | 6,176 | 0.62 | 9,961 | 1.79 | 0.45 | 1 hr | CloudBurst |
| CSO057 | 7/14/13 7:30 PM | 7/14/13 8:00 PM | 0.02 | 606 | 0.10 | 6,059 | 0.78 | 0.09 | 1 hr | CloudBurst |
| CSO057 | 7/18/13 3:45 PM | 7/18/13 4:00 PM | 0.01 | 1,370 | 0.26 | 5,268 | 0.38 | 0.19 | 1 hr | CloudBurst |
| CSO057 | 7/21/13 8:15 PM | 7/21/13 9:30 PM | 0.05 | 103 | 1.89 | 54 | 1.20 | 0.73 | 24 hr | CloudBurst |
| CSO057 | 7/22/13 7:45 AM | 7/22/13 1:45 PM | 0.25 | 3,853 | 1.89 | 2,038 | 2.13 | 0.73 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO057 | 7/30/13 6:00 PM | 7/30/13 6:00 PM | 0.01 | 8 | 0.12 | 69 | 0.12 | 0.07 | 6 hr | CloudBurst |
| CSO057 | 8/10/13 10:00 AM | 8/10/13 10:00 AM | 0.01 | 2 | 0.07 | 35 | 0.25 | 0.05 | 3 hr | CloudBurst |
| CSO057 | 8/12/13 12:15 PM | 8/12/13 2:45 PM | 0.10 | 164 | 0.82 | 201 | 0.73 | 0.37 | 1 hr | CloudBurst |
| CSO057 | 8/20/13 6:15 PM | 8/20/13 7:15 PM | 0.04 | 116 | 0.17 | 679 | 0.19 | 0.09 | 6 hr | CloudBurst |
| CSO057 | 8/31/13 7:45 PM | 8/31/13 10:30 PM | 0.11 | 3,867 | 1.38 | 2,802 | 0.99 | 0.71 | 1 hr | CloudBurst |
| CSO057 | 9/20/13 10:30 PM | 9/20/13 10:30 PM | 0.01 | 7 | 1.14 | 6 | 0.69 | 0.47 | 12 hr | CloudBurst |
| CSO057 | 10/5/13 1:15 PM | 10/5/13 2:00 PM | 0.03 | 191 | 3.98 | 48 | 0.92 | 5.56 | 24 hr | CloudBurst |
| CSO057 | 10/5/13 10:15 PM | 10/6/13 8:15 AM | 0.42 | 783 | 3.98 | 197 | 3.98 | 5.56 | 24 hr | CloudBurst |
| CSO057 | 10/30/13 5:00 AM | 10/30/13 5:15 AM | 0.01 | 480 | 1.42 | 338 | 1.34 | 0.70 | 6 hr | CloudBurst |
| CSO057 | 11/17/13 6:45 AM | 11/17/13 8:00 AM | 0.05 | 428 | 2.35 | 182 | 1.71 | 1.08 | 6 hr | CloudBurst |
| CSO057 | 12/5/13 7:15 AM | 12/5/13 7:30 AM | 0.01 | 6,152 | 0.81 | 7,595 | 0.18 | 0.26 | 48 hr | CloudBurst |
| CSO057 | 12/21/13 10:45 AM | 12/21/13 10:45 AM | 0.00 | 50 | 2.97 | 17 | 1.09 | 1.55 | 24 hr | CloudBurst |
| CSO057 | 12/21/13 10:30 PM | 12/21/13 10:45 PM | 0.01 | 14,350 | 2.97 | 4,831 | 2.54 | 1.55 | 24 hr | CloudBurst |
| CSO057 | 4/4/14 1:30 AM | 4/4/14 1:30 AM | 0.01 | 378 | 3.03 | 125 | 3.33 | 1.37 | 24 hr | CloudBurst |
| CSO057 | 4/7/14 10:15 AM | 4/7/14 11:30 AM | 0.05 | 99 | 0.62 | 160 | 3.73 | 0.35 | 3 hr | CloudBurst |
| CSO057 | 4/14/14 3:15 AM | 4/14/14 3:15 AM | 0.01 | 106 | 0.96 | 111 | 0.75 | 0.36 | 24 hr | CloudBurst |
| CSO057 | 4/25/14 9:45 AM | 4/25/14 9:45 AM | 0.01 | 1,004 | 0.09 | 11,155 | 0.09 | 0.04 | 12 hr | CloudBurst |
| CSO057 | 4/27/14 8:30 PM | 4/28/14 6:00 AM | 0.40 | 3,410 | 1.37 | 2,489 | 0.93 | 0.50 | 24 hr | CloudBurst |
| CSO057 | 5/9/14 7:00 PM | 5/9/14 7:00 PM | 0.01 | 4,681 | 1.66 | 2,820 | 0.12 | 0.64 | 24 hr | CloudBurst |
| CSO057 | 5/10/14 2:45 PM | 5/10/14 2:45 PM | 0.01 | 6,221 | 1.66 | 3,747 | 1.50 | 0.64 | 24 hr | CloudBurst |
| CSO057 | 5/14/14 6:45 AM | 5/14/14 6:45 AM | 0.01 | 266 | 0.79 | 336 | 1.82 | 0.31 | 24 hr | CloudBurst |
| CSO057 | 5/21/14 9:00 PM | 5/21/14 9:00 PM | 0.01 | 9 | 0.58 | 15 | 0.28 | 0.27 | 12 hr | CloudBurst |
| CSO057 | 5/28/14 8:30 PM | 5/28/14 8:30 PM | 0.01 | 59 | 0.20 | 297 | 0.78 | 0.17 | 1 hr | CloudBurst |
| CSO057 | 6/1/14 2:15 PM | 6/1/14 2:15 PM | 0.01 | 8 | 0.09 | 88 | 0.45 | 0.04 | 12 hr | CloudBurst |
| CSO057 | 6/10/14 3:30 PM | 6/10/14 5:45 PM | 0.09 | 209 | 0.08 | 2,616 | 0.17 | 0.05 | 3 hr | CloudBurst |
| CSO057 | 6/11/14 7:15 AM | 6/11/14 9:45 AM | 0.10 | 33 | 0.11 | 300 | 0.19 | 0.08 | 1 hr | CloudBurst |
| CSO057 | 6/24/14 1:30 PM | 6/24/14 1:30 PM | 0.01 | 443 | 0.10 | 4,431 | 0.38 | 0.05 | 12 hr | CloudBurst |
| CSO058 | 1/11/14 12:00 AM | 1/11/14 12:00 AM | 0.00 | 162 | 0.85 | 190 | 0.71 | 0.46 | 6 hr | CloudBurst |
| CSO058 | 2/17/14 4:00 PM | 2/17/14 4:00 PM | 0.00 | 668 | 0.72 | 928 | 1.05 | 0.42 | 3 hr | CloudBurst |
| CSO058 | 3/29/14 6:30 AM | 3/29/14 6:30 AM | 0.00 | 245 | 1.07 | 229 | 0.83 | 0.51 | 6 hr | CloudBurst |
| CSO058 | 7/1/13 7:00 PM | 7/1/13 7:00 PM | 0.01 | 404 | 0.27 | 1,495 | 3.71 | 0.14 | 3 hr | CloudBurst |
| CSO058 | 7/2/13 1:00 PM | 7/2/13 1:00 PM | 0.01 | 3,005 | 0.14 | 21,463 | 3.82 | 0.12 | 1 hr | CloudBurst |
| CSO058 | 7/6/13 4:45 AM | 7/6/13 4:45 AM | 0.01 | 177 | 0.64 | 276 | 1.88 | 0.28 | 12 hr | CloudBurst |
| CSO058 | 7/10/13 2:00 PM | 7/10/13 2:15 PM | 0.01 | 125,197 | 0.85 | 147,290 | 2.04 | 0.61 | 1 hr | CloudBurst |
| CSO058 | 7/14/13 7:15 PM | 7/14/13 7:30 PM | 0.01 | 1,303 | 0.13 | 10,021 | 1.04 | 0.11 | 1 hr | CloudBurst |
| CSO058 | 7/22/13 6:45 AM | 7/22/13 1:45 PM | 0.29 | 492,411 | 2.07 | 237,879 | 2.29 | 0.80 | 24 hr | CloudBurst |
| CSO058 | 8/12/13 2:30 PM | 8/12/13 2:45 PM | 0.01 | 2,224 | 0.77 | 2,888 | 0.67 | 0.31 | 1 hr | CloudBurst |
| CSO058 | 8/13/13 2:15 AM | 8/13/13 2:45 AM | 0.02 | 1,472 | 0.77 | 1,912 | 0.95 | 0.31 | 1 hr | CloudBurst |
| CSO058 | 8/20/13 6:00 PM | 8/20/13 6:00 PM | 0.01 | 895 | 0.19 | 4,709 | 0.16 | 0.11 | 3 hr | CloudBurst |
| CSO058 | 8/31/13 7:45 PM | 8/31/13 10:15 PM | 0.10 | 2,300 | 1.39 | 1,655 | 0.99 | 0.70 | 1 hr | CloudBurst |
| CSO058 | 9/2/13 1:30 PM | 9/2/13 1:45 PM | 0.01 | 1,686 | 0.44 | 3,833 | 1.83 | 0.38 | 1 hr | CloudBurst |
| CSO058 | 9/20/13 4:15 PM | 9/20/13 10:30 PM | 0.26 | 1,458 | 1.16 | 1,257 | 0.71 | 0.48 | 12 hr | CloudBurst |
| CSO058 | 10/5/13 1:00 PM | 10/6/13 6:00 AM | 0.71 | 519,011 | 4.09 | 126,898 | 3.55 | 6.45 | 24 hr | CloudBurst |
| CSO058 | 10/30/13 2:00 AM | 10/30/13 5:15 AM | 0.14 | 1,104 | 1.45 | 761 | 1.36 | 0.72 | 6 hr | CloudBurst |
| CSO058 | 10/31/13 7:15 PM | 10/31/13 7:15 PM | 0.00 | 699 | 0.63 | 1,110 | 1.96 | 0.25 | 12 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO058 | 11/17/13 5:30 AM | 11/17/13 8:30 AM | 0.13 | 39,050 | 2.34 | 16,688 | 1.80 | 1.03 | 6 hr | CloudBurst |
| CSO058 | 11/17/13 5:45 PM | 11/17/13 5:45 PM | 0.00 | 521 | 2.34 | 223 | 2.35 | 1.03 | 6 hr | CloudBurst |
| CSO058 | 12/5/13 5:15 AM | 12/5/13 7:30 AM | 0.09 | 518 | 0.82 | 631 | 0.19 | 0.27 | 48 hr | CloudBurst |
| CSO058 | 12/6/13 2:30 AM | 12/6/13 2:30 AM | 0.00 | 49 | 0.82 | 60 | 0.35 | 0.27 | 48 hr | CloudBurst |
| CSO058 | 12/6/13 10:45 AM | 12/6/13 11:15 AM | 0.02 | 168 | 0.82 | 205 | 0.47 | 0.27 | 48 hr | CloudBurst |
| CSO058 | 12/14/13 6:30 AM | 12/14/13 3:45 PM | 0.39 | 455,181 | 0.82 | 555,099 | 1.32 | 0.34 | 12 hr | CloudBurst |
| CSO058 | 12/21/13 7:30 AM | 12/21/13 8:00 AM | 0.02 | 188 | 1.14 | 165 | 1.04 | 0.53 | 12 hr | CloudBurst |
| CSO058 | 12/21/13 9:00 PM | 12/21/13 11:00 PM | 0.08 | 380,614 | 1.75 | 217,494 | 2.48 | 0.95 | 6 hr | CloudBurst |
| CSO058 | 4/3/14 11:45 AM | 4/4/14 3:30 AM | 0.66 | 152,944 | 2.87 | 53,291 | 3.84 | 1.04 | 24 hr | CloudBurst |
| CSO058 | 4/7/14 10:30 AM | 4/7/14 11:45 AM | 0.05 | 55,426 | 0.74 | 74,901 | 3.70 | 0.42 | 3 hr | CloudBurst |
| CSO058 | 4/28/14 4:00 AM | 4/28/14 6:45 AM | 0.11 | 179,503 | 1.51 | 118,876 | 1.10 | 0.56 | 3 hr | Atlas14 |
| CSO058 | 5/10/14 2:15 AM | 5/10/14 5:30 AM | 0.14 | 1,105 | 1.85 | 597 | 0.80 | 0.68 | 24 hr | CloudBurst |
| CSO058 | 5/10/14 1:45 PM | 5/10/14 3:15 PM | 0.06 | 102,921 | 1.85 | 55,633 | 1.84 | 0.68 | 24 hr | CloudBurst |
| CSO058 | 5/14/14 7:00 PM | 5/14/14 8:45 PM | 0.07 | 16,351 | 0.84 | 19,466 | 2.66 | 0.33 | 24 hr | CloudBurst |
| CSO058 | 5/21/14 9:00 PM | 5/21/14 9:00 PM | 0.01 | 1,085 | 0.57 | 1,903 | 0.26 | 0.26 | 1 hr | CloudBurst |
| CSO058 | 5/28/14 8:30 PM | 5/28/14 8:30 PM | 0.01 | 1,356 | 0.20 | 6,778 | 0.76 | 0.17 | 1 hr | CloudBurst |
| CSO058 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 2,110 | 0.12 | 17,581 | 0.29 | 0.09 | 1 hr | CloudBurst |
| CSO058 | 6/20/14 5:30 PM | 6/20/14 5:30 PM | 0.01 | 267 | 0.25 | 1,069 | 0.25 | 0.17 | 3 hr | Atlas14 |
| CSO058 | 6/24/14 1:45 PM | 6/24/14 2:15 PM | 0.02 | 229 | 0.10 | 2,289 | 0.37 | 0.05 | 12 hr | CloudBurst |
| CSO083 | 2/17/14 4:00 PM | 2/17/14 4:00 PM | 0.00 | 17,873 | 0.55 | 32,496 | 0.95 | 0.33 | 3 hr | CloudBurst |
| CSO083 | 3/29/14 6:30 AM | 3/29/14 6:30 AM | 0.00 | 4,804 | 0.94 | 5,110 | 0.60 | 0.44 | 12 hr | CloudBurst |
| CSO083 | 7/1/13 7:00 PM | 7/1/13 7:00 PM | 0.01 | 1 | 0.33 | 2 | 3.99 | 0.16 | 3 hr | CloudBurst |
| CSO083 | 7/10/13 1:45 PM | 7/10/13 2:00 PM | 0.01 | 8,259 | 0.75 | 11,012 | 2.00 | 0.50 | 1 hr | CloudBurst |
| CSO083 | 7/14/13 7:15 PM | 7/14/13 7:15 PM | 0.01 | 77,248 | 0.12 | 643,737 | 0.94 | 0.10 | 1 hr | CloudBurst |
| CSO083 | 7/21/13 7:30 PM | 7/22/13 1:15 PM | 0.74 | 79,542 | 2.39 | 33,281 | 2.42 | 0.93 | 24 hr | CloudBurst |
| CSO083 | 8/31/13 7:30 PM | 8/31/13 8:00 PM | 0.02 | 25,599 | 1.19 | 21,512 | 0.46 | 0.56 | 6 hr | CloudBurst |
| CSO083 | 9/21/13 4:30 AM | 9/21/13 6:30 AM | 0.08 | 3 | 1.26 | 2 | 1.33 | 0.54 | 12 hr | CloudBurst |
| CSO083 | 10/5/13 10:30 PM | 10/6/13 6:15 AM | 0.32 | 93,326 | 4.28 | 21,805 | 3.74 | 7.90 | 24 hr | CloudBurst |
| CSO083 | 10/19/13 9:45 AM | 10/19/13 10:00 AM | 0.01 | 2 | 0.19 | 9 | 0.18 | 0.10 | 6 hr | CloudBurst |
| CSO083 | 10/30/13 4:30 AM | 10/30/13 5:15 AM | 0.03 | 41,266 | 1.30 | 31,743 | 1.22 | 0.64 | 6 hr | CloudBurst |
| CSO083 | 11/17/13 6:15 AM | 11/17/13 8:00 AM | 0.07 | 24,627 | 2.68 | 9,189 | 2.03 | 1.89 | 6 hr | CloudBurst |
| CSO083 | 11/17/13 5:45 PM | 11/17/13 5:45 PM | 0.00 | 64,673 | 2.68 | 24,132 | 2.81 | 1.89 | 6 hr | CloudBurst |
| CSO083 | 12/21/13 9:30 PM | 12/21/13 10:15 PM | 0.03 | 39,252 | 2.57 | 15,273 | 1.91 | 0.96 | 24 hr | CloudBurst |
| CSO083 | 4/3/14 12:00 PM | 4/3/14 12:00 PM | 0.01 | 3,467 | 2.63 | 1,318 | 1.79 | 0.93 | 24 hr | CloudBurst |
| CSO083 | 4/7/14 10:30 AM | 4/7/14 11:15 AM | 0.03 | 76,638 | 0.74 | 103,564 | 3.36 | 0.43 | 3 hr | CloudBurst |
| CSO083 | 4/28/14 4:00 AM | 4/28/14 6:00 AM | 0.08 | 109,818 | 1.80 | 61,010 | 1.32 | 0.71 | 3 hr | Atlas14 |
| CSO083 | 5/10/14 6:45 AM | 5/10/14 2:00 PM | 0.30 | 57,117 | 1.50 | 38,078 | 1.29 | 0.58 | 24 hr | CloudBurst |
| CSO083 | 5/28/14 8:15 PM | 5/28/14 8:15 PM | 0.01 | 16,443 | 0.35 | 46,979 | 0.78 | 0.30 | 1 hr | CloudBurst |
| CSO083 | 5/29/14 9:00 PM | 5/29/14 9:00 PM | 0.01 | 3,050 | 0.76 | 4,013 | 1.10 | 0.64 | 1 hr | CloudBurst |
| CSO083 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 1 | 0.16 | 6 | 0.40 | 0.10 | 1 hr | CloudBurst |
| CSO084 | 1/11/14 12:30 AM | 1/11/14 3:30 AM | 0.13 | 10,509 | 0.95 | 11,062 | 1.26 | 0.52 | 6 hr | CloudBurst |
| CSO084 | 2/4/14 8:00 PM | 2/4/14 11:30 PM | 0.15 | 20,151 | 0.51 | 39,513 | 0.95 | 0.26 | 6 hr | CloudBurst |
| CSO084 | 2/17/14 4:45 PM | 2/17/14 4:45 PM | 0.00 | 921 | 0.55 | 1,675 | 1.05 | 0.33 | 3 hr | CloudBurst |
| CSO084 | 3/2/14 10:45 AM | 3/2/14 11:15 AM | 0.02 | 6,317 | 0.57 | 11,083 | 0.28 | 0.22 | 24 hr | CloudBurst |
| CSO084 | 3/28/14 4:45 AM | 3/28/14 4:45 AM | 0.00 | 523 | 0.25 | 2,090 | 0.30 | 0.12 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO084 | 3/29/14 6:30 AM | 3/29/14 8:30 AM | 0.08 | 2,387 | 0.94 | 2,540 | 0.93 | 0.44 | 12 hr | CloudBurst |
| CSO084 | 7/14/13 7:45 PM | 7/14/13 7:45 PM | 0.01 | 808 | 0.12 | 6,734 | 0.95 | 0.10 | 1 hr | CloudBurst |
| CSO084 | 7/21/13 7:30 PM | 7/21/13 8:15 PM | 0.03 | 2,767 | 2.39 | 1,158 | 1.44 | 0.93 | 24 hr | CloudBurst |
| CSO084 | 7/22/13 7:15 AM | 7/24/13 4:15 AM | 1.88 | 756,846 | 2.39 | 316,672 | 2.60 | 0.93 | 24 hr | CloudBurst |
| CSO084 | 8/12/13 3:15 PM | 8/12/13 3:15 PM | 0.01 | 2,225 | 0.92 | 2,418 | 0.80 | 0.42 | 1 hr | CloudBurst |
| CSO084 | 8/13/13 3:15 AM | 8/13/13 3:30 AM | 0.01 | 4,088 | 0.92 | 4,443 | 1.17 | 0.42 | 1 hr | CloudBurst |
| CSO084 | 8/20/13 6:00 PM | 8/20/13 6:30 PM | 0.02 | 3,526 | 0.19 | 18,556 | 0.18 | 0.10 | 6 hr | CloudBurst |
| CSO084 | 8/31/13 8:00 PM | 8/31/13 10:45 PM | 0.11 | 2,849 | 1.19 | 2,395 | 0.83 | 0.56 | 6 hr | CloudBurst |
| CSO084 | 9/2/13 2:15 PM | 9/2/13 2:15 PM | 0.01 | 1,590 | 0.41 | 3,877 | 1.60 | 0.36 | 1 hr | CloudBurst |
| CSO084 | 9/20/13 4:30 PM | 9/21/13 4:00 AM | 0.48 | 31,146 | 1.26 | 24,719 | 1.24 | 0.54 | 12 hr | CloudBurst |
| CSO084 | 10/5/13 1:00 PM | 10/6/13 10:30 AM | 0.90 | 130,886 | 4.28 | 30,581 | 4.33 | 7.90 | 24 hr | CloudBurst |
| CSO084 | 10/30/13 2:15 AM | 10/30/13 5:45 AM | 0.15 | 1,856 | 1.30 | 1,428 | 1.27 | 0.64 | 6 hr | CloudBurst |
| CSO084 | 10/31/13 9:00 PM | 10/31/13 9:00 PM | 0.00 | 456 | 0.60 | 761 | 1.84 | 0.23 | 24 hr | CloudBurst |
| CSO084 | 11/17/13 9:45 AM | 11/17/13 10:00 AM | 0.01 | 684 | 2.68 | 255 | 2.40 | 1.89 | 6 hr | CloudBurst |
| CSO084 | 12/5/13 7:15 AM | 12/5/13 7:45 AM | 0.02 | 2,469 | 0.78 | 3,165 | 0.18 | 0.25 | 48 hr | CloudBurst |
| CSO084 | 12/14/13 10:45 AM | 12/14/13 10:45 AM | 0.00 | 640 | 0.81 | 790 | 1.11 | 0.34 | 12 hr | CloudBurst |
| CSO084 | 12/21/13 7:45 AM | 12/21/13 11:45 AM | 0.17 | 4,675 | 2.57 | 1,819 | 1.22 | 0.96 | 24 hr | CloudBurst |
| CSO084 | 12/21/13 11:15 PM | 12/22/13 1:00 AM | 0.07 | 10,146 | 2.57 | 3,948 | 2.49 | 0.96 | 24 hr | CloudBurst |
| CSO084 | 4/3/14 12:45 PM | 4/4/14 6:15 AM | 0.73 | 11,131 | 2.63 | 4,232 | 3.63 | 0.93 | 24 hr | CloudBurst |
| CSO084 | 4/7/14 11:15 AM | 4/7/14 12:15 PM | 0.04 | 69 | 0.74 | 94 | 3.44 | 0.43 | 3 hr | CloudBurst |
| CSO084 | 4/14/14 3:45 AM | 4/14/14 3:45 AM | 0.01 | 131 | 1.02 | 128 | 0.94 | 0.39 | 24 hr | CloudBurst |
| CSO084 | 4/14/14 8:15 PM | 4/14/14 9:15 PM | 0.04 | 5,157 | 1.02 | 5,056 | 0.75 | 0.39 | 24 hr | CloudBurst |
| CSO084 | 4/28/14 4:30 AM | 4/28/14 7:00 AM | 0.10 | 2,380 | 1.80 | 1,322 | 1.43 | 0.71 | 3 hr | Atlas14 |
| CSO084 | 4/28/14 5:45 PM | 4/28/14 5:45 PM | 0.01 | 1,151 | 1.80 | 639 | 1.80 | 0.71 | 3 hr | Atlas14 |
| CSO084 | 5/10/14 8:15 AM | 5/10/14 12:30 PM | 0.18 | 8,703 | 1.50 | 5,802 | 1.06 | 0.58 | 24 hr | CloudBurst |
| CSO084 | 5/14/14 7:00 AM | 5/14/14 7:00 AM | 0.01 | 2,093 | 1.09 | 1,920 | 1.83 | 0.42 | 24 hr | CloudBurst |
| CSO084 | 5/14/14 6:30 PM | 5/14/14 6:30 PM | 0.01 | 708 | 1.09 | 650 | 2.42 | 0.42 | 24 hr | CloudBurst |
| CSO084 | 5/21/14 9:00 PM | 5/22/14 3:30 AM | 0.27 | 7,003 | 0.43 | 16,287 | 0.54 | 0.20 | 12 hr | CloudBurst |
| CSO084 | 5/28/14 8:45 PM | 5/28/14 9:45 PM | 0.04 | 3,795 | 0.35 | 10,842 | 0.77 | 0.30 | 1 hr | CloudBurst |
| CSO084 | 5/29/14 3:15 PM | 5/29/14 9:45 PM | 0.27 | 31,970 | 0.02 | 1,598,490 | 1.14 | 0.01 | 48 hr | CloudBurst |
| CSO088 | 1/11/14 12:15 AM | 1/11/14 4:15 AM | 0.17 | 22,510 | 0.80 | 28,137 | 1.22 | 0.43 | 6 hr | CloudBurst |
| CSO088 | 2/4/14 7:45 PM | 2/5/14 12:30 AM | 0.20 | 25,969 | 0.51 | 50,920 | 0.95 | 0.25 | 6 hr | CloudBurst |
| CSO088 | 2/17/14 4:00 PM | 2/17/14 5:00 PM | 0.04 | 120,998 | 0.55 | 219,996 | 1.04 | 0.33 | 3 hr | CloudBurst |
| CSO088 | 7/6/13 1:45 AM | 7/6/13 1:45 AM | 0.01 | 2,142 | 0.65 | 3,296 | 1.75 | 0.29 | 12 hr | CloudBurst |
| CSO088 | 7/10/13 2:15 PM | 7/10/13 2:30 PM | 0.01 | 147,002 | 0.96 | 153,127 | 2.13 | 0.66 | 1 hr | CloudBurst |
| CSO088 | 7/14/13 7:30 PM | 7/14/13 7:45 PM | 0.01 | 122,233 | 0.23 | 531,448 | 1.25 | 0.20 | 1 hr | CloudBurst |
| CSO088 | 7/22/13 7:45 AM | 7/22/13 2:15 PM | 0.27 | 661,941 | 1.91 | 346,566 | 2.01 | 0.74 | 24 hr | CloudBurst |
| CSO088 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 49,435 | 0.53 | 93,275 | 0.50 | 0.21 | 24 hr | CloudBurst |
| CSO088 | 8/31/13 7:45 PM | 9/1/13 12:45 AM | 0.21 | 296,357 | 1.34 | 221,162 | 1.15 | 0.67 | 3 hr | Atlas14 |
| CSO088 | 9/20/13 7:30 PM | 9/24/13 12:45 PM | 3.72 | 158,525 | 1.48 | 107,112 | 1.55 | 0.63 | 12 hr | CloudBurst |
| CSO088 | 10/5/13 1:00 PM | 10/6/13 2:45 PM | 1.07 | 5,139,771 | 3.89 | 1,321,278 | 3.97 | 5.08 | 24 hr | CloudBurst |
| CSO088 | 10/30/13 4:45 AM | 10/30/13 5:45 AM | 0.04 | 42,977 | 1.16 | 37,049 | 1.10 | 0.56 | 6 hr | CloudBurst |
| CSO088 | 10/31/13 8:45 PM | 10/31/13 9:00 PM | 0.01 | 412 | 0.65 | 634 | 1.73 | 0.25 | 24 hr | CloudBurst |
| CSO088 | 11/17/13 5:30 AM | 11/17/13 7:15 PM | 0.57 | 817,817 | 2.17 | 376,874 | 2.30 | 0.90 | 6 hr | CloudBurst |
| CSO088 | 12/5/13 7:15 AM | 12/5/13 7:45 AM | 0.02 | 198 | 0.78 | 253 | 0.16 | 0.25 | 48 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO088 | 12/14/13 10:30 AM | 12/14/13 10:30 AM | 0.00 | 119 | 0.77 | 155 | 1.03 | 0.31 | 12 hr | CloudBurst |
| CSO088 | 12/21/13 7:45 AM | 12/21/13 12:15 PM | 0.19 | 72,200 | 2.81 | 25,694 | 1.41 | 1.24 | 24 hr | CloudBurst |
| CSO088 | 12/21/13 9:30 PM | 12/22/13 3:45 AM | 0.26 | 935,547 | 2.81 | 332,935 | 2.89 | 1.24 | 24 hr | CloudBurst |
| CSO088 | 5/29/14 9:00 PM | 5/29/14 10:00 PM | 0.04 | 169,670 | 0.41 | 413,830 | 0.65 | 0.35 | 1 hr | CloudBurst |
| CSO088 | 6/11/14 2:30 PM | 6/11/14 2:30 PM | 0.01 | 3,533 | 0.11 | 32,118 | 0.30 | 0.07 | 1 hr | CloudBurst |
| CSO091 | 1/11/14 12:15 AM | 1/11/14 4:00 AM | 0.16 | 9,749 | 0.99 | 9,847 | 1.39 | 0.54 | 6 hr | CloudBurst |
| CSO091 | 2/2/14 4:45 AM | 2/2/14 4:45 AM | 0.00 | 1,223 | 0.20 | 6,115 | 0.12 | 0.10 | 6 hr | CloudBurst |
| CSO091 | 2/4/14 7:30 PM | 2/4/14 11:15 PM | 0.16 | 9,754 | 0.51 | 19,126 | 0.93 | 0.24 | 6 hr | CloudBurst |
| CSO091 | 2/17/14 4:00 PM | 2/17/14 4:30 PM | 0.02 | 23,507 | 0.51 | 46,093 | 1.02 | 0.31 | 3 hr | CloudBurst |
| CSO091 | 3/2/14 10:15 AM | 3/2/14 10:30 AM | 0.01 | 555 | 0.61 | 909 | 0.22 | 0.23 | 24 hr | CloudBurst |
| CSO091 | 3/28/14 4:15 AM | 3/28/14 4:15 AM | 0.00 | 241 | 0.26 | 926 | 0.24 | 0.12 | 12 hr | CloudBurst |
| CSO091 | 3/29/14 6:00 AM | 3/29/14 7:15 AM | 0.05 | 34,846 | 1.00 | 34,846 | 0.79 | 0.46 | 12 hr | CloudBurst |
| CSO091 | 7/2/13 1:15 PM | 7/2/13 1:15 PM | 0.01 | 15,477 | 0.10 | 154,774 | 4.06 | 0.09 | 1 hr | CloudBurst |
| CSO091 | 7/6/13 1:00 AM | 7/6/13 5:15 AM | 0.18 | 11,583 | 0.62 | 18,682 | 2.03 | 0.27 | 12 hr | CloudBurst |
| CSO091 | 7/10/13 12:30 PM | 7/10/13 2:15 PM | 0.07 | 98,316 | 0.66 | 148,963 | 1.94 | 0.43 | 1 hr | CloudBurst |
| CSO091 | 7/14/13 7:30 PM | 7/14/13 7:30 PM | 0.01 | 12,088 | 0.12 | 100,729 | 0.86 | 0.10 | 1 hr | CloudBurst |
| CSO091 | 7/18/13 4:15 PM | 7/18/13 4:15 PM | 0.01 | 7,003 | 0.21 | 33,345 | 0.35 | 0.14 | 3 hr | CloudBurst |
| CSO091 | 7/21/13 7:30 PM | 7/21/13 8:15 PM | 0.03 | 8,999 | 2.92 | 3,082 | 1.99 | 2.14 | 3 hr | Atlas14 |
| CSO091 | 7/22/13 7:15 AM | 7/22/13 4:00 PM | 0.36 | 102,270 | 2.92 | 35,024 | 3.14 | 2.14 | 3 hr | Atlas14 |
| CSO091 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 73,276 | 0.85 | 86,208 | 0.87 | 0.40 | 1 hr | CloudBurst |
| CSO091 | 8/13/13 3:00 AM | 8/13/13 3:15 AM | 0.01 | 1,462 | 0.85 | 1,720 | 1.16 | 0.40 | 1 hr | CloudBurst |
| CSO091 | 8/20/13 6:00 PM | 8/20/13 6:15 PM | 0.01 | 35,886 | 0.25 | 143,543 | 0.25 | 0.16 | 1 hr | CloudBurst |
| CSO091 | 8/31/13 7:45 PM | 8/31/13 10:45 PM | 0.13 | 31,544 | 1.13 | 27,915 | 0.75 | 0.52 | 12 hr | CloudBurst |
| CSO091 | 9/2/13 1:45 PM | 9/2/13 2:00 PM | 0.01 | 68,549 | 0.56 | 122,409 | 1.69 | 0.49 | 1 hr | CloudBurst |
| CSO091 | 9/20/13 7:15 PM | 9/21/13 3:30 AM | 0.34 | 24,469 | 1.26 | 19,420 | 1.19 | 0.52 | 12 hr | CloudBurst |
| CSO091 | 10/5/13 12:45 PM | 10/6/13 8:45 AM | 0.83 | 508,372 | 4.59 | 110,756 | 4.69 | 11.17 | 24 hr | CloudBurst |
| CSO091 | 10/30/13 2:45 AM | 10/30/13 5:30 AM | 0.11 | 79,913 | 1.48 | 53,995 | 1.44 | 0.77 | 1 hr | CloudBurst |
| CSO091 | 10/31/13 7:45 PM | 10/31/13 9:15 PM | 0.06 | 526 | 0.59 | 892 | 1.98 | 0.23 | 24 hr | CloudBurst |
| CSO091 | 11/17/13 5:30 AM | 11/17/13 9:45 AM | 0.18 | 203,485 | 2.53 | 80,429 | 2.26 | 1.64 | 6 hr | CloudBurst |
| CSO091 | 11/17/13 6:00 PM | 11/17/13 6:15 PM | 0.01 | 10,395 | 2.53 | 4,109 | 2.66 | 1.64 | 6 hr | CloudBurst |
| CSO091 | 12/5/13 7:00 AM | 12/5/13 10:00 AM | 0.13 | 7,719 | 0.72 | 10,721 | 0.18 | 0.23 | 48 hr | CloudBurst |
| CSO091 | 12/14/13 10:30 AM | 12/14/13 10:30 AM | 0.00 | 1,175 | 0.85 | 1,382 | 1.13 | 0.36 | 6 hr | CloudBurst |
| CSO091 | 12/21/13 8:00 AM | 12/21/13 11:30 AM | 0.15 | 5,708 | 2.40 | 2,378 | 1.13 | 0.91 | 24 hr | CloudBurst |
| CSO091 | 12/21/13 9:30 PM | 12/22/13 12:30 AM | 0.13 | 116,362 | 2.40 | 48,484 | 2.32 | 0.91 | 24 hr | CloudBurst |
| CSO091 | 4/3/14 11:45 AM | 4/4/14 6:30 AM | 0.78 | 106,000 | 2.65 | 40,000 | 3.76 | 0.93 | 24 hr | CloudBurst |
| CSO091 | 4/7/14 10:15 AM | 4/7/14 3:00 PM | 0.20 | 52,182 | 0.73 | 71,482 | 3.48 | 0.43 | 3 hr | CloudBurst |
| CSO091 | 4/14/14 3:15 AM | 4/14/14 3:15 AM | 0.01 | 463 | 0.38 | 1,218 | 0.85 | 0.19 | 6 hr | CloudBurst |
| CSO091 | 4/14/14 7:45 PM | 4/15/14 12:00 AM | 0.18 | 3,046 | 0.63 | 4,835 | 0.82 | 0.29 | 12 hr | CloudBurst |
| CSO091 | 4/28/14 3:45 AM | 4/28/14 6:30 AM | 0.11 | 176,049 | 1.77 | 99,463 | 1.36 | 0.70 | 3 hr | CloudBurst |
| CSO091 | 4/28/14 5:15 PM | 4/28/14 7:30 PM | 0.09 | 10,339 | 1.77 | 5,841 | 1.82 | 0.70 | 3 hr | CloudBurst |
| CSO091 | 5/9/14 7:00 PM | 5/10/14 2:45 PM | 0.82 | 84,581 | 1.60 | 52,863 | 1.52 | 0.59 | 24 hr | CloudBurst |
| CSO091 | 5/14/14 6:45 AM | 5/14/14 6:00 PM | 0.47 | 29,650 | 1.11 | 26,712 | 2.37 | 0.43 | 24 hr | CloudBurst |
| CSO091 | 5/22/14 2:30 AM | 5/22/14 3:00 AM | 0.02 | 4,166 | 0.45 | 9,258 | 0.41 | 0.23 | 1 hr | CloudBurst |
| CSO091 | 5/28/14 8:15 PM | 5/28/14 8:30 PM | 0.01 | 16,551 | 0.21 | 78,812 | 0.67 | 0.17 | 1 hr | CloudBurst |
| CSO091 | 5/29/14 8:45 PM | 5/29/14 9:15 PM | 0.02 | 72,656 | 0.85 | 85,478 | 1.06 | 0.70 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO091 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 1,100 | 0.11 | 9,996 | 0.30 | 0.06 | 1 hr | CloudBurst |
| CSO091 | 6/20/14 5:30 PM | 6/20/14 5:30 PM | 0.01 | 744 | 0.24 | 3,100 | 0.24 | 0.16 | 3 hr | CloudBurst |
| CSO091 | 6/24/14 1:30 PM | 6/24/14 1:30 PM | 0.01 | 15,307 | 0.24 | 63,778 | 0.47 | 0.17 | 1 hr | CloudBurst |
| CSO092 | 1/5/14 2:30 PM | 1/5/14 6:45 PM | 0.18 | 1,004 | 0.48 | 2,091 | 0.67 | 0.24 | 6 hr | CloudBurst |
| CSO092 | 1/11/14 12:00 AM | 1/11/14 5:00 AM | 0.21 | 10,504 | 0.99 | 10,610 | 1.47 | 0.54 | 6 hr | CloudBurst |
| CSO092 | 2/2/14 2:45 AM | 2/2/14 5:15 AM | 0.10 | 309 | 0.20 | 1,546 | 0.15 | 0.10 | 6 hr | CloudBurst |
| CSO092 | 2/4/14 6:15 PM | 2/5/14 1:45 AM | 0.31 | 31,702 | 0.51 | 62,161 | 0.96 | 0.24 | 6 hr | CloudBurst |
| CSO092 | 2/14/14 5:00 PM | 2/14/14 5:00 PM | 0.00 | 2 | 0.50 | 4 | 0.34 | 0.27 | 6 hr | CloudBurst |
| CSO092 | 2/17/14 3:15 PM | 2/17/14 5:15 PM | 0.08 | 14,387 | 0.51 | 28,209 | 1.05 | 0.31 | 3 hr | CloudBurst |
| CSO092 | 3/2/14 9:15 AM | 3/2/14 11:00 AM | 0.07 | 8,544 | 0.61 | 14,007 | 0.30 | 0.23 | 24 hr | CloudBurst |
| CSO092 | 3/4/14 1:00 PM | 3/4/14 1:30 PM | 0.02 | 2 | 0.08 | 25 | 0.62 | 1.63 | 24 hr | CloudBurst |
| CSO092 | 3/12/14 7:00 AM | 3/12/14 7:15 AM | 0.01 | 197 | 0.08 | 2,467 | 0.07 | 0.04 | 1 hr | CloudBurst |
| CSO092 | 3/28/14 4:15 AM | 3/28/14 5:00 AM | 0.03 | 2,634 | 0.26 | 10,131 | 0.31 | 0.12 | 12 hr | CloudBurst |
| CSO092 | 3/29/14 6:00 AM | 3/29/14 12:00 PM | 0.25 | 18,191 | 1.00 | 18,191 | 1.20 | 0.46 | 12 hr | CloudBurst |
| CSO092 | 7/2/13 1:00 PM | 7/2/13 1:00 PM | 0.01 | 13,680 | 0.10 | 136,801 | 4.05 | 0.09 | 1 hr | CloudBurst |
| CSO092 | 7/6/13 12:45 AM | 7/6/13 5:00 AM | 0.18 | 8,396 | 0.62 | 13,541 | 2.02 | 0.27 | 12 hr | CloudBurst |
| CSO092 | 7/10/13 12:15 PM | 7/10/13 2:15 PM | 0.08 | 94,889 | 0.66 | 143,771 | 1.94 | 0.43 | 1 hr | CloudBurst |
| CSO092 | 7/14/13 7:15 PM | 7/14/13 7:15 PM | 0.01 | 12,160 | 0.12 | 101,335 | 0.85 | 0.10 | 1 hr | CloudBurst |
| CSO092 | 7/18/13 4:00 PM | 7/18/13 4:00 PM | 0.01 | 15,245 | 0.21 | 72,597 | 0.34 | 0.14 | 3 hr | CloudBurst |
| CSO092 | 7/21/13 7:15 PM | 7/21/13 8:00 PM | 0.03 | 45,232 | 2.92 | 15,491 | 1.97 | 2.14 | 3 hr | Atlas14 |
| CSO092 | 7/22/13 7:00 AM | 7/22/13 3:45 PM | 0.36 | 207,358 | 2.92 | 71,013 | 3.12 | 2.14 | 3 hr | Atlas14 |
| CSO092 | 8/12/13 2:30 PM | 8/12/13 2:45 PM | 0.01 | 51,008 | 0.85 | 60,010 | 0.87 | 0.40 | 1 hr | CloudBurst |
| CSO092 | 8/13/13 2:45 AM | 8/13/13 3:15 AM | 0.02 | 153 | 0.85 | 180 | 1.16 | 0.40 | 1 hr | CloudBurst |
| CSO092 | 8/20/13 5:45 PM | 8/20/13 6:00 PM | 0.01 | 54,284 | 0.25 | 217,136 | 0.24 | 0.16 | 1 hr | CloudBurst |
| CSO092 | 8/31/13 7:30 PM | 8/31/13 11:15 PM | 0.16 | 77,200 | 1.13 | 68,319 | 0.83 | 0.52 | 12 hr | CloudBurst |
| CSO092 | 9/2/13 1:30 PM | 9/2/13 2:00 PM | 0.02 | 82,370 | 0.56 | 147,089 | 1.69 | 0.49 | 1 hr | CloudBurst |
| CSO092 | 9/11/13 10:45 AM | 9/11/13 2:00 PM | 0.14 | 21 | 0.04 | 534 | 0.04 | 0.03 | 3 hr | CloudBurst |
| CSO092 | 9/20/13 3:45 PM | 9/21/13 4:00 AM | 0.51 | 35,621 | 1.26 | 28,270 | 1.22 | 0.52 | 12 hr | CloudBurst |
| CSO092 | 10/4/13 6:30 PM | 10/4/13 6:45 PM | 0.01 | 113 | 0.10 | 1,132 | 0.16 | 0.09 | 1 hr | CloudBurst |
| CSO092 | 10/5/13 12:15 PM | 10/6/13 12:30 PM | 1.01 | 619,590 | 4.59 | 134,987 | 4.70 | 11.17 | 24 hr | CloudBurst |
| CSO092 | 10/19/13 8:00 AM | 10/19/13 12:45 PM | 0.20 | 119 | 0.20 | 595 | 0.24 | 0.11 | 6 hr | CloudBurst |
| CSO092 | 10/30/13 12:45 AM | 10/30/13 8:00 AM | 0.30 | 111,892 | 1.48 | 75,603 | 1.48 | 0.77 | 1 hr | CloudBurst |
| CSO092 | 10/31/13 8:15 PM | 10/31/13 9:00 PM | 0.03 | 1,717 | 0.59 | 2,910 | 1.97 | 0.23 | 24 hr | CloudBurst |
| CSO092 | 11/7/13 4:45 AM | 11/7/13 8:30 AM | 0.16 | 10 | 0.19 | 51 | 0.83 | 0.08 | 12 hr | CloudBurst |
| CSO092 | 11/12/13 2:45 AM | 11/12/13 2:45 AM | 0.00 | 1 | 0.05 | 23 | 0.23 | 0.02 | 48 hr | CloudBurst |
| CSO092 | 11/15/13 6:15 PM | 11/15/13 7:30 PM | 0.05 | 150 | 0.11 | 1,362 | 0.16 | 0.10 | 1 hr | CloudBurst |
| CSO092 | 11/17/13 4:15 AM | 11/18/13 1:00 AM | 0.86 | 288,721 | 2.53 | 114,119 | 2.69 | 1.64 | 6 hr | CloudBurst |
| CSO092 | 12/5/13 7:15 AM | 12/5/13 7:15 AM | 0.00 | 11 | 0.72 | 15 | 0.15 | 0.23 | 48 hr | CloudBurst |
| CSO092 | 12/21/13 9:15 PM | 12/21/13 11:45 PM | 0.10 | 92,626 | 2.40 | 38,594 | 2.20 | 0.91 | 24 hr | CloudBurst |
| CSO092 | 12/29/13 6:00 AM | 12/29/13 6:00 AM | 0.00 | 12 | 0.51 | 24 | 0.40 | 0.22 | 12 hr | CloudBurst |
| CSO092 | 4/3/14 11:45 AM | 4/4/14 8:00 AM | 0.84 | 87,699 | 2.65 | 33,094 | 4.02 | 0.93 | 24 hr | CloudBurst |
| CSO092 | 4/7/14 9:00 AM | 4/7/14 12:00 PM | 0.13 | 35,596 | 0.73 | 48,762 | 3.47 | 0.43 | 3 hr | CloudBurst |
| CSO092 | 4/14/14 3:15 AM | 4/14/14 3:15 AM | 0.01 | 2,305 | 0.38 | 6,065 | 0.85 | 0.19 | 6 hr | CloudBurst |
| CSO092 | 4/14/14 7:45 PM | 4/15/14 12:00 AM | 0.18 | 2,928 | 0.63 | 4,647 | 0.82 | 0.29 | 12 hr | CloudBurst |
| CSO092 | 4/28/14 4:00 AM | 4/28/14 7:00 AM | 0.13 | 100,526 | 1.77 | 56,794 | 1.40 | 0.70 | 3 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO092 | 4/28/14 5:30 PM | 4/28/14 5:45 PM | 0.01 | 2,552 | 1.77 | 1,442 | 1.76 | 0.70 | 3 hr | CloudBurst |
| CSO092 | 5/9/14 7:15 PM | 5/10/14 3:15 PM | 0.83 | 148,144 | 1.60 | 92,590 | 1.57 | 0.59 | 24 hr | CloudBurst |
| CSO092 | 5/14/14 7:00 AM | 5/15/14 12:45 AM | 0.74 | 46,875 | 1.11 | 42,229 | 2.76 | 0.43 | 24 hr | CloudBurst |
| CSO092 | 5/21/14 9:00 PM | 5/22/14 3:30 AM | 0.27 | 19,914 | 0.45 | 44,254 | 0.58 | 0.23 | 1 hr | CloudBurst |
| CSO092 | 5/28/14 8:30 PM | 5/28/14 8:30 PM | 0.01 | 1,083 | 0.21 | 5,159 | 0.67 | 0.17 | 1 hr | CloudBurst |
| CSO092 | 5/29/14 8:45 PM | 5/29/14 9:30 PM | 0.03 | 105,236 | 0.85 | 123,807 | 1.07 | 0.70 | 1 hr | CloudBurst |
| CSO092 | 5/30/14 2:00 PM | 5/30/14 2:00 PM | 0.01 | 328 | 0.17 | 1,929 | 1.25 | 0.11 | 3 hr | CloudBurst |
| CSO092 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 4,403 | 0.11 | 40,028 | 0.30 | 0.06 | 1 hr | CloudBurst |
| CSO092 | 6/20/14 4:00 PM | 6/20/14 5:30 PM | 0.06 | 5,563 | 0.24 | 23,179 | 0.24 | 0.16 | 3 hr | CloudBurst |
| CSO092 | 6/24/14 1:30 PM | 6/24/14 1:30 PM | 0.01 | 9,773 | 0.24 | 40,722 | 0.47 | 0.17 | 1 hr | CloudBurst |
| CSO097 | 1/11/14 12:45 AM | 1/11/14 6:30 AM | 0.24 | 89,539 | 1.08 | 82,907 | 1.61 | 0.59 | 6 hr | CloudBurst |
| CSO097 | 1/13/14 3:00 PM | 1/13/14 4:15 PM | 0.05 | 1,780 | 0.21 | 8,477 | 1.25 | 0.10 | 12 hr | CloudBurst |
| CSO097 | 2/17/14 4:00 PM | 2/17/14 7:30 PM | 0.15 | 54,638 | 0.39 | 140,098 | 0.84 | 0.23 | 3 hr | CloudBurst |
| CSO097 | 2/20/14 11:15 PM | 2/21/14 12:15 AM | 0.04 | 317 | 0.24 | 1,323 | 1.08 | 0.13 | 6 hr | CloudBurst |
| CSO097 | 3/13/14 5:30 AM | 3/13/14 7:30 AM | 0.08 | 70,444 | 0.01 | 7,044,396 | 0.08 | 0.01 | 6 hr | CloudBurst |
| CSO097 | 3/29/14 7:00 AM | 3/29/14 12:30 PM | 0.23 | 36,549 | 1.21 | 30,205 | 1.42 | 0.56 | 6 hr | CloudBurst |
| CSO097 | 7/4/13 9:30 AM | 7/4/13 6:00 PM | 0.35 | 100,353 | 0.61 | 164,513 | 1.58 | 0.26 | 12 hr | CloudBurst |
| CSO097 | 7/6/13 1:30 AM | 7/6/13 7:15 PM | 0.74 | 241,320 | 0.66 | 365,636 | 2.29 | 0.28 | 12 hr | CloudBurst |
| CSO097 | 7/10/13 12:45 PM | 7/10/13 5:30 PM | 0.20 | 68,870 | 0.80 | 86,087 | 2.23 | 0.52 | 3 hr | CloudBurst |
| CSO097 | 7/14/13 7:30 PM | 7/14/13 8:45 PM | 0.05 | 11,796 | 0.20 | 58,979 | 1.11 | 0.17 | 1 hr | CloudBurst |
| CSO097 | 7/18/13 4:30 PM | 7/18/13 5:15 PM | 0.03 | 14,593 | 0.18 | 81,074 | 0.42 | 0.12 | 3 hr | CloudBurst |
| CSO097 | 7/21/13 7:15 PM | 7/21/13 9:30 PM | 0.09 | 94,401 | 3.37 | 28,012 | 2.50 | 5.00 | 3 hr | Atlas14 |
| CSO097 | 7/22/13 7:15 AM | 7/23/13 12:00 PM | 1.20 | 443,488 | 3.37 | 131,599 | 3.57 | 5.00 | 3 hr | Atlas14 |
| CSO097 | 8/9/13 5:15 PM | 8/9/13 7:00 PM | 0.07 | 40,983 | 0.50 | 81,966 | 0.43 | 0.24 | 1 hr | CloudBurst |
| CSO097 | 8/12/13 2:45 PM | 8/12/13 5:15 PM | 0.10 | 54,745 | 0.89 | 61,511 | 1.16 | 0.37 | 1 hr | CloudBurst |
| CSO097 | 8/13/13 3:00 AM | 8/13/13 6:15 AM | 0.14 | 41,895 | 0.89 | 47,073 | 1.42 | 0.37 | 1 hr | CloudBurst |
| CSO097 | 8/20/13 6:15 PM | 8/20/13 7:30 PM | 0.05 | 23,581 | 0.28 | 84,219 | 0.29 | 0.19 | 1 hr | CloudBurst |
| CSO097 | 8/31/13 7:45 PM | 9/1/13 4:45 AM | 0.38 | 70,657 | 1.14 | 61,980 | 1.14 | 0.53 | 6 hr | CloudBurst |
| CSO097 | 9/2/13 2:00 PM | 9/2/13 4:15 PM | 0.09 | 49,940 | 0.64 | 78,031 | 1.78 | 0.56 | 1 hr | CloudBurst |
| CSO097 | 9/20/13 7:30 PM | 9/21/13 7:00 AM | 0.48 | 286,935 | 1.59 | 180,463 | 1.62 | 0.66 | 12 hr | CloudBurst |
| CSO097 | 10/5/13 12:30 PM | 10/8/13 12:30 AM | 2.50 | 1,755,729 | 5.83 | 301,154 | 6.06 | 36.33 | 24 hr | CloudBurst |
| CSO097 | 10/30/13 2:15 AM | 10/30/13 9:45 AM | 0.31 | 254,687 | 1.96 | 129,943 | 1.96 | 1.57 | 1 hr | CloudBurst |
| CSO097 | 10/31/13 8:15 PM | 11/1/13 12:15 AM | 0.17 | 100,521 | 0.59 | 170,374 | 2.55 | 0.23 | 24 hr | CloudBurst |
| CSO097 | 11/17/13 5:45 AM | 11/19/13 12:00 AM | 1.76 | 988,854 | 2.64 | 374,566 | 2.81 | 2.29 | 6 hr | CloudBurst |
| CSO097 | 12/5/13 7:15 AM | 12/5/13 12:00 PM | 0.20 | 53,229 | 0.70 | 76,042 | 0.23 | 0.23 | 48 hr | CloudBurst |
| CSO097 | 12/6/13 9:30 AM | 12/6/13 9:30 AM | 0.00 | 104 | 0.70 | 149 | 0.34 | 0.23 | 48 hr | CloudBurst |
| CSO097 | 12/14/13 10:30 AM | 12/14/13 12:15 PM | 0.07 | 15,000 | 1.09 | 13,761 | 1.29 | 0.49 | 6 hr | CloudBurst |
| CSO097 | 12/21/13 8:00 AM | 12/22/13 8:15 PM | 1.51 | 573,958 | 2.81 | 204,256 | 3.21 | 1.30 | 3 hr | Atlas14 |
| CSO097 | 12/24/13 8:30 AM | 12/24/13 9:15 AM | 0.03 | 833 | 0.01 | 83,333 | 2.97 | 0.01 | 6 hr | CloudBurst |
| CSO097 | 12/29/13 6:15 AM | 12/29/13 6:30 AM | 0.01 | 417 | 0.58 | 718 | 0.49 | 0.26 | 12 hr | CloudBurst |
| CSO097 | 4/3/14 12:15 PM | 4/5/14 6:15 AM | 1.75 | 628,528 | 2.63 | 238,984 | 4.23 | 0.93 | 24 hr | CloudBurst |
| CSO097 | 4/7/14 7:45 AM | 4/7/14 10:45 PM | 0.63 | 165,156 | 0.74 | 223,184 | 3.52 | 0.46 | 1 hr | CloudBurst |
| CSO097 | 4/14/14 10:15 AM | 4/14/14 10:45 AM | 0.02 | 241 | 0.38 | 634 | 1.05 | 0.19 | 6 hr | CloudBurst |
| CSO097 | 4/14/14 8:15 PM | 4/15/14 3:30 AM | 0.30 | 23,203 | 0.61 | 38,038 | 1.03 | 0.28 | 12 hr | CloudBurst |
| CSO097 | 4/28/14 4:15 AM | 4/28/14 8:45 AM | 0.19 | 86,005 | 1.75 | 49,146 | 1.48 | 0.66 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO097 | 4/28/14 5:30 PM | 4/28/14 8:45 PM | 0.14 | 12,912 | 1.75 | 7,378 | 1.86 | 0.66 | 24 hr | CloudBurst |
| CSO097 | 5/9/14 7:30 PM | 5/9/14 7:30 PM | 0.01 | 411 | 1.74 | 236 | 0.34 | 0.67 | 24 hr | CloudBurst |
| CSO097 | 5/10/14 5:45 AM | 5/10/14 3:45 PM | 0.42 | 99,951 | 1.74 | 57,443 | 1.79 | 0.67 | 24 hr | CloudBurst |
| CSO097 | 5/14/14 7:15 AM | 5/15/14 12:15 AM | 0.71 | 24,956 | 1.18 | 21,149 | 3.02 | 0.43 | 24 hr | CloudBurst |
| CSO097 | 5/22/14 3:00 AM | 5/22/14 4:30 AM | 0.06 | 4,131 | 0.52 | 7,943 | 0.61 | 0.26 | 1 hr | CloudBurst |
| CSO097 | 5/29/14 9:00 PM | 5/29/14 10:00 PM | 0.04 | 29,337 | 0.67 | 43,786 | 0.79 | 0.47 | 1 hr | CloudBurst |
| CSO104 | 2/17/14 4:45 PM | 2/17/14 4:45 PM | 0.00 | 1,445 | 0.56 | 2,580 | 0.75 | 0.32 | 3 hr | CloudBurst |
| CSO104 | 7/4/13 4:45 PM | 7/5/13 12:15 AM | 0.31 | 8,942 | 0.44 | 20,323 | 1.42 | 0.20 | 12 hr | CloudBurst |
| CSO104 | 7/6/13 12:30 PM | 7/6/13 1:00 PM | 0.02 | 2,093 | 0.45 | 4,651 | 1.86 | 0.20 | 12 hr | CloudBurst |
| CSO104 | 7/10/13 2:15 PM | 7/10/13 3:00 PM | 0.03 | 86,888 | 0.66 | 131,648 | 1.67 | 0.53 | 1 hr | CloudBurst |
| CSO104 | 7/21/13 8:15 PM | 7/21/13 10:30 PM | 0.09 | 22,981 | 2.72 | 8,449 | 2.15 | 3.36 | 3 hr | Atlas14 |
| CSO104 | 7/22/13 7:45 AM | 7/22/13 2:15 PM | 0.27 | 114,205 | 2.72 | 41,987 | 2.77 | 3.36 | 3 hr | Atlas14 |
| CSO104 | 8/12/13 2:45 PM | 8/12/13 3:30 PM | 0.03 | 26,270 | 0.91 | 28,868 | 0.79 | 0.51 | 1 hr | CloudBurst |
| CSO104 | 8/31/13 10:30 PM | 8/31/13 10:30 PM | 0.01 | 624 | 1.41 | 442 | 0.81 | 0.65 | 6 hr | CloudBurst |
| CSO104 | 10/30/13 4:45 AM | 10/30/13 7:30 AM | 0.11 | 1,106,811 | 1.70 | 651,065 | 1.70 | 0.85 | 6 hr | CloudBurst |
| CSO104 | 10/31/13 7:15 PM | 10/31/13 8:15 PM | 0.04 | 48,929 | 1.10 | 44,481 | 2.70 | 0.50 | 1 hr | CloudBurst |
| CSO104 | 11/17/13 6:00 AM | 11/17/13 10:45 AM | 0.20 | 814,645 | 2.72 | 299,502 | 2.66 | 2.87 | 6 hr | CloudBurst |
| CSO104 | 12/21/13 9:45 PM | 12/22/13 1:15 AM | 0.15 | 746,617 | 3.31 | 225,564 | 3.24 | 2.24 | 24 hr | CloudBurst |
| CSO104 | 4/4/14 2:00 AM | 4/4/14 5:15 AM | 0.14 | 116,646 | 2.93 | 39,811 | 3.62 | 1.14 | 24 hr | CloudBurst |
| CSO104 | 4/7/14 11:15 AM | 4/7/14 12:45 PM | 0.06 | 235,952 | 1.06 | 222,596 | 4.05 | 0.64 | 1 hr | CloudBurst |
| CSO104 | 4/28/14 5:45 AM | 4/28/14 8:45 AM | 0.13 | 427,785 | 1.80 | 237,658 | 1.59 | 0.72 | 3 hr | CloudBurst |
| CSO104 | 5/9/14 7:30 PM | 5/9/14 9:00 PM | 0.06 | 1,632 | 1.44 | 1,133 | 0.24 | 0.63 | 1 hr | CloudBurst |
| CSO104 | 5/10/14 2:15 PM | 5/10/14 8:30 PM | 0.26 | 277,583 | 1.44 | 192,766 | 1.51 | 0.63 | 1 hr | CloudBurst |
| CSO104 | 5/28/14 8:15 PM | 5/29/14 2:30 AM | 0.26 | 73,187 | 0.04 | 1,829,677 | 0.59 | 0.03 | 3 hr | CloudBurst |
| CSO105 | 1/11/14 12:00 AM | 1/11/14 7:30 AM | 0.31 | 6,258,047 | 0.91 | 6,876,975 | 1.40 | 0.49 | 6 hr | CloudBurst |
| CSO105 | 1/13/14 2:15 PM | 1/13/14 6:15 PM | 0.17 | 4,249 | 0.28 | 15,176 | 1.20 | 0.13 | 3 hr | Atlas14 |
| CSO105 | 1/14/14 6:30 PM | 1/14/14 6:45 PM | 0.01 | 380 | 0.02 | 18,998 | 1.23 | 0.02 | 1 hr | CloudBurst |
| CSO105 | 1/21/14 3:30 AM | 1/21/14 4:00 PM | 0.52 | 2,665 | 0.15 | 17,763 | 0.20 | 0.07 | 12 hr | CloudBurst |
| CSO105 | 1/25/14 12:00 PM | 1/25/14 4:00 PM | 0.17 | 3,116 | 0.04 | 77,902 | 0.22 | 0.02 | 24 hr | CloudBurst |
| CSO105 | 2/2/14 2:30 AM | 2/2/14 7:45 AM | 0.22 | 369,160 | 0.58 | 636,483 | 0.25 | 0.22 | 24 hr | CloudBurst |
| CSO105 | 2/4/14 6:15 PM | 2/5/14 8:00 AM | 0.57 | 9,961,968 | 0.67 | 14,868,609 | 1.25 | 0.33 | 6 hr | CloudBurst |
| CSO105 | 2/14/14 3:45 PM | 2/14/14 11:00 PM | 0.30 | 4,600 | 0.23 | 19,999 | 0.29 | 0.13 | 6 hr | CloudBurst |
| CSO105 | 2/17/14 2:30 PM | 2/17/14 9:15 PM | 0.28 | 4,532,004 | 0.56 | 8,092,863 | 0.82 | 0.32 | 3 hr | CloudBurst |
| CSO105 | 2/20/14 8:15 PM | 2/21/14 12:45 AM | 0.19 | 146,764 | 0.24 | 611,516 | 1.06 | 0.13 | 3 hr | Atlas14 |
| CSO105 | 3/2/14 9:30 AM | 3/2/14 1:00 PM | 0.15 | 815,232 | 0.47 | 1,734,537 | 0.28 | 0.18 | 24 hr | CloudBurst |
| CSO105 | 3/4/14 12:45 PM | 3/4/14 4:30 PM | 0.16 | 9,574 | 0.05 | 191,480 | 0.47 | 1.98 | 24 hr | CloudBurst |
| CSO105 | 3/12/14 7:15 AM | 3/12/14 11:45 AM | 0.19 | 2,092 | 0.11 | 19,017 | 0.11 | 0.06 | 1 hr | CloudBurst |
| CSO105 | 3/16/14 5:30 PM | 3/16/14 8:15 PM | 0.11 | 1,499 | 0.04 | 37,470 | 0.17 | 0.03 | 3 hr | CloudBurst |
| CSO105 | 3/19/14 8:45 AM | 3/19/14 8:45 AM | 0.00 | 90 | 0.06 | 1,503 | 0.12 | 0.04 | 3 hr | CloudBurst |
| CSO105 | 3/27/14 11:15 PM | 3/28/14 6:15 AM | 0.29 | 299,875 | 0.26 | 1,153,364 | 0.35 | 0.14 | 6 hr | CloudBurst |
| CSO105 | 3/29/14 4:30 AM | 3/29/14 2:15 PM | 0.41 | 3,510,550 | 0.84 | 4,179,226 | 1.19 | 0.39 | 12 hr | CloudBurst |
| CSO105 | 7/1/13 9:00 AM | 7/1/13 9:15 AM | 0.01 | 1,057 | 0.22 | 4,806 | 2.86 | 0.09 | 12 hr | CloudBurst |
| CSO105 | 7/1/13 7:00 PM | 7/1/13 8:30 PM | 0.06 | 1,897 | 0.22 | 8,623 | 2.93 | 0.09 | 12 hr | CloudBurst |
| CSO105 | 7/2/13 1:45 PM | 7/2/13 3:30 PM | 0.07 | 1,166,812 | 0.02 | 58,340,581 | 2.97 | 0.02 | 1 hr | CloudBurst |
| CSO105 | 7/3/13 4:00 PM | 7/3/13 5:15 PM | 0.05 | 12,161 | 0.11 | 110,550 | 2.25 | 0.09 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO105 | 7/4/13 6:15 AM | 7/4/13 5:15 PM | 0.46 | 57,787 | 0.44 | 131,335 | 1.40 | 0.20 | 12 hr | CloudBurst |
| CSO105 | 7/30/13 6:30 PM | 7/30/13 6:30 PM | 0.01 | 6,687 | 0.09 | 74,300 | 0.12 | 0.05 | 6 hr | CloudBurst |
| CSO105 | 8/12/13 11:45 AM | 8/12/13 5:30 PM | 0.24 | 5,547,470 | 0.91 | 6,096,121 | 0.84 | 0.51 | 1 hr | CloudBurst |
| CSO105 | 8/13/13 2:45 AM | 8/13/13 5:00 AM | 0.09 | 531,108 | 0.91 | 583,635 | 1.05 | 0.51 | 1 hr | CloudBurst |
| CSO105 | 8/31/13 8:00 PM | 9/1/13 4:15 AM | 0.34 | 5,146,757 | 1.41 | 3,650,183 | 1.39 | 0.65 | 6 hr | CloudBurst |
| CSO105 | 9/2/13 1:45 PM | 9/2/13 4:30 PM | 0.11 | 3,498,577 | 0.97 | 3,606,780 | 2.38 | 0.84 | 1 hr | CloudBurst |
| CSO105 | 9/12/13 1:45 PM | 9/12/13 1:45 PM | 0.01 | 46 | 0.02 | 2,320 | 0.06 | 0.02 | 1 hr | CloudBurst |
| CSO105 | 9/20/13 4:30 PM | 9/21/13 6:30 AM | 0.58 | 8,015,872 | 1.71 | 4,687,645 | 1.75 | 0.70 | 12 hr | CloudBurst |
| CSO105 | 10/2/13 3:30 PM | 10/2/13 4:15 PM | 0.03 | 2,086 | 0.13 | 16,043 | 0.19 | 0.07 | 1 hr | CloudBurst |
| CSO105 | 10/5/13 12:15 PM | 10/6/13 4:00 PM | 1.16 | 48,874,009 | 4.19 | 11,664,441 | 4.52 | 7.10 | 24 hr | CloudBurst |
| CSO105 | 10/19/13 11:00 AM | 10/19/13 12:30 PM | 0.06 | 68 | 0.16 | 427 | 0.24 | 0.08 | 6 hr | CloudBurst |
| CSO105 | 10/30/13 1:15 AM | 10/30/13 9:00 AM | 0.32 | 3,178,961 | 1.70 | 1,869,977 | 1.70 | 0.85 | 6 hr | CloudBurst |
| CSO105 | 10/31/13 12:00 PM | 10/31/13 11:15 PM | 0.47 | 5,947,653 | 1.10 | 5,406,958 | 2.80 | 0.50 | 1 hr | CloudBurst |
| CSO105 | 11/6/13 9:30 PM | 11/7/13 2:30 AM | 0.21 | 527 | 0.22 | 2,397 | 1.33 | 0.10 | 12 hr | CloudBurst |
| CSO105 | 11/15/13 6:30 PM | 11/15/13 6:30 PM | 0.00 | 83 | 0.09 | 920 | 0.15 | 0.07 | 1 hr | CloudBurst |
| CSO105 | 11/17/13 4:15 AM | 11/17/13 9:15 PM | 0.71 | 28,736,317 | 2.72 | 10,564,822 | 2.87 | 2.87 | 6 hr | CloudBurst |
| CSO105 | 12/5/13 5:15 AM | 12/5/13 12:45 PM | 0.31 | 1,103,535 | 0.72 | 1,532,688 | 0.21 | 0.23 | 48 hr | CloudBurst |
| CSO105 | 12/6/13 2:45 AM | 12/6/13 2:00 PM | 0.47 | 7,664 | 0.72 | 10,645 | 0.48 | 0.23 | 48 hr | CloudBurst |
| CSO105 | 12/8/13 3:45 PM | 12/8/13 3:45 PM | 0.00 | 2,878 | 0.29 | 9,925 | 1.01 | 0.19 | 3 hr | Atlas14 |
| CSO105 | 12/13/13 8:15 PM | 12/14/13 1:45 PM | 0.73 | 924,693 | 0.72 | 1,284,295 | 1.08 | 0.29 | 12 hr | CloudBurst |
| CSO105 | 12/14/13 11:15 PM | 12/14/13 11:15 PM | 0.00 | 163 | 0.74 | 220 | 1.08 | 0.29 | 24 hr | CloudBurst |
| CSO105 | 12/20/13 11:15 AM | 12/20/13 11:15 AM | 0.00 | 122 | 0.08 | 1,524 | 0.81 | 0.04 | 12 hr | CloudBurst |
| CSO105 | 12/21/13 2:00 AM | 12/22/13 5:45 AM | 1.16 | 29,507,173 | 3.31 | 8,914,554 | 4.03 | 2.24 | 24 hr | CloudBurst |
| CSO105 | 12/29/13 12:45 AM | 12/29/13 11:00 AM | 0.43 | 6,094 | 0.54 | 11,285 | 0.72 | 0.23 | 12 hr | CloudBurst |
| CSO105 | 4/1/14 8:30 PM | 4/1/14 8:30 PM | 0.01 | 188 | 0.04 | 4,707 | 1.21 | 0.03 | 3 hr | CloudBurst |
| CSO105 | 4/3/14 4:45 AM | 4/4/14 10:15 AM | 1.23 | 29,992,770 | 2.93 | 10,236,440 | 4.13 | 1.14 | 24 hr | CloudBurst |
| CSO105 | 4/7/14 5:30 AM | 4/7/14 3:30 PM | 0.42 | 10,293,102 | 1.06 | 9,710,474 | 4.06 | 0.64 | 1 hr | CloudBurst |
| CSO105 | 4/14/14 3:15 AM | 4/14/14 11:30 AM | 0.34 | 16,628 | 0.43 | 38,669 | 1.54 | 0.22 | 6 hr | CloudBurst |
| CSO105 | 4/14/14 7:45 PM | 4/15/14 1:00 PM | 0.72 | 2,275,110 | 0.55 | 4,136,564 | 1.05 | 0.25 | 12 hr | CloudBurst |
| CSO105 | 4/25/14 2:30 AM | 4/25/14 11:00 AM | 0.35 | 14,354 | 0.18 | 79,745 | 0.18 | 0.09 | 6 hr | CloudBurst |
| CSO105 | 4/28/14 3:45 AM | 4/28/14 9:15 PM | 0.73 | 16,486,153 | 1.80 | 9,158,974 | 1.95 | 0.72 | 3 hr | CloudBurst |
| CSO105 | 4/29/14 7:00 PM | 4/29/14 10:15 PM | 0.14 | 6,037 | 0.21 | 28,749 | 2.16 | 0.10 | 12 hr | CloudBurst |
| CSO105 | 5/9/14 7:15 PM | 5/10/14 6:15 PM | 0.96 | 15,704,692 | 1.44 | 10,906,036 | 1.51 | 0.63 | 1 hr | CloudBurst |
| CSO105 | 5/14/14 7:00 AM | 5/15/14 1:00 AM | 0.75 | 1,296,149 | 1.17 | 1,107,819 | 2.74 | 0.45 | 24 hr | CloudBurst |
| CSO105 | 5/16/14 3:15 AM | 5/16/14 12:30 PM | 0.39 | 13,918 | 0.13 | 107,059 | 2.87 | 0.10 | 1 hr | CloudBurst |
| CSO105 | 5/21/14 8:45 PM | 5/22/14 5:45 AM | 0.38 | 2,022,358 | 0.53 | 3,815,770 | 0.74 | 0.31 | 1 hr | CloudBurst |
| CSO105 | 5/28/14 8:00 PM | 5/28/14 11:00 PM | 0.13 | 4,505,716 | 0.04 | 112,642,903 | 0.59 | 0.03 | 3 hr | CloudBurst |
| CSO105 | 6/1/14 10:00 PM | 6/1/14 11:00 PM | 0.04 | 2,687 | 0.13 | 20,669 | 0.22 | 0.06 | 1 hr | CloudBurst |
| CSO105 | 6/2/14 10:15 PM | 6/2/14 10:15 PM | 0.01 | 560 | 0.02 | 27,979 | 0.25 | 0.01 | 48 hr | CloudBurst |
| CSO105 | 6/10/14 5:30 AM | 6/10/14 6:45 AM | 0.05 | 2,821 | 0.06 | 47,015 | 0.08 | 0.03 | 12 hr | CloudBurst |
| CSO105 | 6/10/14 3:30 PM | 6/10/14 5:15 PM | 0.07 | 3,227 | 0.11 | 29,339 | 0.19 | 0.07 | 3 hr | CloudBurst |
| CSO105 | 6/11/14 1:45 PM | 6/11/14 4:15 PM | 0.10 | 1,481,695 | 0.09 | 16,463,282 | 0.28 | 0.06 | 1 hr | CloudBurst |
| CSO105 | 6/20/14 3:45 PM | 6/20/14 7:00 PM | 0.14 | 854,978 | 0.30 | 2,849,928 | 0.31 | 0.20 | 3 hr | CloudBurst |
| CSO105 | 6/24/14 1:30 PM | 6/24/14 6:45 PM | 0.22 | 3,464 | 0.18 | 19,242 | 0.57 | 0.09 | 6 hr | CloudBurst |
| CSO105 | 6/28/14 3:45 PM | 6/28/14 3:45 PM | 0.01 | 720 | 0.01 | 72,029 | 0.29 | 0.01 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO106 | 12/2/13 12:19 PM | 12/2/13 1:24 PM | 0.05 | 13 | Discharge | | 0.58 | DWO | | |
| CSO106 | 1/11/14 12:15 AM | 1/11/14 5:00 AM | 0.20 | 7,107 | 1.08 | 6,580 | 1.60 | 0.59 | 6 hr | CloudBurst |
| CSO106 | 2/4/14 7:45 PM | 2/5/14 3:00 AM | 0.30 | 9,292 | 0.48 | 19,359 | 0.88 | 0.23 | 6 hr | CloudBurst |
| CSO106 | 2/17/14 4:00 PM | 2/17/14 5:15 PM | 0.05 | 14,155 | 0.39 | 36,295 | 0.82 | 0.23 | 3 hr | CloudBurst |
| CSO106 | 2/20/14 10:45 PM | 2/20/14 10:45 PM | 0.00 | 906 | 0.24 | 3,774 | 1.04 | 0.13 | 6 hr | CloudBurst |
| CSO106 | 3/2/14 10:15 AM | 3/2/14 10:30 AM | 0.01 | 1,529 | 0.64 | 2,389 | 0.24 | 0.24 | 24 hr | CloudBurst |
| CSO106 | 3/29/14 6:45 AM | 3/29/14 8:30 AM | 0.07 | 5,146 | 1.21 | 4,253 | 1.07 | 0.56 | 6 hr | CloudBurst |
| CSO106 | 7/3/13 6:15 PM | 7/3/13 6:15 PM | 0.01 | 75 | 0.07 | 1,074 | 1.82 | 0.05 | 3 hr | CloudBurst |
| CSO106 | 7/6/13 1:00 AM | 7/6/13 1:30 AM | 0.02 | 22,519 | 0.66 | 34,120 | 1.85 | 0.28 | 12 hr | CloudBurst |
| CSO106 | 7/10/13 2:00 PM | 7/10/13 2:15 PM | 0.01 | 11,323 | 0.80 | 14,154 | 2.18 | 0.52 | 3 hr | CloudBurst |
| CSO106 | 7/14/13 7:15 PM | 7/14/13 7:15 PM | 0.01 | 13,696 | 0.20 | 68,482 | 1.11 | 0.17 | 1 hr | CloudBurst |
| CSO106 | 7/21/13 7:00 PM | 7/21/13 8:00 PM | 0.04 | 22,980 | 3.37 | 6,819 | 2.53 | 5.00 | 3 hr | Atlas14 |
| CSO106 | 7/22/13 7:30 AM | 7/22/13 5:15 PM | 0.41 | 33,000 | 3.37 | 9,792 | 3.57 | 5.00 | 3 hr | Atlas14 |
| CSO106 | 8/9/13 5:00 PM | 8/9/13 5:30 PM | 0.02 | 9,123 | 0.50 | 18,245 | 0.43 | 0.24 | 1 hr | CloudBurst |
| CSO106 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 70,924 | 0.89 | 79,690 | 1.02 | 0.37 | 1 hr | CloudBurst |
| CSO106 | 8/13/13 2:15 AM | 8/13/13 2:15 AM | 0.01 | 10,386 | 0.89 | 11,669 | 1.25 | 0.37 | 1 hr | CloudBurst |
| CSO106 | 8/20/13 5:45 PM | 8/20/13 6:00 PM | 0.01 | 10,507 | 0.28 | 37,526 | 0.27 | 0.19 | 1 hr | CloudBurst |
| CSO106 | 8/31/13 7:30 PM | 8/31/13 8:15 PM | 0.03 | 9,406 | 1.14 | 8,251 | 0.56 | 0.53 | 6 hr | CloudBurst |
| CSO106 | 9/2/13 1:45 PM | 9/2/13 2:15 PM | 0.02 | 14,642 | 0.64 | 22,879 | 1.78 | 0.56 | 1 hr | CloudBurst |
| CSO106 | 9/11/13 10:15 AM | 9/11/13 10:15 AM | 0.01 | 164 | 0.04 | 4,092 | 0.05 | 0.03 | 3 hr | CloudBurst |
| CSO106 | 9/20/13 7:15 PM | 9/21/13 3:45 AM | 0.35 | 25,161 | 1.59 | 15,824 | 1.47 | 0.66 | 12 hr | CloudBurst |
| CSO106 | 10/4/13 6:45 PM | 10/4/13 6:45 PM | 0.00 | 292 | 0.15 | 1,945 | 0.21 | 0.13 | 1 hr | CloudBurst |
| CSO106 | 10/5/13 12:30 PM | 10/6/13 7:00 PM | 1.27 | 459,128 | 5.83 | 78,753 | 6.06 | 36.33 | 24 hr | CloudBurst |
| CSO106 | 10/30/13 1:15 AM | 10/30/13 6:00 AM | 0.20 | 39,867 | 1.96 | 20,340 | 1.91 | 1.57 | 1 hr | CloudBurst |
| CSO106 | 11/17/13 5:30 AM | 11/17/13 9:30 PM | 0.67 | 146,565 | 2.64 | 55,517 | 2.81 | 2.29 | 6 hr | CloudBurst |
| CSO106 | 11/21/13 7:00 PM | 11/21/13 8:00 PM | 0.04 | 750 | 0.07 | 10,716 | 2.80 | 0.05 | 3 hr | CloudBurst |
| CSO106 | 12/5/13 7:30 AM | 12/5/13 8:00 AM | 0.02 | 3,271 | 0.70 | 4,673 | 0.17 | 0.23 | 48 hr | CloudBurst |
| CSO106 | 12/14/13 10:45 AM | 12/14/13 11:15 AM | 0.02 | 3,792 | 1.09 | 3,479 | 1.29 | 0.49 | 6 hr | CloudBurst |
| CSO106 | 12/21/13 8:00 AM | 12/22/13 9:15 AM | 1.05 | 134,900 | 2.81 | 48,007 | 3.21 | 1.30 | 3 hr | Atlas14 |
| CSO106 | 4/3/14 12:00 PM | 4/4/14 2:30 PM | 1.10 | 73,713 | 2.63 | 28,028 | 4.23 | 0.93 | 24 hr | CloudBurst |
| CSO106 | 4/7/14 10:30 AM | 4/7/14 1:45 PM | 0.14 | 14,970 | 0.74 | 20,230 | 3.49 | 0.46 | 1 hr | CloudBurst |
| CSO106 | 4/14/14 8:00 PM | 4/14/14 9:00 PM | 0.04 | 694 | 0.61 | 1,137 | 0.72 | 0.28 | 12 hr | CloudBurst |
| CSO106 | 4/27/14 8:15 PM | 4/28/14 8:15 AM | 0.50 | 40,539 | 1.75 | 23,165 | 1.48 | 0.66 | 24 hr | CloudBurst |
| CSO106 | 4/28/14 5:30 PM | 4/28/14 5:30 PM | 0.01 | 62 | 1.75 | 36 | 1.75 | 0.66 | 24 hr | CloudBurst |
| CSO106 | 5/9/14 7:15 PM | 5/10/14 3:15 PM | 0.83 | 92,426 | 1.74 | 53,119 | 1.79 | 0.67 | 24 hr | CloudBurst |
| CSO106 | 5/14/14 7:00 AM | 5/14/14 7:00 AM | 0.01 | 150 | 1.18 | 127 | 1.99 | 0.43 | 24 hr | CloudBurst |
| CSO106 | 5/14/14 6:00 PM | 5/14/14 6:30 PM | 0.02 | 3,319 | 1.18 | 2,812 | 2.71 | 0.43 | 24 hr | CloudBurst |
| CSO106 | 5/22/14 2:30 AM | 5/22/14 2:30 AM | 0.01 | 355 | 0.52 | 682 | 0.36 | 0.26 | 1 hr | CloudBurst |
| CSO106 | 5/29/14 8:45 PM | 5/29/14 9:30 PM | 0.03 | 35,396 | 0.67 | 52,830 | 0.76 | 0.47 | 1 hr | CloudBurst |
| CSO106 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 11,914 | 0.16 | 74,460 | 0.40 | 0.10 | 1 hr | CloudBurst |
| CSO106 | 6/20/14 3:45 PM | 6/20/14 5:30 PM | 0.07 | 2,434 | 0.22 | 11,065 | 0.22 | 0.15 | 3 hr | Atlas14 |
| CSO106 | 6/24/14 1:30 PM | 6/24/14 1:30 PM | 0.01 | 143 | 0.27 | 530 | 0.53 | 0.19 | 1 hr | CloudBurst |
| CSO108 | 2/4/14 11:15 PM | 2/5/14 3:00 AM | 0.16 | 235,118 | 0.57 | 412,487 | 1.05 | 0.27 | 6 hr | CloudBurst |
| CSO108 | 2/17/14 4:30 PM | 2/17/14 4:45 PM | 0.01 | 89,035 | 0.57 | 156,202 | 1.20 | 0.37 | 1 hr | CloudBurst |
| CSO108 | 7/10/13 2:15 PM | 7/10/13 3:00 PM | 0.03 | 269,095 | 0.89 | 302,354 | 2.41 | 0.58 | 3 hr | Atlas14 |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO108 | 7/14/13 7:45 PM | 7/14/13 8:00 PM | 0.01 | 48,800 | 0.17 | 287,060 | 1.17 | 0.15 | 1 hr | CloudBurst |
| CSO108 | 7/21/13 7:30 PM | 7/21/13 8:00 PM | 0.02 | 182,546 | 3.43 | 53,221 | 2.43 | 8.46 | 1 hr | CloudBurst |
| CSO108 | 7/22/13 7:45 AM | 7/22/13 4:45 PM | 0.38 | 990,878 | 3.43 | 288,886 | 3.63 | 8.46 | 1 hr | CloudBurst |
| CSO108 | 8/9/13 5:30 PM | 8/9/13 6:00 PM | 0.02 | 248,917 | 0.45 | 553,149 | 0.48 | 0.26 | 3 hr | CloudBurst |
| CSO108 | 8/12/13 3:15 PM | 8/12/13 3:45 PM | 0.02 | 218,026 | 1.02 | 213,751 | 1.25 | 0.50 | 1 hr | CloudBurst |
| CSO108 | 8/13/13 2:45 AM | 8/13/13 3:00 AM | 0.01 | 140,275 | 1.02 | 137,525 | 1.55 | 0.50 | 1 hr | CloudBurst |
| CSO108 | 8/31/13 8:00 PM | 8/31/13 8:15 PM | 0.01 | 146,486 | 1.30 | 112,682 | 0.53 | 0.61 | 6 hr | CloudBurst |
| CSO108 | 9/2/13 2:15 PM | 9/2/13 2:45 PM | 0.02 | 222,914 | 0.74 | 301,235 | 2.04 | 0.64 | 1 hr | CloudBurst |
| CSO108 | 9/20/13 7:45 PM | 9/20/13 11:00 PM | 0.14 | 42,930 | 1.58 | 27,171 | 0.89 | 0.71 | 12 hr | CloudBurst |
| CSO108 | 10/4/13 7:15 PM | 10/4/13 7:30 PM | 0.01 | 30,366 | 0.15 | 202,438 | 0.22 | 0.13 | 1 hr | CloudBurst |
| CSO108 | 10/5/13 1:15 PM | 10/7/13 1:15 PM | 2.00 | 11,548,495 | 5.35 | 2,158,597 | 5.57 | 22.83 | 24 hr | CloudBurst |
| CSO108 | 10/30/13 5:15 AM | 10/30/13 8:15 AM | 0.13 | 449,336 | 1.52 | 295,615 | 1.52 | 0.78 | 6 hr | CloudBurst |
| CSO108 | 11/17/13 6:45 AM | 11/17/13 10:45 PM | 0.67 | 2,943,573 | 2.85 | 1,032,833 | 3.03 | 3.04 | 6 hr | CloudBurst |
| CSO108 | 12/5/13 8:00 AM | 12/5/13 8:00 AM | 0.00 | 2,017 | 0.72 | 2,802 | 0.14 | 0.23 | 48 hr | CloudBurst |
| CSO108 | 12/21/13 2:15 PM | 12/24/13 10:30 AM | 2.84 | 5,674,587 | 2.85 | 1,991,083 | 2.94 | 1.39 | 24 hr | CloudBurst |
| CSO108 | 4/3/14 12:30 PM | 4/6/14 12:45 PM | 3.01 | 5,122,372 | 2.65 | 1,932,971 | 3.97 | 0.95 | 24 hr | CloudBurst |
| CSO108 | 4/7/14 11:00 AM | 4/7/14 12:45 PM | 0.07 | 48,149 | 0.76 | 63,354 | 3.58 | 0.49 | 1 hr | CloudBurst |
| CSO108 | 4/27/14 8:15 PM | 4/28/14 7:30 AM | 0.47 | 580,192 | 1.82 | 318,787 | 1.58 | 0.72 | 3 hr | Atlas14 |
| CSO108 | 5/9/14 7:45 PM | 5/9/14 8:00 PM | 0.01 | 99,063 | 1.83 | 54,133 | 0.49 | 0.71 | 24 hr | CloudBurst |
| CSO108 | 5/10/14 7:15 AM | 5/10/14 3:15 PM | 0.33 | 173,488 | 1.83 | 94,802 | 1.91 | 0.71 | 24 hr | CloudBurst |
| CSO110 | 1/5/14 3:30 PM | 1/5/14 8:45 PM | 0.22 | 632,690 | 0.51 | 1,240,569 | 0.76 | 0.25 | 6 hr | CloudBurst |
| CSO110 | 1/11/14 12:45 AM | 1/11/14 6:45 AM | 0.25 | 1,329,519 | 1.08 | 1,231,037 | 1.60 | 0.59 | 6 hr | CloudBurst |
| CSO110 | 1/13/14 3:00 PM | 1/13/14 4:30 PM | 0.06 | 117,110 | 0.20 | 585,549 | 1.24 | 0.09 | 12 hr | CloudBurst |
| CSO110 | 2/2/14 5:15 AM | 2/2/14 8:15 AM | 0.13 | 221,297 | 0.43 | 514,644 | 0.18 | 0.16 | 24 hr | CloudBurst |
| CSO110 | 2/4/14 7:30 PM | 2/5/14 6:15 AM | 0.45 | 1,908,862 | 0.54 | 3,534,930 | 0.97 | 0.26 | 6 hr | CloudBurst |
| CSO110 | 2/14/14 5:15 PM | 2/14/14 7:30 PM | 0.09 | 225,691 | 0.52 | 434,021 | 0.55 | 0.28 | 6 hr | CloudBurst |
| CSO110 | 2/17/14 3:45 PM | 2/17/14 7:45 PM | 0.17 | 772,636 | 0.43 | 1,796,828 | 1.01 | 0.26 | 3 hr | CloudBurst |
| CSO110 | 2/20/14 11:15 PM | 2/21/14 12:30 AM | 0.05 | 126,312 | 0.24 | 526,301 | 1.25 | 0.13 | 6 hr | CloudBurst |
| CSO110 | 3/2/14 10:15 AM | 3/2/14 12:30 PM | 0.09 | 352,006 | 0.66 | 533,343 | 0.34 | 0.25 | 24 hr | CloudBurst |
| CSO110 | 3/29/14 7:15 AM | 3/29/14 2:00 PM | 0.28 | 1,161,170 | 1.00 | 1,161,170 | 1.29 | 0.48 | 6 hr | CloudBurst |
| CSO110 | 7/4/13 11:30 AM | 7/4/13 2:15 PM | 0.11 | 10,884 | 0.59 | 18,448 | 1.41 | 0.25 | 12 hr | CloudBurst |
| CSO110 | 7/6/13 1:30 AM | 7/6/13 8:45 AM | 0.30 | 122,308 | 0.65 | 188,167 | 2.17 | 0.28 | 12 hr | CloudBurst |
| CSO110 | 7/10/13 2:30 PM | 7/10/13 3:45 PM | 0.05 | 63,718 | 0.62 | 102,770 | 2.02 | 0.40 | 3 hr | CloudBurst |
| CSO110 | 7/14/13 7:45 PM | 7/14/13 8:15 PM | 0.02 | 38,251 | 0.16 | 239,068 | 0.87 | 0.14 | 1 hr | CloudBurst |
| CSO110 | 7/18/13 5:00 PM | 7/18/13 5:00 PM | 0.01 | 721 | 0.21 | 3,431 | 0.40 | 0.14 | 3 hr | CloudBurst |
| CSO110 | 7/21/13 7:30 PM | 7/21/13 9:45 PM | 0.09 | 194,229 | 3.27 | 59,397 | 2.50 | 5.00 | 3 hr | Atlas14 |
| CSO110 | 7/22/13 7:45 AM | 7/22/13 5:30 PM | 0.41 | 312,151 | 3.27 | 95,459 | 3.50 | 5.00 | 3 hr | Atlas14 |
| CSO110 | 8/9/13 5:30 PM | 8/9/13 6:45 PM | 0.05 | 572,539 | 0.44 | 1,301,224 | 0.36 | 0.19 | 3 hr | Atlas14 |
| CSO110 | 8/12/13 3:15 PM | 8/12/13 4:45 PM | 0.06 | 724,421 | 0.86 | 842,350 | 1.05 | 0.37 | 1 hr | CloudBurst |
| CSO110 | 8/13/13 2:45 AM | 8/13/13 4:45 AM | 0.08 | 300,642 | 0.86 | 349,584 | 1.33 | 0.37 | 1 hr | CloudBurst |
| CSO110 | 8/20/13 6:15 PM | 8/20/13 7:30 PM | 0.05 | 415,142 | 0.30 | 1,383,808 | 0.32 | 0.17 | 3 hr | CloudBurst |
| CSO110 | 8/31/13 8:00 PM | 9/1/13 4:30 AM | 0.35 | 687,118 | 0.91 | 755,074 | 0.90 | 0.42 | 12 hr | CloudBurst |
| CSO110 | 9/2/13 2:15 PM | 9/2/13 3:45 PM | 0.06 | 759,808 | 0.59 | 1,287,809 | 1.50 | 0.51 | 1 hr | CloudBurst |
| CSO110 | 9/20/13 7:30 PM | 9/21/13 6:00 AM | 0.44 | 2,492,553 | 1.30 | 1,917,349 | 1.33 | 0.53 | 12 hr | CloudBurst |
| CSO110 | 10/5/13 12:45 PM | 10/7/13 12:15 AM | 1.48 | 8,035,269 | 4.79 | 1,677,509 | 5.03 | 14.00 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO110 | 10/30/13 2:30 AM | 10/30/13 5:45 AM | 0.14 | 1,542,294 | 1.97 | 782,890 | 1.93 | 1.39 | 1 hr | CloudBurst |
| CSO110 | 10/31/13 8:45 PM | 10/31/13 11:30 PM | 0.11 | 521,550 | 0.58 | 899,225 | 2.55 | 0.23 | 12 hr | CloudBurst |
| CSO110 | 11/17/13 5:45 AM | 11/18/13 12:15 AM | 0.77 | 1,212,391 | 2.49 | 486,904 | 2.64 | 1.81 | 6 hr | CloudBurst |
| CSO110 | 12/5/13 7:30 AM | 12/5/13 10:15 AM | 0.11 | 315,643 | 0.69 | 457,454 | 0.19 | 0.22 | 48 hr | CloudBurst |
| CSO110 | 12/6/13 12:15 PM | 12/6/13 1:30 PM | 0.05 | 37,677 | 0.69 | 54,605 | 0.42 | 0.22 | 48 hr | CloudBurst |
| CSO110 | 12/14/13 7:45 AM | 12/14/13 1:00 PM | 0.22 | 662,763 | 0.97 | 683,260 | 1.31 | 0.42 | 6 hr | CloudBurst |
| CSO110 | 12/21/13 5:30 AM | 12/22/13 7:00 PM | 1.56 | 5,022,904 | 2.47 | 2,033,564 | 3.10 | 0.93 | 24 hr | CloudBurst |
| CSO110 | 12/29/13 3:00 AM | 12/29/13 7:30 AM | 0.19 | 184,164 | 0.56 | 328,865 | 0.54 | 0.25 | 12 hr | CloudBurst |
| CSO110 | 4/3/14 12:15 PM | 4/5/14 12:45 AM | 1.52 | 5,634,804 | 2.60 | 2,167,232 | 3.97 | 0.91 | 24 hr | CloudBurst |
| CSO110 | 4/7/14 8:00 AM | 4/7/14 9:00 PM | 0.54 | 1,378,579 | 0.73 | 1,888,465 | 3.46 | 0.43 | 1 hr | CloudBurst |
| CSO110 | 4/14/14 4:00 AM | 4/14/14 11:15 AM | 0.30 | 45,117 | 0.38 | 118,728 | 1.14 | 0.19 | 6 hr | CloudBurst |
| CSO110 | 4/14/14 8:15 PM | 4/15/14 3:45 AM | 0.31 | 818,968 | 0.61 | 1,342,571 | 1.03 | 0.28 | 12 hr | CloudBurst |
| CSO110 | 4/27/14 8:45 PM | 4/28/14 9:00 PM | 1.01 | 2,093,940 | 1.73 | 1,210,370 | 1.84 | 0.67 | 3 hr | Atlas14 |
| CSO110 | 5/9/14 7:30 PM | 5/10/14 4:30 PM | 0.88 | 1,823,784 | 1.84 | 991,187 | 1.91 | 0.71 | 24 hr | CloudBurst |
| CSO110 | 5/14/14 7:15 AM | 5/15/14 1:15 AM | 0.75 | 1,135,292 | 1.15 | 987,211 | 3.10 | 0.43 | 24 hr | CloudBurst |
| CSO110 | 5/16/14 4:30 AM | 5/16/14 4:30 AM | 0.01 | 5,488 | 0.07 | 78,403 | 3.17 | 0.05 | 3 hr | CloudBurst |
| CSO110 | 5/22/14 3:00 AM | 5/22/14 5:00 AM | 0.08 | 374,671 | 0.52 | 720,521 | 0.60 | 0.28 | 1 hr | CloudBurst |
| CSO110 | 5/29/14 8:45 PM | 5/29/14 10:30 PM | 0.07 | 788,100 | 1.09 | 723,027 | 1.26 | 0.84 | 1 hr | CloudBurst |
| CSO110 | 6/11/14 2:30 PM | 6/11/14 3:15 PM | 0.03 | 206,351 | 0.12 | 1,719,596 | 0.35 | 0.06 | 1 hr | CloudBurst |
| CSO110 | 6/20/14 4:45 PM | 6/20/14 6:15 PM | 0.06 | 129,814 | 0.22 | 590,062 | 0.22 | 0.15 | 3 hr | Atlas14 |
| CSO110 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 6,128 | 0.24 | 25,535 | 0.49 | 0.17 | 1 hr | CloudBurst |
| CSO111 | 1/5/14 5:45 PM | 1/6/14 5:00 AM | 0.47 | 2,058,999 | 0.51 | 4,037,253 | 0.78 | 0.25 | 6 hr | CloudBurst |
| CSO111 | 1/11/14 12:45 AM | 1/11/14 5:15 AM | 0.19 | 329,961 | 1.08 | 305,520 | 1.60 | 0.59 | 6 hr | CloudBurst |
| CSO111 | 2/2/14 5:15 AM | 2/2/14 5:30 AM | 0.01 | 6,768 | 0.43 | 15,739 | 0.13 | 0.16 | 24 hr | CloudBurst |
| CSO111 | 2/4/14 8:00 PM | 2/5/14 1:00 AM | 0.21 | 844,019 | 0.54 | 1,562,998 | 0.96 | 0.26 | 6 hr | CloudBurst |
| CSO111 | 2/17/14 4:15 PM | 2/17/14 5:45 PM | 0.06 | 141,211 | 0.43 | 328,398 | 1.01 | 0.26 | 3 hr | CloudBurst |
| CSO111 | 2/20/14 11:15 PM | 2/20/14 11:15 PM | 0.00 | 1,167 | 0.24 | 4,861 | 1.24 | 0.13 | 6 hr | CloudBurst |
| CSO111 | 3/2/14 10:30 AM | 3/2/14 11:30 AM | 0.04 | 42,740 | 0.66 | 64,757 | 0.34 | 0.25 | 24 hr | CloudBurst |
| CSO111 | 3/29/14 7:00 AM | 3/29/14 9:00 AM | 0.08 | 12,780 | 1.00 | 12,780 | 0.96 | 0.48 | 6 hr | CloudBurst |
| CSO111 | 7/1/13 8:45 AM | 7/1/13 8:45 AM | 0.01 | 400 | 0.35 | 1,142 | 3.66 | 0.17 | 3 hr | CloudBurst |
| CSO111 | 7/6/13 1:15 AM | 7/6/13 5:00 AM | 0.16 | 21,687 | 0.65 | 33,364 | 2.06 | 0.28 | 12 hr | CloudBurst |
| CSO111 | 7/10/13 12:45 PM | 7/10/13 3:45 PM | 0.13 | 62,280 | 0.62 | 100,451 | 2.02 | 0.40 | 3 hr | CloudBurst |
| CSO111 | 7/14/13 7:30 PM | 7/14/13 7:45 PM | 0.01 | 11,824 | 0.16 | 73,903 | 0.87 | 0.14 | 1 hr | CloudBurst |
| CSO111 | 7/21/13 7:30 PM | 7/21/13 8:30 PM | 0.04 | 54,567 | 3.27 | 16,687 | 2.44 | 5.00 | 3 hr | Atlas14 |
| CSO111 | 7/22/13 7:45 AM | 7/22/13 2:15 PM | 0.27 | 61,363 | 3.27 | 18,766 | 3.39 | 5.00 | 3 hr | Atlas14 |
| CSO111 | 8/9/13 5:15 PM | 8/9/13 6:00 PM | 0.03 | 44,961 | 0.44 | 102,183 | 0.36 | 0.19 | 3 hr | Atlas14 |
| CSO111 | 8/12/13 3:00 PM | 8/12/13 3:30 PM | 0.02 | 70,811 | 0.86 | 82,338 | 0.95 | 0.37 | 1 hr | CloudBurst |
| CSO111 | 9/20/13 7:30 PM | 9/21/13 4:00 AM | 0.35 | 60,820 | 1.30 | 46,784 | 1.22 | 0.53 | 12 hr | CloudBurst |
| CSO111 | 10/4/13 7:00 PM | 10/4/13 7:00 PM | 0.00 | 7,061 | 0.17 | 41,537 | 0.24 | 0.15 | 1 hr | CloudBurst |
| CSO111 | 10/5/13 12:45 PM | 10/5/13 11:30 PM | 0.45 | 385,877 | 4.79 | 80,559 | 3.68 | 14.00 | 24 hr | CloudBurst |
| CSO111 | 10/30/13 3:00 AM | 10/30/13 6:30 AM | 0.15 | 571,328 | 1.97 | 290,014 | 1.96 | 1.39 | 1 hr | CloudBurst |
| CSO111 | 10/31/13 8:45 PM | 10/31/13 10:15 PM | 0.06 | 23,443 | 0.58 | 40,419 | 2.42 | 0.23 | 12 hr | CloudBurst |
| CSO111 | 11/17/13 5:45 AM | 11/17/13 7:45 PM | 0.58 | 1,447,672 | 2.49 | 581,395 | 2.64 | 1.81 | 6 hr | CloudBurst |
| CSO111 | 12/5/13 7:15 AM | 12/5/13 8:30 AM | 0.05 | 135,410 | 0.69 | 196,246 | 0.16 | 0.22 | 48 hr | CloudBurst |
| CSO111 | 12/14/13 10:45 AM | 12/14/13 11:15 AM | 0.02 | 41,654 | 0.97 | 42,942 | 1.31 | 0.42 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO111 | 12/21/13 5:45 AM | 12/21/13 12:45 PM | 0.29 | 119,497 | 2.47 | 48,379 | 1.41 | 0.93 | 24 hr | CloudBurst |
| CSO111 | 12/21/13 9:30 PM | 12/23/13 12:30 AM | 1.13 | 6,124,246 | 2.47 | 2,479,452 | 2.60 | 0.93 | 24 hr | CloudBurst |
| CSO111 | 4/3/14 12:30 PM | 4/4/14 8:00 AM | 0.81 | 49,110 | 2.60 | 18,888 | 3.97 | 0.91 | 24 hr | CloudBurst |
| CSO111 | 4/7/14 11:00 AM | 4/7/14 12:30 PM | 0.06 | 25,428 | 0.73 | 34,832 | 3.43 | 0.43 | 1 hr | CloudBurst |
| CSO111 | 4/14/14 8:15 PM | 4/14/14 9:15 PM | 0.04 | 5,677 | 0.61 | 9,307 | 0.72 | 0.28 | 12 hr | CloudBurst |
| CSO111 | 4/28/14 4:15 AM | 4/28/14 7:15 AM | 0.13 | 151,767 | 1.73 | 87,726 | 1.40 | 0.67 | 3 hr | Atlas14 |
| CSO111 | 4/28/14 5:45 PM | 4/28/14 5:45 PM | 0.01 | 750 | 1.73 | 434 | 1.75 | 0.67 | 3 hr | Atlas14 |
| CSO111 | 5/9/14 7:30 PM | 5/9/14 7:30 PM | 0.01 | 1,615 | 1.84 | 878 | 0.30 | 0.71 | 24 hr | CloudBurst |
| CSO111 | 5/10/14 5:45 AM | 5/10/14 3:30 PM | 0.41 | 29,208 | 1.84 | 15,874 | 1.89 | 0.71 | 24 hr | CloudBurst |
| CSO111 | 5/14/14 7:15 AM | 5/14/14 7:15 AM | 0.01 | 1,185 | 1.15 | 1,031 | 2.09 | 0.43 | 24 hr | CloudBurst |
| CSO111 | 5/14/14 6:15 PM | 5/14/14 6:15 PM | 0.01 | 876 | 1.15 | 762 | 2.75 | 0.43 | 24 hr | CloudBurst |
| CSO111 | 5/29/14 9:00 PM | 5/29/14 9:30 PM | 0.02 | 5,426 | 1.09 | 4,978 | 1.24 | 0.84 | 1 hr | CloudBurst |
| CSO113 | 1/11/14 12:45 AM | 1/11/14 4:15 AM | 0.15 | 36,069 | 0.99 | 36,433 | 1.41 | 0.54 | 6 hr | CloudBurst |
| CSO113 | 2/4/14 8:00 PM | 2/4/14 11:45 PM | 0.16 | 31,284 | 0.51 | 61,342 | 0.94 | 0.24 | 6 hr | CloudBurst |
| CSO113 | 2/17/14 4:15 PM | 2/17/14 5:45 PM | 0.06 | 56,646 | 0.51 | 111,071 | 1.06 | 0.31 | 3 hr | CloudBurst |
| CSO113 | 3/2/14 10:00 AM | 3/2/14 11:15 AM | 0.05 | 13,686 | 0.61 | 22,436 | 0.31 | 0.23 | 24 hr | CloudBurst |
| CSO113 | 3/28/14 4:45 AM | 3/28/14 5:00 AM | 0.01 | 7,373 | 0.26 | 28,358 | 0.31 | 0.12 | 12 hr | CloudBurst |
| CSO113 | 3/29/14 6:30 AM | 3/29/14 1:00 PM | 0.27 | 78,307 | 1.00 | 78,307 | 1.29 | 0.46 | 12 hr | CloudBurst |
| CSO113 | 7/2/13 1:30 PM | 7/2/13 4:15 PM | 0.11 | 19,039 | 0.10 | 190,394 | 4.06 | 0.09 | 1 hr | CloudBurst |
| CSO113 | 7/6/13 1:15 AM | 7/6/13 5:45 AM | 0.19 | 51,004 | 0.62 | 82,264 | 2.04 | 0.27 | 12 hr | CloudBurst |
| CSO113 | 7/10/13 12:45 PM | 7/10/13 3:45 PM | 0.13 | 199,984 | 0.66 | 303,006 | 1.98 | 0.43 | 1 hr | CloudBurst |
| CSO113 | 7/14/13 7:30 PM | 7/14/13 10:30 PM | 0.13 | 54,018 | 0.12 | 450,148 | 0.86 | 0.10 | 1 hr | CloudBurst |
| CSO113 | 7/18/13 4:15 PM | 7/19/13 12:00 AM | 0.32 | 62,019 | 0.21 | 295,331 | 0.35 | 11.17 | | |
| CSO113 | 7/21/13 7:30 PM | 7/26/13 9:30 AM | 4.58 | 1,821,860 | 2.92 | 623,925 | 3.15 | 2.14 | 3 hr | Atlas14 |
| CSO113 | 7/22/13 8:30 PM | 7/26/13 9:30 AM | 3.54 | 1,784,229 | Discharge | | | DWO | | |
| CSO113 | 8/15/13 12:49 PM | 8/15/13 1:46 PM | 0.04 | 925 | Discharge | | | DWO | | |
| CSO113 | 8/20/13 6:15 PM | 8/20/13 6:45 PM | 0.02 | 142,860 | 0.25 | 571,441 | 0.25 | 0.16 | 1 hr | CloudBurst |
| CSO113 | 8/31/13 7:45 PM | 8/31/13 11:45 PM | 0.17 | 73,402 | 1.13 | 64,958 | 0.87 | 0.52 | 12 hr | CloudBurst |
| CSO113 | 9/2/13 2:00 PM | 9/2/13 2:30 PM | 0.02 | 221,432 | 0.56 | 395,414 | 1.69 | 0.49 | 1 hr | CloudBurst |
| CSO113 | 9/11/13 10:30 AM | 9/11/13 10:30 AM | 0.01 | 1,514 | 0.04 | 37,847 | 0.04 | 0.03 | 3 hr | CloudBurst |
| CSO113 | 9/20/13 7:30 PM | 9/21/13 4:00 AM | 0.35 | 128,127 | 1.26 | 101,688 | 1.22 | 0.52 | 12 hr | CloudBurst |
| CSO113 | 10/4/13 7:15 PM | 10/4/13 7:15 PM | 0.00 | 1,065 | 0.10 | 10,651 | 0.17 | 0.09 | 1 hr | CloudBurst |
| CSO113 | 10/5/13 1:00 PM | 10/6/13 10:15 AM | 0.89 | 1,247,001 | 4.59 | 271,678 | 4.70 | 11.17 | 24 hr | CloudBurst |
| CSO113 | 10/30/13 3:00 AM | 10/30/13 6:15 AM | 0.14 | 182,653 | 1.48 | 123,414 | 1.47 | 0.77 | 1 hr | CloudBurst |
| CSO113 | 10/31/13 9:00 PM | 10/31/13 9:30 PM | 0.02 | 5,681 | 0.59 | 9,628 | 1.98 | 0.23 | 24 hr | CloudBurst |
| CSO113 | 11/17/13 5:45 AM | 11/17/13 8:00 PM | 0.59 | 691,931 | 2.53 | 273,491 | 2.69 | 1.64 | 6 hr | CloudBurst |
| CSO113 | 12/5/13 5:45 AM | 12/5/13 8:30 AM | 0.11 | 12,002 | 0.72 | 16,669 | 0.15 | 0.23 | 48 hr | CloudBurst |
| CSO113 | 12/14/13 10:45 AM | 12/14/13 11:00 AM | 0.01 | 4,788 | 0.85 | 5,633 | 1.14 | 0.36 | 6 hr | CloudBurst |
| CSO113 | 12/21/13 8:15 AM | 12/21/13 12:45 PM | 0.19 | 50,459 | 2.40 | 21,024 | 1.17 | 0.91 | 24 hr | CloudBurst |
| CSO113 | 12/21/13 9:30 PM | 12/22/13 2:15 AM | 0.20 | 360,083 | 2.40 | 150,035 | 2.41 | 0.91 | 24 hr | CloudBurst |
| CSO113 | 1/22/14 6:45 AM | 1/23/14 11:00 AM | 1.18 | 100 | Discharge | | | DWO | | |
| CSO113 | 4/3/14 12:15 PM | 4/4/14 8:15 AM | 0.83 | 501,362 | 2.65 | 189,193 | 4.02 | 0.93 | 24 hr | CloudBurst |
| CSO113 | 4/7/14 10:45 AM | 4/7/14 12:30 PM | 0.07 | 154,657 | 0.73 | 211,859 | 3.47 | 0.43 | 3 hr | CloudBurst |
| CSO113 | 4/14/14 8:15 PM | 4/14/14 9:15 PM | 0.04 | 13,037 | 0.63 | 20,694 | 0.75 | 0.29 | 12 hr | CloudBurst |
| CSO113 | 4/28/14 4:15 AM | 4/28/14 7:15 AM | 0.13 | 398,161 | 1.77 | 224,950 | 1.42 | 0.70 | 3 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO113 | 4/28/14 5:45 PM | 4/28/14 5:45 PM | 0.01 | 1,088 | 1.77 | 615 | 1.76 | 0.70 | 3 hr | CloudBurst |
| CSO113 | 5/9/14 7:30 PM | 5/9/14 7:45 PM | 0.01 | 33,604 | 1.60 | 21,002 | 0.31 | 0.59 | 24 hr | CloudBurst |
| CSO113 | 5/10/14 5:45 AM | 5/10/14 3:30 PM | 0.41 | 326,817 | 1.60 | 204,261 | 1.57 | 0.59 | 24 hr | CloudBurst |
| CSO113 | 5/14/14 7:15 AM | 5/14/14 7:15 AM | 0.01 | 4,555 | 1.11 | 4,103 | 1.78 | 0.43 | 24 hr | CloudBurst |
| CSO113 | 5/14/14 6:15 PM | 5/14/14 6:30 PM | 0.01 | 6,236 | 1.11 | 5,618 | 2.45 | 0.43 | 24 hr | CloudBurst |
| CSO113 | 5/22/14 3:00 AM | 5/22/14 3:45 AM | 0.03 | 13,027 | 0.45 | 28,948 | 0.50 | 0.23 | 1 hr | CloudBurst |
| CSO113 | 5/29/14 8:45 PM | 5/29/14 10:00 PM | 0.05 | 221,224 | 0.85 | 260,264 | 1.08 | 0.70 | 1 hr | CloudBurst |
| CSO113 | 6/11/14 2:30 PM | 6/11/14 2:45 PM | 0.01 | 29,814 | 0.11 | 271,034 | 0.30 | 0.06 | 1 hr | CloudBurst |
| CSO113 | 6/20/14 4:15 PM | 6/20/14 4:15 PM | 0.01 | 1,833 | 0.24 | 7,639 | 0.16 | 0.16 | 3 hr | CloudBurst |
| CSO113 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 5,724 | 0.24 | 23,851 | 0.47 | 0.17 | 1 hr | CloudBurst |
| CSO117 | 1/5/14 3:30 PM | 1/5/14 8:00 PM | 0.19 | 538,843 | 0.51 | 1,056,555 | 0.71 | 0.25 | 3 hr | Atlas14 |
| CSO117 | 1/11/14 12:30 AM | 1/11/14 6:15 AM | 0.24 | 2,201,386 | 1.01 | 2,179,590 | 1.53 | 0.55 | 6 hr | CloudBurst |
| CSO117 | 2/2/14 4:30 AM | 2/2/14 6:15 AM | 0.07 | 282,476 | 0.23 | 1,228,155 | 0.18 | 0.12 | 6 hr | CloudBurst |
| CSO117 | 2/4/14 7:30 PM | 2/5/14 2:15 AM | 0.28 | 2,905,434 | 0.52 | 5,587,372 | 1.00 | 0.25 | 6 hr | CloudBurst |
| CSO117 | 2/14/14 5:15 PM | 2/14/14 6:45 PM | 0.06 | 155,389 | 0.53 | 293,186 | 0.54 | 0.28 | 6 hr | CloudBurst |
| CSO117 | 2/17/14 4:15 PM | 2/17/14 7:00 PM | 0.11 | 1,157,738 | 0.63 | 1,837,680 | 1.22 | 0.37 | 3 hr | CloudBurst |
| CSO117 | 2/20/14 11:30 PM | 2/21/14 12:15 AM | 0.03 | 82,741 | 0.18 | 459,674 | 1.40 | 0.10 | 6 hr | CloudBurst |
| CSO117 | 3/2/14 10:15 AM | 3/2/14 12:15 PM | 0.08 | 602,051 | 0.59 | 1,020,425 | 0.30 | 0.22 | 24 hr | CloudBurst |
| CSO117 | 3/28/14 4:45 AM | 3/28/14 5:30 AM | 0.03 | 146,762 | 0.25 | 587,046 | 0.30 | 0.12 | 6 hr | CloudBurst |
| CSO117 | 3/29/14 6:30 AM | 3/29/14 1:30 PM | 0.29 | 1,815,160 | 0.89 | 2,039,505 | 1.18 | 0.41 | 12 hr | CloudBurst |
| CSO117 | 7/1/13 7:00 PM | 7/1/13 7:45 PM | 0.03 | 173,145 | 0.29 | 597,053 | 3.78 | 0.14 | 3 hr | CloudBurst |
| CSO117 | 7/2/13 1:15 PM | 7/2/13 2:15 PM | 0.04 | 580,884 | 0.08 | 7,261,054 | 3.86 | 0.07 | 1 hr | CloudBurst |
| CSO117 | 7/4/13 7:15 AM | 7/4/13 12:30 PM | 0.22 | 78,549 | 0.54 | 145,462 | 1.18 | 0.23 | 12 hr | CloudBurst |
| CSO117 | 7/6/13 1:15 AM | 7/6/13 8:00 AM | 0.28 | 1,000,624 | 0.62 | 1,613,910 | 1.99 | 0.27 | 12 hr | CloudBurst |
| CSO117 | 7/10/13 2:15 PM | 7/10/13 3:30 PM | 0.05 | 1,069,826 | 0.65 | 1,645,887 | 1.91 | 0.44 | 1 hr | CloudBurst |
| CSO117 | 7/14/13 7:45 PM | 7/14/13 8:30 PM | 0.03 | 290,688 | 0.10 | 2,906,878 | 0.82 | 0.09 | 1 hr | CloudBurst |
| CSO117 | 7/18/13 4:45 PM | 7/18/13 5:00 PM | 0.01 | 15,897 | 0.22 | 72,259 | 0.36 | 0.17 | 1 hr | CloudBurst |
| CSO117 | 7/21/13 7:45 PM | 7/21/13 9:30 PM | 0.07 | 896,192 | 2.13 | 420,747 | 1.36 | 0.83 | 24 hr | CloudBurst |
| CSO117 | 7/22/13 7:15 AM | 7/22/13 5:00 PM | 0.41 | 3,452,635 | 2.13 | 1,620,955 | 2.38 | 0.83 | 24 hr | CloudBurst |
| CSO117 | 8/9/13 6:00 PM | 8/9/13 6:15 PM | 0.01 | 7,195 | 0.18 | 39,972 | 0.24 | 0.10 | 3 hr | CloudBurst |
| CSO117 | 8/12/13 2:45 PM | 8/12/13 4:15 PM | 0.06 | 1,156,781 | 0.94 | 1,230,618 | 0.89 | 0.43 | 1 hr | CloudBurst |
| CSO117 | 8/13/13 3:15 AM | 8/13/13 4:15 AM | 0.04 | 290,752 | 0.94 | 309,310 | 1.25 | 0.43 | 1 hr | CloudBurst |
| CSO117 | 8/20/13 6:30 PM | 8/20/13 7:30 PM | 0.04 | 254,649 | 0.22 | 1,157,493 | 0.24 | 0.13 | 3 hr | Atlas14 |
| CSO117 | 8/31/13 8:00 PM | 9/1/13 4:00 AM | 0.33 | 1,504,250 | 1.34 | 1,122,574 | 1.31 | 0.63 | 6 hr | CloudBurst |
| CSO117 | 9/2/13 2:00 PM | 9/2/13 3:15 PM | 0.05 | 922,328 | 0.46 | 2,005,060 | 1.80 | 0.40 | 1 hr | CloudBurst |
| CSO117 | 9/20/13 4:30 PM | 9/21/13 5:30 AM | 0.54 | 3,239,197 | 1.23 | 2,633,493 | 1.34 | 0.51 | 12 hr | CloudBurst |
| CSO117 | 10/4/13 7:45 PM | 10/4/13 7:45 PM | 0.00 | 4,554 | 0.08 | 56,921 | 0.14 | 0.07 | 1 hr | CloudBurst |
| CSO117 | 10/5/13 1:00 PM | 10/6/13 2:45 PM | 1.07 | 16,623,828 | 4.20 | 3,958,054 | 4.29 | 7.34 | 24 hr | CloudBurst |
| CSO117 | 10/30/13 2:00 AM | 10/30/13 7:45 AM | 0.24 | 2,999,943 | 1.50 | 1,999,962 | 1.50 | 0.75 | 6 hr | CloudBurst |
| CSO117 | 10/31/13 7:45 PM | 10/31/13 10:15 PM | 0.10 | 523,484 | 0.68 | 769,829 | 2.13 | 0.27 | 12 hr | CloudBurst |
| CSO117 | 11/17/13 5:45 AM | 11/17/13 7:30 PM | 0.57 | 4,116,702 | 2.16 | 1,905,881 | 2.31 | 0.93 | 6 hr | CloudBurst |
| CSO117 | 12/5/13 5:45 AM | 12/5/13 9:00 AM | 0.14 | 736,451 | 0.82 | 898,111 | 0.19 | 0.27 | 48 hr | CloudBurst |
| CSO117 | 12/6/13 12:15 PM | 12/6/13 12:30 PM | 0.01 | 1,383 | 0.82 | 1,687 | 0.48 | 0.27 | 48 hr | CloudBurst |
| CSO117 | 12/14/13 9:15 AM | 12/14/13 12:15 PM | 0.13 | 487,771 | 0.83 | 587,676 | 1.27 | 0.34 | 12 hr | CloudBurst |
| CSO117 | 12/21/13 5:45 AM | 12/21/13 1:30 PM | 0.32 | 2,307,674 | 1.01 | 2,284,825 | 1.49 | 0.47 | 12 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO117 | 12/21/13 9:45 PM | 12/22/13 4:00 AM | 0.26 | 3,859,119 | 1.56 | 2,473,795 | 2.64 | 0.83 | 6 hr | CloudBurst |
| CSO117 | 12/29/13 6:30 AM | 12/29/13 7:15 AM | 0.03 | 106,964 | 0.50 | 213,929 | 0.42 | 0.22 | 12 hr | CloudBurst |
| CSO117 | 4/3/14 12:15 PM | 4/4/14 9:15 AM | 0.88 | 6,200,985 | 2.69 | 2,305,199 | 3.93 | 0.95 | 24 hr | CloudBurst |
| CSO117 | 4/7/14 9:15 AM | 4/7/14 4:30 PM | 0.30 | 2,200,001 | 0.79 | 2,784,812 | 3.58 | 0.46 | 3 hr | Atlas14 |
| CSO117 | 4/14/14 4:15 AM | 4/14/14 4:15 AM | 0.01 | 6,484 | 1.03 | 6,295 | 1.01 | 0.40 | 24 hr | CloudBurst |
| CSO117 | 4/14/14 8:15 PM | 4/15/14 3:15 AM | 0.29 | 1,053,063 | 1.03 | 1,022,391 | 1.07 | 0.40 | 24 hr | CloudBurst |
| CSO117 | 4/28/14 4:15 AM | 4/28/14 8:45 AM | 0.19 | 3,328,415 | 1.80 | 1,849,119 | 1.48 | 0.74 | 3 hr | Atlas14 |
| CSO117 | 4/28/14 5:15 PM | 4/28/14 8:45 PM | 0.15 | 523,111 | 1.80 | 290,617 | 1.88 | 0.74 | 3 hr | Atlas14 |
| CSO117 | 5/9/14 7:30 PM | 5/10/14 4:15 PM | 0.86 | 3,665,666 | 1.64 | 2,235,162 | 1.72 | 0.64 | 24 hr | CloudBurst |
| CSO117 | 5/14/14 7:15 AM | 5/14/14 10:00 AM | 0.11 | 530,057 | 0.98 | 540,874 | 2.10 | 0.38 | 24 hr | CloudBurst |
| CSO117 | 5/14/14 6:15 PM | 5/15/14 12:00 AM | 0.24 | 801,695 | 0.98 | 818,056 | 2.73 | 0.38 | 24 hr | CloudBurst |
| CSO117 | 5/21/14 9:30 PM | 5/22/14 4:45 AM | 0.30 | 687,573 | 0.44 | 1,562,666 | 0.57 | 0.23 | 1 hr | CloudBurst |
| CSO117 | 5/28/14 8:30 PM | 5/28/14 9:30 PM | 0.04 | 716,331 | 0.38 | 1,885,081 | 0.83 | 0.32 | 1 hr | CloudBurst |
| CSO117 | 5/29/14 8:45 PM | 5/29/14 10:45 PM | 0.08 | 1,656,702 | 0.47 | 3,524,898 | 0.87 | 0.38 | 1 hr | CloudBurst |
| CSO117 | 5/30/14 2:45 PM | 5/30/14 2:45 PM | 0.01 | 7,756 | 0.04 | 193,911 | 0.91 | 0.02 | 24 hr | CloudBurst |
| CSO117 | 6/11/14 2:30 PM | 6/11/14 3:15 PM | 0.03 | 338,840 | 0.08 | 4,235,505 | 0.25 | 0.05 | 1 hr | CloudBurst |
| CSO117 | 6/20/14 4:45 PM | 6/20/14 6:15 PM | 0.06 | 175,886 | 0.22 | 799,480 | 0.22 | 0.15 | 3 hr | Atlas14 |
| CSO117 | 6/24/14 1:45 PM | 6/24/14 3:00 PM | 0.05 | 425,507 | 0.11 | 3,868,241 | 0.37 | 0.06 | 1 hr | CloudBurst |
| CSO118 | 1/2/14 3:15 AM | 1/2/14 10:15 AM | 0.29 | 325 | 0.24 | 1,356 | 0.73 | 0.13 | 3 hr | Atlas14 |
| CSO118 | 1/5/14 2:30 PM | 1/5/14 7:30 PM | 0.21 | 237,167 | 0.47 | 504,611 | 0.66 | 0.24 | 6 hr | CloudBurst |
| CSO118 | 1/10/14 11:45 PM | 1/11/14 5:30 AM | 0.24 | 2,196,586 | 0.95 | 2,312,196 | 1.43 | 0.52 | 6 hr | CloudBurst |
| CSO118 | 1/13/14 2:00 PM | 1/13/14 5:30 PM | 0.15 | 857 | 0.20 | 4,284 | 1.16 | 0.09 | 12 hr | CloudBurst |
| CSO118 | 1/21/14 1:00 PM | 1/21/14 1:15 PM | 0.01 | 103 | 0.15 | 685 | 0.17 | 0.07 | 12 hr | CloudBurst |
| CSO118 | 1/25/14 11:45 AM | 1/25/14 1:30 PM | 0.07 | 203 | 0.05 | 4,070 | 0.22 | 0.03 | 6 hr | CloudBurst |
| CSO118 | 2/2/14 2:45 AM | 2/2/14 7:00 AM | 0.18 | 220,890 | 0.21 | 1,051,857 | 0.20 | 0.11 | 6 hr | CloudBurst |
| CSO118 | 2/2/14 4:30 PM | 2/2/14 4:45 PM | 0.01 | 110 | 0.25 | 439 | 0.23 | 0.12 | 12 hr | CloudBurst |
| CSO118 | 2/3/14 9:45 AM | 2/3/14 2:45 PM | 0.21 | 1,145 | 0.25 | 4,581 | 0.46 | 0.12 | 12 hr | CloudBurst |
| CSO118 | 2/4/14 6:00 PM | 2/5/14 3:15 AM | 0.39 | 3,089,699 | 0.51 | 6,058,233 | 0.97 | 0.26 | 6 hr | CloudBurst |
| CSO118 | 2/14/14 3:45 PM | 2/14/14 7:45 PM | 0.17 | 5,392 | 0.50 | 10,785 | 0.52 | 0.27 | 6 hr | CloudBurst |
| CSO118 | 2/17/14 2:15 PM | 2/17/14 6:30 PM | 0.18 | 1,342,702 | 0.55 | 2,441,276 | 1.11 | 0.33 | 3 hr | CloudBurst |
| CSO118 | 2/20/14 7:00 PM | 2/20/14 11:45 PM | 0.20 | 60,219 | 0.17 | 354,231 | 1.27 | 0.09 | 6 hr | CloudBurst |
| CSO118 | 3/2/14 9:15 AM | 3/2/14 6:45 PM | 0.40 | 467,947 | 0.57 | 820,959 | 0.34 | 0.22 | 24 hr | CloudBurst |
| CSO118 | 3/3/14 1:30 PM | 3/3/14 4:00 PM | 0.10 | 603 | 0.57 | 1,057 | 0.58 | 0.22 | 24 hr | CloudBurst |
| CSO118 | 3/4/14 1:00 PM | 3/4/14 2:00 PM | 0.04 | 60 | 0.08 | 750 | 0.58 | 1.63 | 24 hr | CloudBurst |
| CSO118 | 3/12/14 7:15 AM | 3/12/14 7:30 AM | 0.01 | 379 | 0.06 | 6,321 | 0.06 | 0.03 | 1 hr | CloudBurst |
| CSO118 | 3/16/14 5:30 PM | 3/16/14 7:30 PM | 0.08 | 247 | 0.08 | 3,093 | 0.15 | 0.05 | 3 hr | CloudBurst |
| CSO118 | 3/19/14 8:00 AM | 3/19/14 8:30 AM | 0.02 | 287 | 0.07 | 4,100 | 0.15 | 0.04 | 6 hr | CloudBurst |
| CSO118 | 3/28/14 4:30 AM | 3/28/14 5:30 AM | 0.04 | 159,573 | 0.25 | 638,291 | 0.30 | 0.12 | 6 hr | CloudBurst |
| CSO118 | 3/29/14 5:15 AM | 3/29/14 1:15 PM | 0.33 | 2,038,194 | 0.94 | 2,168,292 | 1.22 | 0.44 | 12 hr | CloudBurst |
| CSO118 | 7/1/13 6:45 PM | 7/1/13 7:45 PM | 0.04 | 68,254 | 0.33 | 206,831 | 4.02 | 0.16 | 3 hr | CloudBurst |
| CSO118 | 7/2/13 1:15 PM | 7/2/13 2:00 PM | 0.03 | 1,157,233 | 0.09 | 12,858,148 | 4.12 | 0.08 | 1 hr | CloudBurst |
| CSO118 | 7/4/13 6:30 AM | 7/4/13 12:00 PM | 0.23 | 13,167 | 0.54 | 24,384 | 1.30 | 0.23 | 12 hr | CloudBurst |
| CSO118 | 7/6/13 12:30 AM | 7/6/13 7:45 AM | 0.30 | 929,536 | 0.66 | 1,408,388 | 2.19 | 0.29 | 12 hr | CloudBurst |
| CSO118 | 7/10/13 2:00 PM | 7/10/13 3:15 PM | 0.05 | 2,407,371 | 0.75 | 3,209,828 | 2.07 | 0.50 | 1 hr | CloudBurst |
| CSO118 | 7/14/13 7:30 PM | 7/14/13 8:30 PM | 0.04 | 415,757 | 0.12 | 3,464,639 | 0.95 | 0.10 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO118 | 7/18/13 4:30 PM | 7/18/13 4:30 PM | 0.01 | 82 | 0.18 | 453 | 0.33 | 0.13 | 1 hr | CloudBurst |
| CSO118 | 7/21/13 7:30 PM | 7/21/13 9:00 PM | 0.06 | 921,430 | 2.39 | 385,536 | 1.49 | 0.93 | 24 hr | CloudBurst |
| CSO118 | 7/22/13 6:30 AM | 7/22/13 4:45 PM | 0.43 | 6,135,529 | 2.39 | 2,567,167 | 2.59 | 0.93 | 24 hr | CloudBurst |
| CSO118 | 7/30/13 6:00 PM | 7/30/13 6:00 PM | 0.01 | 108 | 0.14 | 774 | 0.15 | 0.08 | 6 hr | CloudBurst |
| CSO118 | 8/12/13 2:30 PM | 8/12/13 3:45 PM | 0.05 | 2,629,302 | 0.92 | 2,857,937 | 0.81 | 0.42 | 1 hr | CloudBurst |
| CSO118 | 8/13/13 2:15 AM | 8/13/13 3:45 AM | 0.06 | 345,312 | 0.92 | 375,339 | 1.18 | 0.42 | 1 hr | CloudBurst |
| CSO118 | 8/20/13 5:45 PM | 8/20/13 7:15 PM | 0.06 | 387,137 | 0.19 | 2,037,564 | 0.21 | 0.10 | 6 hr | CloudBurst |
| CSO118 | 8/31/13 7:30 PM | 9/1/13 3:30 AM | 0.33 | 2,396,307 | 1.19 | 2,013,703 | 1.15 | 0.56 | 6 hr | CloudBurst |
| CSO118 | 9/2/13 1:30 PM | 9/2/13 2:30 PM | 0.04 | 1,860,693 | 0.41 | 4,538,275 | 1.60 | 0.36 | 1 hr | CloudBurst |
| CSO118 | 9/11/13 10:00 AM | 9/11/13 10:15 AM | 0.01 | 104 | 0.03 | 3,481 | 0.04 | 0.03 | 1 hr | CloudBurst |
| CSO118 | 9/12/13 12:45 PM | 9/12/13 12:45 PM | 0.01 | 234 | 0.02 | 11,724 | 0.05 | 0.02 | 1 hr | CloudBurst |
| CSO118 | 9/20/13 3:45 PM | 9/21/13 4:45 AM | 0.54 | 3,995,380 | 1.26 | 3,170,937 | 1.28 | 0.54 | 12 hr | CloudBurst |
| CSO118 | 10/5/13 12:00 PM | 10/6/13 8:45 AM | 0.86 | 17,192,432 | 4.28 | 4,016,923 | 4.33 | 7.90 | 24 hr | CloudBurst |
| CSO118 | 10/17/13 9:45 AM | 10/17/13 9:45 AM | 0.00 | 68 | 0.02 | 3,423 | 0.03 | 0.01 | 48 hr | CloudBurst |
| CSO118 | 10/19/13 7:15 AM | 10/19/13 7:15 AM | 0.00 | 140 | 0.19 | 736 | 0.09 | 0.10 | 6 hr | CloudBurst |
| CSO118 | 10/30/13 1:00 AM | 10/30/13 7:00 AM | 0.25 | 2,741,785 | 1.30 | 2,109,065 | 1.30 | 0.64 | 6 hr | CloudBurst |
| CSO118 | 10/31/13 11:30 AM | 10/31/13 10:45 PM | 0.47 | 622,197 | 0.60 | 1,036,995 | 1.90 | 0.23 | 24 hr | CloudBurst |
| CSO118 | 11/6/13 6:30 PM | 11/6/13 9:00 PM | 0.10 | 241 | 0.21 | 1,146 | 0.75 | 0.09 | 12 hr | CloudBurst |
| CSO118 | 11/17/13 5:15 AM | 11/17/13 7:45 PM | 0.60 | 11,008,726 | 2.68 | 4,107,734 | 2.87 | 1.89 | 6 hr | CloudBurst |
| CSO118 | 11/21/13 7:00 PM | 11/21/13 7:15 PM | 0.01 | 65 | 0.12 | 543 | 2.92 | 0.09 | 1 hr | CloudBurst |
| CSO118 | 12/5/13 5:15 AM | 12/5/13 6:00 PM | 0.53 | 834,825 | 0.78 | 1,070,289 | 0.29 | 0.25 | 48 hr | CloudBurst |
| CSO118 | 12/6/13 2:15 AM | 12/6/13 11:30 AM | 0.39 | 916 | 0.78 | 1,174 | 0.45 | 0.25 | 48 hr | CloudBurst |
| CSO118 | 12/14/13 3:45 AM | 12/14/13 2:45 PM | 0.46 | 273,123 | 0.81 | 337,189 | 1.11 | 0.34 | 12 hr | CloudBurst |
| CSO118 | 12/21/13 1:45 AM | 12/21/13 1:00 PM | 0.47 | 2,311,520 | 2.57 | 899,424 | 1.78 | 0.96 | 24 hr | CloudBurst |
| CSO118 | 12/21/13 9:15 PM | 12/22/13 6:00 AM | 0.36 | 7,168,716 | 2.57 | 2,789,384 | 2.66 | 0.96 | 24 hr | CloudBurst |
| CSO118 | 12/29/13 12:15 AM | 12/29/13 10:00 AM | 0.41 | 45,588 | 0.51 | 89,389 | 0.75 | 0.22 | 12 hr | CloudBurst |
| CSO118 | 4/1/14 8:30 PM | 4/1/14 8:45 PM | 0.01 | 183 | 0.08 | 2,286 | 1.32 | 0.06 | 1 hr | CloudBurst |
| CSO118 | 4/3/14 5:00 AM | 4/4/14 12:45 PM | 1.32 | 6,964,847 | 2.63 | 2,648,231 | 3.94 | 0.93 | 24 hr | CloudBurst |
| CSO118 | 4/7/14 7:45 AM | 4/7/14 4:45 PM | 0.38 | 3,513,223 | 0.74 | 4,747,598 | 3.47 | 0.43 | 3 hr | CloudBurst |
| CSO118 | 4/14/14 3:30 AM | 4/14/14 10:30 AM | 0.29 | 1,078 | 1.02 | 1,057 | 1.18 | 0.39 | 24 hr | CloudBurst |
| CSO118 | 4/14/14 7:30 PM | 4/15/14 3:00 AM | 0.31 | 944,083 | 1.02 | 925,572 | 1.07 | 0.39 | 24 hr | CloudBurst |
| CSO118 | 4/25/14 2:30 AM | 4/25/14 10:30 AM | 0.33 | 111 | 0.10 | 1,114 | 0.11 | 0.05 | 3 hr | CloudBurst |
| CSO118 | 4/27/14 8:30 PM | 4/28/14 8:30 PM | 1.00 | 5,304,323 | 1.80 | 2,946,846 | 1.90 | 0.71 | 3 hr | Atlas14 |
| CSO118 | 4/29/14 7:00 PM | 4/29/14 10:15 PM | 0.14 | 223 | 0.20 | 1,117 | 2.06 | 0.09 | 12 hr | CloudBurst |
| CSO118 | 5/9/14 7:15 PM | 5/10/14 4:15 PM | 0.88 | 6,257,229 | 1.50 | 4,171,486 | 1.58 | 0.58 | 24 hr | CloudBurst |
| CSO118 | 5/14/14 7:00 AM | 5/15/14 1:00 AM | 0.75 | 1,118,241 | 1.09 | 1,025,910 | 2.72 | 0.42 | 24 hr | CloudBurst |
| CSO118 | 5/16/14 3:30 AM | 5/16/14 4:15 AM | 0.03 | 394 | 0.06 | 6,568 | 2.78 | 0.04 | 3 hr | CloudBurst |
| CSO118 | 5/21/14 9:00 PM | 5/22/14 4:30 AM | 0.31 | 997,371 | 0.43 | 2,319,468 | 0.57 | 0.20 | 12 hr | CloudBurst |
| CSO118 | 5/28/14 8:15 PM | 5/28/14 9:30 PM | 0.05 | 1,620,109 | 0.35 | 4,628,882 | 0.79 | 0.30 | 1 hr | CloudBurst |
| CSO118 | 5/29/14 8:45 PM | 5/29/14 10:00 PM | 0.05 | 1,882,035 | 0.76 | 2,476,362 | 1.14 | 0.64 | 1 hr | CloudBurst |
| CSO118 | 6/1/14 10:30 PM | 6/1/14 10:30 PM | 0.01 | 1,126 | 0.09 | 12,516 | 1.26 | 0.04 | 12 hr | CloudBurst |
| CSO118 | 6/2/14 10:15 PM | 6/2/14 10:15 PM | 0.01 | 1,646 | 0.01 | 164,573 | 1.29 | 0.01 | 6 hr | CloudBurst |
| CSO118 | 6/5/14 9:00 PM | 6/5/14 10:00 PM | 0.04 | 5,599 | Discharge | | 0.23 | DWO | | |
| CSO118 | 6/10/14 3:30 PM | 6/10/14 5:00 PM | 0.06 | 5,665 | 0.14 | 40,461 | 0.21 | 0.09 | 3 hr | CloudBurst |
| CSO118 | 6/11/14 2:15 PM | 6/11/14 3:00 PM | 0.03 | 405,485 | 0.07 | 5,792,639 | 0.28 | 0.04 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO118 | 6/20/14 4:00 PM | 6/20/14 6:15 PM | 0.09 | 158,135 | 0.22 | 718,797 | 0.22 | 0.15 | 3 hr | Atlas14 |
| CSO118 | 6/24/14 1:30 PM | 6/24/14 2:45 PM | 0.05 | 382,979 | 0.16 | 2,393,616 | 0.41 | 0.10 | 1 hr | CloudBurst |
| CSO118 | 6/30/14 8:30 AM | 6/30/14 8:30 AM | 0.01 | 72 | 0.02 | 3,620 | 0.32 | 0.02 | 1 hr | CloudBurst |
| CSO120 | 1/10/14 11:45 PM | 1/11/14 3:45 AM | 0.17 | 132,714 | 0.81 | 163,844 | 1.21 | 0.44 | 6 hr | CloudBurst |
| CSO120 | 2/2/14 5:00 AM | 2/2/14 5:00 AM | 0.00 | 16,929 | 0.22 | 76,948 | 0.15 | 0.12 | 6 hr | CloudBurst |
| CSO120 | 2/4/14 7:30 PM | 2/4/14 11:30 PM | 0.17 | 336,700 | 0.51 | 660,195 | 0.96 | 0.25 | 6 hr | CloudBurst |
| CSO120 | 2/17/14 4:00 PM | 2/17/14 4:45 PM | 0.03 | 170,651 | 0.65 | 262,540 | 1.13 | 0.38 | 3 hr | CloudBurst |
| CSO120 | 2/20/14 11:00 PM | 2/20/14 11:00 PM | 0.00 | 3,479 | 0.17 | 20,465 | 1.36 | 0.09 | 6 hr | CloudBurst |
| CSO120 | 3/2/14 9:45 AM | 3/2/14 11:00 AM | 0.05 | 42,593 | 0.53 | 80,365 | 0.25 | 0.20 | 24 hr | CloudBurst |
| CSO120 | 3/28/14 4:30 AM | 3/28/14 4:30 AM | 0.00 | 24,355 | 0.32 | 76,109 | 0.34 | 0.17 | 1 hr | CloudBurst |
| CSO120 | 3/29/14 6:30 AM | 3/29/14 8:45 AM | 0.09 | 180,134 | 0.94 | 191,632 | 1.05 | 0.44 | 6 hr | CloudBurst |
| CSO120 | 7/2/13 1:00 PM | 7/2/13 1:15 PM | 0.01 | 12,721 | 0.15 | 84,808 | 4.20 | 0.13 | 1 hr | CloudBurst |
| CSO120 | 7/6/13 1:00 AM | 7/6/13 1:30 AM | 0.02 | 74,098 | 0.67 | 110,595 | 1.73 | 0.29 | 12 hr | CloudBurst |
| CSO120 | 7/10/13 1:45 PM | 7/10/13 2:15 PM | 0.02 | 217,136 | 0.91 | 238,611 | 2.15 | 0.61 | 1 hr | CloudBurst |
| CSO120 | 7/14/13 7:15 PM | 7/14/13 7:15 PM | 0.01 | 108,229 | 0.19 | 569,624 | 1.13 | 0.17 | 1 hr | CloudBurst |
| CSO120 | 7/21/13 8:00 PM | 7/21/13 8:15 PM | 0.01 | 40,674 | 2.15 | 18,918 | 1.15 | 0.83 | 24 hr | CloudBurst |
| CSO120 | 7/22/13 7:00 AM | 7/22/13 1:45 PM | 0.28 | 299,913 | 2.15 | 139,494 | 2.35 | 0.83 | 24 hr | CloudBurst |
| CSO120 | 8/12/13 2:30 PM | 8/12/13 2:45 PM | 0.01 | 219,095 | 0.76 | 288,283 | 0.66 | 0.30 | 1 hr | CloudBurst |
| CSO120 | 8/13/13 2:45 AM | 8/13/13 3:00 AM | 0.01 | 18,712 | 0.76 | 24,620 | 0.96 | 0.30 | 1 hr | CloudBurst |
| CSO120 | 8/20/13 6:00 PM | 8/20/13 6:15 PM | 0.01 | 102,834 | 0.16 | 642,714 | 0.16 | 0.10 | 1 hr | CloudBurst |
| CSO120 | 8/31/13 7:30 PM | 8/31/13 10:30 PM | 0.13 | 242,123 | 1.29 | 187,692 | 0.90 | 0.63 | 1 hr | CloudBurst |
| CSO120 | 9/2/13 1:30 PM | 9/2/13 1:45 PM | 0.01 | 120,689 | 0.25 | 482,756 | 1.54 | 0.22 | 1 hr | CloudBurst |
| CSO120 | 9/20/13 4:15 PM | 9/21/13 3:45 AM | 0.48 | 343,778 | 1.23 | 279,494 | 1.21 | 0.51 | 12 hr | CloudBurst |
| CSO120 | 10/5/13 12:45 PM | 10/6/13 9:15 AM | 0.85 | 1,179,266 | 4.21 | 280,111 | 4.28 | 7.58 | 24 hr | CloudBurst |
| CSO120 | 10/30/13 1:15 AM | 10/30/13 5:30 AM | 0.18 | 315,508 | 1.35 | 233,710 | 1.27 | 0.67 | 6 hr | CloudBurst |
| CSO120 | 10/31/13 8:45 PM | 10/31/13 8:45 PM | 0.00 | 23,277 | 0.65 | 35,810 | 1.90 | 0.25 | 24 hr | CloudBurst |
| CSO120 | 11/17/13 5:15 AM | 11/17/13 7:00 PM | 0.57 | 1,082,472 | 2.23 | 485,413 | 2.36 | 0.94 | 6 hr | CloudBurst |
| CSO120 | 12/5/13 5:15 AM | 12/5/13 8:00 AM | 0.11 | 135,641 | 0.81 | 167,458 | 0.21 | 0.26 | 48 hr | CloudBurst |
| CSO120 | 12/14/13 10:30 AM | 12/14/13 10:30 AM | 0.00 | 13,266 | 0.77 | 17,229 | 1.10 | 0.31 | 12 hr | CloudBurst |
| CSO120 | 12/21/13 7:30 AM | 12/21/13 12:00 PM | 0.19 | 160,314 | 1.07 | 149,827 | 1.35 | 0.50 | 12 hr | CloudBurst |
| CSO120 | 12/21/13 9:15 PM | 12/22/13 2:30 AM | 0.22 | 563,038 | 1.67 | 337,149 | 2.74 | 0.90 | 6 hr | CloudBurst |
| CSO120 | 4/3/14 12:00 PM | 4/4/14 7:30 AM | 0.81 | 558,964 | 2.61 | 214,162 | 3.92 | 0.92 | 24 hr | CloudBurst |
| CSO120 | 4/7/14 9:15 AM | 4/7/14 3:30 PM | 0.26 | 224,718 | 0.76 | 295,682 | 3.46 | 0.46 | 3 hr | Atlas14 |
| CSO120 | 4/14/14 8:00 PM | 4/14/14 8:45 PM | 0.03 | 45,495 | 1.03 | 44,169 | 0.78 | 0.39 | 24 hr | CloudBurst |
| CSO120 | 4/27/14 8:15 PM | 4/28/14 7:00 AM | 0.45 | 311,766 | 1.87 | 166,720 | 1.46 | 0.73 | 3 hr | Atlas14 |
| CSO120 | 4/28/14 5:30 PM | 4/28/14 7:45 PM | 0.09 | 54,161 | 1.87 | 28,963 | 1.96 | 0.73 | 3 hr | Atlas14 |
| CSO120 | 5/9/14 7:15 PM | 5/10/14 3:00 PM | 0.82 | 499,226 | 1.90 | 262,751 | 1.88 | 0.71 | 24 hr | CloudBurst |
| CSO120 | 5/14/14 7:00 AM | 5/14/14 7:00 AM | 0.01 | 30,013 | 1.00 | 30,013 | 2.11 | 0.38 | 24 hr | CloudBurst |
| CSO120 | 5/14/14 6:00 PM | 5/14/14 7:00 PM | 0.04 | 74,886 | 1.00 | 74,886 | 2.68 | 0.38 | 24 hr | CloudBurst |
| CSO120 | 5/21/14 9:00 PM | 5/22/14 3:30 AM | 0.27 | 154,606 | 0.49 | 315,523 | 0.59 | 0.23 | 12 hr | CloudBurst |
| CSO120 | 5/28/14 8:30 PM | 5/28/14 8:45 PM | 0.01 | 121,189 | 0.25 | 484,756 | 0.73 | 0.21 | 1 hr | CloudBurst |
| CSO120 | 5/29/14 8:45 PM | 5/29/14 9:30 PM | 0.03 | 194,126 | 0.45 | 431,391 | 0.71 | 0.38 | 1 hr | CloudBurst |
| CSO120 | 6/11/14 2:15 PM | 6/11/14 2:30 PM | 0.01 | 35,356 | 0.12 | 294,635 | 0.30 | 0.09 | 1 hr | CloudBurst |
| CSO120 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 65,764 | 0.12 | 548,032 | 0.32 | 0.07 | 1 hr | CloudBurst |
| CSO121 | 1/11/14 12:15 AM | 1/11/14 3:15 AM | 0.13 | 124,981 | 0.81 | 154,298 | 1.16 | 0.44 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO121 | 2/4/14 8:00 PM | 2/4/14 11:45 PM | 0.16 | 221,106 | 0.51 | 433,541 | 0.96 | 0.25 | 6 hr | CloudBurst |
| CSO121 | 2/14/14 4:00 PM | 2/14/14 5:15 PM | 0.05 | 1,662 | 0.49 | 3,392 | 0.36 | 0.26 | 6 hr | CloudBurst |
| CSO121 | 2/17/14 4:00 PM | 2/17/14 4:45 PM | 0.03 | 53,927 | 0.65 | 82,965 | 1.13 | 0.38 | 3 hr | CloudBurst |
| CSO121 | 3/19/14 8:30 AM | 3/19/14 8:30 AM | 0.00 | 1,003 | 0.06 | 16,717 | 0.14 | 0.03 | 12 hr | CloudBurst |
| CSO121 | 3/28/14 4:30 AM | 3/28/14 4:30 AM | 0.00 | 3,566 | 0.32 | 11,144 | 0.34 | 0.17 | 1 hr | CloudBurst |
| CSO121 | 3/29/14 6:15 AM | 3/29/14 8:15 AM | 0.08 | 63,488 | 0.94 | 67,541 | 1.02 | 0.44 | 6 hr | CloudBurst |
| CSO121 | 7/6/13 1:00 AM | 7/6/13 5:15 AM | 0.18 | 49,193 | 0.67 | 73,422 | 2.03 | 0.29 | 12 hr | CloudBurst |
| CSO121 | 7/10/13 2:00 PM | 7/10/13 2:30 PM | 0.02 | 278,020 | 0.91 | 305,517 | 2.15 | 0.61 | 1 hr | CloudBurst |
| CSO121 | 7/14/13 7:30 PM | 7/14/13 7:30 PM | 0.01 | 5,285 | 0.19 | 27,815 | 1.18 | 0.17 | 1 hr | CloudBurst |
| CSO121 | 7/21/13 8:30 PM | 7/21/13 8:30 PM | 0.01 | 6,404 | 2.15 | 2,979 | 1.18 | 0.83 | 24 hr | CloudBurst |
| CSO121 | 7/22/13 7:00 AM | 7/22/13 4:00 PM | 0.38 | 286,974 | 2.15 | 133,476 | 2.38 | 0.83 | 24 hr | CloudBurst |
| CSO121 | 8/12/13 2:30 PM | 8/12/13 2:45 PM | 0.01 | 168,215 | 0.76 | 221,336 | 0.66 | 0.30 | 1 hr | CloudBurst |
| CSO121 | 8/13/13 3:00 AM | 8/13/13 3:15 AM | 0.01 | 23,542 | 0.76 | 30,976 | 0.99 | 0.30 | 1 hr | CloudBurst |
| CSO121 | 8/20/13 6:15 PM | 8/20/13 6:15 PM | 0.01 | 52,179 | 0.16 | 326,121 | 0.16 | 0.10 | 1 hr | CloudBurst |
| CSO121 | 8/31/13 8:00 PM | 9/1/13 12:30 AM | 0.19 | 92,749 | 1.29 | 71,898 | 1.06 | 0.63 | 1 hr | CloudBurst |
| CSO121 | 9/2/13 2:00 PM | 9/2/13 2:00 PM | 0.01 | 50,434 | 0.25 | 201,735 | 1.54 | 0.22 | 1 hr | CloudBurst |
| CSO121 | 9/20/13 4:15 PM | 9/21/13 4:00 AM | 0.49 | 160,333 | 1.23 | 130,352 | 1.22 | 0.51 | 12 hr | CloudBurst |
| CSO121 | 10/5/13 1:00 PM | 10/6/13 10:00 AM | 0.88 | 4,094,136 | 4.21 | 972,479 | 4.28 | 7.58 | 24 hr | CloudBurst |
| CSO121 | 10/30/13 2:15 AM | 10/30/13 5:45 AM | 0.15 | 55,083 | 1.35 | 40,803 | 1.31 | 0.67 | 6 hr | CloudBurst |
| CSO121 | 10/31/13 6:45 PM | 10/31/13 9:00 PM | 0.09 | 36,795 | 0.65 | 56,607 | 1.91 | 0.25 | 24 hr | CloudBurst |
| CSO121 | 11/17/13 5:30 AM | 11/17/13 7:15 PM | 0.57 | 222,661 | 2.23 | 99,848 | 2.36 | 0.94 | 6 hr | CloudBurst |
| CSO121 | 12/5/13 5:15 AM | 12/5/13 7:45 AM | 0.10 | 38,536 | 0.81 | 47,576 | 0.20 | 0.26 | 48 hr | CloudBurst |
| CSO121 | 12/14/13 10:30 AM | 12/14/13 10:30 AM | 0.00 | 402 | 0.77 | 523 | 1.10 | 0.31 | 12 hr | CloudBurst |
| CSO121 | 12/21/13 7:45 AM | 12/21/13 10:00 AM | 0.09 | 29,190 | 1.07 | 27,281 | 1.12 | 0.50 | 12 hr | CloudBurst |
| CSO121 | 12/21/13 9:30 PM | 12/22/13 12:45 AM | 0.14 | 1,037,371 | 1.67 | 621,180 | 2.64 | 0.90 | 6 hr | CloudBurst |
| CSO121 | 4/3/14 12:30 PM | 4/4/14 7:30 AM | 0.79 | 303,448 | 2.61 | 116,264 | 3.92 | 0.92 | 24 hr | CloudBurst |
| CSO121 | 4/7/14 9:15 AM | 4/7/14 3:30 PM | 0.26 | 283,724 | 0.76 | 373,321 | 3.46 | 0.46 | 3 hr | Atlas14 |
| CSO121 | 4/14/14 8:00 PM | 4/14/14 9:00 PM | 0.04 | 18,974 | 1.03 | 18,422 | 0.80 | 0.39 | 24 hr | CloudBurst |
| CSO121 | 4/25/14 2:15 AM | 4/25/14 2:15 AM | 0.01 | 527 | 0.10 | 5,273 | 0.06 | 0.05 | 12 hr | CloudBurst |
| CSO121 | 4/28/14 4:00 AM | 4/28/14 7:15 AM | 0.14 | 549,609 | 1.87 | 293,908 | 1.48 | 0.73 | 3 hr | Atlas14 |
| CSO121 | 4/28/14 5:30 PM | 4/28/14 5:45 PM | 0.01 | 29,915 | 1.87 | 15,997 | 1.85 | 0.73 | 3 hr | Atlas14 |
| CSO121 | 5/9/14 7:30 PM | 5/10/14 2:45 PM | 0.80 | 95,171 | 1.90 | 50,090 | 1.61 | 0.71 | 24 hr | CloudBurst |
| CSO121 | 5/14/14 7:15 AM | 5/14/14 7:15 AM | 0.01 | 12,420 | 1.00 | 12,420 | 2.13 | 0.38 | 24 hr | CloudBurst |
| CSO121 | 5/14/14 6:00 PM | 5/14/14 6:15 PM | 0.01 | 17,350 | 1.00 | 17,350 | 2.63 | 0.38 | 24 hr | CloudBurst |
| CSO121 | 5/21/14 9:00 PM | 5/22/14 3:00 AM | 0.25 | 114,364 | 0.49 | 233,397 | 0.53 | 0.23 | 12 hr | CloudBurst |
| CSO121 | 5/28/14 8:15 PM | 5/28/14 8:15 PM | 0.01 | 12,960 | 0.25 | 51,842 | 0.71 | 0.21 | 1 hr | CloudBurst |
| CSO121 | 5/29/14 9:00 PM | 5/29/14 9:00 PM | 0.01 | 207,185 | 0.45 | 460,410 | 0.69 | 0.38 | 1 hr | CloudBurst |
| CSO121 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 6,972 | 0.12 | 58,104 | 0.30 | 0.09 | 1 hr | CloudBurst |
| CSO121 | 6/24/14 1:30 PM | 6/24/14 1:30 PM | 0.01 | 25,455 | 0.12 | 212,126 | 0.32 | 0.07 | 1 hr | CloudBurst |
| CSO125 | 1/11/14 12:45 AM | 1/11/14 5:30 AM | 0.20 | 817,626 | 1.07 | 764,137 | 1.53 | 0.59 | 6 hr | CloudBurst |
| CSO125 | 2/2/14 5:30 AM | 2/2/14 5:30 AM | 0.00 | 5,423 | 0.37 | 14,656 | 0.12 | 0.14 | 24 hr | CloudBurst |
| CSO125 | 2/4/14 8:00 PM | 2/5/14 1:45 AM | 0.24 | 1,180,808 | 0.40 | 2,952,020 | 0.76 | 0.20 | 6 hr | CloudBurst |
| CSO125 | 2/17/14 4:30 PM | 2/17/14 6:15 PM | 0.07 | 387,309 | 0.38 | 1,019,233 | 0.78 | 0.23 | 3 hr | CloudBurst |
| CSO125 | 2/20/14 11:30 PM | 2/20/14 11:30 PM | 0.00 | 30,022 | 0.20 | 150,111 | 0.99 | 0.11 | 6 hr | CloudBurst |
| CSO125 | 3/2/14 10:15 AM | 3/2/14 11:30 AM | 0.05 | 139,032 | 0.53 | 262,324 | 0.29 | 0.20 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO125 | 3/28/14 4:45 AM | 3/28/14 5:00 AM | 0.01 | 67,696 | 0.27 | 250,727 | 0.32 | 0.14 | 1 hr | CloudBurst |
| CSO125 | 3/29/14 7:00 AM | 3/29/14 12:30 PM | 0.23 | 588,963 | 1.23 | 478,832 | 1.48 | 0.57 | 6 hr | CloudBurst |
| CSO125 | 7/10/13 2:15 PM | 7/10/13 2:45 PM | 0.02 | 11,687 | 1.07 | 10,923 | 2.40 | 0.82 | 1 hr | CloudBurst |
| CSO125 | 7/14/13 7:30 PM | 7/14/13 7:45 PM | 0.01 | 35,802 | 0.30 | 119,339 | 1.47 | 0.26 | 1 hr | CloudBurst |
| CSO125 | 8/12/13 3:00 PM | 8/12/13 3:00 PM | 0.01 | 2,366 | 0.70 | 3,380 | 0.61 | 0.27 | 1 hr | CloudBurst |
| CSO125 | 9/20/13 7:45 PM | 9/20/13 7:45 PM | 0.01 | 2,729 | 1.77 | 1,542 | 0.83 | 0.75 | 12 hr | CloudBurst |
| CSO125 | 10/5/13 1:15 PM | 10/6/13 5:00 PM | 1.16 | 28,511,456 | 5.16 | 5,525,476 | 5.14 | 16.83 | 24 hr | CloudBurst |
| CSO125 | 10/30/13 2:15 AM | 10/30/13 5:30 AM | 0.14 | 21,257 | 1.04 | 20,439 | 0.98 | 0.49 | 6 hr | CloudBurst |
| CSO125 | 11/17/13 6:15 AM | 11/17/13 9:30 PM | 0.64 | 2,882,715 | 2.54 | 1,134,927 | 2.70 | 1.94 | 6 hr | CloudBurst |
| CSO125 | 12/5/13 5:45 AM | 12/5/13 8:00 AM | 0.09 | 60,999 | 0.79 | 77,214 | 0.25 | 0.26 | 48 hr | CloudBurst |
| CSO125 | 12/14/13 10:45 AM | 12/14/13 11:15 AM | 0.02 | 48,627 | 0.98 | 49,619 | 1.02 | 0.42 | 6 hr | CloudBurst |
| CSO125 | 12/21/13 6:00 AM | 12/21/13 12:45 PM | 0.28 | 483,545 | 2.67 | 181,103 | 1.41 | 1.02 | 24 hr | CloudBurst |
| CSO125 | 12/21/13 9:30 PM | 12/22/13 9:15 AM | 0.49 | 12,231,365 | 2.67 | 4,581,036 | 2.73 | 1.02 | 24 hr | CloudBurst |
| CSO125 | 4/3/14 12:15 PM | 4/4/14 4:15 PM | 1.17 | 11,293,722 | 2.07 | 5,455,904 | 3.68 | 0.71 | 24 hr | CloudBurst |
| CSO125 | 4/7/14 11:00 AM | 4/7/14 12:45 PM | 0.07 | 605,829 | 1.07 | 566,195 | 3.20 | 0.61 | 3 hr | CloudBurst |
| CSO125 | 4/14/14 8:15 PM | 4/14/14 9:30 PM | 0.05 | 239,053 | 0.87 | 274,774 | 0.65 | 0.33 | 24 hr | CloudBurst |
| CSO125 | 4/27/14 8:15 PM | 4/28/14 7:30 AM | 0.47 | 104,454 | 2.12 | 49,271 | 1.68 | 0.79 | 3 hr | CloudBurst |
| CSO125 | 4/28/14 5:45 PM | 4/28/14 6:00 PM | 0.01 | 9,218 | 2.12 | 4,348 | 1.99 | 0.79 | 3 hr | CloudBurst |
| CSO125 | 5/9/14 7:30 PM | 5/10/14 4:00 PM | 0.85 | 747,045 | 1.75 | 426,883 | 1.82 | 0.68 | 24 hr | CloudBurst |
| CSO125 | 5/14/14 7:15 AM | 5/15/14 12:00 AM | 0.70 | 264,866 | 1.15 | 230,318 | 3.00 | 0.42 | 24 hr | CloudBurst |
| CSO125 | 5/21/14 9:15 PM | 5/22/14 3:15 AM | 0.25 | 103,972 | 0.58 | 179,262 | 0.73 | 0.27 | 12 hr | CloudBurst |
| CSO125 | 5/28/14 8:45 PM | 5/28/14 8:45 PM | 0.01 | 6,671 | 0.17 | 39,242 | 0.59 | 0.13 | 1 hr | CloudBurst |
| CSO125 | 5/29/14 9:15 PM | 5/29/14 10:15 PM | 0.04 | 533,089 | 1.02 | 522,636 | 1.20 | 0.85 | 1 hr | CloudBurst |
| CSO125 | 6/11/14 2:45 PM | 6/11/14 3:00 PM | 0.01 | 44,206 | 0.14 | 315,755 | 0.42 | 0.07 | 1 hr | CloudBurst |
| CSO126 | 2/4/14 11:30 PM | 2/5/14 12:30 AM | 0.04 | 33,976 | 0.40 | 84,940 | 0.76 | 0.20 | 6 hr | CloudBurst |
| CSO126 | 2/17/14 4:15 PM | 2/17/14 4:15 PM | 0.00 | 4,818 | 0.38 | 12,678 | 0.69 | 0.23 | 3 hr | CloudBurst |
| CSO126 | 8/31/13 7:45 PM | 9/1/13 6:45 AM | 0.46 | 286,101 | 1.44 | 198,681 | 1.44 | 0.73 | 1 hr | CloudBurst |
| CSO126 | 9/21/13 1:00 AM | 9/22/13 12:15 PM | 1.47 | 4,595,674 | 1.77 | 2,596,426 | 1.86 | 0.75 | 12 hr | CloudBurst |
| CSO126 | 10/5/13 2:15 PM | 10/7/13 8:00 AM | 1.74 | 69,346,170 | 5.16 | 13,439,180 | 5.28 | 16.83 | 24 hr | CloudBurst |
| CSO126 | 10/30/13 9:00 AM | 10/30/13 9:00 AM | 0.00 | 1,293 | 1.04 | 1,243 | 1.05 | 0.49 | 6 hr | CloudBurst |
| CSO126 | 11/1/13 1:00 AM | 11/1/13 1:00 AM | 0.00 | 1,924 | 0.58 | 3,317 | 1.62 | 0.23 | 12 hr | CloudBurst |
| CSO126 | 11/17/13 7:45 AM | 11/19/13 11:15 AM | 2.15 | 9,361,979 | 2.54 | 3,685,819 | 2.70 | 1.94 | 6 hr | CloudBurst |
| CSO126 | 12/21/13 12:00 PM | 12/21/13 12:30 PM | 0.02 | 13,461 | 2.67 | 5,042 | 0.99 | 1.02 | 24 hr | CloudBurst |
| CSO126 | 12/21/13 10:00 PM | 12/22/13 8:00 AM | 0.42 | 1,793,585 | 2.67 | 671,755 | 2.73 | 1.02 | 24 hr | CloudBurst |
| CSO126 | 4/3/14 3:30 PM | 4/6/14 12:45 AM | 2.39 | 4,550,644 | 2.07 | 2,198,379 | 3.68 | 0.71 | 24 hr | CloudBurst |
| CSO126 | 4/7/14 10:45 AM | 4/7/14 2:00 PM | 0.14 | 108,827 | 1.07 | 101,707 | 3.20 | 0.61 | 3 hr | CloudBurst |
| CSO126 | 4/27/14 8:00 PM | 4/27/14 8:00 PM | 0.01 | 24,430 | 2.12 | 11,524 | 0.28 | 0.79 | 3 hr | CloudBurst |
| CSO126 | 4/28/14 6:00 AM | 4/28/14 10:15 AM | 0.18 | 296,979 | 2.12 | 140,085 | 1.72 | 0.79 | 3 hr | CloudBurst |
| CSO126 | 5/10/14 5:45 AM | 5/10/14 5:45 AM | 0.01 | 10,601 | 1.75 | 6,057 | 1.02 | 0.68 | 24 hr | CloudBurst |
| CSO126 | 5/10/14 2:15 PM | 5/10/14 6:30 PM | 0.18 | 107,326 | 1.75 | 61,329 | 1.82 | 0.68 | 24 hr | CloudBurst |
| CSO126 | 5/14/14 7:00 AM | 5/14/14 7:00 AM | 0.01 | 16,833 | 1.15 | 14,637 | 2.09 | 0.42 | 24 hr | CloudBurst |
| CSO126 | 5/14/14 9:15 PM | 5/15/14 1:15 AM | 0.17 | 21,169 | 1.15 | 18,408 | 3.00 | 0.42 | 24 hr | CloudBurst |
| CSO126 | 5/21/14 9:00 PM | 5/22/14 8:30 AM | 0.48 | 64,004 | 0.58 | 110,352 | 0.76 | 0.27 | 12 hr | CloudBurst |
| CSO126 | 5/29/14 9:00 PM | 5/31/14 3:45 AM | 1.28 | 1,409,124 | 1.02 | 1,381,494 | 1.23 | 0.85 | 1 hr | CloudBurst |
| CSO127 | 1/5/14 3:00 PM | 1/5/14 8:15 PM | 0.22 | 131,450 | 0.47 | 279,680 | 0.70 | 0.24 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO127 | 1/11/14 12:30 AM | 1/11/14 5:45 AM | 0.22 | 402,330 | 1.03 | 390,611 | 1.51 | 0.56 | 6 hr | CloudBurst |
| CSO127 | 1/13/14 3:00 PM | 1/13/14 3:00 PM | 0.00 | 75 | 0.23 | 328 | 1.19 | 0.11 | 12 hr | CloudBurst |
| CSO127 | 2/2/14 4:00 AM | 2/2/14 7:45 AM | 0.16 | 187,294 | 0.41 | 456,815 | 0.16 | 0.16 | 24 hr | CloudBurst |
| CSO127 | 2/4/14 7:00 PM | 2/5/14 2:15 AM | 0.30 | 706,147 | 0.46 | 1,535,102 | 0.87 | 0.22 | 6 hr | CloudBurst |
| CSO127 | 2/14/14 4:45 PM | 2/14/14 6:45 PM | 0.08 | 95,343 | 0.39 | 244,470 | 0.40 | 0.20 | 6 hr | CloudBurst |
| CSO127 | 2/17/14 4:15 PM | 2/17/14 6:30 PM | 0.09 | 87,064 | 0.44 | 197,873 | 0.88 | 0.27 | 3 hr | CloudBurst |
| CSO127 | 2/20/14 8:45 PM | 2/21/14 12:00 AM | 0.14 | 36,796 | 0.22 | 167,253 | 1.10 | 0.12 | 6 hr | CloudBurst |
| CSO127 | 3/2/14 10:00 AM | 3/2/14 11:30 AM | 0.06 | 133,575 | 0.59 | 226,399 | 0.31 | 0.22 | 24 hr | CloudBurst |
| CSO127 | 3/28/14 4:30 AM | 3/28/14 5:00 AM | 0.02 | 13,770 | 0.19 | 72,475 | 0.23 | 0.09 | 12 hr | CloudBurst |
| CSO127 | 3/29/14 5:30 AM | 3/29/14 1:00 PM | 0.31 | 386,316 | 1.44 | 268,275 | 1.64 | 0.67 | 12 hr | CloudBurst |
| CSO127 | 10/30/13 1:30 AM | 10/30/13 6:45 AM | 0.22 | 441,707 | 0.91 | 485,392 | 0.92 | 0.43 | 6 hr | CloudBurst |
| CSO127 | 10/31/13 8:45 PM | 10/31/13 10:30 PM | 0.07 | 28,195 | 0.47 | 59,990 | 1.38 | 0.18 | 24 hr | CloudBurst |
| CSO127 | 11/15/13 6:45 PM | 11/15/13 6:45 PM | 0.00 | 1,812 | 0.11 | 16,470 | 0.17 | 0.08 | 1 hr | CloudBurst |
| CSO127 | 11/17/13 5:15 AM | 11/17/13 9:45 PM | 0.69 | 684,787 | 2.71 | 252,689 | 2.88 | 2.52 | 6 hr | CloudBurst |
| CSO127 | 12/5/13 5:45 AM | 12/5/13 10:30 AM | 0.20 | 99,504 | 0.78 | 127,569 | 0.27 | 0.25 | 48 hr | CloudBurst |
| CSO127 | 12/6/13 4:00 AM | 12/6/13 11:45 AM | 0.32 | 13,204 | 0.78 | 16,929 | 0.45 | 0.25 | 48 hr | CloudBurst |
| CSO127 | 12/14/13 9:00 AM | 12/14/13 11:30 AM | 0.10 | 106,722 | 1.04 | 102,617 | 1.09 | 0.46 | 6 hr | CloudBurst |
| CSO127 | 12/21/13 5:30 AM | 12/21/13 1:15 PM | 0.32 | 458,973 | 2.81 | 163,336 | 1.53 | 1.30 | 3 hr | Atlas14 |
| CSO127 | 12/21/13 9:30 PM | 12/22/13 7:00 AM | 0.40 | 2,582,922 | 2.81 | 919,189 | 2.87 | 1.30 | 3 hr | Atlas14 |
| CSO127 | 12/29/13 5:30 AM | 12/29/13 6:45 AM | 0.05 | 14,552 | 0.63 | 23,098 | 0.54 | 0.28 | 12 hr | CloudBurst |
| CSO127 | 4/1/14 8:45 PM | 4/1/14 8:45 PM | 0.01 | 723 | 0.11 | 6,575 | 1.77 | 0.07 | 3 hr | CloudBurst |
| CSO127 | 4/3/14 12:15 PM | 4/4/14 7:00 PM | 1.28 | 3,344,549 | 2.19 | 1,527,191 | 3.95 | 0.78 | 24 hr | CloudBurst |
| CSO127 | 4/7/14 8:15 AM | 4/7/14 1:30 PM | 0.22 | 510,332 | 0.98 | 520,747 | 3.24 | 0.58 | 1 hr | CloudBurst |
| CSO127 | 4/14/14 3:45 AM | 4/14/14 10:30 AM | 0.28 | 30,480 | 0.39 | 78,155 | 1.36 | 0.20 | 6 hr | CloudBurst |
| CSO127 | 4/14/14 7:45 PM | 4/15/14 2:15 AM | 0.27 | 265,837 | 0.48 | 553,827 | 0.87 | 0.22 | 12 hr | CloudBurst |
| CSO127 | 4/27/14 8:00 PM | 4/28/14 8:45 AM | 0.53 | 1,987,326 | 2.25 | 883,256 | 1.84 | 0.87 | 3 hr | CloudBurst |
| CSO127 | 4/28/14 5:15 PM | 4/28/14 8:30 PM | 0.14 | 99,083 | 2.25 | 44,037 | 2.36 | 0.87 | 3 hr | CloudBurst |
| CSO127 | 4/29/14 7:15 PM | 4/29/14 10:15 PM | 0.13 | 1,228 | 0.25 | 4,913 | 2.56 | 0.12 | 12 hr | CloudBurst |
| CSO127 | 5/9/14 7:15 PM | 5/10/14 4:00 PM | 0.86 | 661,889 | 1.80 | 367,716 | 1.79 | 0.67 | 24 hr | CloudBurst |
| CSO127 | 5/14/14 7:00 AM | 5/15/14 12:00 AM | 0.71 | 498,829 | 1.26 | 395,896 | 3.09 | 0.45 | 24 hr | CloudBurst |
| CSO127 | 5/21/14 9:00 PM | 5/22/14 4:00 AM | 0.29 | 143,228 | 0.48 | 298,391 | 0.66 | 0.22 | 12 hr | CloudBurst |
| CSO127 | 5/28/14 8:45 PM | 5/28/14 8:45 PM | 0.01 | 424 | 0.19 | 2,233 | 0.63 | 0.13 | 1 hr | CloudBurst |
| CSO127 | 5/29/14 9:00 PM | 5/29/14 10:15 PM | 0.05 | 1,460,675 | 0.83 | 1,759,849 | 1.06 | 0.70 | 1 hr | CloudBurst |
| CSO127 | 6/11/14 9:00 AM | 6/11/14 3:00 PM | 0.25 | 24,448 | 0.21 | 116,419 | 0.47 | 0.14 | 1 hr | CloudBurst |
| CSO127 | 6/20/14 4:00 PM | 6/20/14 6:00 PM | 0.08 | 91,240 | 0.14 | 651,711 | 0.15 | 0.09 | 3 hr | CloudBurst |
| CSO127 | 6/24/14 1:45 PM | 6/24/14 2:00 PM | 0.01 | 46,803 | 0.16 | 292,520 | 0.36 | 0.10 | 1 hr | CloudBurst |
| CSO130 | 1/5/14 6:00 PM | 1/5/14 9:00 PM | 0.13 | 15,226 | 0.47 | 32,396 | 0.66 | 0.24 | 6 hr | CloudBurst |
| CSO130 | 1/11/14 1:15 AM | 1/11/14 7:15 AM | 0.25 | 210,718 | 0.80 | 263,398 | 1.28 | 0.43 | 6 hr | CloudBurst |
| CSO130 | 2/4/14 8:00 PM | 2/5/14 9:30 AM | 0.56 | 774,866 | 0.51 | 1,519,345 | 0.95 | 0.25 | 6 hr | CloudBurst |
| CSO130 | 2/17/14 4:15 PM | 2/17/14 9:15 PM | 0.21 | 359,401 | 0.55 | 653,456 | 1.08 | 0.33 | 3 hr | CloudBurst |
| CSO130 | 2/20/14 11:15 PM | 2/21/14 1:15 AM | 0.08 | 51,839 | 0.19 | 272,835 | 1.27 | 0.10 | 1 hr | CloudBurst |
| CSO130 | 3/2/14 11:15 AM | 3/2/14 12:00 PM | 0.03 | 2,951 | 0.48 | 6,147 | 0.23 | 0.19 | 24 hr | CloudBurst |
| CSO130 | 3/29/14 6:30 AM | 3/29/14 2:30 PM | 0.33 | 278,038 | 0.98 | 283,713 | 1.31 | 0.46 | 6 hr | CloudBurst |
| CSO130 | 7/1/13 7:15 PM | 7/1/13 7:15 PM | 0.01 | 5,571 | 0.20 | 27,853 | 4.15 | 0.11 | 3 hr | CloudBurst |
| CSO130 | 7/2/13 1:45 PM | 7/2/13 1:45 PM | 0.01 | 5,023 | 0.14 | 35,876 | 4.31 | 0.12 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO130 | 7/4/13 12:00 PM | 7/4/13 4:30 PM | 0.19 | 15,207 | 0.51 | 29,817 | 1.47 | 0.22 | 12 hr | CloudBurst |
| CSO130 | 7/6/13 1:15 AM | 7/7/13 5:15 AM | 0.63 | 255,132 | 0.65 | 290,539 | 2.16 | 0.29 | 12 hr | CloudBurst |
| CSO130 | 7/10/13 2:15 PM | 7/10/13 5:00 PM | 0.11 | 127,598 | 0.96 | 132,915 | 2.19 | 0.66 | 1 hr | CloudBurst |
| CSO130 | 7/14/13 7:30 PM | 7/14/13 9:00 PM | 0.06 | 20,169 | 0.23 | 87,690 | 1.25 | 0.20 | 1 hr | CloudBurst |
| CSO130 | 7/21/13 8:15 PM | 7/21/13 8:45 PM | 0.02 | 51,637 | 1.91 | 27,035 | 0.90 | 0.74 | 24 hr | CloudBurst |
| CSO130 | 7/22/13 7:15 AM | 7/22/13 6:15 PM | 0.46 | 661,568 | 1.91 | 346,371 | 2.03 | 0.74 | 24 hr | CloudBurst |
| CSO130 | 8/12/13 3:00 PM | 8/12/13 4:15 PM | 0.05 | 19,486 | 0.53 | 36,766 | 0.52 | 0.21 | 24 hr | CloudBurst |
| CSO130 | 8/13/13 3:15 AM | 8/13/13 4:30 AM | 0.05 | 4,522 | 0.53 | 8,532 | 0.76 | 0.21 | 24 hr | CloudBurst |
| CSO130 | 8/20/13 6:15 PM | 8/20/13 6:45 PM | 0.02 | 20,777 | 0.17 | 122,216 | 0.18 | 0.10 | 1 hr | CloudBurst |
| CSO130 | 8/31/13 7:45 PM | 9/1/13 4:00 AM | 0.34 | 628,299 | 1.34 | 468,880 | 1.32 | 0.67 | 3 hr | Atlas14 |
| CSO130 | 9/2/13 2:00 PM | 9/2/13 3:00 PM | 0.04 | 9,923 | 0.11 | 90,212 | 1.45 | 0.10 | 1 hr | CloudBurst |
| CSO130 | 9/20/13 4:30 PM | 9/21/13 6:15 AM | 0.57 | 511,330 | 1.48 | 345,493 | 1.55 | 0.63 | 12 hr | CloudBurst |
| CSO130 | 10/5/13 1:00 PM | 10/8/13 3:00 AM | 2.58 | 1,413,561 | 3.89 | 363,383 | 4.00 | 5.08 | 24 hr | CloudBurst |
| CSO130 | 10/30/13 3:30 AM | 10/30/13 8:00 AM | 0.19 | 225,888 | 1.16 | 194,731 | 1.16 | 0.56 | 6 hr | CloudBurst |
| CSO130 | 11/17/13 5:45 AM | 11/19/13 1:30 PM | 2.32 | 2,356,291 | 2.17 | 1,085,849 | 2.30 | 0.90 | 6 hr | CloudBurst |
| CSO130 | 12/5/13 5:30 AM | 12/5/13 9:15 AM | 0.16 | 10,371 | 0.78 | 13,296 | 0.17 | 0.25 | 48 hr | CloudBurst |
| CSO130 | 12/14/13 12:30 AM | 12/14/13 2:30 PM | 0.58 | 39,343 | 0.77 | 51,095 | 1.04 | 0.31 | 12 hr | CloudBurst |
| CSO130 | 12/14/13 11:45 PM | 12/14/13 11:45 PM | 0.00 | 1,335 | 0.67 | 1,993 | 1.04 | 0.31 | 12 hr | CloudBurst |
| CSO130 | 12/21/13 7:45 AM | 12/22/13 11:00 PM | 1.64 | 1,061,330 | 2.81 | 377,698 | 3.14 | 1.24 | 24 hr | CloudBurst |
| CSO130 | 12/29/13 6:15 AM | 12/29/13 7:30 AM | 0.05 | 45,044 | 0.48 | 93,842 | 0.41 | 0.21 | 12 hr | CloudBurst |
| CSO130 | 4/3/14 12:15 PM | 4/5/14 3:30 PM | 2.14 | 2,037,703 | 2.59 | 786,758 | 3.93 | 0.91 | 24 hr | CloudBurst |
| CSO130 | 4/7/14 9:00 AM | 4/7/14 10:45 PM | 0.57 | 1,126,866 | 0.82 | 1,374,226 | 3.50 | 0.48 | 3 hr | CloudBurst |
| CSO130 | 4/14/14 8:30 PM | 4/15/14 4:00 AM | 0.31 | 52,288 | 0.62 | 84,335 | 1.10 | 0.29 | 6 hr | CloudBurst |
| CSO130 | 4/15/14 1:30 PM | 4/15/14 1:30 PM | 0.01 | 206 | 1.02 | 202 | 1.10 | 0.35 | 6 hr | CloudBurst |
| CSO130 | 4/27/14 8:30 PM | 4/28/14 9:30 PM | 1.04 | 661,853 | 1.85 | 357,759 | 1.92 | 0.70 | 3 hr | Atlas14 |
| CSO130 | 4/29/14 8:45 PM | 4/30/14 2:00 AM | 0.22 | 20,347 | 0.19 | 107,089 | 2.12 | 0.09 | 12 hr | CloudBurst |
| CSO130 | 5/9/14 7:30 PM | 5/10/14 5:15 PM | 0.91 | 431,248 | 1.59 | 271,225 | 1.66 | 0.62 | 24 hr | CloudBurst |
| CSO130 | 5/14/14 7:15 AM | 5/14/14 9:30 PM | 0.59 | 65,541 | 0.98 | 66,879 | 2.60 | 0.37 | 24 hr | CloudBurst |
| CSO130 | 5/15/14 1:45 PM | 5/16/14 12:00 PM | 0.93 | 56,551 | 1.13 | 50,045 | 2.73 | 0.34 | 24 hr | CloudBurst |
| CSO130 | 5/21/14 9:00 PM | 5/22/14 4:45 AM | 0.32 | 86,517 | 0.58 | 149,167 | 0.72 | 0.27 | 12 hr | CloudBurst |
| CSO130 | 5/28/14 8:30 PM | 5/28/14 9:45 PM | 0.05 | 15,344 | 0.21 | 73,066 | 0.80 | 0.18 | 1 hr | CloudBurst |
| CSO130 | 5/29/14 9:00 PM | 5/29/14 10:45 PM | 0.07 | 70,084 | 0.41 | 170,937 | 0.65 | 0.35 | 1 hr | CloudBurst |
| CSO130 | 6/11/14 2:30 PM | 6/11/14 2:30 PM | 0.01 | 428 | 0.11 | 3,888 | 0.30 | 0.07 | 1 hr | CloudBurst |
| CSO130 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 2,215 | 0.14 | 15,818 | 0.23 | 0.09 | 1 hr | CloudBurst |
| CSO132 | 1/5/14 3:00 PM | 1/5/14 8:30 PM | 0.23 | 274,240 | 0.45 | 609,422 | 0.62 | 0.23 | 6 hr | CloudBurst |
| CSO132 | 1/11/14 12:15 AM | 1/11/14 9:15 AM | 0.38 | 397,406 | 0.91 | 436,710 | 1.37 | 0.50 | 6 hr | CloudBurst |
| CSO132 | 1/13/14 3:00 PM | 1/13/14 5:45 PM | 0.11 | 22,584 | 0.22 | 102,656 | 1.14 | 0.11 | 3 hr | CloudBurst |
| CSO132 | 2/2/14 4:15 AM | 2/2/14 7:45 AM | 0.15 | 111,738 | 0.43 | 259,855 | 0.18 | 0.16 | 24 hr | CloudBurst |
| CSO132 | 2/4/14 7:00 PM | 2/5/14 10:30 AM | 0.65 | 422,734 | 0.51 | 828,889 | 0.94 | 0.25 | 6 hr | CloudBurst |
| CSO132 | 2/14/14 5:00 PM | 2/14/14 6:00 PM | 0.04 | 14,623 | 0.46 | 31,789 | 0.39 | 0.24 | 6 hr | CloudBurst |
| CSO132 | 2/17/14 4:30 PM | 2/17/14 7:15 PM | 0.11 | 125,776 | 0.47 | 267,610 | 0.99 | 0.28 | 3 hr | CloudBurst |
| CSO132 | 2/20/14 8:45 PM | 2/21/14 12:00 AM | 0.14 | 86,383 | 0.21 | 411,349 | 1.20 | 0.11 | 6 hr | CloudBurst |
| CSO132 | 3/2/14 9:45 AM | 3/2/14 11:45 AM | 0.08 | 104,079 | 0.47 | 221,445 | 0.24 | 0.18 | 24 hr | CloudBurst |
| CSO132 | 3/12/14 7:30 AM | 3/12/14 7:45 AM | 0.01 | 4,497 | 0.09 | 49,965 | 0.08 | 0.04 | 12 hr | CloudBurst |
| CSO132 | 3/28/14 4:45 AM | 3/28/14 5:15 AM | 0.02 | 424,229 | 0.23 | 1,844,473 | 0.29 | 0.12 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO132 | 3/29/14 6:30 AM | 3/29/14 1:45 PM | 0.30 | 1,144,354 | 1.00 | 1,144,354 | 1.29 | 0.47 | 6 hr | CloudBurst |
| CSO132 | 7/1/13 7:15 PM | 7/1/13 7:30 PM | 0.01 | 58,297 | 0.21 | 277,605 | 4.19 | 0.11 | 3 hr | CloudBurst |
| CSO132 | 7/2/13 1:30 PM | 7/2/13 1:45 PM | 0.01 | 5,646 | 0.12 | 47,049 | 4.32 | 0.10 | 1 hr | CloudBurst |
| CSO132 | 7/4/13 7:30 AM | 7/4/13 2:30 PM | 0.29 | 203,461 | 0.51 | 398,943 | 1.46 | 0.22 | 12 hr | CloudBurst |
| CSO132 | 7/6/13 1:15 AM | 7/6/13 9:15 AM | 0.33 | 576,245 | 0.68 | 847,419 | 2.22 | 0.30 | 12 hr | CloudBurst |
| CSO132 | 7/10/13 2:15 PM | 7/10/13 3:30 PM | 0.05 | 83,553 | 0.94 | 88,886 | 2.21 | 0.70 | 1 hr | CloudBurst |
| CSO132 | 7/14/13 7:30 PM | 7/14/13 8:30 PM | 0.04 | 526,052 | 0.19 | 2,768,694 | 1.20 | 0.17 | 1 hr | CloudBurst |
| CSO132 | 7/21/13 8:30 PM | 7/21/13 8:45 PM | 0.01 | 6,661 | 1.97 | 3,381 | 0.85 | 0.76 | 24 hr | CloudBurst |
| CSO132 | 7/22/13 7:15 AM | 7/22/13 4:45 PM | 0.40 | 596,826 | 1.97 | 302,958 | 2.03 | 0.76 | 24 hr | CloudBurst |
| CSO132 | 8/12/13 2:45 PM | 8/12/13 3:30 PM | 0.03 | 131,684 | 0.59 | 223,193 | 0.54 | 0.23 | 24 hr | CloudBurst |
| CSO132 | 8/13/13 2:30 AM | 8/13/13 3:45 AM | 0.05 | 184,563 | 0.59 | 312,819 | 0.81 | 0.23 | 24 hr | CloudBurst |
| CSO132 | 8/20/13 6:15 PM | 8/20/13 6:30 PM | 0.01 | 28,910 | 0.18 | 160,611 | 0.19 | 0.12 | 1 hr | CloudBurst |
| CSO132 | 8/31/13 7:45 PM | 9/1/13 3:00 AM | 0.30 | 1,221,912 | 1.30 | 939,932 | 1.24 | 0.62 | 3 hr | CloudBurst |
| CSO132 | 9/2/13 2:00 PM | 9/2/13 2:00 PM | 0.01 | 7,644 | 0.10 | 76,437 | 1.40 | 0.09 | 1 hr | CloudBurst |
| CSO132 | 9/19/13 11:15 AM | 9/19/13 11:30 AM | 0.01 | 31,971 | 0.05 | 639,414 | 0.09 | 0.04 | 1 hr | CloudBurst |
| CSO132 | 9/20/13 7:30 PM | 9/21/13 4:45 AM | 0.39 | 2,080,290 | 1.61 | 1,292,105 | 1.63 | 0.68 | 12 hr | CloudBurst |
| CSO132 | 10/5/13 1:00 PM | 10/6/13 10:00 PM | 1.38 | 5,035,312 | 4.40 | 1,144,389 | 4.49 | 8.39 | 24 hr | CloudBurst |
| CSO132 | 10/30/13 1:30 AM | 10/30/13 7:15 AM | 0.24 | 95,683 | 1.04 | 92,002 | 1.04 | 0.49 | 6 hr | CloudBurst |
| CSO132 | 10/31/13 8:00 PM | 10/31/13 10:00 PM | 0.08 | 21,164 | 0.61 | 34,695 | 1.58 | 0.24 | 24 hr | CloudBurst |
| CSO132 | 11/17/13 4:30 AM | 11/18/13 2:45 AM | 0.93 | 1,731,879 | 2.78 | 622,978 | 2.94 | 2.00 | 6 hr | CloudBurst |
| CSO132 | 12/5/13 5:30 AM | 12/5/13 8:30 AM | 0.13 | 498,890 | 0.72 | 692,903 | 0.14 | 0.23 | 48 hr | CloudBurst |
| CSO132 | 12/6/13 11:45 AM | 12/6/13 11:45 AM | 0.00 | 1,253 | 0.72 | 1,740 | 0.39 | 0.23 | 48 hr | CloudBurst |
| CSO132 | 12/13/13 7:45 AM | 12/13/13 8:45 AM | 0.04 | 20,317 | Discharge | | 0.58 | DWO | | |
| CSO132 | 12/14/13 9:00 AM | 12/14/13 11:45 AM | 0.11 | 672,308 | 0.83 | 810,010 | 1.02 | 0.33 | 12 hr | CloudBurst |
| CSO132 | 12/21/13 5:30 AM | 12/21/13 2:00 PM | 0.35 | 1,791,993 | 1.03 | 1,739,799 | 1.52 | 0.48 | 12 hr | CloudBurst |
| CSO132 | 12/21/13 10:15 PM | 12/22/13 1:45 AM | 0.15 | 995,738 | 1.55 | 642,412 | 2.54 | 0.83 | 3 hr | Atlas14 |
| CSO132 | 12/29/13 5:30 AM | 12/29/13 7:15 AM | 0.07 | 112,014 | 0.49 | 228,600 | 0.43 | 0.22 | 12 hr | CloudBurst |
| CSO132 | 4/3/14 5:45 AM | 4/5/14 10:30 PM | 2.70 | 3,733,375 | 2.55 | 1,464,069 | 3.90 | 0.90 | 24 hr | CloudBurst |
| CSO132 | 4/7/14 8:15 AM | 4/7/14 11:00 PM | 0.61 | 1,152,788 | 0.84 | 1,372,367 | 3.49 | 0.50 | 1 hr | CloudBurst |
| CSO132 | 4/8/14 4:45 PM | 4/8/14 5:00 PM | 0.01 | 21,793 | 0.14 | 155,662 | 3.58 | 0.10 | 1 hr | CloudBurst |
| CSO132 | 4/14/14 3:45 AM | 4/14/14 10:45 AM | 0.29 | 100,362 | 0.36 | 278,785 | 1.33 | 0.18 | 6 hr | CloudBurst |
| CSO132 | 4/14/14 7:30 PM | 4/15/14 3:45 AM | 0.34 | 1,756,492 | 0.61 | 2,879,496 | 1.11 | 0.28 | 12 hr | CloudBurst |
| CSO132 | 4/27/14 7:15 PM | 4/28/14 9:45 PM | 1.10 | 2,039,360 | 2.03 | 1,004,611 | 2.12 | 0.75 | 3 hr | Atlas14 |
| CSO132 | 5/9/14 7:15 PM | 5/10/14 6:15 PM | 0.96 | 2,723,873 | 1.66 | 1,640,887 | 1.73 | 0.64 | 24 hr | CloudBurst |
| CSO132 | 5/14/14 7:00 AM | 5/15/14 1:30 AM | 0.77 | 2,229,462 | 1.03 | 2,164,526 | 2.81 | 0.40 | 24 hr | CloudBurst |
| CSO132 | 5/21/14 9:00 PM | 5/22/14 4:15 AM | 0.30 | 966,901 | 0.71 | 1,361,832 | 0.86 | 0.33 | 12 hr | CloudBurst |
| CSO132 | 5/29/14 8:45 PM | 5/29/14 10:45 PM | 0.08 | 3,520,251 | 0.74 | 4,757,096 | 0.94 | 0.63 | 1 hr | CloudBurst |
| CSO132 | 6/11/14 2:15 PM | 6/11/14 3:00 PM | 0.03 | 282,493 | 0.09 | 3,138,806 | 0.33 | 0.04 | 1 hr | CloudBurst |
| CSO132 | 6/24/14 1:45 PM | 6/24/14 2:00 PM | 0.01 | 28,252 | 0.14 | 201,803 | 0.24 | 0.09 | 1 hr | CloudBurst |
| CSO132 | 6/27/14 6:15 PM | 6/27/14 6:30 PM | 0.01 | 60,300 | 0.13 | 463,848 | 0.30 | 0.07 | 1 hr | CloudBurst |
| CSO137 | 1/5/14 3:15 PM | 1/5/14 7:15 PM | 0.17 | 17,934 | 0.51 | 35,165 | 0.71 | 0.26 | 6 hr | CloudBurst |
| CSO137 | 1/11/14 12:30 AM | 1/11/14 5:30 AM | 0.21 | 304,378 | 1.08 | 281,831 | 1.61 | 0.59 | 6 hr | CloudBurst |
| CSO137 | 2/2/14 4:15 AM | 2/2/14 5:45 AM | 0.06 | 24,704 | 0.16 | 154,399 | 0.12 | 0.09 | 6 hr | CloudBurst |
| CSO137 | 2/4/14 7:15 PM | 2/5/14 1:15 AM | 0.25 | 493,975 | 0.48 | 1,029,115 | 0.88 | 0.23 | 6 hr | CloudBurst |
| CSO137 | 2/14/14 5:15 PM | 2/14/14 6:00 PM | 0.03 | 5,913 | 0.39 | 15,161 | 0.36 | 0.21 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO137 | 2/17/14 4:30 PM | 2/18/14 10:00 AM | 0.73 | 695,295 | 0.39 | 1,782,808 | 0.84 | 0.23 | 3 hr | CloudBurst |
| CSO137 | 2/20/14 11:15 PM | 2/20/14 11:30 PM | 0.01 | 9,531 | 0.24 | 39,711 | 1.08 | 0.13 | 6 hr | CloudBurst |
| CSO137 | 3/2/14 9:45 AM | 3/2/14 11:30 AM | 0.07 | 125,982 | 0.64 | 196,848 | 0.33 | 0.24 | 24 hr | CloudBurst |
| CSO137 | 3/28/14 4:45 AM | 3/28/14 5:00 AM | 0.01 | 21,771 | 0.24 | 90,713 | 0.28 | 0.12 | 6 hr | CloudBurst |
| CSO137 | 3/29/14 7:00 AM | 3/29/14 12:30 PM | 0.23 | 239,140 | 1.21 | 197,636 | 1.42 | 0.56 | 6 hr | CloudBurst |
| CSO137 | 7/1/13 7:00 PM | 7/1/13 7:00 PM | 0.01 | 4,680 | 0.38 | 12,315 | 3.88 | 0.19 | 3 hr | CloudBurst |
| CSO137 | 7/2/13 1:15 PM | 7/2/13 1:30 PM | 0.01 | 1,058 | 0.06 | 17,636 | 3.97 | 0.05 | 1 hr | CloudBurst |
| CSO137 | 7/3/13 6:30 PM | 7/3/13 6:30 PM | 0.01 | 33,251 | 0.07 | 475,015 | 1.82 | 0.05 | 3 hr | CloudBurst |
| CSO137 | 7/4/13 6:45 AM | 7/4/13 12:00 PM | 0.22 | 62,155 | 0.61 | 101,894 | 1.30 | 0.26 | 12 hr | CloudBurst |
| CSO137 | 7/6/13 1:00 AM | 7/6/13 5:00 AM | 0.17 | 240,931 | 0.66 | 365,047 | 2.13 | 0.28 | 12 hr | CloudBurst |
| CSO137 | 7/10/13 2:00 PM | 7/10/13 2:45 PM | 0.03 | 266,186 | 0.80 | 332,733 | 2.19 | 0.52 | 3 hr | CloudBurst |
| CSO137 | 7/14/13 7:30 PM | 7/14/13 7:45 PM | 0.01 | 130,121 | 0.20 | 650,606 | 1.11 | 0.17 | 1 hr | CloudBurst |
| CSO137 | 7/18/13 4:00 PM | 7/18/13 4:45 PM | 0.03 | 168,095 | 0.18 | 933,862 | 0.42 | 0.12 | 3 hr | CloudBurst |
| CSO137 | 7/21/13 7:15 PM | 7/21/13 8:15 PM | 0.04 | 307,955 | 3.37 | 91,381 | 2.43 | 5.00 | 3 hr | Atlas14 |
| CSO137 | 7/22/13 7:00 AM | 7/22/13 4:15 PM | 0.39 | 810,559 | 3.37 | 240,522 | 3.57 | 5.00 | 3 hr | Atlas14 |
| CSO137 | 8/9/13 5:15 PM | 8/9/13 5:45 PM | 0.02 | 148,085 | 0.50 | 296,169 | 0.43 | 0.24 | 1 hr | CloudBurst |
| CSO137 | 8/12/13 3:00 PM | 8/12/13 3:00 PM | 0.01 | 183,984 | 0.89 | 206,724 | 1.02 | 0.37 | 1 hr | CloudBurst |
| CSO137 | 8/13/13 2:30 AM | 8/13/13 3:45 AM | 0.05 | 146,112 | 0.89 | 164,171 | 1.42 | 0.37 | 1 hr | CloudBurst |
| CSO137 | 8/20/13 6:00 PM | 8/20/13 6:15 PM | 0.01 | 166,708 | 0.28 | 595,386 | 0.27 | 0.19 | 1 hr | CloudBurst |
| CSO137 | 8/31/13 7:45 PM | 9/1/13 12:45 AM | 0.21 | 363,307 | 1.14 | 318,690 | 0.95 | 0.53 | 6 hr | CloudBurst |
| CSO137 | 9/2/13 2:00 PM | 9/2/13 2:30 PM | 0.02 | 274,412 | 0.64 | 428,769 | 1.78 | 0.56 | 1 hr | CloudBurst |
| CSO137 | 9/21/13 1:15 AM | 9/21/13 1:30 AM | 0.01 | 83,320 | 1.59 | 52,403 | 1.25 | 0.66 | 12 hr | CloudBurst |
| CSO137 | 10/5/13 10:45 PM | 10/6/13 12:45 AM | 0.08 | 582,966 | 5.83 | 99,994 | 4.68 | 36.33 | 24 hr | CloudBurst |
| CSO137 | 10/19/13 9:45 AM | 10/19/13 9:45 AM | 0.00 | 74 | 0.23 | 321 | 0.19 | 0.12 | 6 hr | CloudBurst |
| CSO137 | 10/30/13 1:30 AM | 10/30/13 7:15 AM | 0.24 | 170,785 | 1.96 | 87,135 | 1.96 | 1.57 | 1 hr | CloudBurst |
| CSO137 | 11/15/13 6:30 PM | 11/15/13 6:30 PM | 0.00 | 3,243 | 0.09 | 36,035 | 0.17 | 0.07 | 1 hr | CloudBurst |
| CSO137 | 11/17/13 5:45 AM | 11/17/13 7:15 AM | 0.06 | 108,704 | 2.64 | 41,176 | 1.66 | 2.29 | 6 hr | CloudBurst |
| CSO137 | 4/3/14 12:15 PM | 4/5/14 1:15 PM | 2.04 | 2,614,443 | 2.63 | 994,085 | 4.23 | 0.93 | 24 hr | CloudBurst |
| CSO137 | 4/7/14 11:00 AM | 4/7/14 12:15 PM | 0.05 | 68,426 | 0.74 | 92,467 | 3.49 | 0.46 | 1 hr | CloudBurst |
| CSO137 | 4/27/14 8:15 PM | 4/27/14 8:30 PM | 0.01 | 21,016 | 1.75 | 12,009 | 0.34 | 0.66 | 24 hr | CloudBurst |
| CSO137 | 4/27/14 8:15 PM | 4/27/14 8:30 PM | 0.02 | 21,016 | Discharge | | 0.34 | DWO | | |
| CSO137 | 5/9/14 7:30 PM | 5/10/14 3:30 PM | 0.83 | 330,162 | 1.74 | 189,748 | 1.79 | 0.67 | 24 hr | CloudBurst |
| CSO137 | 5/14/14 7:15 AM | 5/14/14 7:15 AM | 0.01 | 6,564 | 1.18 | 5,562 | 2.01 | 0.43 | 24 hr | CloudBurst |
| CSO137 | 5/14/14 6:15 PM | 5/14/14 7:15 PM | 0.04 | 50,826 | 1.18 | 43,073 | 2.80 | 0.43 | 24 hr | CloudBurst |
| CSO137 | 5/21/14 9:15 PM | 5/22/14 3:45 AM | 0.27 | 22,172 | 0.52 | 42,638 | 0.67 | 0.26 | 1 hr | CloudBurst |
| CSO137 | 5/29/14 9:00 PM | 5/29/14 10:00 PM | 0.04 | 121,580 | 0.67 | 181,463 | 0.79 | 0.47 | 1 hr | CloudBurst |
| CSO137 | 6/11/14 2:30 PM | 6/11/14 2:30 PM | 0.01 | 57,255 | 0.16 | 357,841 | 0.40 | 0.10 | 1 hr | CloudBurst |
| CSO137 | 6/20/14 4:00 PM | 6/20/14 5:45 PM | 0.07 | 33,142 | 0.22 | 150,646 | 0.22 | 0.15 | 3 hr | Atlas14 |
| CSO137 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 6,056 | 0.27 | 22,430 | 0.53 | 0.19 | 1 hr | CloudBurst |
| CSO140 | 1/11/14 12:15 AM | 1/11/14 3:15 AM | 0.13 | 60,938 | 0.84 | 72,545 | 1.13 | 0.45 | 6 hr | CloudBurst |
| CSO140 | 2/4/14 7:45 PM | 2/5/14 11:45 AM | 0.67 | 285,701 | 0.50 | 571,402 | 0.94 | 0.25 | 6 hr | CloudBurst |
| CSO140 | 2/17/14 4:00 PM | 2/17/14 4:30 PM | 0.02 | 81,222 | 0.57 | 142,494 | 1.04 | 0.35 | 3 hr | CloudBurst |
| CSO140 | 3/12/14 7:15 AM | 3/12/14 7:15 AM | 0.00 | 334 | 0.07 | 4,774 | 0.06 | 0.03 | 1 hr | CloudBurst |
| CSO140 | 3/29/14 6:15 AM | 3/29/14 6:45 AM | 0.02 | 78,699 | 1.03 | 76,407 | 0.77 | 0.48 | 12 hr | CloudBurst |
| CSO140 | 7/1/13 7:00 PM | 7/1/13 7:00 PM | 0.01 | 8,879 | 0.23 | 38,604 | 4.12 | 0.11 | 3 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO140 | 7/2/13 1:15 PM | 7/2/13 1:15 PM | 0.01 | 23,416 | 0.15 | 156,109 | 4.29 | 0.13 | 1 hr | CloudBurst |
| CSO140 | 7/6/13 1:15 AM | 7/6/13 1:45 AM | 0.02 | 23,118 | 0.68 | 33,997 | 1.81 | 0.30 | 12 hr | CloudBurst |
| CSO140 | 7/10/13 2:00 PM | 7/10/13 2:30 PM | 0.02 | 297,206 | 0.93 | 319,577 | 2.20 | 0.65 | 1 hr | CloudBurst |
| CSO140 | 7/14/13 7:30 PM | 7/14/13 7:30 PM | 0.01 | 76,445 | 0.23 | 332,369 | 1.24 | 0.20 | 1 hr | CloudBurst |
| CSO140 | 7/21/13 7:30 PM | 7/21/13 7:30 PM | 0.01 | 8,555 | 2.21 | 3,871 | 0.69 | 0.86 | 24 hr | CloudBurst |
| CSO140 | 7/22/13 7:00 AM | 7/22/13 7:45 PM | 0.53 | 960,116 | 2.21 | 434,442 | 2.35 | 0.86 | 24 hr | CloudBurst |
| CSO140 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 135,241 | 0.71 | 190,480 | 0.63 | 0.29 | 1 hr | CloudBurst |
| CSO140 | 8/13/13 2:30 AM | 8/13/13 3:00 AM | 0.02 | 7,053 | 0.71 | 9,933 | 0.90 | 0.29 | 1 hr | CloudBurst |
| CSO140 | 8/20/13 6:00 PM | 8/20/13 6:15 PM | 0.01 | 28,020 | 0.16 | 175,125 | 0.17 | 0.10 | 1 hr | CloudBurst |
| CSO140 | 8/31/13 7:45 PM | 9/1/13 7:45 AM | 0.50 | 1,403,775 | 1.20 | 1,169,813 | 1.20 | 0.56 | 12 hr | CloudBurst |
| CSO140 | 9/2/13 1:45 PM | 9/2/13 1:45 PM | 0.01 | 65,556 | 0.22 | 297,982 | 1.42 | 0.19 | 1 hr | CloudBurst |
| CSO140 | 9/20/13 7:30 PM | 9/21/13 7:30 AM | 0.50 | 972,578 | 1.52 | 639,854 | 1.60 | 0.64 | 12 hr | CloudBurst |
| CSO140 | 10/5/13 1:00 PM | 10/6/13 4:45 PM | 1.16 | 3,307,335 | 4.30 | 769,148 | 4.38 | 8.06 | 24 hr | CloudBurst |
| CSO140 | 10/30/13 2:15 AM | 10/30/13 5:30 AM | 0.14 | 86,267 | 1.24 | 69,570 | 1.15 | 0.59 | 6 hr | CloudBurst |
| CSO140 | 10/31/13 8:45 PM | 10/31/13 8:45 PM | 0.00 | 6,342 | 0.66 | 9,610 | 1.76 | 0.26 | 24 hr | CloudBurst |
| CSO140 | 11/17/13 5:30 AM | 11/18/13 6:00 AM | 1.02 | 3,579,174 | 2.65 | 1,350,632 | 2.79 | 1.81 | 6 hr | CloudBurst |
| CSO140 | 12/5/13 6:45 AM | 12/5/13 7:30 AM | 0.03 | 29,609 | 0.80 | 37,012 | 0.21 | 0.26 | 48 hr | CloudBurst |
| CSO140 | 12/14/13 10:30 AM | 12/14/13 10:30 AM | 0.00 | 1,703 | 0.79 | 2,156 | 0.98 | 0.33 | 6 hr | CloudBurst |
| CSO140 | 12/21/13 8:00 AM | 12/22/13 10:45 AM | 1.11 | 2,684,682 | 1.01 | 2,658,101 | 2.93 | 0.47 | 12 hr | CloudBurst |
| CSO140 | 4/3/14 12:00 PM | 4/5/14 1:00 AM | 1.54 | 3,691,470 | 2.48 | 1,488,496 | 3.90 | 0.87 | 24 hr | CloudBurst |
| CSO140 | 4/7/14 10:30 AM | 4/7/14 12:15 PM | 0.07 | 209,211 | 0.78 | 268,219 | 3.33 | 0.46 | 3 hr | Atlas14 |
| CSO140 | 4/14/14 3:30 AM | 4/14/14 3:30 AM | 0.01 | 9,081 | 0.38 | 23,896 | 1.00 | 0.19 | 6 hr | CloudBurst |
| CSO140 | 4/14/14 8:00 PM | 4/15/14 12:15 AM | 0.18 | 23,453 | 0.64 | 36,645 | 0.93 | 0.30 | 12 hr | CloudBurst |
| CSO140 | 4/27/14 8:00 PM | 4/28/14 5:30 PM | 0.90 | 819,887 | 1.96 | 418,310 | 1.92 | 0.75 | 3 hr | Atlas14 |
| CSO140 | 5/9/14 7:15 PM | 5/9/14 7:15 PM | 0.01 | 117,850 | 1.76 | 66,960 | 0.38 | 0.68 | 24 hr | CloudBurst |
| CSO140 | 5/10/14 5:30 AM | 5/10/14 4:15 PM | 0.45 | 449,413 | 1.76 | 255,348 | 1.83 | 0.68 | 24 hr | CloudBurst |
| CSO140 | 5/14/14 7:00 AM | 5/14/14 7:00 AM | 0.01 | 24,097 | 1.08 | 22,312 | 2.08 | 0.41 | 24 hr | CloudBurst |
| CSO140 | 5/14/14 6:00 PM | 5/15/14 6:15 AM | 0.51 | 1,105,620 | 1.08 | 1,023,722 | 2.94 | 0.41 | 24 hr | CloudBurst |
| CSO140 | 5/21/14 9:00 PM | 5/22/14 8:45 AM | 0.49 | 29,373 | 0.49 | 59,945 | 0.63 | 0.23 | 12 hr | CloudBurst |
| CSO140 | 5/28/14 8:30 PM | 5/28/14 8:30 PM | 0.01 | 5,898 | 0.25 | 23,593 | 0.75 | 0.21 | 1 hr | CloudBurst |
| CSO140 | 5/29/14 8:45 PM | 5/29/14 9:15 PM | 0.02 | 262,681 | 0.61 | 430,625 | 0.86 | 0.50 | 1 hr | CloudBurst |
| CSO140 | 6/11/14 2:15 PM | 6/11/14 2:30 PM | 0.01 | 44,039 | 0.15 | 293,596 | 0.36 | 0.11 | 1 hr | CloudBurst |
| CSO140 | 6/20/14 5:30 PM | 6/20/14 5:30 PM | 0.01 | 1,364 | 0.15 | 9,092 | 0.16 | 0.10 | 3 hr | CloudBurst |
| CSO140 | 6/24/14 1:30 PM | 6/24/14 1:30 PM | 0.01 | 45,289 | 0.16 | 283,059 | 0.34 | 0.10 | 1 hr | CloudBurst |
| CSO141 | 1/5/14 3:00 PM | 1/5/14 5:45 PM | 0.11 | 1,027 | 0.49 | 2,097 | 0.62 | 0.25 | 3 hr | CloudBurst |
| CSO141 | 1/11/14 12:00 AM | 1/11/14 3:15 PM | 0.64 | 60,451 | 0.81 | 74,631 | 1.32 | 0.44 | 6 hr | CloudBurst |
| CSO141 | 1/13/14 2:15 PM | 1/13/14 5:15 PM | 0.13 | 10,938 | 0.21 | 52,087 | 1.02 | 0.10 | 12 hr | CloudBurst |
| CSO141 | 2/2/14 2:30 AM | 2/2/14 8:45 AM | 0.26 | 59,142 | 0.22 | 268,829 | 0.22 | 0.12 | 6 hr | CloudBurst |
| CSO141 | 2/4/14 6:45 PM | 2/5/14 7:15 AM | 0.52 | 75,423 | 0.51 | 147,887 | 0.98 | 0.25 | 6 hr | CloudBurst |
| CSO141 | 2/14/14 4:00 PM | 2/14/14 5:45 PM | 0.07 | 1,000 | 0.49 | 2,041 | 0.40 | 0.26 | 6 hr | CloudBurst |
| CSO141 | 2/17/14 2:45 PM | 2/17/14 4:45 PM | 0.08 | 5,173 | 0.65 | 7,958 | 1.13 | 0.38 | 3 hr | CloudBurst |
| CSO141 | 2/20/14 8:15 PM | 2/20/14 8:15 PM | 0.00 | 8 | 0.17 | 44 | 1.26 | 0.09 | 6 hr | CloudBurst |
| CSO141 | 3/12/14 7:15 AM | 3/12/14 7:15 AM | 0.00 | 176 | 0.10 | 1,761 | 0.09 | 0.05 | 1 hr | CloudBurst |
| CSO141 | 3/19/14 8:30 AM | 3/19/14 8:30 AM | 0.00 | 13 | 0.06 | 214 | 0.14 | 0.03 | 12 hr | CloudBurst |
| CSO141 | 3/28/14 1:15 AM | 3/28/14 7:15 AM | 0.25 | 14,650 | 0.32 | 45,781 | 0.37 | 0.17 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO141 | 3/29/14 5:00 AM | 3/29/14 12:15 PM | 0.30 | 35,705 | 0.94 | 37,985 | 1.25 | 0.44 | 6 hr | CloudBurst |
| CSO141 | 7/1/13 7:00 PM | 7/1/13 7:00 PM | 0.01 | 34 | 0.27 | 127 | 4.02 | 0.14 | 3 hr | CloudBurst |
| CSO141 | 7/2/13 1:15 PM | 7/2/13 1:30 PM | 0.01 | 34,538 | 0.15 | 230,254 | 4.20 | 0.13 | 1 hr | CloudBurst |
| CSO141 | 7/3/13 6:30 PM | 7/3/13 6:30 PM | 0.01 | 52 | 0.04 | 1,297 | 1.67 | 0.03 | 3 hr | CloudBurst |
| CSO141 | 7/4/13 6:15 AM | 7/4/13 1:45 PM | 0.31 | 3,050 | 0.52 | 5,865 | 1.35 | 0.22 | 12 hr | CloudBurst |
| CSO141 | 7/6/13 12:45 AM | 7/6/13 8:00 AM | 0.30 | 76,772 | 0.67 | 114,584 | 2.13 | 0.29 | 12 hr | CloudBurst |
| CSO141 | 7/10/13 2:00 PM | 7/10/13 2:45 PM | 0.03 | 42,491 | 0.91 | 46,693 | 2.16 | 0.61 | 1 hr | CloudBurst |
| CSO141 | 7/14/13 7:30 PM | 7/14/13 9:00 PM | 0.06 | 18,974 | 0.19 | 99,862 | 1.18 | 0.17 | 1 hr | CloudBurst |
| CSO141 | 7/21/13 7:30 PM | 7/21/13 9:00 PM | 0.06 | 33,597 | 2.15 | 15,627 | 1.21 | 0.83 | 24 hr | CloudBurst |
| CSO141 | 7/22/13 6:30 AM | 7/22/13 4:00 PM | 0.40 | 128,620 | 2.15 | 59,823 | 2.38 | 0.83 | 24 hr | CloudBurst |
| CSO141 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 33,851 | 0.76 | 44,541 | 0.66 | 0.30 | 1 hr | CloudBurst |
| CSO141 | 8/20/13 6:00 PM | 8/20/13 7:15 PM | 0.05 | 16,522 | 0.16 | 103,260 | 0.18 | 0.10 | 1 hr | CloudBurst |
| CSO141 | 8/31/13 7:45 PM | 9/1/13 4:15 AM | 0.35 | 57,602 | 1.29 | 44,653 | 1.27 | 0.63 | 1 hr | CloudBurst |
| CSO141 | 9/2/13 1:45 PM | 9/2/13 2:00 PM | 0.01 | 23,721 | 0.25 | 94,885 | 1.54 | 0.22 | 1 hr | CloudBurst |
| CSO141 | 9/11/13 10:30 AM | 9/11/13 10:30 AM | 0.01 | 1,026 | 0.02 | 51,315 | 0.03 | 0.02 | 1 hr | CloudBurst |
| CSO141 | 9/12/13 1:00 PM | 9/12/13 1:00 PM | 0.01 | 1,017 | 0.03 | 33,916 | 0.06 | 0.03 | 1 hr | CloudBurst |
| CSO141 | 9/20/13 4:30 PM | 9/21/13 5:30 AM | 0.54 | 69,416 | 1.23 | 56,436 | 1.32 | 0.51 | 12 hr | CloudBurst |
| CSO141 | 10/4/13 7:00 PM | 10/4/13 7:15 PM | 0.01 | 1,828 | 0.04 | 45,705 | 0.12 | 0.03 | 3 hr | CloudBurst |
| CSO141 | 10/5/13 12:15 PM | 10/6/13 6:45 PM | 1.27 | 543,286 | 4.21 | 129,047 | 4.33 | 7.58 | 24 hr | CloudBurst |
| CSO141 | 10/17/13 9:45 AM | 10/17/13 10:00 AM | 0.01 | 245 | 0.02 | 12,260 | 0.04 | 0.02 | 1 hr | CloudBurst |
| CSO141 | 10/19/13 7:15 AM | 10/19/13 11:00 AM | 0.16 | 21,464 | 0.19 | 112,970 | 0.23 | 0.10 | 6 hr | CloudBurst |
| CSO141 | 10/29/13 9:15 PM | 10/30/13 7:30 AM | 0.43 | 80,734 | 1.35 | 59,803 | 1.36 | 0.67 | 6 hr | CloudBurst |
| CSO141 | 10/31/13 11:45 AM | 10/31/13 11:00 PM | 0.47 | 64,703 | 0.65 | 99,544 | 2.00 | 0.25 | 24 hr | CloudBurst |
| CSO141 | 11/6/13 6:45 PM | 11/7/13 1:30 AM | 0.28 | 15,470 | 0.21 | 73,665 | 0.94 | 0.10 | 12 hr | CloudBurst |
| CSO141 | 11/15/13 6:15 PM | 11/15/13 6:45 PM | 0.02 | 2,682 | 0.10 | 26,822 | 0.13 | 0.08 | 1 hr | CloudBurst |
| CSO141 | 11/17/13 4:15 AM | 11/17/13 9:45 AM | 0.23 | 66,499 | 2.23 | 29,820 | 1.90 | 0.94 | 6 hr | CloudBurst |
| CSO141 | 11/17/13 6:00 PM | 11/17/13 7:00 PM | 0.04 | 11,943 | 2.23 | 5,356 | 2.36 | 0.94 | 6 hr | CloudBurst |
| CSO141 | 12/5/13 5:00 AM | 12/6/13 2:30 PM | 1.40 | 147,699 | 0.81 | 182,345 | 0.61 | 0.26 | 48 hr | CloudBurst |
| CSO141 | 12/14/13 4:00 AM | 12/14/13 8:00 PM | 0.67 | 198,076 | 0.77 | 257,242 | 1.11 | 0.31 | 12 hr | CloudBurst |
| CSO141 | 12/21/13 2:00 AM | 12/21/13 1:00 PM | 0.46 | 90,442 | 1.07 | 84,525 | 1.83 | 0.50 | 12 hr | CloudBurst |
| CSO141 | 12/21/13 9:30 PM | 12/22/13 7:30 AM | 0.42 | 94,637 | 1.67 | 56,669 | 2.83 | 0.90 | 6 hr | CloudBurst |
| CSO141 | 12/29/13 1:45 AM | 12/29/13 10:15 AM | 0.35 | 2,818 | 0.50 | 5,636 | 0.63 | 0.22 | 12 hr | CloudBurst |
| CSO141 | 4/1/14 8:30 PM | 4/1/14 8:30 PM | 0.01 | 11 | 0.08 | 143 | 1.37 | 0.05 | 3 hr | CloudBurst |
| CSO141 | 4/3/14 4:45 AM | 4/4/14 9:30 AM | 1.20 | 145,854 | 2.61 | 55,883 | 3.98 | 0.92 | 24 hr | CloudBurst |
| CSO141 | 4/7/14 2:00 AM | 4/7/14 8:30 PM | 0.77 | 58,792 | 0.76 | 77,358 | 3.46 | 0.46 | 3 hr | Atlas14 |
| CSO141 | 4/14/14 3:15 AM | 4/15/14 7:45 AM | 1.19 | 127,407 | 1.03 | 123,696 | 1.88 | 0.39 | 24 hr | CloudBurst |
| CSO141 | 4/25/14 2:30 AM | 4/28/14 8:45 PM | 3.76 | 1,585,479 | 0.10 | 15,854,790 | 1.96 | 0.05 | 12 hr | CloudBurst |
| CSO141 | 4/29/14 7:00 PM | 4/29/14 10:00 PM | 0.13 | 17,688 | 0.19 | 93,095 | 2.13 | 0.09 | 12 hr | CloudBurst |
| CSO141 | 5/9/14 7:15 PM | 5/10/14 3:45 PM | 0.85 | 174,531 | 1.90 | 91,859 | 1.89 | 0.71 | 24 hr | CloudBurst |
| CSO141 | 5/14/14 7:00 AM | 5/14/14 11:00 PM | 0.67 | 19,927 | 1.00 | 19,927 | 2.91 | 0.38 | 24 hr | CloudBurst |
| CSO141 | 5/16/14 3:15 AM | 5/16/14 4:15 AM | 0.04 | 4,294 | 0.05 | 85,879 | 2.98 | 0.04 | 1 hr | CloudBurst |
| CSO141 | 5/21/14 9:00 PM | 5/22/14 3:45 AM | 0.28 | 27,850 | 0.49 | 56,836 | 0.59 | 0.23 | 12 hr | CloudBurst |
| CSO141 | 5/28/14 8:30 PM | 5/28/14 8:30 PM | 0.01 | 25,415 | 0.25 | 101,660 | 0.73 | 0.21 | 1 hr | CloudBurst |
| CSO141 | 5/29/14 8:45 PM | 5/29/14 9:15 PM | 0.02 | 27,119 | 0.45 | 60,264 | 0.70 | 0.38 | 1 hr | CloudBurst |
| CSO141 | 6/1/14 10:00 PM | 6/1/14 10:30 PM | 0.02 | 591 | 0.08 | 7,387 | 0.81 | 0.04 | 12 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO141 | 6/5/14 3:15 PM | 6/5/14 3:30 PM | 0.02 | 41,727 | Discharge | | 0.60 | DWO | | |
| CSO141 | 6/10/14 3:45 PM | 6/10/14 3:45 PM | 0.01 | 175 | 0.11 | 1,590 | 0.14 | 0.07 | 3 hr | CloudBurst |
| CSO141 | 6/11/14 2:15 PM | 6/11/14 2:30 PM | 0.01 | 2,010 | 0.12 | 16,753 | 0.30 | 0.09 | 1 hr | CloudBurst |
| CSO141 | 6/20/14 5:45 PM | 6/20/14 5:45 PM | 0.01 | 1,892 | 0.18 | 10,511 | 0.18 | 0.12 | 3 hr | CloudBurst |
| CSO141 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 1,260 | 0.12 | 10,503 | 0.32 | 0.07 | 1 hr | CloudBurst |
| CSO144 | 2/17/14 4:00 PM | 2/17/14 4:00 PM | 0.00 | 110 | 0.52 | 212 | 0.90 | 0.32 | 3 hr | CloudBurst |
| CSO144 | 7/10/13 2:00 PM | 7/10/13 2:00 PM | 0.01 | 1,032 | 1.01 | 1,022 | 2.24 | 0.76 | 1 hr | CloudBurst |
| CSO144 | 7/14/13 7:15 PM | 7/14/13 7:30 PM | 0.01 | 1,053 | 0.23 | 4,576 | 1.32 | 0.20 | 1 hr | CloudBurst |
| CSO144 | 7/22/13 1:30 PM | 7/22/13 1:45 PM | 0.01 | 3,074 | 2.13 | 1,443 | 2.19 | 0.83 | 24 hr | CloudBurst |
| CSO144 | 8/12/13 2:45 PM | 8/12/13 2:45 PM | 0.01 | 1,496 | 0.68 | 2,200 | 0.56 | 0.26 | 24 hr | CloudBurst |
| CSO144 | 8/31/13 7:30 PM | 8/31/13 8:00 PM | 0.02 | 557 | 1.33 | 419 | 0.73 | 0.64 | 1 hr | CloudBurst |
| CSO144 | 10/5/13 2:00 PM | 10/6/13 1:15 PM | 0.97 | 32,416 | 4.39 | 7,384 | 4.39 | 7.74 | 24 hr | CloudBurst |
| CSO144 | 11/7/13 2:15 AM | 11/7/13 5:30 AM | 0.14 | 16 | 0.22 | 71 | 0.88 | 0.10 | 12 hr | CloudBurst |
| CSO144 | 11/17/13 5:30 AM | 11/17/13 8:15 AM | 0.11 | 491 | 2.61 | 188 | 2.09 | 1.89 | 6 hr | CloudBurst |
| CSO144 | 11/17/13 5:45 PM | 11/17/13 7:00 PM | 0.05 | 1,474 | 2.61 | 565 | 2.74 | 1.89 | 6 hr | CloudBurst |
| CSO144 | 12/21/13 9:45 PM | 12/21/13 10:45 PM | 0.04 | 3,039 | 2.61 | 1,165 | 2.11 | 0.97 | 24 hr | CloudBurst |
| CSO144 | 4/3/14 12:15 PM | 4/3/14 12:15 PM | 0.01 | 465 | 2.49 | 187 | 2.02 | 0.88 | 24 hr | CloudBurst |
| CSO144 | 4/4/14 3:00 AM | 4/4/14 3:15 AM | 0.01 | 1,902 | 2.49 | 764 | 3.34 | 0.88 | 24 hr | CloudBurst |
| CSO144 | 4/7/14 10:30 AM | 4/7/14 11:30 AM | 0.04 | 995 | 0.80 | 1,243 | 3.32 | 0.47 | 1 hr | CloudBurst |
| CSO144 | 4/27/14 8:00 PM | 4/28/14 6:15 AM | 0.43 | 3,397 | 2.04 | 1,665 | 1.54 | 0.76 | 24 hr | CloudBurst |
| CSO144 | 5/9/14 7:15 PM | 5/9/14 7:15 PM | 0.01 | 919 | 1.87 | 492 | 0.37 | 0.69 | 24 hr | CloudBurst |
| CSO144 | 5/10/14 2:00 PM | 5/10/14 3:00 PM | 0.04 | 1,986 | 1.87 | 1,062 | 1.85 | 0.69 | 24 hr | CloudBurst |
| CSO144 | 5/14/14 7:00 AM | 5/14/14 7:00 AM | 0.01 | 297 | 1.11 | 267 | 2.09 | 0.41 | 24 hr | CloudBurst |
| CSO144 | 5/21/14 9:00 PM | 5/21/14 9:00 PM | 0.01 | 5 | 0.54 | 9 | 0.36 | 0.25 | 12 hr | CloudBurst |
| CSO144 | 5/29/14 8:45 PM | 5/29/14 9:15 PM | 0.02 | 4,099 | 0.85 | 4,823 | 1.08 | 0.73 | 1 hr | CloudBurst |
| CSO144 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 352 | 0.14 | 2,518 | 0.39 | 0.09 | 1 hr | CloudBurst |
| CSO146 | 1/5/14 3:15 PM | 1/5/14 8:15 PM | 0.21 | 415,330 | 0.48 | 865,270 | 0.69 | 0.24 | 6 hr | CloudBurst |
| CSO146 | 1/11/14 12:30 AM | 1/11/14 6:00 AM | 0.23 | 698,801 | 1.03 | 678,447 | 1.52 | 0.55 | 6 hr | CloudBurst |
| CSO146 | 1/13/14 3:00 PM | 1/13/14 3:45 PM | 0.03 | 54,832 | 0.20 | 274,160 | 1.18 | 0.09 | 12 hr | CloudBurst |
| CSO146 | 2/2/14 4:00 AM | 2/2/14 7:45 AM | 0.16 | 278,474 | 0.47 | 592,498 | 0.21 | 0.18 | 24 hr | CloudBurst |
| CSO146 | 2/4/14 7:00 PM | 2/5/14 3:00 AM | 0.33 | 1,489,385 | 0.51 | 2,920,363 | 0.98 | 0.25 | 6 hr | CloudBurst |
| CSO146 | 2/14/14 4:45 PM | 2/14/14 7:00 PM | 0.09 | 162,743 | 0.50 | 325,487 | 0.53 | 0.27 | 6 hr | CloudBurst |
| CSO146 | 2/17/14 3:30 PM | 2/17/14 7:00 PM | 0.15 | 1,014,771 | 0.56 | 1,812,090 | 1.12 | 0.34 | 3 hr | CloudBurst |
| CSO146 | 2/20/14 8:45 PM | 2/21/14 12:00 AM | 0.14 | 165,236 | 0.18 | 917,980 | 1.30 | 0.10 | 6 hr | CloudBurst |
| CSO146 | 3/2/14 9:45 AM | 3/2/14 12:00 PM | 0.09 | 337,072 | 0.62 | 543,664 | 0.34 | 0.24 | 24 hr | CloudBurst |
| CSO146 | 3/28/14 4:30 AM | 3/28/14 5:15 AM | 0.03 | 140,641 | 0.25 | 562,565 | 0.31 | 0.12 | 6 hr | CloudBurst |
| CSO146 | 3/29/14 6:30 AM | 3/29/14 1:45 PM | 0.30 | 1,093,177 | 1.05 | 1,041,121 | 1.35 | 0.49 | 12 hr | CloudBurst |
| CSO146 | 7/1/13 9:00 AM | 7/1/13 9:15 AM | 0.01 | 134,360 | 0.31 | 433,420 | 3.71 | 0.15 | 3 hr | Atlas14 |
| CSO146 | 7/1/13 7:15 PM | 7/1/13 7:30 PM | 0.01 | 96,559 | 0.31 | 311,482 | 3.90 | 0.15 | 3 hr | Atlas14 |
| CSO146 | 7/2/13 1:30 PM | 7/2/13 2:00 PM | 0.02 | 114,453 | 0.12 | 953,775 | 4.02 | 0.10 | 1 hr | CloudBurst |
| CSO146 | 7/4/13 7:15 AM | 7/4/13 12:15 PM | 0.21 | 173,857 | 0.54 | 321,957 | 1.24 | 0.23 | 12 hr | CloudBurst |
| CSO146 | 7/6/13 1:15 AM | 7/6/13 8:00 AM | 0.28 | 1,355,449 | 0.60 | 2,259,082 | 2.05 | 0.26 | 12 hr | CloudBurst |
| CSO146 | 7/10/13 2:15 PM | 7/10/13 3:15 PM | 0.04 | 997,867 | 0.68 | 1,467,452 | 1.94 | 0.46 | 1 hr | CloudBurst |
| CSO146 | 7/14/13 7:45 PM | 7/14/13 8:15 PM | 0.02 | 286,760 | 0.09 | 3,186,225 | 0.84 | 0.08 | 1 hr | CloudBurst |
| CSO146 | 7/21/13 7:30 PM | 7/21/13 9:00 PM | 0.06 | 1,414,669 | 2.70 | 523,952 | 1.84 | 1.24 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO146 | 7/22/13 7:15 AM | 7/22/13 4:45 PM | 0.40 | 3,947,819 | 2.70 | 1,462,155 | 3.01 | 1.24 | 24 hr | CloudBurst |
| CSO146 | 8/9/13 5:30 PM | 8/9/13 6:15 PM | 0.03 | 463,589 | 0.24 | 1,931,623 | 0.29 | 0.14 | 1 hr | CloudBurst |
| CSO146 | 8/12/13 3:00 PM | 8/12/13 3:45 PM | 0.03 | 1,448,270 | 0.81 | 1,787,988 | 0.89 | 0.39 | 1 hr | CloudBurst |
| CSO146 | 8/13/13 3:00 AM | 8/13/13 4:30 AM | 0.06 | 555,819 | 0.81 | 686,196 | 1.19 | 0.39 | 1 hr | CloudBurst |
| CSO146 | 8/20/13 6:15 PM | 8/20/13 7:00 PM | 0.03 | 770,578 | 0.28 | 2,752,066 | 0.29 | 0.15 | 6 hr | CloudBurst |
| CSO146 | 8/31/13 7:45 PM | 9/1/13 3:30 AM | 0.32 | 1,388,958 | 1.10 | 1,262,689 | 1.06 | 0.51 | 6 hr | CloudBurst |
| CSO146 | 9/2/13 2:00 PM | 9/2/13 3:00 PM | 0.04 | 1,420,658 | 0.56 | 2,536,889 | 1.66 | 0.49 | 1 hr | CloudBurst |
| CSO146 | 9/11/13 10:45 AM | 9/11/13 10:45 AM | 0.01 | 44,921 | 0.03 | 1,497,351 | 0.04 | 0.03 | 1 hr | CloudBurst |
| CSO146 | 9/20/13 4:30 PM | 9/21/13 5:00 AM | 0.52 | 3,178,058 | 1.13 | 2,812,441 | 1.17 | 0.47 | 12 hr | CloudBurst |
| CSO146 | 10/4/13 7:15 PM | 10/4/13 7:30 PM | 0.01 | 222,011 | 0.12 | 1,850,093 | 0.19 | 0.10 | 1 hr | CloudBurst |
| CSO146 | 10/5/13 1:00 PM | 10/6/13 12:00 AM | 0.46 | 10,218,914 | 4.40 | 2,322,480 | 3.44 | 9.19 | 24 hr | CloudBurst |
| CSO146 | 10/30/13 1:30 AM | 10/30/13 7:30 AM | 0.25 | 2,131,714 | 1.69 | 1,261,369 | 1.69 | 0.93 | 1 hr | CloudBurst |
| CSO146 | 10/31/13 8:15 PM | 10/31/13 10:30 PM | 0.09 | 217,691 | 0.62 | 351,115 | 2.27 | 0.24 | 24 hr | CloudBurst |
| CSO146 | 11/17/13 5:30 AM | 11/17/13 8:30 PM | 0.63 | 2,365,730 | 2.68 | 882,735 | 2.86 | 1.89 | 6 hr | CloudBurst |
| CSO146 | 12/5/13 5:30 AM | 12/5/13 8:45 AM | 0.14 | 235,434 | 0.76 | 309,781 | 0.17 | 0.25 | 48 hr | CloudBurst |
| CSO146 | 12/6/13 4:15 AM | 12/6/13 12:00 PM | 0.32 | 25,562 | 0.76 | 33,634 | 0.43 | 0.25 | 48 hr | CloudBurst |
| CSO146 | 12/14/13 8:45 AM | 12/14/13 11:45 AM | 0.13 | 268,034 | 0.86 | 311,668 | 1.28 | 0.34 | 12 hr | CloudBurst |
| CSO146 | 12/21/13 5:15 AM | 12/21/13 1:15 PM | 0.33 | 810,069 | 2.41 | 336,128 | 1.50 | 0.90 | 24 hr | CloudBurst |
| CSO146 | 12/21/13 9:30 PM | 12/22/13 6:15 AM | 0.36 | 3,600,501 | 2.41 | 1,493,984 | 2.50 | 0.90 | 24 hr | CloudBurst |
| CSO146 | 12/29/13 5:30 AM | 12/29/13 7:15 AM | 0.07 | 159,068 | 0.51 | 311,899 | 0.42 | 0.22 | 12 hr | CloudBurst |
| CSO146 | 4/3/14 12:15 PM | 4/4/14 10:45 AM | 0.94 | 5,009,427 | 2.67 | 1,876,190 | 4.08 | 0.94 | 24 hr | CloudBurst |
| CSO146 | 4/7/14 8:15 AM | 4/7/14 4:15 PM | 0.33 | 2,435,477 | 0.79 | 3,082,883 | 3.57 | 0.46 | 3 hr | CloudBurst |
| CSO146 | 4/14/14 4:00 AM | 4/14/14 4:30 AM | 0.02 | 51,797 | 1.02 | 50,782 | 1.00 | 0.39 | 24 hr | CloudBurst |
| CSO146 | 4/14/14 8:15 PM | 4/15/14 3:15 AM | 0.29 | 1,604,983 | 1.02 | 1,573,513 | 1.06 | 0.39 | 24 hr | CloudBurst |
| CSO146 | 4/28/14 4:15 AM | 4/28/14 8:30 AM | 0.18 | 3,788,963 | 1.70 | 2,228,802 | 1.41 | 0.70 | 3 hr | Atlas14 |
| CSO146 | 4/28/14 5:30 PM | 4/28/14 8:30 PM | 0.13 | 458,907 | 1.70 | 269,946 | 1.80 | 0.70 | 3 hr | Atlas14 |
| CSO146 | 5/9/14 7:15 PM | 5/10/14 4:15 PM | 0.88 | 2,193,176 | 1.63 | 1,345,507 | 1.71 | 0.63 | 24 hr | CloudBurst |
| CSO146 | 5/14/14 7:00 AM | 5/14/14 11:45 PM | 0.70 | 531,135 | 1.09 | 487,280 | 2.84 | 0.42 | 24 hr | CloudBurst |
| CSO146 | 5/22/14 3:00 AM | 5/22/14 4:30 AM | 0.06 | 292,633 | 0.37 | 790,899 | 0.43 | 0.17 | 3 hr | Atlas14 |
| CSO146 | 5/28/14 8:15 PM | 5/28/14 8:30 PM | 0.01 | 13,510 | 0.33 | 40,939 | 0.71 | 0.27 | 1 hr | CloudBurst |
| CSO146 | 5/29/14 8:30 PM | 5/29/14 10:30 PM | 0.08 | 2,387,298 | 0.66 | 3,617,118 | 1.02 | 0.56 | 1 hr | CloudBurst |
| CSO146 | 5/30/14 2:00 PM | 5/30/14 2:45 PM | 0.03 | 640,651 | 0.13 | 4,928,087 | 1.13 | 0.08 | 3 hr | CloudBurst |
| CSO146 | 6/11/14 2:15 PM | 6/11/14 3:00 PM | 0.03 | 365,819 | 0.12 | 3,048,492 | 0.27 | 0.08 | 1 hr | CloudBurst |
| CSO146 | 6/20/14 4:15 PM | 6/20/14 6:00 PM | 0.07 | 117,536 | 0.29 | 405,298 | 0.29 | 0.19 | 3 hr | CloudBurst |
| CSO146 | 6/24/14 1:30 PM | 6/24/14 2:15 PM | 0.03 | 302,132 | 0.20 | 1,510,659 | 0.53 | 0.15 | 1 hr | CloudBurst |
| CSO148 | 1/5/14 2:45 PM | 1/5/14 6:45 PM | 0.17 | 16,408 | 0.51 | 32,173 | 0.69 | 0.26 | 6 hr | CloudBurst |
| CSO148 | 1/11/14 12:15 AM | 1/11/14 5:15 AM | 0.21 | 101,490 | 1.08 | 93,972 | 1.60 | 0.59 | 6 hr | CloudBurst |
| CSO148 | 1/13/14 2:45 PM | 1/13/14 2:45 PM | 0.00 | 206 | 0.21 | 982 | 1.21 | 0.10 | 12 hr | CloudBurst |
| CSO148 | 2/2/14 3:00 AM | 2/2/14 7:15 AM | 0.18 | 17,404 | 0.16 | 108,774 | 0.15 | 0.09 | 6 hr | CloudBurst |
| CSO148 | 2/4/14 6:45 PM | 2/5/14 12:45 AM | 0.25 | 126,087 | 0.48 | 262,682 | 0.88 | 0.23 | 6 hr | CloudBurst |
| CSO148 | 2/14/14 4:45 PM | 2/14/14 6:30 PM | 0.07 | 9,709 | 0.39 | 24,894 | 0.40 | 0.21 | 6 hr | CloudBurst |
| CSO148 | 2/17/14 3:00 PM | 2/17/14 6:00 PM | 0.13 | 122,990 | 0.39 | 315,358 | 0.84 | 0.23 | 3 hr | CloudBurst |
| CSO148 | 2/20/14 11:00 PM | 2/20/14 11:15 PM | 0.01 | 2,290 | 0.24 | 9,541 | 1.07 | 0.13 | 6 hr | CloudBurst |
| CSO148 | 3/2/14 9:30 AM | 3/2/14 11:30 AM | 0.08 | 39,233 | 0.64 | 61,302 | 0.33 | 0.24 | 24 hr | CloudBurst |
| CSO148 | 3/28/14 4:15 AM | 3/28/14 4:45 AM | 0.02 | 21,725 | 0.24 | 90,523 | 0.28 | 0.12 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO148 | 3/29/14 5:00 AM | 3/29/14 12:15 PM | 0.30 | 67,610 | 1.21 | 55,876 | 1.39 | 0.56 | 6 hr | CloudBurst |
| CSO148 | 7/1/13 8:30 AM | 7/1/13 8:30 AM | 0.01 | 417 | 0.38 | 1,098 | 3.70 | 0.19 | 3 hr | CloudBurst |
| CSO148 | 7/1/13 6:30 PM | 7/1/13 6:30 PM | 0.01 | 482 | 0.38 | 1,268 | 3.83 | 0.19 | 3 hr | CloudBurst |
| CSO148 | 7/2/13 1:00 PM | 7/2/13 1:00 PM | 0.01 | 4,710 | 0.06 | 78,496 | 3.97 | 0.05 | 1 hr | CloudBurst |
| CSO148 | 7/3/13 6:00 PM | 7/3/13 6:15 PM | 0.01 | 7,837 | 0.07 | 111,959 | 1.82 | 0.05 | 3 hr | CloudBurst |
| CSO148 | 7/4/13 7:45 AM | 7/4/13 11:15 AM | 0.15 | 2,142 | 0.61 | 3,512 | 1.23 | 0.26 | 12 hr | CloudBurst |
| CSO148 | 7/6/13 12:30 AM | 7/6/13 3:00 AM | 0.10 | 85,475 | 0.66 | 129,507 | 1.96 | 0.28 | 12 hr | CloudBurst |
| CSO148 | 7/10/13 12:30 PM | 7/10/13 2:15 PM | 0.07 | 85,412 | 0.80 | 106,766 | 2.18 | 0.52 | 3 hr | CloudBurst |
| CSO148 | 7/14/13 7:15 PM | 7/14/13 7:15 PM | 0.01 | 13,380 | 0.20 | 66,898 | 1.11 | 0.17 | 1 hr | CloudBurst |
| CSO148 | 7/21/13 7:00 PM | 7/21/13 8:00 PM | 0.04 | 48,503 | 3.37 | 14,393 | 2.53 | 5.00 | 3 hr | Atlas14 |
| CSO148 | 7/22/13 6:45 AM | 7/22/13 1:45 PM | 0.29 | 76,033 | 3.37 | 22,562 | 3.45 | 5.00 | 3 hr | Atlas14 |
| CSO148 | 7/27/13 5:30 AM | 7/27/13 5:30 AM | 0.01 | 120 | 0.04 | 2,993 | 3.42 | 0.02 | 24 hr | CloudBurst |
| CSO148 | 8/9/13 5:00 PM | 8/9/13 5:15 PM | 0.01 | 37,684 | 0.50 | 75,367 | 0.41 | 0.24 | 1 hr | CloudBurst |
| CSO148 | 8/12/13 2:30 PM | 8/12/13 2:45 PM | 0.01 | 74,828 | 0.89 | 84,076 | 1.02 | 0.37 | 1 hr | CloudBurst |
| CSO148 | 8/13/13 2:15 AM | 8/13/13 3:15 AM | 0.04 | 31,786 | 0.89 | 35,715 | 1.37 | 0.37 | 1 hr | CloudBurst |
| CSO148 | 8/20/13 5:45 PM | 8/20/13 6:00 PM | 0.01 | 60,901 | 0.28 | 217,503 | 0.27 | 0.19 | 1 hr | CloudBurst |
| CSO148 | 8/31/13 7:30 PM | 8/31/13 11:15 PM | 0.16 | 101,488 | 1.14 | 89,025 | 0.83 | 0.53 | 6 hr | CloudBurst |
| CSO148 | 9/2/13 1:30 PM | 9/2/13 2:00 PM | 0.02 | 30,212 | 0.64 | 47,206 | 1.78 | 0.56 | 1 hr | CloudBurst |
| CSO148 | 9/11/13 10:15 AM | 9/11/13 10:15 AM | 0.01 | 10,569 | 0.04 | 264,230 | 0.05 | 0.03 | 3 hr | CloudBurst |
| CSO148 | 9/20/13 7:15 PM | 9/21/13 4:00 AM | 0.36 | 100,976 | 1.59 | 63,507 | 1.49 | 0.66 | 12 hr | CloudBurst |
| CSO148 | 10/4/13 6:45 PM | 10/4/13 7:00 PM | 0.01 | 12,412 | 0.15 | 82,748 | 0.23 | 0.13 | 1 hr | CloudBurst |
| CSO148 | 10/5/13 12:15 PM | 10/6/13 5:45 PM | 1.23 | 626,582 | 5.83 | 107,475 | 6.06 | 36.33 | 24 hr | CloudBurst |
| CSO148 | 10/19/13 9:30 AM | 10/19/13 9:30 AM | 0.00 | 200 | 0.23 | 869 | 0.18 | 0.12 | 6 hr | CloudBurst |
| CSO148 | 10/30/13 1:15 AM | 10/30/13 7:00 AM | 0.24 | 193,549 | 1.96 | 98,749 | 1.96 | 1.57 | 1 hr | CloudBurst |
| CSO148 | 10/31/13 8:15 PM | 10/31/13 10:00 PM | 0.07 | 7,982 | 0.59 | 13,528 | 2.46 | 0.23 | 24 hr | CloudBurst |
| CSO148 | 11/15/13 6:15 PM | 11/15/13 6:15 PM | 0.00 | 996 | 0.09 | 11,069 | 0.16 | 0.07 | 1 hr | CloudBurst |
| CSO148 | 11/17/13 4:45 AM | 11/17/13 7:00 PM | 0.59 | 657,787 | 2.64 | 249,162 | 2.81 | 2.29 | 6 hr | CloudBurst |
| CSO148 | 12/5/13 5:15 AM | 12/5/13 9:45 AM | 0.19 | 34,166 | 0.70 | 48,808 | 0.18 | 0.23 | 48 hr | CloudBurst |
| CSO148 | 12/6/13 3:30 AM | 12/6/13 11:15 AM | 0.32 | 235 | 0.70 | 336 | 0.38 | 0.23 | 48 hr | CloudBurst |
| CSO148 | 12/14/13 8:30 AM | 12/14/13 11:00 AM | 0.10 | 13,482 | 1.09 | 12,369 | 1.29 | 0.49 | 6 hr | CloudBurst |
| CSO148 | 12/21/13 5:00 AM | 12/21/13 12:15 PM | 0.30 | 93,965 | 2.81 | 33,440 | 1.66 | 1.30 | 3 hr | Atlas14 |
| CSO148 | 12/21/13 9:00 PM | 12/22/13 1:15 AM | 0.18 | 292,530 | 2.81 | 104,103 | 2.80 | 1.30 | 3 hr | Atlas14 |
| CSO148 | 12/29/13 4:45 AM | 12/29/13 6:15 AM | 0.06 | 2,160 | 0.58 | 3,724 | 0.50 | 0.26 | 12 hr | CloudBurst |
| CSO148 | 4/3/14 5:15 AM | 4/4/14 7:30 AM | 1.09 | 246,359 | 2.63 | 93,673 | 4.20 | 0.93 | 24 hr | CloudBurst |
| CSO148 | 4/7/14 9:00 AM | 4/7/14 12:00 PM | 0.13 | 53,925 | 0.74 | 72,872 | 3.49 | 0.46 | 1 hr | CloudBurst |
| CSO148 | 4/14/14 3:30 AM | 4/14/14 3:30 AM | 0.01 | 87 | 0.38 | 230 | 0.89 | 0.19 | 6 hr | CloudBurst |
| CSO148 | 4/14/14 7:15 PM | 4/15/14 1:00 AM | 0.24 | 37,349 | 0.61 | 61,228 | 0.95 | 0.28 | 12 hr | CloudBurst |
| CSO148 | 4/27/14 8:00 PM | 4/28/14 7:00 AM | 0.46 | 187,884 | 1.75 | 107,362 | 1.42 | 0.66 | 24 hr | CloudBurst |
| CSO148 | 4/28/14 5:15 PM | 4/28/14 7:00 PM | 0.07 | 16,485 | 1.75 | 9,420 | 1.82 | 0.66 | 24 hr | CloudBurst |
| CSO148 | 4/29/14 6:45 PM | 4/29/14 6:45 PM | 0.01 | 63 | 0.22 | 287 | 1.93 | 0.10 | 12 hr | CloudBurst |
| CSO148 | 5/9/14 7:00 PM | 5/10/14 3:15 PM | 0.84 | 255,189 | 1.74 | 146,660 | 1.79 | 0.67 | 24 hr | CloudBurst |
| CSO148 | 5/14/14 6:45 AM | 5/14/14 8:30 AM | 0.07 | 38,200 | 1.18 | 32,373 | 2.14 | 0.43 | 24 hr | CloudBurst |
| CSO148 | 5/14/14 5:45 PM | 5/14/14 7:00 PM | 0.05 | 14,371 | 1.18 | 12,179 | 2.77 | 0.43 | 24 hr | CloudBurst |
| CSO148 | 5/21/14 8:45 PM | 5/22/14 3:30 AM | 0.28 | 50,962 | 0.52 | 98,004 | 0.68 | 0.26 | 1 hr | CloudBurst |
| CSO148 | 5/29/14 8:45 PM | 5/29/14 9:45 PM | 0.04 | 102,486 | 0.67 | 152,965 | 0.78 | 0.47 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO148 | 6/11/14 2:15 PM | 6/11/14 2:45 PM | 0.02 | 74,153 | 0.16 | 463,455 | 0.40 | 0.10 | 1 hr | CloudBurst |
| CSO148 | 6/20/14 4:00 PM | 6/20/14 5:45 PM | 0.07 | 11,761 | 0.22 | 53,460 | 0.22 | 0.15 | 3 hr | Atlas14 |
| CSO148 | 6/24/14 1:30 PM | 6/24/14 1:30 PM | 0.01 | 13,415 | 0.27 | 49,685 | 0.53 | 0.19 | 1 hr | CloudBurst |
| CSO149 | 1/5/14 3:15 PM | 1/5/14 6:15 PM | 0.13 | 77,262 | 0.48 | 160,962 | 0.65 | 0.24 | 6 hr | CloudBurst |
| CSO149 | 1/11/14 12:15 AM | 1/11/14 5:30 AM | 0.22 | 1,719,195 | 1.03 | 1,669,121 | 1.51 | 0.55 | 6 hr | CloudBurst |
| CSO149 | 2/2/14 4:00 AM | 2/2/14 5:45 AM | 0.07 | 132,327 | 0.47 | 281,548 | 0.16 | 0.18 | 24 hr | CloudBurst |
| CSO149 | 2/4/14 7:00 PM | 2/5/14 1:15 AM | 0.26 | 1,999,625 | 0.51 | 3,920,832 | 0.98 | 0.25 | 6 hr | CloudBurst |
| CSO149 | 2/14/14 5:00 PM | 2/14/14 6:15 PM | 0.05 | 18,748 | 0.50 | 37,496 | 0.48 | 0.27 | 6 hr | CloudBurst |
| CSO149 | 2/17/14 4:15 PM | 2/17/14 6:15 PM | 0.08 | 862,153 | 0.56 | 1,539,559 | 1.12 | 0.34 | 3 hr | CloudBurst |
| CSO149 | 2/20/14 11:15 PM | 2/20/14 11:30 PM | 0.01 | 19,654 | 0.18 | 109,191 | 1.30 | 0.10 | 6 hr | CloudBurst |
| CSO149 | 3/2/14 9:45 AM | 3/2/14 11:30 AM | 0.07 | 387,778 | 0.62 | 625,449 | 0.34 | 0.24 | 24 hr | CloudBurst |
| CSO149 | 3/28/14 4:30 AM | 3/28/14 5:15 AM | 0.03 | 92,366 | 0.25 | 369,465 | 0.31 | 0.12 | 6 hr | CloudBurst |
| CSO149 | 3/29/14 6:15 AM | 3/29/14 12:45 PM | 0.27 | 1,020,590 | 1.05 | 971,990 | 1.32 | 0.49 | 12 hr | CloudBurst |
| CSO149 | 7/1/13 9:00 AM | 7/1/13 9:00 AM | 0.01 | 6,641 | 0.31 | 21,423 | 3.71 | 0.15 | 3 hr | Atlas14 |
| CSO149 | 7/1/13 6:45 PM | 7/1/13 7:30 PM | 0.03 | 109,579 | 0.31 | 353,480 | 3.90 | 0.15 | 3 hr | Atlas14 |
| CSO149 | 7/2/13 1:15 PM | 7/2/13 2:00 PM | 0.03 | 624,141 | 0.12 | 5,201,176 | 4.02 | 0.10 | 1 hr | CloudBurst |
| CSO149 | 7/4/13 6:45 AM | 7/4/13 11:45 AM | 0.21 | 36,488 | 0.54 | 67,570 | 1.22 | 0.23 | 12 hr | CloudBurst |
| CSO149 | 7/6/13 1:00 AM | 7/6/13 7:15 AM | 0.26 | 635,340 | 0.60 | 1,058,900 | 2.03 | 0.26 | 12 hr | CloudBurst |
| CSO149 | 7/10/13 2:00 PM | 7/10/13 3:00 PM | 0.04 | 2,198,781 | 0.68 | 3,233,502 | 1.93 | 0.46 | 1 hr | CloudBurst |
| CSO149 | 7/14/13 7:30 PM | 7/14/13 8:15 PM | 0.03 | 561,432 | 0.09 | 6,238,138 | 0.84 | 0.08 | 1 hr | CloudBurst |
| CSO149 | 7/18/13 4:15 PM | 7/18/13 4:30 PM | 0.01 | 19,034 | 0.28 | 67,977 | 0.41 | 0.20 | 1 hr | CloudBurst |
| CSO149 | 7/21/13 7:30 PM | 7/21/13 9:00 PM | 0.06 | 1,480,760 | 2.70 | 548,430 | 1.84 | 1.24 | 24 hr | CloudBurst |
| CSO149 | 7/22/13 7:00 AM | 7/22/13 4:15 PM | 0.39 | 7,794,106 | 2.70 | 2,886,706 | 3.01 | 1.24 | 24 hr | CloudBurst |
| CSO149 | 8/9/13 5:30 PM | 8/9/13 6:00 PM | 0.02 | 39,505 | 0.24 | 164,605 | 0.29 | 0.14 | 1 hr | CloudBurst |
| CSO149 | 8/12/13 2:45 PM | 8/12/13 3:45 PM | 0.04 | 3,303,917 | 0.81 | 4,078,910 | 0.89 | 0.39 | 1 hr | CloudBurst |
| CSO149 | 8/13/13 3:00 AM | 8/13/13 4:00 AM | 0.04 | 258,015 | 0.81 | 318,537 | 1.19 | 0.39 | 1 hr | CloudBurst |
| CSO149 | 8/20/13 6:15 PM | 8/20/13 6:45 PM | 0.02 | 321,505 | 0.28 | 1,148,233 | 0.28 | 0.15 | 6 hr | CloudBurst |
| CSO149 | 8/31/13 7:45 PM | 9/1/13 1:00 AM | 0.22 | 1,354,485 | 1.10 | 1,231,350 | 0.91 | 0.51 | 6 hr | CloudBurst |
| CSO149 | 9/2/13 1:45 PM | 9/2/13 2:45 PM | 0.04 | 1,530,005 | 0.56 | 2,732,151 | 1.66 | 0.49 | 1 hr | CloudBurst |
| CSO149 | 9/20/13 4:15 PM | 9/21/13 4:30 AM | 0.51 | 2,683,796 | 1.13 | 2,375,041 | 1.13 | 0.47 | 12 hr | CloudBurst |
| CSO149 | 10/4/13 7:15 PM | 10/6/13 2:45 PM | 1.81 | 21,152,863 | 0.12 | 176,273,856 | 4.55 | 0.10 | 1 hr | CloudBurst |
| CSO149 | 10/15/13 4:45 PM | 10/15/13 10:45 PM | 0.25 | 32 | 0.02 | 1,592 | 0.02 | 0.02 | 1 hr | CloudBurst |
| CSO149 | 10/30/13 1:30 AM | 10/30/13 6:30 AM | 0.21 | 5,175,012 | 1.69 | 3,062,137 | 1.69 | 0.93 | 1 hr | CloudBurst |
| CSO149 | 10/31/13 7:30 PM | 10/31/13 9:45 PM | 0.09 | 239,388 | 0.62 | 386,110 | 2.25 | 0.24 | 24 hr | CloudBurst |
| CSO149 | 11/17/13 5:15 AM | 11/17/13 7:45 PM | 0.60 | 3,860,835 | 2.68 | 1,440,610 | 2.86 | 1.89 | 6 hr | CloudBurst |
| CSO149 | 12/5/13 5:30 AM | 12/5/13 8:30 AM | 0.13 | 489,918 | 0.76 | 644,628 | 0.17 | 0.25 | 48 hr | CloudBurst |
| CSO149 | 12/14/13 9:00 AM | 12/14/13 11:30 AM | 0.10 | 150,728 | 0.86 | 175,265 | 1.28 | 0.34 | 12 hr | CloudBurst |
| CSO149 | 12/21/13 5:30 AM | 12/21/13 12:45 PM | 0.30 | 1,339,852 | 2.41 | 555,955 | 1.47 | 0.90 | 24 hr | CloudBurst |
| CSO149 | 12/21/13 9:30 PM | 12/22/13 3:15 AM | 0.24 | 5,419,940 | 2.41 | 2,248,938 | 2.47 | 0.90 | 24 hr | CloudBurst |
| CSO149 | 12/29/13 6:15 AM | 12/29/13 6:30 AM | 0.01 | 2,949 | 0.51 | 5,783 | 0.41 | 0.22 | 12 hr | CloudBurst |
| CSO149 | 4/3/14 12:00 PM | 4/4/14 8:15 AM | 0.84 | 4,702,010 | 2.67 | 1,761,052 | 4.08 | 0.94 | 24 hr | CloudBurst |
| CSO149 | 4/7/14 9:15 AM | 4/7/14 3:45 PM | 0.27 | 2,266,585 | 0.79 | 2,869,096 | 3.57 | 0.46 | 3 hr | CloudBurst |
| CSO149 | 4/14/14 3:45 AM | 4/14/14 3:45 AM | 0.01 | 2,278 | 1.02 | 2,233 | 0.96 | 0.39 | 24 hr | CloudBurst |
| CSO149 | 4/14/14 8:00 PM | 4/15/14 1:45 AM | 0.24 | 625,699 | 1.02 | 613,430 | 1.02 | 0.39 | 24 hr | CloudBurst |
| CSO149 | 4/28/14 4:15 AM | 4/28/14 8:15 AM | 0.17 | 3,680,363 | 1.70 | 2,164,920 | 1.41 | 0.70 | 3 hr | Atlas14 |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO149 | 4/28/14 5:15 PM | 4/28/14 8:30 PM | 0.14 | 233,701 | 1.70 | 137,471 | 1.80 | 0.70 | 3 hr | Atlas14 |
| CSO149 | 5/9/14 7:30 PM | 5/10/14 4:00 PM | 0.85 | 2,925,590 | 1.63 | 1,794,840 | 1.70 | 0.63 | 24 hr | CloudBurst |
| CSO149 | 5/14/14 7:15 AM | 5/14/14 11:45 PM | 0.69 | 633,998 | 1.09 | 581,649 | 2.84 | 0.42 | 24 hr | CloudBurst |
| CSO149 | 5/21/14 9:15 PM | 5/22/14 4:15 AM | 0.29 | 498,742 | 0.37 | 1,347,952 | 0.50 | 0.17 | 3 hr | Atlas14 |
| CSO149 | 5/28/14 8:30 PM | 5/28/14 9:00 PM | 0.02 | 243,937 | 0.33 | 739,204 | 0.71 | 0.27 | 1 hr | CloudBurst |
| CSO149 | 5/29/14 9:00 PM | 5/29/14 10:30 PM | 0.06 | 2,738,559 | 0.66 | 4,149,332 | 1.02 | 0.56 | 1 hr | CloudBurst |
| CSO149 | 5/30/14 2:15 PM | 5/30/14 2:45 PM | 0.02 | 14,184 | 0.13 | 109,109 | 1.13 | 0.08 | 3 hr | CloudBurst |
| CSO149 | 6/11/14 2:15 PM | 6/11/14 3:00 PM | 0.03 | 71,956 | 0.12 | 599,634 | 0.27 | 0.08 | 1 hr | CloudBurst |
| CSO149 | 6/20/14 4:15 PM | 6/20/14 6:00 PM | 0.07 | 60,558 | 0.29 | 208,820 | 0.29 | 0.19 | 3 hr | CloudBurst |
| CSO149 | 6/24/14 1:45 PM | 6/24/14 2:30 PM | 0.03 | 122,333 | 0.20 | 611,667 | 0.53 | 0.15 | 1 hr | CloudBurst |
| CSO150 | 2/4/14 10:15 PM | 2/4/14 11:15 PM | 0.04 | 18,513 | 0.53 | 34,930 | 0.99 | 0.26 | 6 hr | CloudBurst |
| CSO150 | 2/17/14 3:45 PM | 2/17/14 3:45 PM | 0.00 | 1,915 | 0.49 | 3,909 | 0.57 | 0.28 | 3 hr | CloudBurst |
| CSO150 | 7/2/13 1:00 PM | 7/2/13 1:00 PM | 0.01 | 34,359 | 0.09 | 381,761 | 4.10 | 0.08 | 1 hr | CloudBurst |
| CSO150 | 7/10/13 1:45 PM | 7/10/13 2:30 PM | 0.03 | 34,944 | 0.64 | 54,600 | 1.76 | 0.43 | 1 hr | CloudBurst |
| CSO150 | 7/18/13 3:45 PM | 7/18/13 4:00 PM | 0.01 | 12,148 | 0.29 | 41,888 | 0.39 | 0.23 | 1 hr | CloudBurst |
| CSO150 | 7/22/13 7:45 AM | 7/22/13 2:15 PM | 0.27 | 67,270 | 1.96 | 34,321 | 2.27 | 0.76 | 24 hr | CloudBurst |
| CSO150 | 8/12/13 2:45 PM | 8/12/13 2:45 PM | 0.01 | 4,666 | 0.83 | 5,622 | 0.66 | 0.37 | 1 hr | CloudBurst |
| CSO150 | 8/31/13 8:00 PM | 8/31/13 8:00 PM | 0.01 | 4,741 | 1.34 | 3,538 | 0.71 | 0.63 | 1 hr | CloudBurst |
| CSO150 | 9/2/13 1:30 PM | 9/2/13 1:45 PM | 0.01 | 34,175 | 0.25 | 136,701 | 1.59 | 0.22 | 1 hr | CloudBurst |
| CSO150 | 9/20/13 11:00 PM | 9/20/13 11:00 PM | 0.01 | 3,197 | 1.36 | 2,351 | 0.83 | 0.56 | 12 hr | CloudBurst |
| CSO150 | 10/5/13 2:00 PM | 10/6/13 9:00 AM | 0.79 | 526,642 | 4.23 | 124,502 | 4.38 | 7.98 | 24 hr | CloudBurst |
| CSO150 | 10/30/13 5:30 AM | 10/30/13 6:00 AM | 0.02 | 33,641 | 1.06 | 31,736 | 1.03 | 0.50 | 6 hr | CloudBurst |
| CSO150 | 10/31/13 7:15 PM | 10/31/13 7:15 PM | 0.00 | 132 | 0.71 | 186 | 1.69 | 0.28 | 24 hr | CloudBurst |
| CSO150 | 11/17/13 6:30 AM | 11/17/13 10:45 AM | 0.18 | 292,827 | 2.59 | 113,061 | 2.30 | 1.61 | 6 hr | CloudBurst |
| CSO150 | 12/21/13 12:15 PM | 12/21/13 12:30 PM | 0.01 | 6,748 | 2.75 | 2,454 | 1.18 | 1.08 | 24 hr | CloudBurst |
| CSO150 | 12/21/13 9:45 PM | 12/22/13 12:45 AM | 0.13 | 227,144 | 2.75 | 82,598 | 2.62 | 1.08 | 24 hr | CloudBurst |
| CSO150 | 4/3/14 3:15 PM | 4/4/14 8:00 AM | 0.70 | 670,107 | 2.91 | 230,277 | 4.09 | 1.04 | 24 hr | CloudBurst |
| CSO150 | 4/7/14 10:30 AM | 4/7/14 1:15 PM | 0.11 | 165,711 | 0.82 | 202,086 | 3.82 | 0.52 | 1 hr | CloudBurst |
| CSO150 | 4/28/14 3:45 AM | 4/28/14 8:00 AM | 0.18 | 181,355 | 1.69 | 107,311 | 1.34 | 0.64 | 24 hr | CloudBurst |
| CSO150 | 5/10/14 5:15 AM | 5/10/14 4:00 PM | 0.45 | 131,387 | 1.47 | 89,379 | 1.54 | 0.57 | 24 hr | CloudBurst |
| CSO150 | 5/14/14 10:30 AM | 5/14/14 11:15 AM | 0.03 | 20,325 | 0.72 | 28,229 | 1.87 | 0.28 | 24 hr | CloudBurst |
| CSO150 | 5/14/14 7:45 PM | 5/15/14 1:00 AM | 0.22 | 87,566 | 0.72 | 121,619 | 2.32 | 0.28 | 24 hr | CloudBurst |
| CSO150 | 5/22/14 4:15 AM | 5/22/14 4:15 AM | 0.01 | 995 | 0.73 | 1,364 | 0.83 | 0.34 | 12 hr | CloudBurst |
| CSO150 | 5/28/14 8:15 PM | 5/28/14 8:15 PM | 0.01 | 803 | 0.49 | 1,639 | 1.13 | 0.41 | 1 hr | CloudBurst |
| CSO150 | 6/24/14 1:30 PM | 6/24/14 1:30 PM | 0.01 | 259 | 0.07 | 3,697 | 0.30 | 0.03 | 24 hr | CloudBurst |
| CSO151 | 1/2/14 4:00 AM | 1/2/14 11:30 AM | 0.31 | 4,110 | 0.25 | 16,439 | 0.80 | 0.13 | 3 hr | CloudBurst |
| CSO151 | 1/5/14 3:00 PM | 1/5/14 9:45 PM | 0.28 | 327,378 | 0.44 | 744,040 | 0.69 | 0.22 | 6 hr | CloudBurst |
| CSO151 | 1/11/14 12:30 AM | 1/11/14 7:45 PM | 0.80 | 423,293 | 1.00 | 423,293 | 1.45 | 0.54 | 6 hr | CloudBurst |
| CSO151 | 1/13/14 2:30 PM | 1/13/14 9:00 PM | 0.27 | 126,474 | 0.20 | 632,370 | 1.21 | 0.09 | 12 hr | CloudBurst |
| CSO151 | 2/2/14 3:15 AM | 2/2/14 8:45 AM | 0.23 | 115,034 | 0.16 | 718,964 | 0.16 | 0.09 | 6 hr | CloudBurst |
| CSO151 | 2/4/14 6:45 PM | 2/5/14 11:00 PM | 1.18 | 548,536 | 0.46 | 1,192,469 | 0.85 | 0.23 | 6 hr | CloudBurst |
| CSO151 | 2/14/14 4:00 PM | 2/14/14 10:00 PM | 0.25 | 7,700,048 | 0.36 | 21,389,022 | 0.40 | 0.19 | 6 hr | CloudBurst |
| CSO151 | 2/17/14 2:45 PM | 2/19/14 2:45 PM | 2.00 | 22,370,341 | 0.35 | 63,915,260 | 0.77 | 0.22 | 3 hr | CloudBurst |
| CSO151 | 2/20/14 7:15 PM | 2/21/14 1:00 AM | 0.24 | 163,296 | 0.19 | 859,450 | 0.96 | 0.10 | 6 hr | CloudBurst |
| CSO151 | 3/2/14 9:45 AM | 3/2/14 1:45 PM | 0.17 | 324,162 | 0.58 | 558,901 | 0.30 | 0.22 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO151 | 3/12/14 7:30 AM | 3/12/14 8:00 AM | 0.02 | 9,435 | 0.07 | 134,792 | 0.07 | 0.03 | 24 hr | CloudBurst |
| CSO151 | 3/19/14 9:00 AM | 3/19/14 9:15 AM | 0.01 | 1,568 | 0.17 | 9,221 | 0.25 | 0.13 | 1 hr | CloudBurst |
| CSO151 | 3/28/14 4:30 AM | 3/28/14 6:00 AM | 0.06 | 105,530 | 0.25 | 422,120 | 0.30 | 0.12 | 12 hr | CloudBurst |
| CSO151 | 3/29/14 5:15 AM | 3/29/14 5:15 PM | 0.50 | 919,477 | 1.07 | 859,325 | 1.37 | 0.50 | 12 hr | CloudBurst |
| CSO151 | 4/24/14 12:30 PM | 4/25/14 11:00 AM | 0.94 | 1,858,396 | Discharge | | 0.11 | DWO | | |
| CSO151 | 7/1/13 7:15 PM | 7/1/13 7:45 PM | 0.02 | 168,256 | 0.30 | 560,854 | 3.91 | 0.15 | 3 hr | Atlas14 |
| CSO151 | 7/2/13 1:45 PM | 7/2/13 2:00 PM | 0.01 | 85,935 | 0.10 | 859,350 | 4.01 | 0.09 | 1 hr | CloudBurst |
| CSO151 | 7/3/13 6:45 PM | 7/3/13 7:15 PM | 0.02 | 287,951 | 0.07 | 4,113,581 | 1.82 | 0.05 | 3 hr | CloudBurst |
| CSO151 | 7/4/13 7:00 AM | 7/4/13 6:00 PM | 0.46 | 1,673,273 | 0.59 | 2,836,057 | 1.58 | 0.25 | 12 hr | CloudBurst |
| CSO151 | 7/6/13 1:15 AM | 7/6/13 10:45 AM | 0.40 | 2,487,720 | 0.66 | 3,769,272 | 2.25 | 0.28 | 12 hr | CloudBurst |
| CSO151 | 7/10/13 1:00 PM | 7/10/13 4:45 PM | 0.16 | 1,754,951 | 0.75 | 2,339,934 | 2.15 | 0.52 | 1 hr | CloudBurst |
| CSO151 | 7/14/13 7:45 PM | 7/14/13 9:00 PM | 0.05 | 472,542 | 0.16 | 2,953,389 | 1.00 | 0.14 | 1 hr | CloudBurst |
| CSO151 | 7/18/13 4:30 PM | 7/18/13 5:30 PM | 0.04 | 440,279 | 0.16 | 2,751,746 | 0.35 | 0.11 | 3 hr | CloudBurst |
| CSO151 | 7/21/13 7:45 PM | 7/21/13 10:00 PM | 0.09 | 1,148,626 | 2.88 | 398,828 | 2.01 | 1.90 | 3 hr | Atlas14 |
| CSO151 | 7/22/13 7:15 AM | 7/22/13 7:45 PM | 0.52 | 4,039,401 | 2.88 | 1,402,570 | 3.05 | 1.90 | 3 hr | Atlas14 |
| CSO151 | 7/27/13 6:15 AM | 7/27/13 6:15 AM | 0.01 | 3,390 | 0.04 | 84,759 | 2.92 | 0.02 | 24 hr | CloudBurst |
| CSO151 | 8/9/13 5:15 PM | 8/9/13 6:30 PM | 0.05 | 82,309 | 0.23 | 357,864 | 0.28 | 0.14 | 1 hr | CloudBurst |
| CSO151 | 8/12/13 3:00 PM | 8/12/13 4:30 PM | 0.06 | 517,151 | 0.80 | 646,438 | 0.89 | 0.37 | 1 hr | CloudBurst |
| CSO151 | 8/13/13 2:45 AM | 8/13/13 4:45 AM | 0.08 | 141,901 | 0.80 | 177,376 | 1.15 | 0.37 | 1 hr | CloudBurst |
| CSO151 | 8/20/13 6:00 PM | 8/20/13 7:30 PM | 0.06 | 102,059 | 0.24 | 425,248 | 0.25 | 0.17 | 1 hr | CloudBurst |
| CSO151 | 9/11/13 10:45 AM | 9/11/13 11:15 AM | 0.02 | 35,572 | 0.05 | 711,439 | 0.06 | 0.04 | 1 hr | CloudBurst |
| CSO151 | 9/20/13 4:15 PM | 9/21/13 7:00 AM | 0.61 | 790,828 | 1.46 | 541,663 | 1.53 | 0.62 | 12 hr | CloudBurst |
| CSO151 | 10/4/13 7:00 PM | 10/4/13 8:00 PM | 0.04 | 38,141 | 0.06 | 635,686 | 0.11 | 0.05 | 1 hr | CloudBurst |
| CSO151 | 10/5/13 12:30 PM | 10/7/13 9:00 PM | 2.35 | 5,093,322 | 3.89 | 1,309,337 | 4.00 | 4.84 | 24 hr | CloudBurst |
| CSO151 | 10/19/13 9:45 AM | 10/19/13 11:15 AM | 0.06 | 16,309 | 0.19 | 85,837 | 0.23 | 0.10 | 6 hr | CloudBurst |
| CSO151 | 10/29/13 9:45 PM | 10/30/13 9:30 AM | 0.49 | 615,320 | 1.27 | 484,504 | 1.27 | 0.64 | 6 hr | CloudBurst |
| CSO151 | 10/31/13 3:45 PM | 11/1/13 12:00 AM | 0.34 | 255,709 | 0.50 | 511,418 | 1.77 | 0.19 | 24 hr | CloudBurst |
| CSO151 | 11/6/13 7:15 PM | 11/6/13 11:00 PM | 0.16 | 15,166 | 0.19 | 79,824 | 0.76 | 0.08 | 12 hr | CloudBurst |
| CSO151 | 11/15/13 6:30 PM | 11/15/13 7:00 PM | 0.02 | 12,665 | 0.10 | 126,649 | 0.17 | 0.09 | 1 hr | CloudBurst |
| CSO151 | 11/17/13 5:00 AM | 11/18/13 10:30 PM | 1.73 | 1,455,009 | 2.56 | 568,363 | 2.73 | 1.92 | 6 hr | CloudBurst |
| CSO151 | 11/21/13 7:30 PM | 11/21/13 8:15 PM | 0.03 | 6,265 | 0.09 | 69,614 | 2.75 | 0.07 | 1 hr | CloudBurst |
| CSO151 | 12/5/13 5:30 AM | 12/5/13 12:30 PM | 0.29 | 177,107 | 0.69 | 256,677 | 0.21 | 0.22 | 48 hr | CloudBurst |
| CSO151 | 12/6/13 3:00 AM | 12/6/13 3:00 PM | 0.50 | 173,121 | 0.69 | 250,900 | 0.52 | 0.22 | 48 hr | CloudBurst |
| CSO151 | 12/14/13 4:30 AM | 12/14/13 7:15 PM | 0.61 | 297,778 | 0.93 | 320,191 | 1.11 | 0.41 | 6 hr | CloudBurst |
| CSO151 | 12/21/13 4:00 AM | 12/24/13 4:45 PM | 3.53 | 1,856,469 | 2.64 | 703,208 | 3.50 | 1.00 | 24 hr | CloudBurst |
| CSO151 | 12/29/13 2:00 AM | 12/29/13 1:00 PM | 0.46 | 238,560 | 0.56 | 426,001 | 0.72 | 0.25 | 12 hr | CloudBurst |
| CSO151 | 4/1/14 8:15 PM | 4/1/14 9:15 PM | 0.04 | 24,315 | 0.10 | 243,153 | 1.46 | 0.08 | 1 hr | CloudBurst |
| CSO151 | 4/3/14 5:15 AM | 4/11/14 7:45 PM | 8.60 | 6,416,025 | 2.63 | 2,439,553 | 4.89 | 0.93 | 24 hr | CloudBurst |
| CSO151 | 4/14/14 3:45 AM | 4/15/14 11:45 AM | 1.33 | 967,441 | 0.37 | 2,614,706 | 1.80 | 0.19 | 6 hr | CloudBurst |
| CSO151 | 4/27/14 3:15 PM | 4/30/14 4:00 AM | 2.53 | 1,932,414 | 1.82 | 1,061,766 | 2.14 | 0.69 | 24 hr | CloudBurst |
| CSO152 | 1/5/14 3:15 PM | 1/5/14 8:30 PM | 0.22 | 304,001 | 0.48 | 633,336 | 0.70 | 0.24 | 6 hr | CloudBurst |
| CSO152 | 1/11/14 12:30 AM | 1/11/14 6:00 AM | 0.23 | 1,163,470 | 0.99 | 1,175,223 | 1.48 | 0.54 | 6 hr | CloudBurst |
| CSO152 | 1/13/14 3:00 PM | 1/13/14 4:15 PM | 0.05 | 31,342 | 0.20 | 156,708 | 1.14 | 0.09 | 12 hr | CloudBurst |
| CSO152 | 2/2/14 4:15 AM | 2/2/14 8:00 AM | 0.16 | 243,360 | 0.20 | 1,216,798 | 0.20 | 0.10 | 6 hr | CloudBurst |
| CSO152 | 2/4/14 7:00 PM | 2/5/14 3:30 AM | 0.35 | 1,760,292 | 0.51 | 3,451,553 | 0.96 | 0.24 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO152 | 2/14/14 4:45 PM | 2/14/14 7:00 PM | 0.09 | 153,557 | 0.50 | 307,113 | 0.52 | 0.27 | 6 hr | CloudBurst |
| CSO152 | 2/17/14 3:15 PM | 2/17/14 7:00 PM | 0.16 | 235,425 | 0.51 | 461,618 | 1.07 | 0.31 | 3 hr | CloudBurst |
| CSO152 | 2/20/14 8:45 PM | 2/21/14 12:15 AM | 0.15 | 60,437 | 0.20 | 302,186 | 1.27 | 0.11 | 6 hr | CloudBurst |
| CSO152 | 3/2/14 9:45 AM | 3/2/14 12:00 PM | 0.09 | 310,004 | 0.61 | 508,203 | 0.32 | 0.23 | 24 hr | CloudBurst |
| CSO152 | 3/12/14 7:45 AM | 3/12/14 7:45 AM | 0.00 | 6,060 | 0.08 | 75,753 | 0.07 | 0.04 | 1 hr | CloudBurst |
| CSO152 | 3/28/14 4:45 AM | 3/28/14 5:30 AM | 0.03 | 107,808 | 0.26 | 414,646 | 0.31 | 0.12 | 12 hr | CloudBurst |
| CSO152 | 3/29/14 6:45 AM | 3/29/14 1:45 PM | 0.29 | 353,871 | 1.00 | 353,871 | 1.31 | 0.46 | 12 hr | CloudBurst |
| CSO152 | 7/1/13 7:15 PM | 7/1/13 7:45 PM | 0.02 | 222,274 | 0.30 | 740,913 | 3.96 | 0.14 | 3 hr | CloudBurst |
| CSO152 | 7/2/13 1:45 PM | 7/2/13 2:00 PM | 0.01 | 194,802 | 0.10 | 1,948,020 | 4.06 | 0.09 | 1 hr | CloudBurst |
| CSO152 | 7/3/13 6:45 PM | 7/3/13 7:00 PM | 0.01 | 130,243 | 0.07 | 1,860,615 | 1.79 | 0.05 | 3 hr | CloudBurst |
| CSO152 | 7/4/13 7:15 AM | 7/4/13 2:15 PM | 0.29 | 480,071 | 0.56 | 857,269 | 1.40 | 0.24 | 12 hr | CloudBurst |
| CSO152 | 7/6/13 1:15 AM | 7/6/13 8:30 AM | 0.30 | 1,743,983 | 0.62 | 2,812,876 | 2.13 | 0.27 | 12 hr | CloudBurst |
| CSO152 | 7/10/13 1:00 PM | 7/10/13 3:30 PM | 0.10 | 1,351,269 | 0.66 | 2,047,378 | 1.98 | 0.43 | 1 hr | CloudBurst |
| CSO152 | 7/14/13 8:00 PM | 7/14/13 8:15 PM | 0.01 | 323,717 | 0.12 | 2,697,643 | 0.86 | 0.10 | 1 hr | CloudBurst |
| CSO152 | 7/18/13 4:30 PM | 7/18/13 5:15 PM | 0.03 | 462,734 | 0.21 | 2,203,497 | 0.35 | 0.14 | 3 hr | CloudBurst |
| CSO152 | 7/21/13 7:45 PM | 7/21/13 9:15 PM | 0.06 | 1,111,653 | 2.92 | 380,703 | 2.05 | 2.14 | 3 hr | Atlas14 |
| CSO152 | 7/22/13 7:15 AM | 7/22/13 5:00 PM | 0.41 | 3,245,269 | 2.92 | 1,111,393 | 3.14 | 2.14 | 3 hr | Atlas14 |
| CSO152 | 8/9/13 6:00 PM | 8/9/13 6:00 PM | 0.01 | 5,861 | 0.22 | 26,639 | 0.26 | 0.13 | 1 hr | CloudBurst |
| CSO152 | 8/12/13 3:00 PM | 8/12/13 3:45 PM | 0.03 | 1,105,852 | 0.85 | 1,301,003 | 0.89 | 0.40 | 1 hr | CloudBurst |
| CSO152 | 8/13/13 3:15 AM | 8/13/13 4:00 AM | 0.03 | 96,696 | 0.85 | 113,760 | 1.20 | 0.40 | 1 hr | CloudBurst |
| CSO152 | 8/20/13 6:15 PM | 8/20/13 7:00 PM | 0.03 | 192,739 | 0.25 | 770,956 | 0.26 | 0.16 | 1 hr | CloudBurst |
| CSO152 | 8/31/13 8:15 PM | 9/1/13 4:00 AM | 0.32 | 278,751 | 1.13 | 246,683 | 1.10 | 0.52 | 12 hr | CloudBurst |
| CSO152 | 9/2/13 2:00 PM | 9/2/13 3:00 PM | 0.04 | 176,280 | 0.56 | 314,785 | 1.69 | 0.49 | 1 hr | CloudBurst |
| CSO152 | 9/11/13 10:30 AM | 9/11/13 11:00 AM | 0.02 | 17,626 | 0.04 | 440,659 | 0.04 | 0.03 | 3 hr | CloudBurst |
| CSO152 | 9/20/13 4:45 PM | 9/21/13 5:45 AM | 0.54 | 720,587 | 1.26 | 571,894 | 1.32 | 0.52 | 12 hr | CloudBurst |
| CSO152 | 10/4/13 7:15 PM | 10/4/13 7:45 PM | 0.02 | 15,979 | 0.10 | 159,789 | 0.17 | 0.09 | 1 hr | CloudBurst |
| CSO152 | 10/5/13 12:45 PM | 10/6/13 6:30 PM | 1.24 | 4,186,248 | 4.59 | 912,037 | 4.76 | 11.17 | 24 hr | CloudBurst |
| CSO152 | 10/30/13 1:45 AM | 10/30/13 7:30 AM | 0.24 | 624,959 | 1.48 | 422,270 | 1.48 | 0.77 | 1 hr | CloudBurst |
| CSO152 | 10/31/13 8:00 PM | 10/31/13 10:45 PM | 0.11 | 164,169 | 0.59 | 278,253 | 2.06 | 0.23 | 24 hr | CloudBurst |
| CSO152 | 11/15/13 6:45 PM | 11/15/13 6:45 PM | 0.00 | 5,702 | 0.11 | 51,835 | 0.16 | 0.10 | 1 hr | CloudBurst |
| CSO152 | 11/17/13 5:15 AM | 11/17/13 8:30 PM | 0.64 | 785,780 | 2.53 | 310,585 | 2.69 | 1.64 | 6 hr | CloudBurst |
| CSO152 | 12/5/13 5:45 AM | 12/5/13 10:45 AM | 0.21 | 168,223 | 0.72 | 233,643 | 0.21 | 0.23 | 48 hr | CloudBurst |
| CSO152 | 12/6/13 4:00 AM | 12/6/13 1:00 PM | 0.38 | 33,009 | 0.72 | 45,846 | 0.42 | 0.23 | 48 hr | CloudBurst |
| CSO152 | 12/14/13 7:30 AM | 12/14/13 12:15 PM | 0.20 | 230,137 | 0.85 | 270,750 | 1.14 | 0.36 | 6 hr | CloudBurst |
| CSO152 | 12/21/13 5:30 AM | 12/22/13 6:15 AM | 1.03 | 1,964,344 | 2.40 | 818,477 | 2.96 | 0.91 | 24 hr | CloudBurst |
| CSO152 | 12/29/13 3:00 AM | 12/29/13 7:15 AM | 0.18 | 119,501 | 0.51 | 234,316 | 0.48 | 0.22 | 12 hr | CloudBurst |
| CSO152 | 4/3/14 12:15 PM | 4/4/14 10:00 AM | 0.91 | 2,405,133 | 2.65 | 907,597 | 4.02 | 0.93 | 24 hr | CloudBurst |
| CSO152 | 4/7/14 8:15 AM | 4/7/14 4:15 PM | 0.33 | 437,868 | 0.73 | 599,819 | 3.49 | 0.43 | 3 hr | CloudBurst |
| CSO152 | 4/14/14 3:45 AM | 4/14/14 11:00 AM | 0.30 | 85,089 | 0.38 | 223,918 | 1.15 | 0.19 | 6 hr | CloudBurst |
| CSO152 | 4/14/14 7:45 PM | 4/15/14 3:15 AM | 0.31 | 629,349 | 0.63 | 998,967 | 1.05 | 0.29 | 12 hr | CloudBurst |
| CSO152 | 4/27/14 8:30 PM | 4/28/14 8:45 AM | 0.51 | 329,845 | 1.77 | 186,353 | 1.47 | 0.70 | 3 hr | CloudBurst |
| CSO152 | 4/28/14 5:00 PM | 4/28/14 8:45 PM | 0.16 | 125,498 | 1.77 | 70,903 | 1.86 | 0.70 | 3 hr | CloudBurst |
| CSO152 | 5/9/14 7:45 PM | 5/10/14 4:15 PM | 0.85 | 531,832 | 1.60 | 332,395 | 1.60 | 0.59 | 24 hr | CloudBurst |
| CSO152 | 5/14/14 7:30 AM | 5/15/14 1:15 AM | 0.74 | 647,147 | 1.11 | 583,016 | 2.76 | 0.43 | 24 hr | CloudBurst |
| CSO152 | 5/21/14 9:15 PM | 5/22/14 4:45 AM | 0.31 | 325,522 | 0.45 | 723,382 | 0.60 | 0.23 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO152 | 5/28/14 8:45 PM | 5/28/14 9:00 PM | 0.01 | 95,805 | 0.21 | 456,215 | 0.63 | 0.17 | 1 hr | CloudBurst |
| CSO152 | 5/29/14 9:00 PM | 5/29/14 10:30 PM | 0.06 | 498,009 | 0.85 | 585,893 | 1.09 | 0.70 | 1 hr | CloudBurst |
| CSO152 | 6/11/14 2:30 PM | 6/11/14 3:15 PM | 0.03 | 107,334 | 0.11 | 975,766 | 0.31 | 0.06 | 1 hr | CloudBurst |
| CSO152 | 6/20/14 4:15 PM | 6/20/14 6:15 PM | 0.08 | 127,627 | 0.24 | 531,779 | 0.24 | 0.16 | 3 hr | CloudBurst |
| CSO152 | 6/24/14 1:45 PM | 6/24/14 2:15 PM | 0.02 | 45,113 | 0.24 | 187,972 | 0.52 | 0.17 | 1 hr | CloudBurst |
| CSO153 | 1/5/14 2:45 PM | 1/5/14 8:00 PM | 0.22 | 162,650 | 0.49 | 331,938 | 0.67 | 0.25 | 3 hr | CloudBurst |
| CSO153 | 1/11/14 12:00 AM | 1/11/14 5:15 AM | 0.22 | 408,244 | 0.81 | 504,005 | 1.31 | 0.44 | 6 hr | CloudBurst |
| CSO153 | 2/2/14 4:00 AM | 2/2/14 7:30 AM | 0.15 | 87,703 | 0.22 | 398,650 | 0.21 | 0.12 | 6 hr | CloudBurst |
| CSO153 | 2/4/14 7:00 PM | 2/5/14 12:45 AM | 0.24 | 655,470 | 0.51 | 1,285,235 | 0.98 | 0.25 | 6 hr | CloudBurst |
| CSO153 | 2/14/14 5:00 PM | 2/14/14 6:15 PM | 0.05 | 33,589 | 0.49 | 68,549 | 0.44 | 0.26 | 6 hr | CloudBurst |
| CSO153 | 2/17/14 3:30 PM | 2/17/14 7:15 PM | 0.16 | 289,279 | 0.65 | 445,045 | 1.20 | 0.38 | 3 hr | CloudBurst |
| CSO153 | 2/20/14 11:00 PM | 2/21/14 12:15 AM | 0.05 | 62,042 | 0.17 | 364,956 | 1.38 | 0.09 | 6 hr | CloudBurst |
| CSO153 | 3/2/14 9:30 AM | 3/2/14 11:15 AM | 0.07 | 113,495 | 0.53 | 214,141 | 0.25 | 0.20 | 24 hr | CloudBurst |
| CSO153 | 3/12/14 7:15 AM | 3/12/14 7:15 AM | 0.00 | 11,550 | 0.10 | 115,498 | 0.09 | 0.05 | 1 hr | CloudBurst |
| CSO153 | 3/28/14 4:30 AM | 3/28/14 4:45 AM | 0.01 | 35,540 | 0.32 | 111,061 | 0.37 | 0.17 | 1 hr | CloudBurst |
| CSO153 | 3/29/14 6:15 AM | 3/29/14 1:15 PM | 0.29 | 460,057 | 0.94 | 489,422 | 1.30 | 0.44 | 6 hr | CloudBurst |
| CSO153 | 7/1/13 6:45 PM | 7/1/13 7:00 PM | 0.01 | 15,966 | 0.27 | 59,132 | 4.02 | 0.14 | 3 hr | CloudBurst |
| CSO153 | 7/2/13 1:00 PM | 7/2/13 1:15 PM | 0.01 | 37,826 | 0.15 | 252,176 | 4.20 | 0.13 | 1 hr | CloudBurst |
| CSO153 | 7/4/13 11:15 AM | 7/4/13 11:45 AM | 0.02 | 36,449 | 0.52 | 70,095 | 1.23 | 0.22 | 12 hr | CloudBurst |
| CSO153 | 7/6/13 1:00 AM | 7/6/13 7:00 AM | 0.25 | 256,525 | 0.67 | 382,873 | 2.10 | 0.29 | 12 hr | CloudBurst |
| CSO153 | 7/10/13 1:45 PM | 7/10/13 2:30 PM | 0.03 | 251,480 | 0.91 | 276,351 | 2.15 | 0.61 | 1 hr | CloudBurst |
| CSO153 | 7/14/13 7:15 PM | 7/14/13 7:30 PM | 0.01 | 186,833 | 0.19 | 983,334 | 1.18 | 0.17 | 1 hr | CloudBurst |
| CSO153 | 7/21/13 7:30 PM | 7/21/13 8:30 PM | 0.04 | 63,403 | 2.15 | 29,490 | 1.18 | 0.83 | 24 hr | CloudBurst |
| CSO153 | 7/22/13 7:00 AM | 7/22/13 1:45 PM | 0.28 | 745,655 | 2.15 | 346,816 | 2.35 | 0.83 | 24 hr | CloudBurst |
| CSO153 | 8/12/13 2:30 PM | 8/12/13 3:00 PM | 0.02 | 166,789 | 0.76 | 219,459 | 0.66 | 0.30 | 1 hr | CloudBurst |
| CSO153 | 8/13/13 3:00 AM | 8/13/13 3:30 AM | 0.02 | 40,700 | 0.76 | 53,553 | 1.01 | 0.30 | 1 hr | CloudBurst |
| CSO153 | 8/20/13 6:00 PM | 8/20/13 7:15 PM | 0.05 | 142,742 | 0.16 | 892,135 | 0.18 | 0.10 | 1 hr | CloudBurst |
| CSO153 | 8/31/13 7:30 PM | 9/1/13 12:45 AM | 0.22 | 477,600 | 1.29 | 370,232 | 1.07 | 0.63 | 1 hr | CloudBurst |
| CSO153 | 9/2/13 1:45 PM | 9/2/13 2:00 PM | 0.01 | 105,377 | 0.25 | 421,508 | 1.54 | 0.22 | 1 hr | CloudBurst |
| CSO153 | 9/20/13 4:15 PM | 9/21/13 3:45 AM | 0.48 | 755,927 | 1.23 | 614,575 | 1.21 | 0.51 | 12 hr | CloudBurst |
| CSO153 | 10/5/13 12:45 PM | 10/6/13 6:15 AM | 0.73 | 2,631,275 | 4.21 | 625,006 | 3.67 | 7.58 | 24 hr | CloudBurst |
| CSO153 | 10/30/13 1:00 AM | 10/30/13 6:30 AM | 0.23 | 474,857 | 1.35 | 351,746 | 1.34 | 0.67 | 6 hr | CloudBurst |
| CSO153 | 10/31/13 7:15 PM | 10/31/13 9:45 PM | 0.10 | 136,245 | 0.65 | 209,607 | 1.95 | 0.25 | 24 hr | CloudBurst |
| CSO153 | 11/17/13 4:30 AM | 11/17/13 9:15 AM | 0.20 | 1,684,443 | 2.23 | 755,356 | 1.86 | 0.94 | 6 hr | CloudBurst |
| CSO153 | 11/17/13 5:30 PM | 11/17/13 6:45 PM | 0.05 | 494,785 | 2.23 | 221,877 | 2.29 | 0.94 | 6 hr | CloudBurst |
| CSO153 | 12/5/13 5:00 AM | 12/5/13 8:00 AM | 0.13 | 123,173 | 0.81 | 152,065 | 0.21 | 0.26 | 48 hr | CloudBurst |
| CSO153 | 12/14/13 8:45 AM | 12/14/13 11:15 AM | 0.10 | 95,403 | 0.77 | 123,900 | 1.11 | 0.31 | 12 hr | CloudBurst |
| CSO153 | 12/21/13 5:15 AM | 12/21/13 12:45 PM | 0.31 | 439,067 | 1.07 | 410,343 | 1.57 | 0.50 | 12 hr | CloudBurst |
| CSO153 | 12/21/13 9:30 PM | 12/22/13 12:00 AM | 0.10 | 712,985 | 1.67 | 426,937 | 2.53 | 0.90 | 6 hr | CloudBurst |
| CSO153 | 12/29/13 6:00 AM | 12/29/13 7:15 AM | 0.05 | 63,658 | 0.50 | 127,315 | 0.42 | 0.22 | 12 hr | CloudBurst |
| CSO153 | 4/3/14 5:30 AM | 4/4/14 3:45 AM | 0.93 | 1,655,429 | 2.61 | 634,264 | 3.46 | 0.92 | 24 hr | CloudBurst |
| CSO153 | 4/7/14 9:00 AM | 4/7/14 1:30 PM | 0.19 | 561,271 | 0.76 | 738,515 | 3.44 | 0.46 | 3 hr | Atlas14 |
| CSO153 | 4/14/14 3:30 AM | 4/14/14 10:15 AM | 0.28 | 26,796 | 1.03 | 26,015 | 1.24 | 0.39 | 24 hr | CloudBurst |
| CSO153 | 4/14/14 8:00 PM | 4/15/14 3:00 AM | 0.29 | 318,904 | 1.03 | 309,616 | 1.12 | 0.39 | 24 hr | CloudBurst |
| CSO153 | 4/27/14 8:00 PM | 4/28/14 8:00 PM | 1.00 | 819,444 | 1.87 | 438,205 | 1.96 | 0.73 | 3 hr | Atlas14 |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO153 | 5/9/14 7:00 PM | 5/10/14 3:30 PM | 0.85 | 852,890 | 1.90 | 448,890 | 1.88 | 0.71 | 24 hr | CloudBurst |
| CSO153 | 5/14/14 6:45 AM | 5/14/14 11:00 PM | 0.68 | 195,311 | 1.00 | 195,311 | 2.91 | 0.38 | 24 hr | CloudBurst |
| CSO153 | 5/21/14 9:00 PM | 5/22/14 3:45 AM | 0.28 | 244,094 | 0.49 | 498,151 | 0.59 | 0.23 | 12 hr | CloudBurst |
| CSO153 | 5/28/14 8:30 PM | 5/28/14 8:45 PM | 0.01 | 56,806 | 0.25 | 227,223 | 0.73 | 0.21 | 1 hr | CloudBurst |
| CSO153 | 5/29/14 8:45 PM | 5/29/14 9:00 PM | 0.01 | 252,447 | 0.45 | 560,994 | 0.69 | 0.38 | 1 hr | CloudBurst |
| CSO153 | 6/11/14 2:15 PM | 6/11/14 2:30 PM | 0.01 | 78,220 | 0.12 | 651,830 | 0.30 | 0.09 | 1 hr | CloudBurst |
| CSO153 | 6/20/14 5:30 PM | 6/20/14 5:30 PM | 0.01 | 12,306 | 0.18 | 68,368 | 0.18 | 0.12 | 3 hr | CloudBurst |
| CSO153 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 13,153 | 0.12 | 109,612 | 0.32 | 0.07 | 1 hr | CloudBurst |
| CSO154 | 1/11/14 2:30 AM | 1/11/14 3:30 AM | 0.04 | 11,247 | 0.91 | 12,359 | 1.23 | 0.50 | 6 hr | CloudBurst |
| CSO154 | 2/4/14 8:15 PM | 2/5/14 1:30 AM | 0.22 | 133,832 | 0.51 | 262,416 | 0.94 | 0.25 | 6 hr | CloudBurst |
| CSO154 | 2/17/14 4:15 PM | 2/17/14 5:00 PM | 0.03 | 20,396 | 0.47 | 43,395 | 0.96 | 0.28 | 3 hr | CloudBurst |
| CSO154 | 3/29/14 6:45 AM | 3/29/14 8:45 AM | 0.08 | 25,290 | 1.00 | 25,290 | 1.03 | 0.47 | 6 hr | CloudBurst |
| CSO154 | 9/20/13 10:30 PM | 9/21/13 4:00 AM | 0.23 | 3,526 | 1.61 | 2,190 | 1.58 | 0.68 | 12 hr | CloudBurst |
| CSO154 | 10/5/13 1:45 PM | 10/6/13 6:00 AM | 0.68 | 2,135,538 | 4.40 | 485,349 | 3.50 | 8.39 | 24 hr | CloudBurst |
| CSO154 | 10/30/13 5:15 AM | 10/30/13 5:30 AM | 0.01 | 7,620 | 1.04 | 7,327 | 0.94 | 0.49 | 6 hr | CloudBurst |
| CSO154 | 11/17/13 6:30 AM | 11/17/13 9:15 AM | 0.11 | 820,452 | 2.78 | 295,127 | 2.36 | 2.00 | 6 hr | CloudBurst |
| CSO154 | 11/17/13 6:00 PM | 11/17/13 11:00 PM | 0.21 | 1,444 | 2.78 | 519 | 2.94 | 2.00 | 6 hr | CloudBurst |
| CSO154 | 12/21/13 8:00 AM | 12/21/13 12:30 PM | 0.19 | 20,439 | 1.03 | 19,844 | 1.33 | 0.48 | 12 hr | CloudBurst |
| CSO154 | 12/21/13 9:45 PM | 12/21/13 11:15 PM | 0.06 | 678,881 | 1.55 | 437,988 | 2.18 | 0.83 | 3 hr | Atlas14 |
| CSO154 | 4/3/14 12:00 PM | 4/4/14 1:45 PM | 1.07 | 1,081,874 | 2.55 | 424,264 | 3.88 | 0.90 | 24 hr | CloudBurst |
| CSO154 | 4/7/14 10:45 AM | 4/7/14 1:00 PM | 0.09 | 3,607,145 | 0.84 | 4,294,221 | 3.45 | 0.50 | 1 hr | CloudBurst |
| CSO154 | 4/14/14 8:45 PM | 4/14/14 9:00 PM | 0.01 | 8,116 | 0.61 | 13,305 | 0.81 | 0.28 | 12 hr | CloudBurst |
| CSO154 | 4/27/14 8:00 PM | 4/28/14 8:30 AM | 0.52 | 1,144,031 | 2.03 | 563,562 | 1.68 | 0.75 | 3 hr | Atlas14 |
| CSO154 | 5/9/14 7:15 PM | 5/9/14 7:15 PM | 0.01 | 730 | 1.66 | 440 | 0.26 | 0.64 | 24 hr | CloudBurst |
| CSO154 | 5/10/14 5:45 AM | 5/10/14 5:45 AM | 0.01 | 704 | 1.66 | 424 | 0.80 | 0.64 | 24 hr | CloudBurst |
| CSO154 | 5/10/14 2:15 PM | 5/10/14 3:45 PM | 0.06 | 228,644 | 1.66 | 137,737 | 1.72 | 0.64 | 24 hr | CloudBurst |
| CSO154 | 5/21/14 9:00 PM | 5/21/14 11:45 PM | 0.11 | 16,377 | 0.71 | 23,066 | 0.47 | 0.33 | 12 hr | CloudBurst |
| CSO154 | 5/29/14 8:45 PM | 5/29/14 10:00 PM | 0.05 | 270,828 | 0.74 | 365,984 | 0.94 | 0.63 | 1 hr | CloudBurst |
| CSO155 | 1/10/14 11:45 PM | 1/11/14 12:00 AM | 0.01 | 1,888 | 0.77 | 2,452 | 0.64 | 0.41 | 6 hr | CloudBurst |
| CSO155 | 2/4/14 9:30 PM | 2/4/14 11:00 PM | 0.06 | 346 | 0.62 | 559 | 1.09 | 0.30 | 6 hr | CloudBurst |
| CSO155 | 2/17/14 2:30 PM | 2/17/14 4:30 PM | 0.08 | 23,470 | 0.52 | 45,134 | 0.77 | 0.30 | 3 hr | CloudBurst |
| CSO155 | 2/20/14 10:45 PM | 2/20/14 11:00 PM | 0.01 | 1,610 | 0.18 | 8,944 | 1.02 | 0.09 | 6 hr | CloudBurst |
| CSO155 | 3/28/14 4:00 AM | 3/28/14 4:00 AM | 0.00 | 15 | 0.34 | 44 | 0.33 | 0.18 | 6 hr | CloudBurst |
| CSO155 | 3/29/14 6:15 AM | 3/29/14 6:30 AM | 0.01 | 160 | 0.82 | 195 | 0.66 | 0.38 | 12 hr | CloudBurst |
| CSO155 | 7/2/13 1:00 PM | 7/2/13 1:00 PM | 0.01 | 13,434 | 0.05 | 268,686 | 3.77 | 0.04 | 1 hr | CloudBurst |
| CSO155 | 7/6/13 4:45 AM | 7/6/13 4:45 AM | 0.01 | 106 | 0.56 | 190 | 1.95 | 0.25 | 12 hr | CloudBurst |
| CSO155 | 7/10/13 1:45 PM | 7/10/13 2:15 PM | 0.02 | 32,248 | 0.68 | 47,423 | 1.84 | 0.44 | 3 hr | Atlas14 |
| CSO155 | 7/18/13 3:45 PM | 7/18/13 4:15 PM | 0.02 | 32,735 | 0.34 | 96,280 | 0.47 | 0.26 | 1 hr | CloudBurst |
| CSO155 | 7/21/13 7:45 PM | 7/21/13 8:15 PM | 0.02 | 3,045 | 1.85 | 1,646 | 1.17 | 0.72 | 24 hr | CloudBurst |
| CSO155 | 7/22/13 6:45 AM | 7/22/13 1:30 PM | 0.28 | 44,464 | 1.85 | 24,035 | 2.23 | 0.72 | 24 hr | CloudBurst |
| CSO155 | 8/12/13 2:30 PM | 8/12/13 2:30 PM | 0.01 | 23,692 | 1.04 | 22,781 | 0.82 | 0.50 | 1 hr | CloudBurst |
| CSO155 | 8/13/13 2:15 AM | 8/13/13 2:15 AM | 0.01 | 892 | 1.04 | 858 | 1.08 | 0.50 | 1 hr | CloudBurst |
| CSO155 | 8/31/13 7:45 PM | 8/31/13 10:15 PM | 0.10 | 33,526 | 1.38 | 24,295 | 0.89 | 0.64 | 12 hr | CloudBurst |
| CSO155 | 9/2/13 1:15 PM | 9/2/13 1:30 PM | 0.01 | 24,320 | 0.40 | 60,800 | 1.72 | 0.35 | 1 hr | CloudBurst |
| CSO155 | 9/20/13 4:15 PM | 9/20/13 10:30 PM | 0.26 | 16,092 | 1.57 | 10,250 | 1.03 | 0.65 | 12 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO155 | 10/5/13 1:15 PM | 10/6/13 8:00 AM | 0.78 | 274,482 | 4.32 | 63,538 | 4.38 | 8.63 | 24 hr | CloudBurst |
| CSO155 | 10/30/13 1:00 AM | 10/30/13 5:15 AM | 0.18 | 30,629 | 1.27 | 24,117 | 1.18 | 0.61 | 6 hr | CloudBurst |
| CSO155 | 10/31/13 7:15 PM | 10/31/13 7:30 PM | 0.01 | 3,305 | 0.80 | 4,132 | 2.01 | 0.34 | 12 hr | CloudBurst |
| CSO155 | 11/17/13 4:00 AM | 11/17/13 9:15 AM | 0.22 | 85,630 | 2.95 | 29,027 | 2.31 | 2.00 | 6 hr | CloudBurst |
| CSO155 | 11/17/13 5:45 PM | 11/17/13 5:45 PM | 0.00 | 49 | 2.95 | 17 | 2.72 | 2.00 | 6 hr | CloudBurst |
| CSO155 | 12/5/13 7:00 AM | 12/5/13 7:15 AM | 0.01 | 4,690 | 0.79 | 5,936 | 0.18 | 0.26 | 48 hr | CloudBurst |
| CSO155 | 12/21/13 3:15 AM | 12/21/13 10:30 AM | 0.30 | 1,776 | 3.11 | 571 | 1.57 | 1.82 | 24 hr | CloudBurst |
| CSO155 | 12/21/13 9:00 PM | 12/21/13 11:45 PM | 0.11 | 111,575 | 3.11 | 35,876 | 2.82 | 1.82 | 24 hr | CloudBurst |
| CSO155 | 4/3/14 7:45 AM | 4/3/14 2:45 PM | 0.29 | 16,744 | 3.33 | 5,028 | 2.40 | 1.88 | 24 hr | CloudBurst |
| CSO155 | 4/4/14 12:15 AM | 4/4/14 3:00 AM | 0.11 | 5,545 | 3.33 | 1,665 | 3.95 | 1.88 | 24 hr | CloudBurst |
| CSO155 | 4/7/14 8:30 AM | 4/7/14 11:45 AM | 0.14 | 35,838 | 0.89 | 40,267 | 4.32 | 0.55 | 1 hr | CloudBurst |
| CSO155 | 4/14/14 8:00 PM | 4/14/14 8:00 PM | 0.01 | 786 | 1.15 | 684 | 0.73 | 0.44 | 24 hr | CloudBurst |
| CSO155 | 4/28/14 4:00 AM | 4/28/14 6:45 AM | 0.11 | 77,217 | 1.90 | 40,640 | 1.41 | 0.76 | 3 hr | CloudBurst |
| CSO155 | 4/28/14 4:30 PM | 4/28/14 4:30 PM | 0.01 | 92 | 1.90 | 48 | 1.82 | 0.76 | 3 hr | CloudBurst |
| CSO155 | 5/9/14 7:15 PM | 5/9/14 7:15 PM | 0.01 | 4,435 | 1.49 | 2,977 | 0.25 | 0.58 | 1 hr | CloudBurst |
| CSO155 | 5/10/14 5:30 AM | 5/10/14 5:30 AM | 0.01 | 15,869 | 1.49 | 10,650 | 0.68 | 0.58 | 1 hr | CloudBurst |
| CSO155 | 5/10/14 2:15 PM | 5/10/14 3:00 PM | 0.03 | 25,001 | 1.49 | 16,779 | 1.55 | 0.58 | 1 hr | CloudBurst |
| CSO155 | 5/21/14 8:45 PM | 5/22/14 3:15 AM | 0.27 | 2,485 | 0.65 | 3,823 | 0.84 | 0.30 | 12 hr | CloudBurst |
| CSO155 | 5/28/14 8:15 PM | 5/28/14 8:30 PM | 0.01 | 26,843 | 0.65 | 41,297 | 1.30 | 0.55 | 1 hr | CloudBurst |
| CSO155 | 6/11/14 2:00 PM | 6/11/14 2:00 PM | 0.01 | 10,869 | 0.15 | 72,460 | 0.33 | 0.12 | 1 hr | CloudBurst |
| CSO155 | 6/20/14 5:15 PM | 6/20/14 5:15 PM | 0.01 | 14,004 | 0.23 | 60,889 | 0.24 | 0.15 | 3 hr | CloudBurst |
| CSO160 | 1/2/14 3:00 AM | 1/2/14 9:30 AM | 0.27 | 715 | 0.23 | 3,108 | 0.71 | 0.11 | 3 hr | CloudBurst |
| CSO160 | 1/5/14 2:30 PM | 1/5/14 9:45 PM | 0.30 | 10,571 | 0.59 | 17,917 | 0.82 | 0.30 | 6 hr | CloudBurst |
| CSO160 | 1/10/14 11:45 PM | 1/11/14 6:00 AM | 0.26 | 8,539 | 0.87 | 9,815 | 1.47 | 0.47 | 6 hr | CloudBurst |
| CSO160 | 1/13/14 8:15 AM | 1/13/14 5:15 PM | 0.38 | 1,700 | 0.19 | 8,949 | 1.07 | 0.09 | 3 hr | CloudBurst |
| CSO160 | 1/14/14 6:15 PM | 1/14/14 6:45 PM | 0.02 | 114 | 0.01 | 11,422 | 1.08 | 0.01 | 6 hr | CloudBurst |
| CSO160 | 1/21/14 3:00 AM | 1/21/14 2:30 PM | 0.48 | 914 | 0.16 | 5,711 | 0.18 | 0.07 | 12 hr | CloudBurst |
| CSO160 | 1/25/14 12:15 PM | 1/25/14 2:00 PM | 0.07 | 270 | 0.06 | 4,501 | 0.24 | 0.03 | 12 hr | CloudBurst |
| CSO160 | 2/2/14 1:45 AM | 2/2/14 8:15 AM | 0.27 | 2,597 | 0.51 | 5,092 | 0.22 | 0.19 | 24 hr | CloudBurst |
| CSO160 | 2/2/14 4:45 PM | 2/2/14 8:45 PM | 0.17 | 149 | 0.51 | 292 | 0.32 | 0.19 | 24 hr | CloudBurst |
| CSO160 | 2/3/14 9:45 AM | 2/3/14 3:00 PM | 0.22 | 421 | 0.51 | 825 | 0.51 | 0.19 | 24 hr | CloudBurst |
| CSO160 | 2/4/14 6:30 PM | 2/5/14 12:45 AM | 0.26 | 6,064 | 0.53 | 11,441 | 1.04 | 0.26 | 6 hr | CloudBurst |
| CSO160 | 2/14/14 4:15 PM | 2/14/14 6:00 PM | 0.07 | 578 | 0.44 | 1,314 | 0.40 | 0.24 | 6 hr | CloudBurst |
| CSO160 | 2/17/14 2:15 PM | 2/17/14 6:00 PM | 0.16 | 1,871 | 0.71 | 2,635 | 1.21 | 0.42 | 3 hr | CloudBurst |
| CSO160 | 2/20/14 6:45 PM | 2/21/14 12:30 AM | 0.24 | 3,586 | 0.16 | 22,410 | 1.37 | 0.09 | 6 hr | CloudBurst |
| CSO160 | 3/2/14 9:15 AM | 3/2/14 11:45 AM | 0.10 | 1,138 | 0.55 | 2,069 | 0.27 | 0.21 | 24 hr | CloudBurst |
| CSO160 | 3/3/14 1:00 PM | 3/3/14 2:45 PM | 0.07 | 138 | 0.55 | 251 | 0.56 | 0.21 | 24 hr | CloudBurst |
| CSO160 | 3/12/14 7:00 AM | 3/12/14 7:45 AM | 0.03 | 569 | 0.08 | 7,111 | 0.08 | 0.04 | 1 hr | CloudBurst |
| CSO160 | 3/16/14 5:15 PM | 3/16/14 7:15 PM | 0.08 | 202 | 0.08 | 2,530 | 0.17 | 0.05 | 3 hr | CloudBurst |
| CSO160 | 3/19/14 8:00 AM | 3/19/14 9:00 AM | 0.04 | 380 | 0.07 | 5,431 | 0.17 | 0.05 | 3 hr | CloudBurst |
| CSO160 | 3/27/14 11:15 PM | 3/28/14 5:30 AM | 0.26 | 2,902 | 0.33 | 8,793 | 0.39 | 0.17 | 1 hr | CloudBurst |
| CSO160 | 3/29/14 5:00 AM | 3/29/14 2:15 PM | 0.39 | 7,350 | 1.15 | 6,391 | 1.54 | 0.56 | 3 hr | Atlas14 |
| CSO160 | 7/1/13 6:30 PM | 7/1/13 7:45 PM | 0.05 | 284 | 0.26 | 1,090 | 3.67 | 0.13 | 3 hr | CloudBurst |
| CSO160 | 7/2/13 1:00 PM | 7/2/13 1:00 PM | 0.01 | 1,346 | 0.12 | 11,214 | 3.75 | 0.10 | 1 hr | CloudBurst |
| CSO160 | 7/3/13 5:00 PM | 7/3/13 5:15 PM | 0.01 | 139 | 0.05 | 2,784 | 1.58 | 0.03 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO160 | 7/4/13 6:15 AM | 7/4/13 5:30 PM | 0.47 | 1,461 | 0.49 | 2,982 | 1.38 | 0.21 | 12 hr | CloudBurst |
| CSO160 | 7/6/13 12:15 AM | 7/6/13 8:15 AM | 0.33 | 2,622 | 0.61 | 4,299 | 1.97 | 0.27 | 12 hr | CloudBurst |
| CSO160 | 7/10/13 1:45 PM | 7/10/13 2:30 PM | 0.03 | 1,564 | 0.62 | 2,522 | 1.79 | 0.45 | 1 hr | CloudBurst |
| CSO160 | 7/14/13 7:15 PM | 7/14/13 7:30 PM | 0.01 | 402 | 0.10 | 4,016 | 0.78 | 0.09 | 1 hr | CloudBurst |
| CSO160 | 7/18/13 3:30 PM | 7/18/13 4:00 PM | 0.02 | 774 | 0.26 | 2,978 | 0.38 | 0.19 | 1 hr | CloudBurst |
| CSO160 | 7/21/13 8:00 PM | 7/22/13 4:00 PM | 0.83 | 9,468 | 1.89 | 5,010 | 2.17 | 0.73 | 24 hr | CloudBurst |
| CSO160 | 7/27/13 5:45 AM | 7/27/13 5:45 AM | 0.01 | 13 | 0.04 | 333 | 1.94 | 0.02 | 24 hr | CloudBurst |
| CSO160 | 7/30/13 6:00 PM | 7/30/13 7:30 PM | 0.06 | 321 | 0.12 | 2,672 | 0.16 | 0.07 | 6 hr | CloudBurst |
| CSO160 | 8/10/13 8:45 AM | 8/10/13 10:00 AM | 0.05 | 213 | 0.07 | 3,046 | 0.25 | 0.05 | 3 hr | CloudBurst |
| CSO160 | 8/12/13 11:45 AM | 8/12/13 4:15 PM | 0.19 | 2,373 | 0.82 | 2,894 | 0.77 | 0.37 | 1 hr | CloudBurst |
| CSO160 | 8/13/13 2:15 AM | 8/13/13 3:45 AM | 0.06 | 2,026 | 0.82 | 2,470 | 1.07 | 0.37 | 1 hr | CloudBurst |
| CSO160 | 8/20/13 6:00 PM | 8/20/13 7:15 PM | 0.05 | 1,347 | 0.17 | 7,922 | 0.19 | 0.09 | 6 hr | CloudBurst |
| CSO160 | 8/31/13 7:30 PM | 9/1/13 5:00 AM | 0.40 | 2,925 | 1.38 | 2,120 | 1.38 | 0.71 | 1 hr | CloudBurst |
| CSO160 | 9/2/13 1:30 PM | 9/2/13 2:00 PM | 0.02 | 824 | 0.56 | 1,471 | 1.94 | 0.49 | 1 hr | CloudBurst |
| CSO160 | 9/12/13 1:00 PM | 9/12/13 1:00 PM | 0.01 | 116 | 0.04 | 2,892 | 0.05 | 0.03 | 3 hr | CloudBurst |
| CSO160 | 9/20/13 4:15 PM | 9/21/13 5:30 AM | 0.55 | 4,570 | 1.14 | 4,009 | 1.22 | 0.47 | 12 hr | CloudBurst |
| CSO160 | 10/3/13 2:30 AM | 10/3/13 2:30 AM | 0.00 | 31 | 0.06 | 509 | 0.10 | 0.03 | 12 hr | CloudBurst |
| CSO160 | 10/4/13 7:00 PM | 10/4/13 7:00 PM | 0.00 | 22 | 0.05 | 433 | 0.15 | 0.04 | 1 hr | CloudBurst |
| CSO160 | 10/5/13 12:15 PM | 10/6/13 3:45 PM | 1.15 | 12,336 | 3.98 | 3,099 | 4.08 | 5.56 | 24 hr | CloudBurst |
| CSO160 | 10/17/13 9:30 AM | 10/17/13 9:30 AM | 0.00 | 95 | 0.02 | 4,749 | 0.03 | 0.02 | 1 hr | CloudBurst |
| CSO160 | 10/19/13 7:15 AM | 10/19/13 11:00 AM | 0.16 | 255 | 0.20 | 1,275 | 0.24 | 0.10 | 6 hr | CloudBurst |
| CSO160 | 10/29/13 9:00 PM | 10/30/13 7:00 AM | 0.42 | 7,222 | 1.42 | 5,086 | 1.42 | 0.70 | 6 hr | CloudBurst |
| CSO160 | 10/31/13 10:00 AM | 10/31/13 11:00 PM | 0.54 | 2,509 | 0.65 | 3,861 | 2.07 | 0.25 | 24 hr | CloudBurst |
| CSO160 | 11/6/13 1:30 PM | 11/7/13 6:30 AM | 0.71 | 4,945 | 0.23 | 21,501 | 0.92 | 0.10 | 12 hr | CloudBurst |
| CSO160 | 11/12/13 4:00 AM | 11/12/13 4:45 AM | 0.03 | 165 | 0.02 | 8,258 | 0.25 | 0.02 | 1 hr | CloudBurst |
| CSO160 | 11/15/13 6:00 PM | 11/15/13 8:45 PM | 0.11 | 912 | 0.08 | 11,400 | 0.10 | 0.07 | 1 hr | CloudBurst |
| CSO160 | 11/17/13 2:45 AM | 11/17/13 7:30 PM | 0.70 | 14,460 | 2.35 | 6,153 | 2.45 | 1.08 | 6 hr | CloudBurst |
| CSO160 | 11/21/13 6:45 PM | 11/21/13 9:00 PM | 0.09 | 1,652 | 0.11 | 15,020 | 2.54 | 0.08 | 1 hr | CloudBurst |
| CSO160 | 12/5/13 5:00 AM | 12/6/13 2:00 PM | 1.38 | 14,612 | 0.81 | 18,039 | 0.54 | 0.26 | 48 hr | CloudBurst |
| CSO160 | 12/6/13 10:15 PM | 12/7/13 1:00 AM | 0.11 | 974 | 0.81 | 1,202 | 0.81 | 0.26 | 48 hr | CloudBurst |
| CSO160 | 12/13/13 7:45 PM | 12/14/13 2:45 PM | 0.79 | 4,849 | 0.82 | 5,913 | 1.33 | 0.33 | 12 hr | CloudBurst |
| CSO160 | 12/20/13 7:15 AM | 12/20/13 11:15 AM | 0.17 | 599 | 0.09 | 6,657 | 0.92 | 0.06 | 1 hr | CloudBurst |
| CSO160 | 12/21/13 1:45 AM | 12/22/13 5:45 AM | 1.17 | 35,638 | 2.97 | 11,999 | 3.79 | 1.55 | 24 hr | CloudBurst |
| CSO160 | 12/29/13 12:15 AM | 12/29/13 10:45 AM | 0.44 | 3,721 | 0.51 | 7,296 | 0.78 | 0.22 | 12 hr | CloudBurst |
| CSO160 | 4/1/14 8:15 PM | 4/1/14 8:45 PM | 0.02 | 644 | 0.08 | 8,054 | 1.63 | 0.06 | 1 hr | CloudBurst |
| CSO160 | 4/3/14 4:45 AM | 4/4/14 8:00 AM | 1.14 | 13,749 | 3.03 | 4,538 | 4.67 | 1.37 | 24 hr | CloudBurst |
| CSO160 | 4/7/14 7:30 AM | 4/7/14 3:15 PM | 0.32 | 1,912 | 0.62 | 3,084 | 3.78 | 0.35 | 3 hr | CloudBurst |
| CSO160 | 4/14/14 3:15 AM | 4/14/14 10:45 AM | 0.31 | 4,318 | 0.96 | 4,498 | 1.02 | 0.36 | 24 hr | CloudBurst |
| CSO160 | 4/14/14 7:15 PM | 4/15/14 2:30 AM | 0.30 | 2,589 | 0.96 | 2,697 | 1.01 | 0.36 | 24 hr | CloudBurst |
| CSO160 | 4/25/14 2:15 AM | 4/25/14 10:15 AM | 0.33 | 375 | 0.09 | 4,168 | 0.10 | 0.04 | 12 hr | CloudBurst |
| CSO160 | 4/27/14 8:15 PM | 4/28/14 7:45 PM | 0.98 | 12,923 | 1.37 | 9,433 | 1.45 | 0.50 | 24 hr | CloudBurst |
| CSO160 | 4/29/14 7:15 PM | 4/29/14 8:15 PM | 0.04 | 131 | 0.15 | 872 | 1.55 | 0.07 | 12 hr | CloudBurst |
| CSO160 | 5/9/14 7:00 PM | 5/10/14 3:15 PM | 0.84 | 12,365 | 1.66 | 7,449 | 1.74 | 0.64 | 24 hr | CloudBurst |
| CSO160 | 5/14/14 6:45 AM | 5/15/14 1:00 AM | 0.76 | 3,043 | 0.79 | 3,852 | 2.58 | 0.31 | 24 hr | CloudBurst |
| CSO160 | 5/16/14 3:15 AM | 5/16/14 4:00 AM | 0.03 | 307 | 0.07 | 4,383 | 2.64 | 0.04 | 3 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO160 | 5/21/14 8:45 PM | 5/22/14 4:15 AM | 0.31 | 3,388 | 0.58 | 5,841 | 0.72 | 0.27 | 12 hr | CloudBurst |
| CSO160 | 5/28/14 8:15 PM | 5/28/14 8:45 PM | 0.02 | 6,587 | 0.20 | 32,934 | 0.78 | 0.17 | 1 hr | CloudBurst |
| CSO160 | 6/1/14 2:15 PM | 6/1/14 10:45 PM | 0.35 | 841 | 0.09 | 9,342 | 0.51 | 0.04 | 12 hr | CloudBurst |
| CSO160 | 6/3/14 3:45 AM | 6/3/14 3:45 AM | 0.01 | 65 | 0.02 | 3,239 | 0.54 | 0.01 | 48 hr | CloudBurst |
| CSO160 | 6/10/14 3:30 PM | 6/10/14 5:00 PM | 0.06 | 338 | 0.08 | 4,230 | 0.17 | 0.05 | 3 hr | CloudBurst |
| CSO160 | 6/11/14 2:00 PM | 6/11/14 2:00 PM | 0.01 | 376 | 0.11 | 3,418 | 0.28 | 0.08 | 1 hr | CloudBurst |
| CSO160 | 6/20/14 4:00 PM | 6/20/14 4:00 PM | 0.01 | 129 | 0.27 | 478 | 0.11 | 0.18 | 3 hr | CloudBurst |
| CSO160 | 6/24/14 1:30 PM | 6/24/14 7:15 PM | 0.24 | 827 | 0.10 | 8,269 | 0.44 | 0.05 | 12 hr | CloudBurst |
| CSO161 | 2/17/14 3:45 PM | 2/17/14 3:45 PM | 0.00 | 428 | 0.71 | 603 | 0.73 | 0.42 | 3 hr | CloudBurst |
| CSO161 | 7/2/13 1:15 PM | 7/2/13 1:15 PM | 0.01 | 300 | 0.12 | 2,496 | 3.80 | 0.10 | 1 hr | CloudBurst |
| CSO161 | 7/22/13 7:45 AM | 7/22/13 1:30 PM | 0.24 | 29,150 | 1.89 | 15,423 | 2.13 | 0.73 | 24 hr | CloudBurst |
| CSO161 | 8/12/13 2:45 PM | 8/12/13 2:45 PM | 0.01 | 550 | 0.82 | 671 | 0.73 | 0.37 | 1 hr | CloudBurst |
| CSO161 | 8/31/13 7:45 PM | 8/31/13 8:00 PM | 0.01 | 3,494 | 1.38 | 2,532 | 0.82 | 0.71 | 1 hr | CloudBurst |
| CSO161 | 9/2/13 1:30 PM | 9/2/13 1:45 PM | 0.01 | 2,945 | 0.56 | 5,259 | 1.94 | 0.49 | 1 hr | CloudBurst |
| CSO161 | 9/20/13 4:15 PM | 9/20/13 4:15 PM | 0.01 | 1,645 | 1.14 | 1,443 | 0.27 | 0.47 | 12 hr | CloudBurst |
| CSO161 | 10/5/13 1:45 PM | 10/5/13 11:15 PM | 0.40 | 25,418 | 3.98 | 6,386 | 2.73 | 5.56 | 24 hr | CloudBurst |
| CSO161 | 10/30/13 5:00 AM | 10/30/13 5:00 AM | 0.00 | 163 | 1.42 | 115 | 1.12 | 0.70 | 6 hr | CloudBurst |
| CSO161 | 10/31/13 7:00 PM | 10/31/13 7:00 PM | 0.00 | 2,683 | 0.65 | 4,127 | 1.87 | 0.25 | 24 hr | CloudBurst |
| CSO161 | 11/17/13 6:00 AM | 11/17/13 7:15 AM | 0.05 | 6,390 | 2.35 | 2,719 | 1.45 | 1.08 | 6 hr | CloudBurst |
| CSO161 | 12/21/13 9:30 PM | 12/21/13 10:15 PM | 0.03 | 7,868 | 2.97 | 2,649 | 2.33 | 1.55 | 24 hr | CloudBurst |
| CSO161 | 4/4/14 2:45 AM | 4/4/14 2:45 AM | 0.01 | 16,971 | 3.03 | 5,601 | 3.79 | 1.37 | 24 hr | CloudBurst |
| CSO161 | 4/28/14 3:45 AM | 4/28/14 5:45 AM | 0.08 | 11,045 | 1.37 | 8,062 | 0.75 | 0.50 | 24 hr | CloudBurst |
| CSO161 | 5/10/14 5:15 AM | 5/10/14 5:15 AM | 0.01 | 16,856 | 1.66 | 10,154 | 0.63 | 0.64 | 24 hr | CloudBurst |
| CSO161 | 5/10/14 1:45 PM | 5/10/14 2:45 PM | 0.04 | 16,557 | 1.66 | 9,974 | 1.50 | 0.64 | 24 hr | CloudBurst |
| CSO161 | 5/28/14 8:15 PM | 5/28/14 8:15 PM | 0.01 | 12,006 | 0.20 | 60,031 | 0.77 | 0.17 | 1 hr | CloudBurst |
| CSO161 | 6/11/14 2:00 PM | 6/11/14 2:00 PM | 0.01 | 6,796 | 0.11 | 61,784 | 0.28 | 0.08 | 1 hr | CloudBurst |
| CSO161 | 6/24/14 1:30 PM | 6/24/14 1:30 PM | 0.01 | 1,229 | 0.10 | 12,295 | 0.38 | 0.05 | 12 hr | CloudBurst |
| CSO166 | 1/5/14 6:00 PM | 1/5/14 6:15 PM | 0.01 | 76,230 | 0.47 | 162,192 | 0.67 | 0.24 | 6 hr | CloudBurst |
| CSO166 | 1/11/14 12:45 AM | 1/11/14 6:15 AM | 0.23 | 2,734,042 | 1.03 | 2,654,409 | 1.51 | 0.56 | 6 hr | CloudBurst |
| CSO166 | 2/2/14 5:30 AM | 2/2/14 5:45 AM | 0.01 | 33,661 | 0.41 | 82,101 | 0.13 | 0.16 | 24 hr | CloudBurst |
| CSO166 | 2/4/14 8:00 PM | 2/5/14 4:15 AM | 0.34 | 3,084,410 | 0.46 | 6,705,240 | 0.87 | 0.22 | 6 hr | CloudBurst |
| CSO166 | 2/17/14 4:30 PM | 2/17/14 7:00 PM | 0.10 | 621,404 | 0.44 | 1,412,282 | 0.88 | 0.27 | 3 hr | CloudBurst |
| CSO166 | 2/20/14 11:30 PM | 2/21/14 12:00 AM | 0.02 | 60,624 | 0.22 | 275,561 | 1.10 | 0.12 | 6 hr | CloudBurst |
| CSO166 | 3/2/14 10:15 AM | 3/2/14 11:45 AM | 0.06 | 184,135 | 0.59 | 312,094 | 0.31 | 0.22 | 24 hr | CloudBurst |
| CSO166 | 3/28/14 4:45 AM | 3/28/14 5:15 AM | 0.02 | 29,132 | 0.19 | 153,327 | 0.23 | 0.09 | 12 hr | CloudBurst |
| CSO166 | 3/29/14 7:15 AM | 3/29/14 1:45 PM | 0.27 | 1,249,139 | 1.44 | 867,458 | 1.67 | 0.67 | 12 hr | CloudBurst |
| CSO166 | 7/1/13 5:45 PM | 7/1/13 6:00 PM | 0.01 | 48,956 | 0.24 | 203,983 | 4.23 | 0.11 | 3 hr | CloudBurst |
| CSO166 | 7/4/13 7:45 AM | 7/4/13 1:30 PM | 0.24 | 411,667 | 0.61 | 674,864 | 1.43 | 0.26 | 12 hr | CloudBurst |
| CSO166 | 7/6/13 1:45 AM | 7/6/13 8:30 AM | 0.28 | 588,610 | 0.70 | 840,871 | 2.25 | 0.30 | 12 hr | CloudBurst |
| CSO166 | 7/10/13 2:00 PM | 7/10/13 4:15 PM | 0.09 | 1,147,749 | 1.10 | 1,043,408 | 2.53 | 0.84 | 1 hr | CloudBurst |
| CSO166 | 7/14/13 7:30 PM | 7/14/13 8:30 PM | 0.04 | 258,182 | 0.21 | 1,229,436 | 1.40 | 0.18 | 1 hr | CloudBurst |
| CSO166 | 7/22/13 7:30 AM | 7/22/13 3:15 PM | 0.32 | 1,467,908 | 2.60 | 564,580 | 2.68 | 1.04 | 24 hr | CloudBurst |
| CSO166 | 8/12/13 3:00 PM | 8/12/13 3:45 PM | 0.03 | 339,599 | 0.78 | 435,383 | 0.76 | 0.31 | 1 hr | CloudBurst |
| CSO166 | 9/20/13 7:45 PM | 9/21/13 4:45 AM | 0.38 | 1,649,003 | 1.61 | 1,024,226 | 1.63 | 0.69 | 12 hr | CloudBurst |
| CSO166 | 10/5/13 1:00 PM | 10/6/13 9:30 PM | 1.35 | 35,759,343 | 4.37 | 8,182,916 | 4.49 | 7.74 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO166 | 10/30/13 2:30 AM | 10/30/13 6:30 AM | 0.17 | 511,871 | 0.91 | 562,496 | 0.91 | 0.43 | 6 hr | CloudBurst |
| CSO166 | 10/31/13 9:00 PM | 10/31/13 10:45 PM | 0.07 | 299,464 | 0.47 | 637,157 | 1.38 | 0.18 | 24 hr | CloudBurst |
| CSO166 | 11/17/13 6:00 AM | 11/18/13 12:30 AM | 0.77 | 6,209,321 | 2.71 | 2,291,262 | 2.88 | 2.52 | 6 hr | CloudBurst |
| CSO166 | 12/5/13 7:45 AM | 12/5/13 8:45 AM | 0.04 | 326,711 | 0.78 | 418,860 | 0.22 | 0.25 | 48 hr | CloudBurst |
| CSO166 | 12/14/13 10:45 AM | 12/14/13 11:45 AM | 0.04 | 360,959 | 1.04 | 347,076 | 1.09 | 0.46 | 6 hr | CloudBurst |
| CSO166 | 12/21/13 6:00 AM | 12/22/13 8:45 PM | 1.61 | 12,097,869 | 2.81 | 4,305,291 | 3.32 | 1.30 | 3 hr | Atlas14 |
| CSO166 | 4/8/14 5:15 PM | 4/8/14 5:45 PM | 0.02 | 75,110 | 0.02 | 3,755,494 | 3.31 | 0.01 | 48 hr | CloudBurst |
| CSO166 | 4/14/14 9:00 PM | 4/15/14 2:30 AM | 0.23 | 534,528 | 0.48 | 1,113,599 | 0.88 | 0.22 | 12 hr | CloudBurst |
| CSO166 | 4/27/14 8:15 PM | 4/28/14 9:15 AM | 0.54 | 2,191,023 | 2.25 | 973,788 | 1.84 | 0.87 | 3 hr | CloudBurst |
| CSO166 | 4/28/14 6:00 PM | 4/28/14 9:00 PM | 0.13 | 151,521 | 2.25 | 67,342 | 2.36 | 0.87 | 3 hr | CloudBurst |
| CSO166 | 5/9/14 7:45 PM | 5/9/14 8:15 PM | 0.02 | 323,598 | 1.80 | 179,776 | 0.37 | 0.67 | 24 hr | CloudBurst |
| CSO166 | 5/10/14 6:15 AM | 5/10/14 4:45 PM | 0.44 | 1,797,798 | 1.80 | 998,777 | 1.80 | 0.67 | 24 hr | CloudBurst |
| CSO166 | 5/14/14 9:30 AM | 5/15/14 12:45 AM | 0.64 | 755,013 | 1.26 | 599,216 | 3.09 | 0.45 | 24 hr | CloudBurst |
| CSO166 | 5/21/14 9:15 PM | 5/22/14 4:30 AM | 0.30 | 1,320,254 | 0.48 | 2,750,528 | 0.67 | 0.22 | 12 hr | CloudBurst |
| CSO166 | 5/28/14 9:00 PM | 5/28/14 9:15 PM | 0.01 | 85,285 | 0.19 | 448,868 | 0.57 | 0.13 | 1 hr | CloudBurst |
| CSO166 | 6/11/14 3:15 PM | 6/11/14 3:15 PM | 0.01 | 20,552 | 0.21 | 97,865 | 0.47 | 0.14 | 1 hr | CloudBurst |
| CSO167 | 1/5/14 3:00 PM | 1/5/14 7:45 PM | 0.20 | 42,474 | 0.45 | 94,387 | 0.61 | 0.23 | 6 hr | CloudBurst |
| CSO167 | 1/11/14 12:15 AM | 1/11/14 9:00 AM | 0.36 | 401,825 | 0.91 | 441,565 | 1.37 | 0.50 | 6 hr | CloudBurst |
| CSO167 | 2/2/14 4:30 AM | 2/2/14 5:30 AM | 0.04 | 31,347 | 0.43 | 72,901 | 0.14 | 0.16 | 24 hr | CloudBurst |
| CSO167 | 2/4/14 7:00 PM | 2/5/14 3:45 AM | 0.36 | 559,443 | 0.51 | 1,096,947 | 0.94 | 0.25 | 6 hr | CloudBurst |
| CSO167 | 2/14/14 5:15 PM | 2/14/14 6:00 PM | 0.03 | 2,711 | 0.46 | 5,893 | 0.39 | 0.24 | 6 hr | CloudBurst |
| CSO167 | 2/17/14 4:00 PM | 2/17/14 6:15 PM | 0.09 | 289,273 | 0.47 | 615,474 | 0.99 | 0.28 | 3 hr | CloudBurst |
| CSO167 | 2/20/14 11:00 PM | 2/20/14 11:45 PM | 0.03 | 17,847 | 0.21 | 84,985 | 1.20 | 0.11 | 6 hr | CloudBurst |
| CSO167 | 3/2/14 9:45 AM | 3/2/14 11:30 AM | 0.07 | 78,240 | 0.47 | 166,468 | 0.23 | 0.18 | 24 hr | CloudBurst |
| CSO167 | 3/28/14 4:15 AM | 3/28/14 5:00 AM | 0.03 | 31,954 | 0.23 | 138,930 | 0.29 | 0.12 | 6 hr | CloudBurst |
| CSO167 | 3/29/14 6:15 AM | 3/29/14 1:00 PM | 0.28 | 335,799 | 1.00 | 335,799 | 1.27 | 0.47 | 6 hr | CloudBurst |
| CSO167 | 7/1/13 7:15 PM | 7/1/13 7:30 PM | 0.01 | 11,178 | 0.21 | 53,228 | 4.19 | 0.11 | 3 hr | CloudBurst |
| CSO167 | 7/2/13 1:30 PM | 7/2/13 1:30 PM | 0.01 | 7,525 | 0.12 | 62,711 | 4.31 | 0.10 | 1 hr | CloudBurst |
| CSO167 | 7/4/13 8:00 AM | 7/4/13 1:00 PM | 0.21 | 49,568 | 0.51 | 97,192 | 1.38 | 0.22 | 12 hr | CloudBurst |
| CSO167 | 7/6/13 1:30 AM | 7/6/13 8:15 AM | 0.28 | 131,483 | 0.68 | 193,357 | 2.20 | 0.30 | 12 hr | CloudBurst |
| CSO167 | 7/10/13 2:15 PM | 7/10/13 3:15 PM | 0.04 | 242,243 | 0.94 | 257,705 | 2.20 | 0.70 | 1 hr | CloudBurst |
| CSO167 | 7/14/13 7:30 PM | 7/14/13 8:15 PM | 0.03 | 241,926 | 0.19 | 1,273,294 | 1.20 | 0.17 | 1 hr | CloudBurst |
| CSO167 | 7/22/13 7:15 AM | 7/22/13 3:15 PM | 0.33 | 617,729 | 1.97 | 313,568 | 2.02 | 0.76 | 24 hr | CloudBurst |
| CSO167 | 8/12/13 3:00 PM | 8/12/13 3:30 PM | 0.02 | 119,388 | 0.59 | 202,352 | 0.54 | 0.23 | 24 hr | CloudBurst |
| CSO167 | 8/13/13 2:45 AM | 8/13/13 3:45 AM | 0.04 | 31,791 | 0.59 | 53,882 | 0.81 | 0.23 | 24 hr | CloudBurst |
| CSO167 | 8/20/13 6:30 PM | 8/20/13 6:30 PM | 0.01 | 2,659 | 0.18 | 14,770 | 0.19 | 0.12 | 1 hr | CloudBurst |
| CSO167 | 8/31/13 7:45 PM | 9/1/13 1:00 AM | 0.22 | 427,019 | 1.30 | 328,476 | 1.11 | 0.62 | 3 hr | CloudBurst |
| CSO167 | 9/19/13 11:30 AM | 9/19/13 11:30 AM | 0.01 | 1,748 | 0.05 | 34,965 | 0.09 | 0.04 | 1 hr | CloudBurst |
| CSO167 | 9/20/13 7:30 PM | 9/21/13 4:30 AM | 0.38 | 412,695 | 1.61 | 256,332 | 1.61 | 0.68 | 12 hr | CloudBurst |
| CSO167 | 10/5/13 1:00 PM | 10/6/13 6:45 PM | 1.24 | 2,306,056 | 4.40 | 524,104 | 4.49 | 8.39 | 24 hr | CloudBurst |
| CSO167 | 10/30/13 1:45 AM | 10/30/13 7:15 AM | 0.23 | 208,417 | 1.04 | 200,401 | 1.04 | 0.49 | 6 hr | CloudBurst |
| CSO167 | 10/31/13 8:45 PM | 10/31/13 9:45 PM | 0.04 | 39,653 | 0.61 | 65,006 | 1.58 | 0.24 | 24 hr | CloudBurst |
| CSO167 | 11/17/13 5:00 AM | 11/17/13 9:45 PM | 0.70 | 1,611,542 | 2.78 | 579,691 | 2.94 | 2.00 | 6 hr | CloudBurst |
| CSO167 | 12/5/13 5:45 AM | 12/5/13 8:30 AM | 0.11 | 135,041 | 0.72 | 187,557 | 0.14 | 0.23 | 48 hr | CloudBurst |
| CSO167 | 12/13/13 8:00 AM | 12/13/13 9:45 AM | 0.07 | 44,646 | Discharge | | 0.58 | DWO | | |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO167 | 12/14/13 9:15 AM | 12/14/13 11:45 AM | 0.10 | 54,656 | 0.83 | 65,850 | 1.02 | 0.33 | 12 hr | CloudBurst |
| CSO167 | 12/21/13 5:45 AM | 12/21/13 1:15 PM | 0.31 | 376,883 | 1.03 | 365,906 | 1.49 | 0.48 | 12 hr | CloudBurst |
| CSO167 | 12/21/13 9:30 PM | 12/22/13 12:00 PM | 0.60 | 1,016,726 | 1.55 | 655,952 | 2.66 | 0.83 | 3 hr | Atlas14 |
| CSO167 | 12/29/13 6:15 AM | 12/29/13 7:00 AM | 0.03 | 7,604 | 0.49 | 15,519 | 0.43 | 0.22 | 12 hr | CloudBurst |
| CSO167 | 4/3/14 11:45 AM | 4/5/14 4:45 AM | 1.71 | 1,977,056 | 2.55 | 775,316 | 3.88 | 0.90 | 24 hr | CloudBurst |
| CSO167 | 4/7/14 8:15 AM | 4/7/14 5:30 PM | 0.39 | 475,621 | 0.84 | 566,216 | 3.49 | 0.50 | 1 hr | CloudBurst |
| CSO167 | 4/8/14 4:45 PM | 4/8/14 4:45 PM | 0.01 | 1,136 | 0.14 | 8,112 | 3.58 | 0.10 | 1 hr | CloudBurst |
| CSO167 | 4/14/14 3:45 AM | 4/14/14 4:00 AM | 0.01 | 11,549 | 0.36 | 32,081 | 1.11 | 0.18 | 6 hr | CloudBurst |
| CSO167 | 4/14/14 7:45 PM | 4/15/14 2:30 AM | 0.28 | 186,583 | 0.61 | 305,874 | 1.10 | 0.28 | 12 hr | CloudBurst |
| CSO167 | 4/27/14 7:15 PM | 4/28/14 8:45 AM | 0.56 | 901,643 | 2.03 | 444,159 | 1.68 | 0.75 | 3 hr | Atlas14 |
| CSO167 | 4/28/14 5:00 PM | 4/28/14 8:30 PM | 0.15 | 79,318 | 2.03 | 39,073 | 2.12 | 0.75 | 3 hr | Atlas14 |
| CSO167 | 5/9/14 7:15 PM | 5/10/14 4:45 PM | 0.90 | 797,116 | 1.66 | 480,191 | 1.73 | 0.64 | 24 hr | CloudBurst |
| CSO167 | 5/14/14 7:00 AM | 5/15/14 12:00 AM | 0.71 | 281,626 | 1.03 | 273,423 | 2.81 | 0.40 | 24 hr | CloudBurst |
| CSO167 | 5/21/14 9:00 PM | 5/22/14 4:00 AM | 0.29 | 267,510 | 0.71 | 376,774 | 0.85 | 0.33 | 12 hr | CloudBurst |
| CSO167 | 5/29/14 8:45 PM | 5/29/14 10:30 PM | 0.07 | 268,521 | 0.74 | 362,866 | 0.94 | 0.63 | 1 hr | CloudBurst |
| CSO167 | 6/11/14 2:15 PM | 6/11/14 3:00 PM | 0.03 | 128,954 | 0.09 | 1,432,822 | 0.33 | 0.04 | 1 hr | CloudBurst |
| CSO167 | 6/24/14 1:45 PM | 6/24/14 2:00 PM | 0.01 | 10,639 | 0.14 | 75,992 | 0.24 | 0.09 | 1 hr | CloudBurst |
| CSO167 | 6/27/14 6:30 PM | 6/27/14 6:30 PM | 0.01 | 9,975 | 0.13 | 76,729 | 0.30 | 0.07 | 1 hr | CloudBurst |
| CSO174 | 1/11/14 12:45 AM | 1/11/14 3:30 AM | 0.11 | 41,411 | 1.03 | 40,205 | 1.37 | 0.55 | 6 hr | CloudBurst |
| CSO174 | 2/4/14 8:15 PM | 2/4/14 11:45 PM | 0.15 | 173,366 | 0.51 | 339,933 | 0.97 | 0.25 | 6 hr | CloudBurst |
| CSO174 | 2/17/14 4:15 PM | 2/17/14 5:00 PM | 0.03 | 292,355 | 0.56 | 522,063 | 1.08 | 0.34 | 3 hr | CloudBurst |
| CSO174 | 3/2/14 11:00 AM | 3/2/14 11:00 AM | 0.00 | 60 | 0.62 | 97 | 0.33 | 0.24 | 24 hr | CloudBurst |
| CSO174 | 3/29/14 6:45 AM | 3/29/14 7:30 AM | 0.03 | 131,947 | 1.05 | 125,664 | 0.87 | 0.49 | 12 hr | CloudBurst |
| CSO174 | 7/1/13 8:45 AM | 7/1/13 8:45 AM | 0.01 | 58,585 | 0.31 | 188,983 | 3.73 | 0.15 | 3 hr | Atlas14 |
| CSO174 | 7/6/13 1:30 AM | 7/6/13 1:45 AM | 0.01 | 40,528 | 0.60 | 67,547 | 1.70 | 0.26 | 12 hr | CloudBurst |
| CSO174 | 7/10/13 2:00 PM | 7/10/13 2:30 PM | 0.02 | 388,902 | 0.68 | 571,914 | 1.91 | 0.46 | 1 hr | CloudBurst |
| CSO174 | 7/14/13 7:30 PM | 7/14/13 7:45 PM | 0.01 | 128,923 | 0.09 | 1,432,477 | 0.84 | 0.08 | 1 hr | CloudBurst |
| CSO174 | 7/21/13 7:30 PM | 7/21/13 8:15 PM | 0.03 | 437,247 | 2.70 | 161,943 | 1.81 | 1.24 | 24 hr | CloudBurst |
| CSO174 | 7/22/13 7:45 AM | 7/22/13 2:00 PM | 0.26 | 912,602 | 2.70 | 338,001 | 2.92 | 1.24 | 24 hr | CloudBurst |
| CSO174 | 8/9/13 5:15 PM | 8/9/13 5:45 PM | 0.02 | 203,597 | 0.24 | 848,321 | 0.29 | 0.14 | 1 hr | CloudBurst |
| CSO174 | 8/12/13 2:45 PM | 8/12/13 3:15 PM | 0.02 | 457,215 | 0.81 | 564,463 | 0.87 | 0.39 | 1 hr | CloudBurst |
| CSO174 | 8/13/13 3:15 AM | 8/13/13 3:15 AM | 0.01 | 77 | 0.81 | 95 | 1.15 | 0.39 | 1 hr | CloudBurst |
| CSO174 | 10/30/13 5:00 AM | 10/30/13 6:00 AM | 0.04 | 864,688 | 1.69 | 511,650 | 1.68 | 0.93 | 1 hr | CloudBurst |
| CSO174 | 11/17/13 6:00 AM | 11/17/13 7:30 PM | 0.56 | 1,466,174 | 2.68 | 547,080 | 2.86 | 1.89 | 6 hr | CloudBurst |
| CSO174 | 12/5/13 7:30 AM | 12/5/13 7:45 AM | 0.01 | 70,655 | 0.76 | 92,967 | 0.16 | 0.25 | 48 hr | CloudBurst |
| CSO174 | 12/21/13 8:30 AM | 12/21/13 12:00 PM | 0.15 | 33,768 | 2.41 | 14,012 | 1.20 | 0.90 | 24 hr | CloudBurst |
| CSO174 | 12/21/13 9:30 PM | 12/22/13 12:45 AM | 0.14 | 1,432,745 | 2.41 | 594,500 | 2.32 | 0.90 | 24 hr | CloudBurst |
| CSO174 | 4/3/14 12:15 PM | 4/4/14 7:00 AM | 0.78 | 1,031,723 | 2.67 | 386,413 | 3.96 | 0.94 | 24 hr | CloudBurst |
| CSO174 | 4/7/14 10:45 AM | 4/7/14 12:15 PM | 0.06 | 614,756 | 0.79 | 778,173 | 3.54 | 0.46 | 3 hr | CloudBurst |
| CSO174 | 4/14/14 9:00 PM | 4/14/14 9:00 PM | 0.01 | 6,969 | 1.02 | 6,832 | 0.73 | 0.39 | 24 hr | CloudBurst |
| CSO174 | 4/28/14 4:15 AM | 4/28/14 7:00 AM | 0.11 | 1,562,938 | 1.70 | 919,376 | 1.34 | 0.70 | 3 hr | Atlas14 |
| CSO174 | 4/28/14 5:45 PM | 4/28/14 5:45 PM | 0.01 | 12,082 | 1.70 | 7,107 | 1.71 | 0.70 | 3 hr | Atlas14 |
| CSO174 | 5/9/14 7:30 PM | 5/9/14 7:45 PM | 0.01 | 150,910 | 1.63 | 92,583 | 0.33 | 0.63 | 24 hr | CloudBurst |
| CSO174 | 5/10/14 5:45 AM | 5/10/14 3:15 PM | 0.40 | 1,074,244 | 1.63 | 659,045 | 1.69 | 0.63 | 24 hr | CloudBurst |
| CSO174 | 5/14/14 7:15 AM | 5/14/14 7:15 AM | 0.01 | 38,964 | 1.09 | 35,747 | 1.94 | 0.42 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO174 | 5/14/14 6:15 PM | 5/14/14 6:30 PM | 0.01 | 13,161 | 1.09 | 12,075 | 2.55 | 0.42 | 24 hr | CloudBurst |
| CSO174 | 5/22/14 3:00 AM | 5/22/14 3:45 AM | 0.03 | 150,836 | 0.37 | 407,666 | 0.42 | 0.17 | 3 hr | Atlas14 |
| CSO174 | 5/29/14 9:15 PM | 5/29/14 9:15 PM | 0.01 | 2,207,782 | 0.66 | 3,345,124 | 1.00 | 0.56 | 1 hr | CloudBurst |
| CSO174 | 5/30/14 2:00 PM | 5/30/14 2:15 PM | 0.01 | 211,704 | 0.13 | 1,628,493 | 1.13 | 0.08 | 3 hr | CloudBurst |
| CSO174 | 6/11/14 2:15 PM | 6/11/14 2:30 PM | 0.01 | 97,386 | 0.12 | 811,549 | 0.27 | 0.08 | 1 hr | CloudBurst |
| CSO174 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 74,186 | 0.20 | 370,928 | 0.48 | 0.15 | 1 hr | CloudBurst |
| CSO178 | 7/1/13 9:00 AM | 7/1/13 10:00 AM | 0.04 | 12,214 | 0.23 | 53,103 | 3.53 | 0.10 | 3 hr | CloudBurst |
| CSO178 | 7/1/13 6:30 PM | 7/1/13 9:30 PM | 0.13 | 50,232 | 0.23 | 218,398 | 3.67 | 0.10 | 3 hr | CloudBurst |
| CSO179 | 7/10/13 2:00 PM | 7/10/13 2:00 PM | 0.01 | 77,113 | 0.68 | 113,401 | 1.89 | 0.46 | 1 hr | CloudBurst |
| CSO179 | 7/22/13 1:30 PM | 7/22/13 1:45 PM | 0.01 | 78,649 | 2.70 | 29,129 | 2.92 | 1.24 | 24 hr | CloudBurst |
| CSO179 | 8/12/13 2:30 PM | 8/12/13 2:45 PM | 0.01 | 92,524 | 0.81 | 114,228 | 0.86 | 0.39 | 1 hr | CloudBurst |
| CSO179 | 9/2/13 1:45 PM | 9/2/13 1:45 PM | 0.01 | 3,889 | 0.56 | 6,945 | 1.66 | 0.49 | 1 hr | CloudBurst |
| CSO179 | 10/5/13 9:00 PM | 10/6/13 10:30 AM | 0.56 | 844,233 | 4.40 | 191,871 | 4.55 | 9.19 | 24 hr | CloudBurst |
| CSO179 | 12/21/13 10:30 PM | 12/21/13 10:45 PM | 0.01 | 46,087 | 2.41 | 19,123 | 1.98 | 0.90 | 24 hr | CloudBurst |
| CSO179 | 4/28/14 6:15 AM | 4/28/14 6:15 AM | 0.01 | 64,061 | 1.70 | 37,683 | 1.26 | 0.70 | 3 hr | Atlas14 |
| CSO179 | 5/29/14 9:00 PM | 5/29/14 9:15 PM | 0.01 | 50,225 | 0.66 | 76,099 | 1.00 | 0.56 | 1 hr | CloudBurst |
| CSO180 | 2/17/14 4:15 PM | 2/17/14 4:15 PM | 0.00 | 9,246 | 0.56 | 16,511 | 1.04 | 0.34 | 3 hr | CloudBurst |
| CSO180 | 7/10/13 2:00 PM | 7/10/13 2:00 PM | 0.01 | 129,866 | 0.68 | 190,980 | 1.89 | 0.46 | 1 hr | CloudBurst |
| CSO180 | 7/21/13 7:30 PM | 7/21/13 7:30 PM | 0.01 | 6,306 | 2.70 | 2,335 | 1.31 | 1.24 | 24 hr | CloudBurst |
| CSO180 | 7/22/13 1:30 PM | 7/22/13 1:30 PM | 0.01 | 119,222 | 2.70 | 44,156 | 2.91 | 1.24 | 24 hr | CloudBurst |
| CSO180 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 202,186 | 0.81 | 249,613 | 0.86 | 0.39 | 1 hr | CloudBurst |
| CSO180 | 8/20/13 6:00 PM | 8/20/13 6:00 PM | 0.01 | 2,281 | 0.28 | 8,148 | 0.26 | 0.15 | 6 hr | CloudBurst |
| CSO180 | 9/2/13 1:45 PM | 9/2/13 2:00 PM | 0.01 | 44,987 | 0.56 | 80,334 | 1.66 | 0.49 | 1 hr | CloudBurst |
| CSO180 | 9/20/13 7:30 PM | 9/20/13 7:30 PM | 0.01 | 10,679 | 1.13 | 9,450 | 0.49 | 0.47 | 12 hr | CloudBurst |
| CSO180 | 10/5/13 1:00 PM | 10/6/13 6:15 AM | 0.72 | 674,472 | 4.40 | 153,289 | 3.96 | 9.19 | 24 hr | CloudBurst |
| CSO180 | 10/30/13 4:45 AM | 10/30/13 5:15 AM | 0.02 | 262,895 | 1.69 | 155,559 | 1.62 | 0.93 | 1 hr | CloudBurst |
| CSO180 | 11/17/13 7:30 AM | 11/17/13 7:30 AM | 0.00 | 20,435 | 2.68 | 7,625 | 1.80 | 1.89 | 6 hr | CloudBurst |
| CSO180 | 12/21/13 9:45 PM | 12/21/13 10:45 PM | 0.04 | 286,246 | 2.41 | 118,774 | 1.98 | 0.90 | 24 hr | CloudBurst |
| CSO180 | 4/28/14 6:00 AM | 4/28/14 6:00 AM | 0.01 | 257,001 | 1.70 | 151,177 | 1.23 | 0.70 | 3 hr | Atlas14 |
| CSO180 | 5/10/14 2:30 PM | 5/10/14 2:30 PM | 0.01 | 28,825 | 1.63 | 17,684 | 1.62 | 0.63 | 24 hr | CloudBurst |
| CSO180 | 5/29/14 8:45 PM | 5/29/14 9:00 PM | 0.01 | 52,232 | 0.66 | 79,140 | 0.98 | 0.56 | 1 hr | CloudBurst |
| CSO181 | 2/4/14 6:45 PM | 2/4/14 11:45 PM | 0.21 | 56,849 | 0.50 | 113,698 | 1.00 | 0.25 | 6 hr | CloudBurst |
| CSO181 | 2/17/14 4:15 PM | 2/17/14 4:30 PM | 0.01 | 16,601 | 0.63 | 26,351 | 1.11 | 0.37 | 3 hr | CloudBurst |
| CSO181 | 2/21/14 12:30 AM | 2/21/14 2:15 AM | 0.07 | 4,549 | 0.18 | 25,272 | 1.38 | 0.10 | 6 hr | CloudBurst |
| CSO181 | 3/2/14 9:45 AM | 3/2/14 10:45 AM | 0.04 | 1,989 | 0.59 | 3,371 | 0.26 | 0.22 | 24 hr | CloudBurst |
| CSO181 | 3/29/14 6:45 AM | 3/29/14 6:45 AM | 0.00 | 1,234 | 0.86 | 1,435 | 0.64 | 0.40 | 6 hr | CloudBurst |
| CSO181 | 7/2/13 1:15 PM | 7/2/13 1:30 PM | 0.01 | 44,805 | 0.14 | 320,036 | 4.01 | 0.12 | 1 hr | CloudBurst |
| CSO181 | 7/4/13 6:45 AM | 7/4/13 11:45 AM | 0.21 | 1,736 | 0.52 | 3,338 | 1.17 | 0.22 | 12 hr | CloudBurst |
| CSO181 | 7/4/13 10:15 PM | 7/5/13 8:30 AM | 0.43 | 9,363 | 0.52 | 18,006 | 1.42 | 0.22 | 12 hr | CloudBurst |
| CSO181 | 7/6/13 1:00 AM | 7/6/13 11:45 AM | 0.45 | 11,207 | 0.58 | 19,322 | 1.99 | 0.25 | 12 hr | CloudBurst |
| CSO181 | 7/10/13 2:15 PM | 7/10/13 2:30 PM | 0.01 | 71,458 | 0.64 | 111,653 | 1.80 | 0.44 | 1 hr | CloudBurst |
| CSO181 | 7/14/13 8:00 PM | 7/15/13 11:15 AM | 0.64 | 49,216 | 0.11 | 447,418 | 0.80 | 0.10 | 1 hr | CloudBurst |
| CSO181 | 7/18/13 4:15 PM | 7/19/13 1:15 AM | 0.38 | 19,825 | 0.29 | 68,362 | 0.45 | 0.22 | 1 hr | CloudBurst |
| CSO181 | 7/22/13 7:00 AM | 7/22/13 2:00 PM | 0.29 | 126,493 | 2.03 | 62,312 | 2.32 | 0.79 | 24 hr | CloudBurst |
| CSO181 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 71,094 | 0.78 | 91,146 | 0.75 | 0.33 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO181 | 8/31/13 8:15 PM | 8/31/13 8:15 PM | 0.01 | 1,731 | 1.34 | 1,292 | 0.62 | 0.62 | 6 hr | CloudBurst |
| CSO181 | 9/2/13 1:45 PM | 9/2/13 2:00 PM | 0.01 | 38,140 | 0.51 | 74,784 | 1.85 | 0.44 | 1 hr | CloudBurst |
| CSO181 | 9/20/13 4:30 PM | 9/20/13 10:45 PM | 0.26 | 1,151 | 1.22 | 943 | 0.84 | 0.51 | 12 hr | CloudBurst |
| CSO181 | 10/5/13 1:00 PM | 10/6/13 6:30 AM | 0.73 | 341,341 | 4.10 | 83,254 | 3.67 | 6.53 | 24 hr | CloudBurst |
| CSO181 | 10/19/13 9:45 AM | 10/19/13 7:30 PM | 0.41 | 3,283 | 0.20 | 16,415 | 0.24 | 0.10 | 6 hr | CloudBurst |
| CSO181 | 10/30/13 3:30 AM | 10/30/13 7:15 AM | 0.16 | 73,373 | 1.51 | 48,591 | 1.51 | 0.75 | 6 hr | CloudBurst |
| CSO181 | 11/7/13 5:30 AM | 11/7/13 12:45 PM | 0.30 | 20,413 | 0.19 | 107,437 | 0.97 | 0.08 | 12 hr | CloudBurst |
| CSO181 | 11/17/13 6:30 AM | 11/17/13 8:15 AM | 0.07 | 8,310 | 2.16 | 3,847 | 1.67 | 0.94 | 6 hr | CloudBurst |
| CSO181 | 11/17/13 6:00 PM | 11/17/13 6:00 PM | 0.00 | 9,740 | 2.16 | 4,509 | 2.28 | 0.94 | 6 hr | CloudBurst |
| CSO181 | 12/21/13 10:00 PM | 12/21/13 11:00 PM | 0.04 | 60,031 | 2.56 | 23,450 | 2.15 | 0.97 | 24 hr | CloudBurst |
| CSO181 | 4/4/14 3:15 AM | 4/4/14 3:15 AM | 0.01 | 64,899 | 2.80 | 23,178 | 3.33 | 1.00 | 24 hr | CloudBurst |
| CSO181 | 4/28/14 4:30 AM | 4/28/14 6:45 AM | 0.09 | 238,424 | 1.62 | 147,175 | 1.14 | 0.62 | 3 hr | CloudBurst |
| CSO182 | 1/5/14 3:15 PM | 1/5/14 8:15 PM | 0.21 | 73,541 | 0.50 | 147,081 | 0.73 | 0.25 | 3 hr | Atlas14 |
| CSO182 | 1/11/14 12:30 AM | 1/11/14 5:45 AM | 0.22 | 39,410 | 1.04 | 37,894 | 1.55 | 0.56 | 6 hr | CloudBurst |
| CSO182 | 1/13/14 2:30 PM | 1/13/14 3:45 PM | 0.05 | 28,206 | 0.18 | 156,700 | 1.18 | 0.09 | 6 hr | CloudBurst |
| CSO182 | 2/2/14 4:00 AM | 2/2/14 7:45 AM | 0.16 | 54,561 | 0.20 | 272,805 | 0.20 | 0.10 | 6 hr | CloudBurst |
| CSO182 | 2/4/14 6:45 PM | 2/5/14 4:00 AM | 0.39 | 78,099 | 0.51 | 153,135 | 0.96 | 0.25 | 6 hr | CloudBurst |
| CSO182 | 2/14/14 4:30 PM | 2/14/14 6:45 PM | 0.09 | 68,451 | 0.54 | 126,761 | 0.56 | 0.29 | 6 hr | CloudBurst |
| CSO182 | 2/17/14 3:00 PM | 2/17/14 6:45 PM | 0.16 | 92,726 | 0.40 | 231,816 | 1.01 | 0.25 | 3 hr | Atlas14 |
| CSO182 | 2/20/14 8:30 PM | 2/20/14 11:45 PM | 0.14 | 17,111 | 0.23 | 74,394 | 1.24 | 0.13 | 6 hr | CloudBurst |
| CSO182 | 3/2/14 9:45 AM | 3/2/14 11:45 AM | 0.08 | 83,082 | 0.65 | 127,819 | 0.33 | 0.25 | 24 hr | CloudBurst |
| CSO182 | 3/12/14 7:30 AM | 3/12/14 7:30 AM | 0.00 | 655 | 0.11 | 5,957 | 0.09 | 0.05 | 1 hr | CloudBurst |
| CSO182 | 3/28/14 4:15 AM | 3/28/14 5:00 AM | 0.03 | 21,131 | 0.26 | 81,274 | 0.31 | 0.12 | 1 hr | CloudBurst |
| CSO182 | 3/29/14 5:15 AM | 3/29/14 1:15 PM | 0.33 | 76,372 | 0.88 | 86,786 | 1.17 | 0.43 | 6 hr | CloudBurst |
| CSO182 | 10/4/13 7:15 PM | 10/4/13 7:30 PM | 0.01 | 5,877 | 0.21 | 27,984 | 0.28 | 0.18 | 1 hr | CloudBurst |
| CSO182 | 10/5/13 3:00 PM | 10/6/13 6:30 PM | 1.15 | 864,668 | 4.49 | 192,576 | 4.77 | 9.84 | 24 hr | CloudBurst |
| CSO182 | 10/19/13 10:00 AM | 10/19/13 11:15 AM | 0.05 | 93,150 | 0.20 | 465,752 | 0.24 | 0.11 | 6 hr | CloudBurst |
| CSO182 | 10/30/13 1:30 AM | 10/30/13 7:45 AM | 0.26 | 309,745 | 2.05 | 151,095 | 2.06 | 1.78 | 1 hr | CloudBurst |
| CSO182 | 10/31/13 8:15 PM | 10/31/13 10:45 PM | 0.10 | 104,201 | 0.59 | 176,613 | 2.64 | 0.23 | 24 hr | CloudBurst |
| CSO182 | 11/15/13 6:45 PM | 11/16/13 5:15 AM | 0.44 | 76,031 | 0.11 | 691,192 | 0.14 | 0.09 | 1 hr | CloudBurst |
| CSO182 | 11/17/13 5:15 AM | 11/17/13 10:00 PM | 0.70 | 95,745 | 2.70 | 35,461 | 2.84 | 2.00 | 6 hr | CloudBurst |
| CSO182 | 12/5/13 5:45 AM | 12/5/13 11:30 AM | 0.24 | 21,562 | 0.72 | 29,947 | 0.23 | 0.23 | 48 hr | CloudBurst |
| CSO182 | 12/6/13 4:00 AM | 12/6/13 12:00 PM | 0.33 | 19,421 | 0.72 | 26,974 | 0.41 | 0.23 | 48 hr | CloudBurst |
| CSO182 | 12/14/13 4:30 AM | 12/14/13 12:00 PM | 0.31 | 70,674 | 0.93 | 75,994 | 1.35 | 0.37 | 12 hr | CloudBurst |
| CSO182 | 12/21/13 5:15 AM | 12/21/13 1:15 PM | 0.33 | 72,158 | 0.85 | 84,892 | 1.44 | 0.39 | 12 hr | CloudBurst |
| CSO182 | 12/22/13 1:15 AM | 12/22/13 8:15 AM | 0.29 | 152,178 | 1.69 | 90,046 | 2.64 | 0.93 | 3 hr | CloudBurst |
| CSO182 | 12/29/13 2:30 AM | 12/29/13 7:15 AM | 0.20 | 56,247 | 0.51 | 110,288 | 0.54 | 0.22 | 12 hr | CloudBurst |
| CSO182 | 4/1/14 8:30 PM | 4/1/14 8:30 PM | 0.01 | 1,126 | 0.10 | 11,264 | 1.27 | 0.07 | 3 hr | CloudBurst |
| CSO182 | 4/3/14 7:45 AM | 4/4/14 2:15 PM | 1.27 | 656,414 | 2.65 | 247,703 | 3.92 | 0.93 | 24 hr | CloudBurst |
| CSO182 | 4/7/14 7:45 AM | 4/7/14 4:00 PM | 0.34 | 359,190 | 0.80 | 448,988 | 3.57 | 0.49 | 1 hr | CloudBurst |
| CSO182 | 4/14/14 3:45 AM | 4/14/14 10:30 AM | 0.28 | 18,991 | 0.39 | 48,694 | 1.23 | 0.19 | 6 hr | CloudBurst |
| CSO182 | 4/14/14 7:30 PM | 4/15/14 3:00 AM | 0.31 | 310,316 | 0.63 | 492,565 | 1.06 | 0.30 | 6 hr | CloudBurst |
| CSO182 | 4/27/14 8:30 PM | 4/28/14 8:15 AM | 0.49 | 68,558 | 1.70 | 40,328 | 1.40 | 0.68 | 3 hr | Atlas14 |
| CSO182 | 4/28/14 4:45 PM | 4/28/14 8:15 PM | 0.15 | 33,805 | 1.70 | 19,885 | 1.79 | 0.68 | 3 hr | Atlas14 |
| CSO182 | 4/29/14 7:00 PM | 4/29/14 7:00 PM | 0.01 | 3,085 | 0.18 | 17,139 | 1.85 | 0.08 | 12 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO182 | 5/9/14 7:00 PM | 5/10/14 4:30 PM | 0.90 | 78,031 | 1.80 | 43,350 | 1.89 | 0.70 | 24 hr | CloudBurst |
| CSO182 | 5/14/14 7:15 AM | 5/15/14 1:00 AM | 0.74 | 120,246 | 1.12 | 107,362 | 3.06 | 0.43 | 24 hr | CloudBurst |
| CSO182 | 5/16/14 3:45 AM | 5/16/14 3:45 AM | 0.01 | 77 | 0.07 | 1,102 | 3.12 | 0.05 | 3 hr | CloudBurst |
| CSO182 | 5/22/14 2:45 AM | 5/22/14 4:00 AM | 0.05 | 45,278 | 0.43 | 105,298 | 0.49 | 0.22 | 1 hr | CloudBurst |
| CSO182 | 5/29/14 8:45 PM | 5/29/14 11:00 PM | 0.09 | 1,408,651 | 1.13 | 1,246,594 | 1.34 | 0.90 | 1 hr | CloudBurst |
| CSO182 | 5/30/14 2:00 PM | 5/30/14 2:45 PM | 0.03 | 93,160 | 0.33 | 282,302 | 1.66 | 0.24 | 1 hr | CloudBurst |
| CSO182 | 6/10/14 4:00 PM | 6/10/14 4:00 PM | 0.01 | 387 | 0.13 | 2,978 | 0.16 | 0.09 | 3 hr | CloudBurst |
| CSO182 | 6/11/14 2:15 PM | 6/11/14 2:45 PM | 0.02 | 3,588 | 0.09 | 39,870 | 0.30 | 0.05 | 1 hr | CloudBurst |
| CSO182 | 6/20/14 4:30 PM | 6/20/14 6:00 PM | 0.06 | 9,960 | 0.23 | 43,306 | 0.23 | 0.15 | 3 hr | CloudBurst |
| CSO182 | 6/24/14 2:00 PM | 6/24/14 2:00 PM | 0.01 | 3,286 | 0.16 | 20,538 | 0.42 | 0.10 | 1 hr | CloudBurst |
| CSO183 | 3/29/14 10:00 AM | 3/29/14 8:30 PM | 0.44 | 10,071 | 1.09 | 9,240 | 1.42 | 0.51 | 6 hr | CloudBurst |
| CSO183 | 7/10/13 2:00 PM | 7/10/13 2:00 PM | 0.01 | 346 | 0.54 | 641 | 1.83 | 0.35 | 3 hr | CloudBurst |
| CSO183 | 7/14/13 7:30 PM | 7/14/13 7:30 PM | 0.01 | 123 | 0.13 | 949 | 0.73 | 0.11 | 1 hr | CloudBurst |
| CSO183 | 7/22/13 1:45 PM | 7/22/13 1:45 PM | 0.01 | 2,057 | 3.35 | 614 | 3.43 | 7.14 | 3 hr | Atlas14 |
| CSO183 | 8/13/13 3:30 AM | 8/13/13 3:30 AM | 0.01 | 12,750 | 0.75 | 17,000 | 1.31 | 0.32 | 1 hr | CloudBurst |
| CSO183 | 9/2/13 2:00 PM | 9/2/13 2:00 PM | 0.01 | 13,999 | 0.43 | 32,556 | 1.26 | 0.37 | 1 hr | CloudBurst |
| CSO183 | 10/5/13 8:45 PM | 10/5/13 9:15 PM | 0.02 | 489 | 4.72 | 104 | 2.35 | 13.17 | 24 hr | CloudBurst |
| CSO183 | 11/17/13 6:00 PM | 11/17/13 6:00 PM | 0.00 | 1,124 | 2.85 | 394 | 2.92 | 3.10 | 6 hr | CloudBurst |
| CSO183 | 12/21/13 6:00 PM | 12/21/13 10:45 PM | 0.20 | 9,122 | 0.77 | 11,847 | 2.04 | 0.36 | 12 hr | CloudBurst |
| CSO183 | 4/4/14 3:15 AM | 4/4/14 3:15 AM | 0.01 | 1,292 | 2.63 | 491 | 3.40 | 0.92 | 24 hr | CloudBurst |
| CSO183 | 5/29/14 8:30 PM | 5/29/14 8:45 PM | 0.01 | 26,687 | 1.38 | 19,338 | 1.45 | 1.48 | 1 hr | CloudBurst |
| CSO184 | 2/17/14 4:30 PM | 2/17/14 4:30 PM | 0.00 | 4,809 | 0.41 | 11,730 | 1.05 | 0.25 | 3 hr | CloudBurst |
| CSO184 | 3/29/14 7:00 AM | 3/29/14 7:00 AM | 0.00 | 1,745 | 1.09 | 1,601 | 0.78 | 0.51 | 6 hr | CloudBurst |
| CSO184 | 7/1/13 8:45 AM | 7/1/13 8:45 AM | 0.01 | 6,134 | 0.34 | 18,043 | 3.48 | 0.16 | 12 hr | CloudBurst |
| CSO184 | 7/10/13 2:15 PM | 7/10/13 2:15 PM | 0.01 | 44,444 | 0.54 | 82,304 | 1.84 | 0.35 | 3 hr | CloudBurst |
| CSO184 | 7/14/13 7:30 PM | 7/14/13 7:45 PM | 0.01 | 2,371 | 0.13 | 18,242 | 0.73 | 0.11 | 1 hr | CloudBurst |
| CSO184 | 7/21/13 7:15 PM | 7/21/13 8:00 PM | 0.03 | 174,073 | 3.35 | 51,962 | 2.48 | 7.14 | 3 hr | Atlas14 |
| CSO184 | 7/22/13 8:00 AM | 7/22/13 2:00 PM | 0.25 | 58,883 | 3.35 | 17,577 | 3.43 | 7.14 | 3 hr | Atlas14 |
| CSO184 | 8/9/13 5:15 PM | 8/9/13 5:45 PM | 0.02 | 47,441 | 0.42 | 112,955 | 0.44 | 0.25 | 3 hr | Atlas14 |
| CSO184 | 8/12/13 3:00 PM | 8/12/13 3:45 PM | 0.03 | 204,464 | 0.75 | 272,618 | 1.01 | 0.32 | 1 hr | CloudBurst |
| CSO184 | 8/13/13 2:30 AM | 8/13/13 2:30 AM | 0.01 | 6,791 | 0.75 | 9,055 | 1.20 | 0.32 | 1 hr | CloudBurst |
| CSO184 | 8/20/13 6:15 PM | 8/20/13 6:30 PM | 0.01 | 12,514 | 0.42 | 29,794 | 0.44 | 0.23 | 3 hr | Atlas14 |
| CSO184 | 9/1/13 6:00 AM | 9/1/13 6:00 AM | 0.01 | 1,117 | 0.83 | 1,346 | 0.83 | 0.38 | 12 hr | CloudBurst |
| CSO184 | 9/2/13 2:00 PM | 9/2/13 3:45 PM | 0.07 | 162,223 | 0.43 | 377,262 | 1.26 | 0.37 | 1 hr | CloudBurst |
| CSO184 | 10/4/13 7:00 PM | 10/4/13 7:00 PM | 0.00 | 2,737 | 0.20 | 13,685 | 0.30 | 0.17 | 1 hr | CloudBurst |
| CSO184 | 10/5/13 12:45 PM | 10/6/13 6:30 AM | 0.74 | 513,674 | 4.72 | 108,829 | 4.35 | 13.17 | 24 hr | CloudBurst |
| CSO184 | 10/30/13 5:00 AM | 10/30/13 5:45 AM | 0.03 | 117,897 | 1.68 | 70,177 | 1.65 | 0.88 | 6 hr | CloudBurst |
| CSO184 | 11/17/13 7:00 AM | 11/17/13 8:45 AM | 0.07 | 34,285 | 2.85 | 12,030 | 2.33 | 3.10 | 6 hr | CloudBurst |
| CSO184 | 11/17/13 6:15 PM | 11/17/13 6:15 PM | 0.00 | 8,103 | 2.85 | 2,843 | 2.92 | 3.10 | 6 hr | CloudBurst |
| CSO184 | 12/6/13 2:30 AM | 12/8/13 10:15 AM | 2.32 | 1,045,920 | 0.79 | 1,323,949 | 1.06 | 0.26 | 48 hr | CloudBurst |
| CSO184 | 12/9/13 8:45 AM | 12/9/13 7:30 PM | 0.45 | 76,542 | 0.19 | 402,851 | 0.94 | 0.17 | 1 hr | CloudBurst |
| CSO184 | 12/21/13 10:45 PM | 12/21/13 10:45 PM | 0.00 | 24,317 | 1.67 | 14,561 | 2.04 | 0.92 | 3 hr | Atlas14 |
| CSO184 | 4/3/14 12:15 PM | 4/3/14 12:30 PM | 0.01 | 7,930 | 2.63 | 3,015 | 2.13 | 0.92 | 24 hr | CloudBurst |
| CSO184 | 4/4/14 3:15 AM | 4/4/14 3:30 AM | 0.01 | 42,882 | 2.63 | 16,305 | 3.42 | 0.92 | 24 hr | CloudBurst |
| CSO184 | 4/7/14 11:00 AM | 4/7/14 11:45 AM | 0.03 | 6,788 | 0.71 | 9,561 | 3.43 | 0.43 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO184 | 4/28/14 4:15 AM | 4/28/14 6:45 AM | 0.10 | 189,819 | 1.60 | 118,637 | 1.25 | 0.62 | 3 hr | CloudBurst |
| CSO184 | 5/9/14 7:30 PM | 5/9/14 7:30 PM | 0.01 | 22,444 | 1.94 | 11,569 | 0.41 | 0.75 | 24 hr | CloudBurst |
| CSO184 | 5/10/14 5:45 AM | 5/10/14 2:45 PM | 0.38 | 51,704 | 1.94 | 26,652 | 1.95 | 0.75 | 24 hr | CloudBurst |
| CSO184 | 5/14/14 8:00 AM | 5/14/14 8:15 AM | 0.01 | 11,023 | 1.17 | 9,421 | 2.39 | 0.45 | 24 hr | CloudBurst |
| CSO184 | 5/15/14 4:45 AM | 5/15/14 6:45 AM | 0.08 | 22,560 | 1.17 | 19,282 | 3.24 | 0.45 | 24 hr | CloudBurst |
| CSO184 | 5/29/14 8:30 PM | 5/30/14 2:15 PM | 0.74 | 571,529 | 1.38 | 414,152 | 2.02 | 1.48 | 1 hr | CloudBurst |
| CSO184 | 6/11/14 2:30 PM | 6/11/14 2:30 PM | 0.01 | 4,537 | 0.08 | 56,712 | 0.31 | 0.04 | 12 hr | CloudBurst |
| CSO184 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 1,955 | 0.21 | 9,311 | 0.37 | 0.12 | 1 hr | CloudBurst |
| CSO185 | 2/2/14 6:30 AM | 2/2/14 7:45 PM | 0.55 | 51,994 | 0.20 | 259,969 | 0.26 | 0.10 | 6 hr | CloudBurst |
| CSO185 | 2/17/14 4:30 PM | 2/17/14 4:30 PM | 0.00 | 29,204 | 0.41 | 71,229 | 1.05 | 0.25 | 3 hr | CloudBurst |
| CSO185 | 2/21/14 5:30 AM | 2/22/14 5:45 AM | 1.01 | 365,913 | 0.28 | 1,306,833 | 1.40 | 0.15 | 6 hr | CloudBurst |
| CSO185 | 3/29/14 7:00 AM | 3/29/14 7:00 AM | 0.00 | 11,287 | 1.09 | 10,355 | 0.78 | 0.51 | 6 hr | CloudBurst |
| CSO185 | 7/1/13 8:45 AM | 7/1/13 8:45 AM | 0.01 | 19,567 | 0.34 | 57,551 | 3.48 | 0.16 | 12 hr | CloudBurst |
| CSO185 | 7/6/13 1:45 AM | 7/6/13 1:45 AM | 0.01 | 522 | 0.64 | 815 | 1.74 | 0.28 | 12 hr | CloudBurst |
| CSO185 | 7/10/13 2:15 PM | 7/10/13 2:15 PM | 0.01 | 109,052 | 0.54 | 201,949 | 1.84 | 0.35 | 3 hr | CloudBurst |
| CSO185 | 7/14/13 7:45 PM | 7/14/13 7:45 PM | 0.01 | 7,776 | 0.13 | 59,812 | 0.73 | 0.11 | 1 hr | CloudBurst |
| CSO185 | 7/21/13 7:15 PM | 7/21/13 8:00 PM | 0.03 | 275,137 | 3.35 | 82,130 | 2.48 | 7.14 | 3 hr | Atlas14 |
| CSO185 | 7/22/13 8:00 AM | 7/22/13 2:00 PM | 0.25 | 159,718 | 3.35 | 47,677 | 3.43 | 7.14 | 3 hr | Atlas14 |
| CSO185 | 8/9/13 3:15 PM | 8/9/13 5:45 PM | 0.10 | 172,801 | 0.42 | 411,431 | 0.44 | 0.25 | 3 hr | Atlas14 |
| CSO185 | 8/12/13 3:00 PM | 8/12/13 3:15 PM | 0.01 | 221,839 | 0.75 | 295,785 | 1.00 | 0.32 | 1 hr | CloudBurst |
| CSO185 | 8/13/13 2:30 AM | 8/13/13 2:45 AM | 0.01 | 17,513 | 0.75 | 23,351 | 1.24 | 0.32 | 1 hr | CloudBurst |
| CSO185 | 8/20/13 6:15 PM | 8/20/13 6:15 PM | 0.01 | 21,677 | 0.42 | 51,612 | 0.44 | 0.23 | 3 hr | Atlas14 |
| CSO185 | 8/31/13 8:00 PM | 8/31/13 8:00 PM | 0.01 | 787 | 0.83 | 948 | 0.28 | 0.38 | 12 hr | CloudBurst |
| CSO185 | 9/2/13 2:00 PM | 9/2/13 2:30 PM | 0.02 | 314,984 | 0.43 | 732,522 | 1.26 | 0.37 | 1 hr | CloudBurst |
| CSO185 | 9/29/13 2:30 PM | 9/29/13 2:30 PM | 0.01 | 493 | 0.02 | 24,640 | 0.02 | 0.02 | 1 hr | CloudBurst |
| CSO185 | 10/4/13 7:00 PM | 10/4/13 7:00 PM | 0.00 | 11,479 | 0.20 | 57,395 | 0.30 | 0.17 | 1 hr | CloudBurst |
| CSO185 | 10/5/13 12:45 PM | 10/6/13 8:30 AM | 0.82 | 1,429,432 | 4.72 | 302,846 | 4.91 | 13.17 | 24 hr | CloudBurst |
| CSO185 | 10/30/13 5:00 AM | 10/30/13 5:45 AM | 0.03 | 239,811 | 1.68 | 142,745 | 1.65 | 0.88 | 6 hr | CloudBurst |
| CSO185 | 10/31/13 11:00 PM | 11/1/13 3:30 PM | 0.69 | 288,301 | 0.68 | 423,972 | 2.36 | 0.27 | 12 hr | CloudBurst |
| CSO185 | 11/7/13 12:15 AM | 11/8/13 4:15 PM | 1.67 | 307,124 | 0.21 | 1,462,497 | 0.91 | 0.08 | 24 hr | CloudBurst |
| CSO185 | 11/17/13 6:15 AM | 11/17/13 9:30 AM | 0.14 | 290,853 | 2.85 | 102,054 | 2.49 | 3.10 | 6 hr | CloudBurst |
| CSO185 | 11/17/13 6:15 PM | 11/17/13 6:30 PM | 0.01 | 103,138 | 2.85 | 36,189 | 2.92 | 3.10 | 6 hr | CloudBurst |
| CSO185 | 12/21/13 10:00 PM | 12/21/13 11:00 PM | 0.04 | 139,030 | 1.67 | 83,252 | 2.06 | 0.92 | 3 hr | Atlas14 |
| CSO185 | 4/3/14 12:15 PM | 4/4/14 4:00 AM | 0.66 | 150,896 | 2.63 | 57,375 | 3.57 | 0.92 | 24 hr | CloudBurst |
| CSO185 | 4/7/14 11:00 AM | 4/7/14 11:45 AM | 0.03 | 31,239 | 0.71 | 43,999 | 3.43 | 0.43 | 1 hr | CloudBurst |
| CSO185 | 4/28/14 4:15 AM | 4/28/14 6:45 AM | 0.10 | 376,306 | 1.60 | 235,191 | 1.25 | 0.62 | 3 hr | CloudBurst |
| CSO185 | 5/9/14 7:30 PM | 5/9/14 7:30 PM | 0.01 | 74,718 | 1.94 | 38,514 | 0.41 | 0.75 | 24 hr | CloudBurst |
| CSO185 | 5/10/14 5:45 AM | 5/10/14 2:45 PM | 0.38 | 125,094 | 1.94 | 64,481 | 1.95 | 0.75 | 24 hr | CloudBurst |
| CSO185 | 5/14/14 7:15 AM | 5/14/14 7:15 AM | 0.01 | 4,339 | 1.17 | 3,709 | 2.30 | 0.45 | 24 hr | CloudBurst |
| CSO185 | 5/22/14 3:15 AM | 5/22/14 3:45 AM | 0.02 | 4,039 | 0.38 | 10,628 | 0.44 | 0.20 | 3 hr | CloudBurst |
| CSO185 | 5/29/14 8:45 PM | 5/29/14 9:15 PM | 0.02 | 687,927 | 1.38 | 498,498 | 1.57 | 1.48 | 1 hr | CloudBurst |
| CSO185 | 6/11/14 2:30 PM | 6/11/14 2:30 PM | 0.01 | 26,873 | 0.08 | 335,914 | 0.31 | 0.04 | 12 hr | CloudBurst |
| CSO185 | 6/24/14 1:45 PM | 6/24/14 1:45 PM | 0.01 | 7,618 | 0.21 | 36,274 | 0.37 | 0.12 | 1 hr | CloudBurst |
| CSO188 | 10/5/13 11:00 PM | 10/5/13 11:00 PM | 0.00 | 19,027 | 4.40 | 4,324 | 3.09 | 9.19 | 24 hr | CloudBurst |
| CSO188 | 5/29/14 8:45 PM | 5/29/14 8:45 PM | 0.01 | 34,248 | 0.66 | 51,891 | 0.87 | 0.56 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO189 | 1/5/14 6:00 PM | 1/5/14 6:15 PM | 0.01 | 8,615 | 0.47 | 18,330 | 0.58 | 0.23 | 6 hr | CloudBurst |
| CSO189 | 1/11/14 12:30 AM | 1/11/14 5:45 AM | 0.22 | 3,756,973 | 0.91 | 4,128,542 | 1.40 | 0.49 | 6 hr | CloudBurst |
| CSO189 | 2/2/14 5:45 AM | 2/2/14 5:45 AM | 0.00 | 30,117 | 0.58 | 51,926 | 0.21 | 0.22 | 24 hr | CloudBurst |
| CSO189 | 2/4/14 7:45 PM | 2/5/14 2:15 AM | 0.27 | 7,069,862 | 0.67 | 10,552,033 | 1.25 | 0.33 | 6 hr | CloudBurst |
| CSO189 | 2/17/14 4:15 PM | 2/17/14 9:30 PM | 0.22 | 2,986,569 | 0.56 | 5,333,160 | 0.82 | 0.32 | 3 hr | CloudBurst |
| CSO189 | 3/2/14 11:00 AM | 3/2/14 12:00 PM | 0.04 | 148,395 | 0.47 | 315,733 | 0.28 | 0.18 | 24 hr | CloudBurst |
| CSO189 | 3/28/14 4:45 AM | 3/28/14 5:30 AM | 0.03 | 283,018 | 0.26 | 1,088,533 | 0.35 | 0.14 | 6 hr | CloudBurst |
| CSO189 | 3/29/14 7:00 AM | 3/29/14 9:45 AM | 0.11 | 1,772,238 | 0.84 | 2,109,807 | 0.96 | 0.39 | 12 hr | CloudBurst |
| CSO189 | 7/6/13 4:45 AM | 7/6/13 5:45 AM | 0.04 | 63,198 | 0.45 | 140,440 | 1.76 | 0.20 | 12 hr | CloudBurst |
| CSO189 | 7/10/13 2:00 PM | 7/10/13 3:45 PM | 0.07 | 3,721,547 | 0.66 | 5,638,707 | 1.68 | 0.53 | 1 hr | CloudBurst |
| CSO189 | 7/14/13 8:00 PM | 7/14/13 8:30 PM | 0.02 | 322,596 | 0.06 | 5,376,606 | 0.74 | 0.05 | 1 hr | CloudBurst |
| CSO189 | 7/18/13 4:30 PM | 7/18/13 5:00 PM | 0.02 | 310,934 | 0.06 | 5,182,241 | 0.19 | 0.04 | 3 hr | CloudBurst |
| CSO189 | 7/21/13 8:30 PM | 7/21/13 10:30 PM | 0.08 | 1,459,274 | 2.72 | 536,498 | 2.15 | 3.36 | 3 hr | Atlas14 |
| CSO189 | 7/22/13 7:30 AM | 7/22/13 3:15 PM | 0.32 | 10,804,176 | 2.72 | 3,972,124 | 2.78 | 3.36 | 3 hr | Atlas14 |
| CSO189 | 8/12/13 2:30 PM | 8/12/13 4:00 PM | 0.06 | 4,721,544 | 0.91 | 5,188,510 | 0.80 | 0.51 | 1 hr | CloudBurst |
| CSO189 | 8/13/13 3:00 AM | 8/13/13 4:00 AM | 0.04 | 708,430 | 0.91 | 778,494 | 1.05 | 0.51 | 1 hr | CloudBurst |
| CSO189 | 8/31/13 8:00 PM | 9/1/13 12:30 AM | 0.19 | 3,296,798 | 1.41 | 2,338,154 | 1.13 | 0.65 | 6 hr | CloudBurst |
| CSO189 | 9/2/13 1:30 PM | 9/2/13 3:00 PM | 0.06 | 2,269,972 | 0.97 | 2,340,178 | 2.38 | 0.84 | 1 hr | CloudBurst |
| CSO189 | 9/20/13 5:00 PM | 9/21/13 5:30 AM | 0.52 | 4,723,436 | 1.71 | 2,762,243 | 1.75 | 0.70 | 12 hr | CloudBurst |
| CSO189 | 10/5/13 1:15 PM | 10/6/13 10:15 AM | 0.88 | 45,462,979 | 4.19 | 10,850,353 | 4.44 | 7.10 | 24 hr | CloudBurst |
| CSO189 | 10/30/13 2:15 AM | 10/30/13 7:15 AM | 0.21 | 9,062,123 | 1.70 | 5,330,661 | 1.70 | 0.85 | 6 hr | CloudBurst |
| CSO189 | 10/31/13 7:00 PM | 10/31/13 9:30 PM | 0.10 | 6,605,187 | 1.10 | 6,004,716 | 2.73 | 0.50 | 1 hr | CloudBurst |
| CSO189 | 11/17/13 5:15 AM | 11/17/13 8:30 PM | 0.64 | 27,845,423 | 2.72 | 10,237,288 | 2.87 | 2.87 | 6 hr | CloudBurst |
| CSO189 | 12/5/13 7:30 AM | 12/5/13 8:45 AM | 0.05 | 801,080 | 0.72 | 1,112,611 | 0.16 | 0.23 | 48 hr | CloudBurst |
| CSO189 | 12/14/13 10:45 AM | 12/14/13 12:00 PM | 0.05 | 436,372 | 0.72 | 606,072 | 1.07 | 0.29 | 12 hr | CloudBurst |
| CSO189 | 12/21/13 2:15 AM | 12/22/13 8:00 AM | 1.24 | 29,733,021 | 3.31 | 8,982,786 | 4.02 | 2.24 | 24 hr | CloudBurst |
| CSO189 | 4/3/14 8:00 AM | 4/4/14 10:30 AM | 1.10 | 29,753,225 | 2.93 | 10,154,684 | 4.11 | 1.14 | 24 hr | CloudBurst |
| CSO189 | 4/7/14 11:00 AM | 4/7/14 2:15 PM | 0.14 | 10,549,806 | 1.06 | 9,952,647 | 4.05 | 0.64 | 1 hr | CloudBurst |
| CSO189 | 4/14/14 8:30 PM | 4/15/14 1:15 AM | 0.20 | 919,460 | 0.55 | 1,671,745 | 0.98 | 0.25 | 12 hr | CloudBurst |
| CSO189 | 4/28/14 4:30 AM | 4/28/14 9:00 AM | 0.19 | 13,530,067 | 1.80 | 7,516,704 | 1.59 | 0.72 | 3 hr | CloudBurst |
| CSO189 | 5/9/14 7:45 PM | 5/10/14 5:00 PM | 0.89 | 9,525,097 | 1.44 | 6,614,651 | 1.51 | 0.63 | 1 hr | CloudBurst |
| CSO189 | 5/14/14 8:30 PM | 5/14/14 9:30 PM | 0.04 | 606,144 | 1.17 | 518,072 | 2.67 | 0.45 | 24 hr | CloudBurst |
| CSO189 | 5/22/14 3:30 AM | 5/22/14 5:00 AM | 0.06 | 1,651,101 | 0.53 | 3,115,284 | 0.66 | 0.31 | 1 hr | CloudBurst |
| CSO189 | 5/28/14 8:30 PM | 5/28/14 10:00 PM | 0.06 | 4,247,733 | 0.04 | 106,193,329 | 0.57 | 0.03 | 3 hr | CloudBurst |
| CSO189 | 6/11/14 2:15 PM | 6/11/14 3:15 PM | 0.04 | 1,029,616 | 0.09 | 11,440,178 | 0.28 | 0.06 | 1 hr | CloudBurst |
| CSO189 | 6/20/14 5:45 PM | 6/20/14 6:30 PM | 0.03 | 1,149,545 | 0.30 | 3,831,817 | 0.31 | 0.20 | 3 hr | CloudBurst |
| CSO190 | 1/5/14 2:45 PM | 1/6/14 2:30 AM | 0.49 | 59,732 | 0.52 | 114,870 | 0.71 | 0.27 | 3 hr | CloudBurst |
| CSO190 | 1/11/14 12:15 AM | 1/11/14 7:45 AM | 0.31 | 535,487 | 0.77 | 695,437 | 1.30 | 0.41 | 6 hr | CloudBurst |
| CSO190 | 2/2/14 3:00 AM | 2/2/14 11:30 PM | 0.85 | 79,675 | 0.52 | 153,221 | 0.44 | 0.20 | 24 hr | CloudBurst |
| CSO190 | 2/4/14 6:45 PM | 2/5/14 1:45 AM | 0.29 | 868,746 | 0.62 | 1,401,203 | 1.13 | 0.30 | 6 hr | CloudBurst |
| CSO190 | 2/17/14 3:30 PM | 2/17/14 7:45 PM | 0.18 | 541,914 | 0.52 | 1,042,143 | 0.85 | 0.30 | 3 hr | CloudBurst |
| CSO190 | 2/20/14 10:45 PM | 2/21/14 12:00 AM | 0.05 | 114,294 | 0.18 | 634,964 | 1.02 | 0.09 | 6 hr | CloudBurst |
| CSO190 | 3/2/14 10:30 AM | 3/2/14 12:45 PM | 0.09 | 37,414 | 0.45 | 83,142 | 0.22 | 0.17 | 24 hr | CloudBurst |
| CSO190 | 3/11/14 11:00 PM | 3/12/14 7:30 AM | 0.35 | 8,851 | 0.10 | 88,510 | 0.08 | 0.04 | 1 hr | CloudBurst |
| CSO190 | 3/28/14 4:15 AM | 3/28/14 7:15 AM | 0.13 | 55,703 | 0.34 | 163,833 | 0.40 | 0.18 | 6 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO190 | 3/29/14 6:15 AM | 3/29/14 10:45 PM | 0.69 | 227,156 | 0.82 | 277,020 | 1.22 | 0.38 | 12 hr | CloudBurst |
| CSO190 | 7/1/13 6:30 PM | 7/1/13 7:45 PM | 0.05 | 16,711 | 0.26 | 64,272 | 3.72 | 0.13 | 3 hr | Atlas14 |
| CSO190 | 7/2/13 1:00 PM | 7/2/13 2:00 PM | 0.04 | 466,346 | 0.05 | 9,326,922 | 3.78 | 0.04 | 1 hr | CloudBurst |
| CSO190 | 7/4/13 6:45 AM | 7/4/13 1:15 PM | 0.27 | 9,082 | 0.51 | 17,808 | 1.37 | 0.22 | 12 hr | CloudBurst |
| CSO190 | 7/6/13 1:15 AM | 7/6/13 8:15 AM | 0.29 | 54,897 | 0.56 | 98,031 | 2.06 | 0.25 | 12 hr | CloudBurst |
| CSO190 | 7/10/13 1:45 PM | 7/10/13 5:00 PM | 0.14 | 811,423 | 0.68 | 1,193,269 | 1.88 | 0.44 | 3 hr | Atlas14 |
| CSO190 | 7/14/13 7:30 PM | 7/14/13 9:15 PM | 0.07 | 89,198 | 0.06 | 1,486,628 | 0.78 | 0.05 | 1 hr | CloudBurst |
| CSO190 | 7/18/13 3:15 PM | 7/18/13 8:15 PM | 0.21 | 1,433,677 | 0.34 | 4,216,697 | 0.48 | 0.26 | 1 hr | CloudBurst |
| CSO190 | 7/21/13 8:30 PM | 7/22/13 10:45 PM | 1.09 | 1,707,553 | 1.85 | 923,002 | 2.25 | 0.72 | 24 hr | CloudBurst |
| CSO190 | 10/30/13 1:00 AM | 10/30/13 11:00 AM | 0.42 | 963,003 | 1.27 | 758,270 | 1.27 | 0.61 | 6 hr | CloudBurst |
| CSO190 | 10/31/13 6:30 PM | 10/31/13 9:15 PM | 0.11 | 635,954 | 0.80 | 794,943 | 2.02 | 0.34 | 12 hr | CloudBurst |
| CSO190 | 11/15/13 6:00 PM | 11/15/13 6:00 PM | 0.00 | 33 | 0.10 | 333 | 0.13 | 0.08 | 1 hr | CloudBurst |
| CSO190 | 11/17/13 4:00 AM | 11/18/13 2:00 AM | 0.92 | 3,870,643 | 2.95 | 1,312,082 | 3.09 | 2.00 | 6 hr | CloudBurst |
| CSO190 | 12/5/13 5:30 AM | 12/5/13 12:00 PM | 0.27 | 305,258 | 0.79 | 386,402 | 0.26 | 0.26 | 48 hr | CloudBurst |
| CSO190 | 12/6/13 3:45 AM | 12/6/13 3:45 AM | 0.00 | 1,494 | 0.79 | 1,891 | 0.37 | 0.26 | 48 hr | CloudBurst |
| CSO190 | 12/14/13 9:00 AM | 12/14/13 9:30 PM | 0.52 | 70,490 | 0.67 | 105,208 | 1.06 | 0.27 | 12 hr | CloudBurst |
| CSO190 | 12/21/13 2:00 AM | 12/21/13 12:45 PM | 0.45 | 591,807 | 3.11 | 190,292 | 1.73 | 1.82 | 24 hr | CloudBurst |
| CSO190 | 12/21/13 9:00 PM | 12/22/13 2:45 AM | 0.24 | 2,894,746 | 3.11 | 930,786 | 3.14 | 1.82 | 24 hr | CloudBurst |
| CSO190 | 12/29/13 5:00 AM | 12/29/13 8:45 AM | 0.16 | 422 | 0.50 | 844 | 0.43 | 0.22 | 12 hr | CloudBurst |
| CSO190 | 4/3/14 5:00 AM | 4/4/14 7:45 AM | 1.11 | 2,724,451 | 3.33 | 818,154 | 4.62 | 1.88 | 24 hr | CloudBurst |
| CSO190 | 4/7/14 10:30 AM | 4/7/14 3:15 PM | 0.20 | 1,626,858 | 0.89 | 1,827,931 | 4.33 | 0.55 | 1 hr | CloudBurst |
| CSO190 | 4/14/14 3:15 AM | 4/14/14 10:30 AM | 0.30 | 7,531 | 1.15 | 6,549 | 1.42 | 0.44 | 24 hr | CloudBurst |
| CSO190 | 4/14/14 8:00 PM | 4/15/14 1:00 AM | 0.21 | 238,258 | 1.15 | 207,181 | 1.14 | 0.44 | 24 hr | CloudBurst |
| CSO190 | 4/27/14 8:30 PM | 4/28/14 8:30 AM | 0.50 | 2,239,903 | 1.90 | 1,178,896 | 1.55 | 0.76 | 3 hr | CloudBurst |
| CSO190 | 4/28/14 4:45 PM | 4/28/14 6:45 PM | 0.08 | 80,184 | 1.90 | 42,202 | 1.97 | 0.76 | 3 hr | CloudBurst |
| CSO190 | 4/29/14 7:30 PM | 4/29/14 7:30 PM | 0.01 | 31 | 0.20 | 157 | 2.10 | 0.09 | 12 hr | CloudBurst |
| CSO190 | 5/9/14 7:15 PM | 5/10/14 3:45 PM | 0.85 | 1,955,140 | 1.49 | 1,312,175 | 1.56 | 0.58 | 1 hr | CloudBurst |
| CSO190 | 5/14/14 7:00 AM | 5/15/14 2:00 AM | 0.79 | 149,253 | 0.74 | 201,694 | 2.36 | 0.29 | 24 hr | CloudBurst |
| CSO190 | 5/16/14 3:45 AM | 5/16/14 5:45 AM | 0.08 | 7,086 | 0.12 | 59,054 | 2.46 | 0.08 | 1 hr | CloudBurst |
| CSO190 | 5/16/14 2:00 PM | 5/16/14 2:00 PM | 0.01 | 23 | 0.12 | 193 | 2.41 | 0.08 | 1 hr | CloudBurst |
| CSO190 | 5/21/14 9:00 PM | 5/22/14 3:45 AM | 0.28 | 360,233 | 0.65 | 554,205 | 0.84 | 0.30 | 12 hr | CloudBurst |
| CSO190 | 5/28/14 8:15 PM | 5/28/14 9:00 PM | 0.03 | 702,366 | 0.65 | 1,080,564 | 1.30 | 0.55 | 1 hr | CloudBurst |
| CSO190 | 6/1/14 4:00 PM | 6/1/14 4:15 PM | 0.01 | 33,365 | 0.12 | 278,044 | 0.70 | 0.06 | 12 hr | CloudBurst |
| CSO190 | 6/10/14 4:15 PM | 6/10/14 5:30 PM | 0.05 | 220 | 0.09 | 2,444 | 0.18 | 0.06 | 3 hr | CloudBurst |
| CSO190 | 6/11/14 2:00 PM | 6/11/14 7:00 PM | 0.21 | 418,932 | 0.15 | 2,792,877 | 0.33 | 0.12 | 1 hr | CloudBurst |
| CSO191 | 1/11/14 12:15 AM | 1/11/14 4:00 AM | 0.16 | 139,611 | 0.85 | 164,249 | 1.27 | 0.45 | 6 hr | CloudBurst |
| CSO191 | 2/4/14 8:45 PM | 2/4/14 11:45 PM | 0.13 | 318,981 | 0.67 | 476,092 | 1.27 | 0.33 | 6 hr | CloudBurst |
| CSO191 | 2/17/14 4:00 PM | 2/17/14 5:00 PM | 0.04 | 226,793 | 0.62 | 365,795 | 0.86 | 0.38 | 3 hr | CloudBurst |
| CSO191 | 3/29/14 6:30 AM | 3/29/14 6:45 AM | 0.01 | 22,847 | 0.89 | 25,671 | 0.70 | 0.41 | 12 hr | CloudBurst |
| CSO191 | 7/10/13 2:00 PM | 7/10/13 2:15 PM | 0.01 | 379,363 | 0.46 | 824,702 | 1.50 | 0.36 | 1 hr | CloudBurst |
| CSO191 | 7/17/13 6:30 PM | 7/17/13 6:30 PM | 0.01 | 138,880 | 0.09 | 1,543,107 | 0.17 | 0.08 | 1 hr | CloudBurst |
| CSO191 | 7/21/13 7:45 PM | 7/21/13 8:15 PM | 0.02 | 238,577 | 2.65 | 90,029 | 1.41 | 1.90 | 3 hr | Atlas14 |
| CSO191 | 7/22/13 7:30 AM | 7/22/13 2:15 PM | 0.28 | 1,289,805 | 2.65 | 486,719 | 2.79 | 1.90 | 3 hr | Atlas14 |
| CSO191 | 8/12/13 2:30 PM | 8/12/13 3:00 PM | 0.02 | 567,092 | 1.12 | 506,332 | 1.10 | 0.63 | 1 hr | CloudBurst |
| CSO191 | 8/13/13 2:45 AM | 8/13/13 3:15 AM | 0.02 | 37,271 | 1.12 | 33,278 | 1.35 | 0.63 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO191 | 8/20/13 3:45 PM | 8/20/13 3:45 PM | 0.01 | 34,051 | 0.41 | 83,051 | 0.42 | 0.35 | 1 hr | CloudBurst |
| CSO191 | 8/31/13 8:15 PM | 8/31/13 8:30 PM | 0.01 | 139,390 | 1.14 | 122,272 | 0.46 | 0.53 | 12 hr | CloudBurst |
| CSO191 | 9/2/13 1:45 PM | 9/2/13 2:00 PM | 0.01 | 117,535 | 0.68 | 172,845 | 1.82 | 0.59 | 1 hr | CloudBurst |
| CSO191 | 9/20/13 4:15 PM | 9/20/13 10:30 PM | 0.26 | 76,559 | 2.06 | 37,164 | 1.26 | 0.87 | 12 hr | CloudBurst |
| CSO191 | 10/5/13 1:00 PM | 10/6/13 9:00 AM | 0.83 | 12,414,003 | 4.54 | 2,734,362 | 4.73 | 10.17 | 24 hr | CloudBurst |
| CSO191 | 10/30/13 4:45 AM | 10/30/13 6:00 AM | 0.05 | 1,057,999 | 1.32 | 801,514 | 1.32 | 0.67 | 6 hr | CloudBurst |
| CSO191 | 10/31/13 7:15 PM | 10/31/13 8:00 PM | 0.03 | 539,169 | 0.88 | 612,692 | 2.10 | 0.36 | 12 hr | CloudBurst |
| CSO191 | 11/17/13 5:30 AM | 11/17/13 6:15 PM | 0.53 | 4,897,714 | 2.65 | 1,848,194 | 2.81 | 2.12 | 6 hr | CloudBurst |
| CSO191 | 12/5/13 7:30 AM | 12/5/13 7:30 AM | 0.00 | 15,637 | 0.77 | 20,308 | 0.15 | 0.25 | 48 hr | CloudBurst |
| CSO191 | 12/21/13 7:45 AM | 12/21/13 12:30 PM | 0.20 | 99,847 | 1.37 | 72,881 | 1.71 | 0.63 | 12 hr | CloudBurst |
| CSO191 | 12/21/13 9:30 PM | 12/22/13 1:30 AM | 0.17 | 4,773,334 | 1.65 | 2,892,930 | 3.03 | 0.91 | 3 hr | Atlas14 |
| CSO191 | 4/3/14 2:45 PM | 4/4/14 7:00 AM | 0.68 | 377,522 | 2.77 | 136,290 | 3.88 | 0.96 | 24 hr | CloudBurst |
| CSO191 | 4/28/14 5:45 AM | 4/28/14 7:30 AM | 0.07 | 915,241 | 1.81 | 505,658 | 1.53 | 0.73 | 3 hr | Atlas14 |
| CSO191 | 5/10/14 5:45 AM | 5/10/14 3:15 PM | 0.40 | 493,077 | 2.04 | 241,704 | 2.08 | 0.79 | 24 hr | CloudBurst |
| CSO191 | 5/28/14 8:00 PM | 5/28/14 8:15 PM | 0.01 | 438,805 | 0.28 | 1,567,161 | 0.64 | 0.23 | 1 hr | CloudBurst |
| CSO191 | 5/29/14 9:30 PM | 5/29/14 9:45 PM | 0.01 | 102,703 | 0.27 | 380,382 | 0.55 | 0.23 | 1 hr | CloudBurst |
| CSO193 | 2/4/14 9:30 PM | 2/4/14 9:30 PM | 0.00 | 498 | 0.47 | 1,060 | 0.83 | 0.24 | 6 hr | CloudBurst |
| CSO193 | 7/2/13 1:15 PM | 7/2/13 1:15 PM | 0.01 | 8,182 | 0.17 | 48,130 | 3.84 | 0.15 | 1 hr | CloudBurst |
| CSO193 | 7/10/13 2:00 PM | 7/10/13 2:15 PM | 0.01 | 19,203 | 0.76 | 25,267 | 1.94 | 0.50 | 3 hr | Atlas14 |
| CSO193 | 7/18/13 4:15 PM | 7/18/13 4:15 PM | 0.01 | 2,931 | 0.40 | 7,328 | 0.60 | 0.30 | 1 hr | CloudBurst |
| CSO193 | 7/22/13 7:45 AM | 7/22/13 1:30 PM | 0.24 | 37,052 | 2.15 | 17,234 | 2.55 | 0.83 | 24 hr | CloudBurst |
| CSO193 | 9/2/13 2:00 PM | 9/2/13 2:00 PM | 0.01 | 6,053 | 0.42 | 14,411 | 1.75 | 0.37 | 1 hr | CloudBurst |
| CSO193 | 10/5/13 2:00 PM | 10/6/13 6:15 AM | 0.68 | 116,692 | 3.21 | 36,353 | 2.79 | 2.28 | 24 hr | CloudBurst |
| CSO193 | 10/30/13 4:45 AM | 10/30/13 5:30 AM | 0.03 | 24,532 | 1.41 | 17,399 | 1.35 | 0.72 | 1 hr | CloudBurst |
| CSO193 | 11/17/13 5:45 AM | 11/17/13 8:45 AM | 0.13 | 43,346 | 2.38 | 18,213 | 1.95 | 1.11 | 6 hr | CloudBurst |
| CSO193 | 11/17/13 6:00 PM | 11/17/13 6:00 PM | 0.00 | 6,324 | 2.38 | 2,657 | 2.52 | 1.11 | 6 hr | CloudBurst |
| CSO193 | 12/21/13 10:00 PM | 12/21/13 10:45 PM | 0.03 | 66,232 | 1.77 | 37,419 | 2.46 | 0.96 | 6 hr | CloudBurst |
| CSO193 | 4/4/14 3:15 AM | 4/4/14 3:15 AM | 0.01 | 1,761 | 2.72 | 647 | 3.29 | 0.96 | 24 hr | CloudBurst |
| CSO193 | 4/7/14 10:45 AM | 4/7/14 11:45 AM | 0.04 | 3,062 | 0.66 | 4,639 | 3.48 | 0.38 | 3 hr | Atlas14 |
| CSO193 | 4/28/14 4:15 AM | 4/28/14 6:15 AM | 0.08 | 10,170 | 1.63 | 6,239 | 1.16 | 0.66 | 3 hr | Atlas14 |
| CSO193 | 5/10/14 5:45 AM | 5/10/14 5:45 AM | 0.01 | 3,523 | 1.63 | 2,161 | 0.94 | 0.63 | 24 hr | CloudBurst |
| CSO193 | 5/10/14 2:15 PM | 5/10/14 2:30 PM | 0.01 | 4,921 | 1.63 | 3,019 | 1.55 | 0.63 | 24 hr | CloudBurst |
| CSO193 | 5/28/14 8:15 PM | 5/28/14 8:30 PM | 0.01 | 6,045 | 0.43 | 14,059 | 1.01 | 0.37 | 1 hr | CloudBurst |
| CSO193 | 5/29/14 9:15 PM | 5/29/14 9:15 PM | 0.01 | 8,879 | 0.18 | 49,325 | 0.62 | 0.15 | 1 hr | CloudBurst |
| CSO193 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 365 | 0.09 | 4,053 | 0.23 | 0.06 | 1 hr | CloudBurst |
| CSO196 | 1/11/14 12:15 AM | 1/11/14 2:30 AM | 0.09 | 3,507 | 0.95 | 3,691 | 1.14 | 0.52 | 6 hr | CloudBurst |
| CSO196 | 2/4/14 8:00 PM | 2/4/14 8:00 PM | 0.00 | 3,460 | 0.51 | 6,785 | 0.79 | 0.25 | 6 hr | CloudBurst |
| CSO196 | 2/17/14 4:15 PM | 2/17/14 4:45 PM | 0.02 | 28,726 | 0.40 | 71,816 | 0.95 | 0.24 | 3 hr | CloudBurst |
| CSO196 | 3/2/14 10:45 AM | 3/2/14 10:45 AM | 0.00 | 618 | 0.62 | 997 | 0.29 | 0.24 | 24 hr | CloudBurst |
| CSO196 | 3/12/14 8:15 AM | 3/12/14 8:45 AM | 0.02 | 3,496 | 0.09 | 38,843 | 0.07 | 0.04 | 1 hr | CloudBurst |
| CSO196 | 3/29/14 6:30 AM | 3/29/14 7:00 AM | 0.02 | 15,732 | 1.01 | 15,576 | 0.82 | 0.49 | 6 hr | CloudBurst |
| CSO196 | 7/1/13 6:45 PM | 7/1/13 6:45 PM | 0.01 | 8,607 | 0.26 | 33,102 | 3.44 | 0.12 | 12 hr | CloudBurst |
| CSO196 | 7/2/13 1:15 PM | 7/2/13 1:30 PM | 0.01 | 39,899 | 0.11 | 362,716 | 3.61 | 0.10 | 1 hr | CloudBurst |
| CSO196 | 7/10/13 2:00 PM | 7/10/13 2:30 PM | 0.02 | 41,979 | 0.71 | 59,126 | 1.86 | 0.46 | 3 hr | Atlas14 |
| CSO196 | 7/14/13 7:45 PM | 7/14/13 7:45 PM | 0.01 | 4,273 | 0.09 | 47,481 | 0.84 | 0.08 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO196 | 7/21/13 7:45 PM | 7/21/13 8:15 PM | 0.02 | 42,955 | 2.41 | 17,824 | 1.63 | 0.93 | 24 hr | CloudBurst |
| CSO196 | 7/22/13 7:30 AM | 7/22/13 2:00 PM | 0.27 | 108,525 | 2.41 | 45,031 | 2.74 | 0.93 | 24 hr | CloudBurst |
| CSO196 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 39,039 | 0.73 | 53,478 | 0.79 | 0.31 | 1 hr | CloudBurst |
| CSO196 | 8/20/13 6:15 PM | 8/20/13 6:15 PM | 0.01 | 9,294 | 0.24 | 38,727 | 0.26 | 0.13 | 6 hr | CloudBurst |
| CSO196 | 8/31/13 8:15 PM | 8/31/13 10:45 PM | 0.10 | 17,703 | 1.07 | 16,545 | 0.65 | 0.50 | 12 hr | CloudBurst |
| CSO196 | 9/2/13 2:00 PM | 9/2/13 2:00 PM | 0.01 | 19,370 | 0.31 | 62,485 | 1.38 | 0.27 | 1 hr | CloudBurst |
| CSO196 | 9/20/13 4:30 PM | 9/20/13 10:45 PM | 0.26 | 11,857 | 1.06 | 11,186 | 0.59 | 0.44 | 12 hr | CloudBurst |
| CSO196 | 10/5/13 1:15 PM | 10/6/13 8:45 AM | 0.81 | 307,694 | 4.20 | 73,261 | 4.29 | 7.26 | 24 hr | CloudBurst |
| CSO196 | 10/30/13 4:45 AM | 10/30/13 5:45 AM | 0.04 | 76,170 | 1.96 | 38,862 | 1.94 | 1.30 | 1 hr | CloudBurst |
| CSO196 | 10/31/13 7:30 PM | 10/31/13 9:00 PM | 0.06 | 3,582 | 0.71 | 5,045 | 2.56 | 0.28 | 24 hr | CloudBurst |
| CSO196 | 11/17/13 7:45 AM | 11/17/13 8:15 AM | 0.02 | 6,422 | 2.32 | 2,768 | 1.77 | 1.06 | 6 hr | CloudBurst |
| CSO196 | 12/21/13 10:15 PM | 12/22/13 12:15 AM | 0.08 | 43,987 | 1.37 | 32,108 | 2.18 | 0.74 | 6 hr | CloudBurst |
| CSO196 | 4/3/14 12:15 PM | 4/4/14 3:30 AM | 0.64 | 29,547 | 2.36 | 12,520 | 3.24 | 0.82 | 24 hr | CloudBurst |
| CSO196 | 4/28/14 4:15 AM | 4/28/14 7:00 AM | 0.11 | 60,393 | 1.68 | 35,948 | 1.31 | 0.70 | 3 hr | CloudBurst |
| CSO196 | 4/28/14 5:45 PM | 4/28/14 5:45 PM | 0.01 | 460 | 1.68 | 274 | 1.65 | 0.70 | 3 hr | CloudBurst |
| CSO196 | 5/9/14 7:30 PM | 5/9/14 7:30 PM | 0.01 | 5,659 | 1.67 | 3,389 | 0.32 | 0.65 | 24 hr | CloudBurst |
| CSO196 | 5/10/14 5:45 AM | 5/10/14 3:15 PM | 0.40 | 58,583 | 1.67 | 35,080 | 1.73 | 0.65 | 24 hr | CloudBurst |
| CSO196 | 5/14/14 7:15 AM | 5/14/14 7:15 AM | 0.01 | 2,444 | 0.91 | 2,686 | 1.94 | 0.35 | 24 hr | CloudBurst |
| CSO196 | 5/14/14 6:15 PM | 5/14/14 6:15 PM | 0.01 | 628 | 0.91 | 690 | 2.44 | 0.35 | 24 hr | CloudBurst |
| CSO196 | 5/22/14 2:45 AM | 5/22/14 3:30 AM | 0.03 | 9,064 | 0.47 | 19,286 | 0.50 | 0.22 | 12 hr | CloudBurst |
| CSO196 | 5/28/14 8:15 PM | 5/28/14 8:30 PM | 0.01 | 39,937 | 0.32 | 124,803 | 0.80 | 0.27 | 1 hr | CloudBurst |
| CSO196 | 5/29/14 9:00 PM | 5/29/14 9:30 PM | 0.02 | 48,121 | 0.44 | 109,366 | 0.76 | 0.35 | 1 hr | CloudBurst |
| CSO196 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 21,966 | 0.12 | 183,054 | 0.28 | 0.09 | 1 hr | CloudBurst |
| CSO196 | 6/24/14 1:45 PM | 6/24/14 2:15 PM | 0.02 | 7,449 | 0.13 | 57,302 | 0.44 | 0.08 | 1 hr | CloudBurst |
| CSO199 | 1/11/14 12:15 AM | 1/11/14 12:30 AM | 0.01 | 1,239 | 0.95 | 1,304 | 0.79 | 0.52 | 6 hr | CloudBurst |
| CSO199 | 2/17/14 4:15 PM | 2/17/14 4:30 PM | 0.01 | 4,417 | 0.40 | 11,042 | 0.94 | 0.24 | 3 hr | CloudBurst |
| CSO199 | 3/3/14 9:00 AM | 3/3/14 8:15 PM | 0.47 | 4,325 | 0.62 | 6,976 | 0.63 | 0.24 | 24 hr | CloudBurst |
| CSO199 | 3/29/14 6:45 AM | 3/29/14 6:45 AM | 0.00 | 1,067 | 1.01 | 1,056 | 0.76 | 0.49 | 6 hr | CloudBurst |
| CSO199 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 26,752 | 0.73 | 36,647 | 0.79 | 0.31 | 1 hr | CloudBurst |
| CSO199 | 8/20/13 6:15 PM | 8/20/13 6:15 PM | 0.01 | 3,328 | 0.24 | 13,868 | 0.26 | 0.13 | 6 hr | CloudBurst |
| CSO199 | 8/31/13 8:15 PM | 8/31/13 10:45 PM | 0.10 | 3,235 | 1.07 | 3,024 | 0.65 | 0.50 | 12 hr | CloudBurst |
| CSO199 | 9/2/13 2:00 PM | 9/2/13 2:00 PM | 0.01 | 5,329 | 0.31 | 17,191 | 1.38 | 0.27 | 1 hr | CloudBurst |
| CSO199 | 9/20/13 4:30 PM | 9/20/13 7:45 PM | 0.14 | 1,254 | 1.06 | 1,183 | 0.38 | 0.44 | 12 hr | CloudBurst |
| CSO199 | 10/5/13 1:15 PM | 10/6/13 6:30 AM | 0.72 | 106,546 | 4.20 | 25,368 | 3.68 | 7.26 | 24 hr | CloudBurst |
| CSO199 | 10/30/13 4:45 AM | 10/30/13 5:30 AM | 0.03 | 32,015 | 1.96 | 16,334 | 1.92 | 1.30 | 1 hr | CloudBurst |
| CSO199 | 11/12/13 1:30 AM | 11/12/13 1:30 AM | 0.00 | 11,423 | 0.04 | 285,582 | 0.23 | 0.02 | 24 hr | CloudBurst |
| CSO199 | 11/17/13 5:45 AM | 11/17/13 9:15 AM | 0.15 | 34,115 | 2.32 | 14,705 | 1.98 | 1.06 | 6 hr | CloudBurst |
| CSO199 | 11/17/13 6:00 PM | 11/17/13 6:15 PM | 0.01 | 8,778 | 2.32 | 3,784 | 2.45 | 1.06 | 6 hr | CloudBurst |
| CSO199 | 12/5/13 7:30 AM | 12/5/13 7:30 AM | 0.00 | 452 | 0.75 | 603 | 0.18 | 0.24 | 48 hr | CloudBurst |
| CSO199 | 12/21/13 9:30 PM | 12/21/13 11:00 PM | 0.06 | 48,237 | 1.37 | 35,210 | 1.99 | 0.74 | 6 hr | CloudBurst |
| CSO199 | 4/3/14 12:00 PM | 4/3/14 12:15 PM | 0.01 | 2,579 | 2.36 | 1,093 | 2.06 | 0.82 | 24 hr | CloudBurst |
| CSO199 | 4/4/14 3:15 AM | 4/4/14 3:15 AM | 0.01 | 2,150 | 2.36 | 911 | 3.07 | 0.82 | 24 hr | CloudBurst |
| CSO199 | 4/7/14 10:45 AM | 4/7/14 11:45 AM | 0.04 | 4,011 | 0.73 | 5,495 | 3.16 | 0.41 | 1 hr | CloudBurst |
| CSO199 | 4/28/14 4:00 AM | 4/28/14 6:15 AM | 0.09 | 22,042 | 1.68 | 13,121 | 1.24 | 0.70 | 3 hr | CloudBurst |
| CSO199 | 5/9/14 7:30 PM | 5/9/14 7:30 PM | 0.01 | 504 | 1.67 | 302 | 0.32 | 0.65 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO199 | 5/10/14 5:45 AM | 5/10/14 2:15 PM | 0.35 | 7,161 | 1.67 | 4,288 | 1.61 | 0.65 | 24 hr | CloudBurst |
| CSO199 | 5/22/14 3:00 AM | 5/22/14 3:00 AM | 0.01 | 439 | 0.47 | 935 | 0.39 | 0.22 | 12 hr | CloudBurst |
| CSO199 | 5/28/14 8:30 PM | 5/28/14 8:30 PM | 0.01 | 2,109 | 0.32 | 6,590 | 0.80 | 0.27 | 1 hr | CloudBurst |
| CSO199 | 5/29/14 9:00 PM | 5/29/14 9:15 PM | 0.01 | 28,128 | 0.44 | 63,927 | 0.76 | 0.35 | 1 hr | CloudBurst |
| CSO200 | 1/11/14 12:00 AM | 1/11/14 3:00 AM | 0.13 | 1,717 | 0.95 | 1,807 | 1.27 | 0.52 | 6 hr | CloudBurst |
| CSO200 | 2/4/14 7:45 PM | 2/4/14 11:15 PM | 0.15 | 13,538 | 0.51 | 26,544 | 1.04 | 0.25 | 6 hr | CloudBurst |
| CSO200 | 2/17/14 4:00 PM | 2/17/14 4:30 PM | 0.02 | 5,424 | 0.40 | 13,561 | 0.94 | 0.24 | 3 hr | CloudBurst |
| CSO200 | 3/29/14 6:30 AM | 3/29/14 6:45 AM | 0.01 | 1,275 | 1.01 | 1,262 | 0.76 | 0.49 | 6 hr | CloudBurst |
| CSO200 | 7/1/13 6:30 PM | 7/1/13 6:30 PM | 0.01 | 27 | 0.26 | 104 | 3.41 | 0.12 | 12 hr | CloudBurst |
| CSO200 | 7/2/13 1:00 PM | 7/2/13 1:15 PM | 0.01 | 22,582 | 0.11 | 205,289 | 3.61 | 0.10 | 1 hr | CloudBurst |
| CSO200 | 7/10/13 2:00 PM | 7/10/13 2:15 PM | 0.01 | 43,834 | 0.71 | 61,738 | 1.86 | 0.46 | 3 hr | Atlas14 |
| CSO200 | 7/14/13 7:30 PM | 7/14/13 7:30 PM | 0.01 | 656 | 0.09 | 7,288 | 0.84 | 0.08 | 1 hr | CloudBurst |
| CSO200 | 7/21/13 7:15 PM | 7/21/13 8:00 PM | 0.03 | 11,388 | 2.41 | 4,725 | 1.61 | 0.93 | 24 hr | CloudBurst |
| CSO200 | 7/22/13 7:30 AM | 7/22/13 2:00 PM | 0.27 | 80,665 | 2.41 | 33,471 | 2.74 | 0.93 | 24 hr | CloudBurst |
| CSO200 | 8/12/13 2:30 PM | 8/12/13 2:45 PM | 0.01 | 15,293 | 0.73 | 20,949 | 0.79 | 0.31 | 1 hr | CloudBurst |
| CSO200 | 8/20/13 6:00 PM | 8/20/13 6:00 PM | 0.01 | 12,989 | 0.24 | 54,123 | 0.23 | 0.13 | 6 hr | CloudBurst |
| CSO200 | 8/31/13 8:00 PM | 8/31/13 8:00 PM | 0.01 | 493 | 1.07 | 461 | 0.43 | 0.50 | 12 hr | CloudBurst |
| CSO200 | 9/2/13 1:45 PM | 9/2/13 2:00 PM | 0.01 | 19,997 | 0.31 | 64,506 | 1.38 | 0.27 | 1 hr | CloudBurst |
| CSO200 | 9/20/13 4:15 PM | 9/20/13 7:30 PM | 0.14 | 1,057 | 1.06 | 997 | 0.37 | 0.44 | 12 hr | CloudBurst |
| CSO200 | 10/5/13 1:00 PM | 10/6/13 8:00 AM | 0.79 | 159,489 | 4.20 | 37,974 | 4.12 | 7.26 | 24 hr | CloudBurst |
| CSO200 | 11/17/13 5:45 AM | 11/17/13 9:30 AM | 0.16 | 31,107 | 2.32 | 13,408 | 2.01 | 1.06 | 6 hr | CloudBurst |
| CSO200 | 11/17/13 5:45 PM | 11/17/13 6:00 PM | 0.01 | 8,127 | 2.32 | 3,503 | 2.45 | 1.06 | 6 hr | CloudBurst |
| CSO200 | 12/21/13 8:00 AM | 12/21/13 8:00 AM | 0.00 | 235 | 0.92 | 255 | 0.77 | 0.43 | 12 hr | CloudBurst |
| CSO200 | 12/21/13 9:15 PM | 12/22/13 12:00 AM | 0.11 | 109,490 | 1.37 | 79,919 | 2.15 | 0.74 | 6 hr | CloudBurst |
| CSO200 | 4/3/14 12:00 PM | 4/3/14 12:00 PM | 0.01 | 2,576 | 2.36 | 1,092 | 2.01 | 0.82 | 24 hr | CloudBurst |
| CSO200 | 4/4/14 3:00 AM | 4/4/14 4:15 AM | 0.05 | 33,334 | 2.36 | 14,125 | 3.18 | 0.82 | 24 hr | CloudBurst |
| CSO200 | 4/7/14 10:30 AM | 4/7/14 11:30 AM | 0.04 | 5,534 | 0.73 | 7,581 | 3.14 | 0.41 | 1 hr | CloudBurst |
| CSO200 | 4/28/14 3:45 AM | 4/28/14 6:15 AM | 0.10 | 21,628 | 1.68 | 12,874 | 1.24 | 0.70 | 3 hr | CloudBurst |
| CSO200 | 5/9/14 7:00 PM | 5/9/14 7:15 PM | 0.01 | 3,198 | 1.67 | 1,915 | 0.32 | 0.65 | 24 hr | CloudBurst |
| CSO200 | 5/10/14 5:30 AM | 5/10/14 2:15 PM | 0.36 | 10,404 | 1.67 | 6,230 | 1.61 | 0.65 | 24 hr | CloudBurst |
| CSO200 | 5/22/14 2:30 AM | 5/22/14 3:15 AM | 0.03 | 648 | 0.47 | 1,380 | 0.47 | 0.22 | 12 hr | CloudBurst |
| CSO200 | 5/28/14 8:15 PM | 5/28/14 8:30 PM | 0.01 | 9,781 | 0.32 | 30,566 | 0.80 | 0.27 | 1 hr | CloudBurst |
| CSO200 | 5/29/14 9:00 PM | 5/29/14 9:15 PM | 0.01 | 23,811 | 0.44 | 54,117 | 0.76 | 0.35 | 1 hr | CloudBurst |
| CSO200 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 305 | 0.12 | 2,543 | 0.28 | 0.09 | 1 hr | CloudBurst |
| CSO200 | 6/24/14 1:30 PM | 6/24/14 1:30 PM | 0.01 | 288 | 0.13 | 2,216 | 0.43 | 0.08 | 1 hr | CloudBurst |
| CSO202 | 2/17/14 4:15 PM | 2/17/14 4:15 PM | 0.00 | 3,790 | 0.40 | 9,475 | 0.91 | 0.24 | 3 hr | CloudBurst |
| CSO202 | 3/29/14 6:45 AM | 3/29/14 6:45 AM | 0.00 | 3,692 | 1.01 | 3,656 | 0.76 | 0.49 | 6 hr | CloudBurst |
| CSO202 | 7/2/13 1:15 PM | 7/2/13 1:15 PM | 0.01 | 11,165 | 0.11 | 101,498 | 3.61 | 0.10 | 1 hr | CloudBurst |
| CSO202 | 7/10/13 2:00 PM | 7/10/13 2:15 PM | 0.01 | 21,692 | 0.71 | 30,552 | 1.86 | 0.46 | 3 hr | Atlas14 |
| CSO202 | 7/21/13 7:45 PM | 7/21/13 8:00 PM | 0.01 | 6,457 | 2.41 | 2,679 | 1.55 | 0.93 | 24 hr | CloudBurst |
| CSO202 | 7/22/13 7:45 AM | 7/22/13 1:45 PM | 0.25 | 46,641 | 2.41 | 19,353 | 2.74 | 0.93 | 24 hr | CloudBurst |
| CSO202 | 8/12/13 2:45 PM | 8/12/13 3:00 PM | 0.01 | 32,634 | 0.73 | 44,705 | 0.79 | 0.31 | 1 hr | CloudBurst |
| CSO202 | 8/20/13 6:15 PM | 8/20/13 6:15 PM | 0.01 | 10,413 | 0.24 | 43,387 | 0.26 | 0.13 | 6 hr | CloudBurst |
| CSO202 | 8/31/13 7:45 PM | 8/31/13 10:45 PM | 0.13 | 7,764 | 1.07 | 7,256 | 0.65 | 0.50 | 12 hr | CloudBurst |
| CSO202 | 9/2/13 2:00 PM | 9/2/13 2:00 PM | 0.01 | 7,890 | 0.31 | 25,450 | 1.38 | 0.27 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO202 | 9/20/13 3:30 PM | 9/20/13 7:45 PM | 0.18 | 7,743 | 1.06 | 7,304 | 0.38 | 0.44 | 12 hr | CloudBurst |
| CSO202 | 9/29/13 5:45 PM | 9/30/13 12:30 AM | 0.28 | 4,926 | 0.02 | 246,278 | 0.02 | 0.02 | 1 hr | CloudBurst |
| CSO202 | 10/5/13 1:15 PM | 10/6/13 6:15 AM | 0.71 | 85,284 | 4.20 | 20,306 | 3.64 | 7.26 | 24 hr | CloudBurst |
| CSO202 | 10/30/13 4:45 AM | 10/30/13 5:30 AM | 0.03 | 22,605 | 1.96 | 11,533 | 1.92 | 1.30 | 1 hr | CloudBurst |
| CSO202 | 11/17/13 6:00 AM | 11/17/13 8:15 AM | 0.09 | 15,300 | 2.32 | 6,595 | 1.77 | 1.06 | 6 hr | CloudBurst |
| CSO202 | 11/17/13 6:00 PM | 11/17/13 6:00 PM | 0.00 | 5,488 | 2.32 | 2,365 | 2.45 | 1.06 | 6 hr | CloudBurst |
| CSO202 | 12/21/13 9:30 PM | 12/21/13 10:45 PM | 0.05 | 47,479 | 1.37 | 34,656 | 1.98 | 0.74 | 6 hr | CloudBurst |
| CSO202 | 4/3/14 12:00 PM | 4/3/14 12:15 PM | 0.01 | 4,476 | 2.36 | 1,897 | 2.06 | 0.82 | 24 hr | CloudBurst |
| CSO202 | 4/4/14 3:15 AM | 4/4/14 3:15 AM | 0.01 | 9,153 | 2.36 | 3,878 | 3.07 | 0.82 | 24 hr | CloudBurst |
| CSO202 | 4/7/14 10:45 AM | 4/7/14 11:30 AM | 0.03 | 7,268 | 0.73 | 9,956 | 3.14 | 0.41 | 1 hr | CloudBurst |
| CSO202 | 4/28/14 4:15 AM | 4/28/14 6:15 AM | 0.08 | 25,053 | 1.68 | 14,913 | 1.24 | 0.70 | 3 hr | CloudBurst |
| CSO202 | 5/9/14 7:15 PM | 5/9/14 7:15 PM | 0.01 | 14,284 | 1.67 | 8,553 | 0.32 | 0.65 | 24 hr | CloudBurst |
| CSO202 | 5/10/14 5:45 AM | 5/10/14 2:30 PM | 0.36 | 12,630 | 1.67 | 7,563 | 1.63 | 0.65 | 24 hr | CloudBurst |
| CSO202 | 5/22/14 2:45 AM | 5/22/14 3:30 AM | 0.03 | 13,499 | 0.47 | 28,722 | 0.50 | 0.22 | 12 hr | CloudBurst |
| CSO202 | 5/28/14 8:15 PM | 5/28/14 8:30 PM | 0.01 | 14,946 | 0.32 | 46,707 | 0.80 | 0.27 | 1 hr | CloudBurst |
| CSO202 | 5/29/14 9:00 PM | 5/29/14 9:15 PM | 0.01 | 23,018 | 0.44 | 52,314 | 0.76 | 0.35 | 1 hr | CloudBurst |
| CSO202 | 6/11/14 2:15 PM | 6/11/14 2:15 PM | 0.01 | 6,507 | 0.12 | 54,226 | 0.28 | 0.09 | 1 hr | CloudBurst |
| CSO202 | 6/20/14 4:00 PM | 6/20/14 4:00 PM | 0.01 | 6,023 | 0.28 | 21,512 | 0.16 | 0.19 | 3 hr | Atlas14 |
| CSO203 | 2/2/14 5:30 AM | 2/2/14 8:00 AM | 0.10 | 561 | 0.56 | 1,001 | 0.26 | 0.21 | 24 hr | CloudBurst |
| CSO203 | 2/3/14 8:30 AM | 2/4/14 9:00 AM | 1.02 | 57,292 | 0.56 | 102,308 | 0.56 | 0.21 | 24 hr | CloudBurst |
| CSO203 | 2/4/14 11:15 PM | 2/4/14 11:15 PM | 0.00 | 892 | 0.51 | 1,750 | 1.04 | 0.25 | 6 hr | CloudBurst |
| CSO203 | 2/17/14 4:15 PM | 2/17/14 4:15 PM | 0.00 | 2,663 | 0.40 | 6,657 | 0.91 | 0.24 | 3 hr | CloudBurst |
| CSO203 | 7/1/13 6:45 PM | 7/2/13 3:00 AM | 0.34 | 32,699 | 0.26 | 125,765 | 3.50 | 0.12 | 12 hr | CloudBurst |
| CSO203 | 7/2/13 1:15 PM | 7/2/13 2:45 PM | 0.06 | 50,362 | 0.11 | 457,840 | 3.61 | 0.10 | 1 hr | CloudBurst |
| CSO203 | 7/10/13 2:00 PM | 7/11/13 8:00 PM | 1.25 | 2,432,531 | 0.71 | 3,426,100 | 1.90 | 0.46 | 3 hr | Atlas14 |
| CSO203 | 7/22/13 7:00 AM | 7/23/13 5:00 AM | 0.92 | 155,421 | 2.41 | 64,490 | 2.85 | 0.93 | 24 hr | CloudBurst |
| CSO203 | 7/30/13 6:45 PM | 7/30/13 6:45 PM | 0.01 | 242 | 0.14 | 1,730 | 0.16 | 0.08 | 6 hr | CloudBurst |
| CSO203 | 8/12/13 2:45 PM | 8/14/13 12:15 AM | 1.40 | 759,449 | 0.73 | 1,040,342 | 1.13 | 0.31 | 1 hr | CloudBurst |
| CSO203 | 8/20/13 6:15 PM | 8/20/13 6:15 PM | 0.01 | 3,820 | 0.24 | 15,916 | 0.26 | 0.13 | 6 hr | CloudBurst |
| CSO203 | 8/31/13 8:30 PM | 9/1/13 8:45 AM | 0.51 | 63,290 | 1.07 | 59,150 | 1.07 | 0.50 | 12 hr | CloudBurst |
| CSO203 | 9/2/13 2:00 PM | 9/2/13 2:00 PM | 0.01 | 3,359 | 0.31 | 10,837 | 1.38 | 0.27 | 1 hr | CloudBurst |
| CSO203 | 9/20/13 10:45 PM | 9/21/13 11:00 AM | 0.51 | 14,861 | 1.06 | 14,020 | 1.12 | 0.44 | 12 hr | CloudBurst |
| CSO203 | 10/5/13 2:15 PM | 10/6/13 6:30 AM | 0.68 | 140,676 | 4.20 | 33,494 | 3.68 | 7.26 | 24 hr | CloudBurst |
| CSO203 | 10/30/13 4:45 AM | 10/30/13 8:00 AM | 0.14 | 88,478 | 1.96 | 45,142 | 1.96 | 1.30 | 1 hr | CloudBurst |
| CSO203 | 11/17/13 6:00 PM | 11/17/13 6:00 PM | 0.00 | 8,993 | 2.32 | 3,876 | 2.45 | 1.06 | 6 hr | CloudBurst |
| CSO203 | 12/21/13 10:00 PM | 12/21/13 10:45 PM | 0.03 | 50,568 | 1.37 | 36,911 | 1.98 | 0.74 | 6 hr | CloudBurst |
| CSO203 | 4/4/14 3:15 AM | 4/4/14 3:15 AM | 0.01 | 17,731 | 2.36 | 7,513 | 3.07 | 0.82 | 24 hr | CloudBurst |
| CSO203 | 4/14/14 10:45 AM | 4/17/14 4:00 AM | 2.72 | 1,247,404 | 0.99 | 1,260,004 | 1.30 | 0.38 | 24 hr | CloudBurst |
| CSO203 | 4/28/14 4:15 AM | 4/28/14 6:15 AM | 0.08 | 11,455 | 1.68 | 6,818 | 1.24 | 0.70 | 3 hr | CloudBurst |
| CSO203 | 5/9/14 7:15 PM | 5/11/14 7:45 AM | 0.69 | 28,224 | 1.67 | 16,182 | 0.99 | 0.65 | 24 hr | CloudBurst |
| CSO203 | 5/14/14 7:15 AM | 5/14/14 12:15 PM | 0.21 | 6,103 | 0.91 | 6,707 | 2.17 | 0.35 | 24 hr | CloudBurst |
| CSO203 | 5/15/14 2:15 AM | 5/15/14 7:30 AM | 0.22 | 14,101 | 0.91 | 15,496 | 2.71 | 0.35 | 24 hr | CloudBurst |
| CSO203 | 5/28/14 8:15 PM | 5/28/14 8:15 PM | 0.01 | 557 | 0.32 | 1,740 | 0.80 | 0.27 | 1 hr | CloudBurst |
| CSO203 | 5/29/14 9:00 PM | 5/30/14 9:45 AM | 0.53 | 22,971 | 0.44 | 52,208 | 0.77 | 0.35 | 1 hr | CloudBurst |
| CSO203 | 6/20/14 5:45 PM | 6/20/14 11:45 PM | 0.25 | 20,897 | 0.28 | 74,632 | 0.28 | 0.19 | 3 hr | Atlas14 |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO203 | 6/24/14 6:00 PM | 6/25/14 3:00 AM | 0.38 | 10,520 | 0.13 | 80,922 | 0.48 | 0.08 | 1 hr | CloudBurst |
| CSO205 | 2/4/14 11:00 PM | 2/4/14 11:00 PM | 0.00 | 198 | 0.51 | 389 | 0.91 | 0.25 | 6 hr | CloudBurst |
| CSO205 | 2/17/14 4:15 PM | 2/17/14 4:15 PM | 0.00 | 205 | 0.40 | 512 | 0.92 | 0.25 | 3 hr | Atlas14 |
| CSO205 | 3/29/14 8:30 AM | 3/29/14 8:30 AM | 0.00 | 815 | 0.88 | 926 | 0.87 | 0.43 | 6 hr | CloudBurst |
| CSO205 | 7/21/13 7:30 PM | 7/21/13 8:00 PM | 0.02 | 1,312 | 3.26 | 402 | 2.42 | 5.43 | 3 hr | Atlas14 |
| CSO205 | 7/22/13 7:45 AM | 7/22/13 1:45 PM | 0.25 | 507 | 3.26 | 155 | 3.47 | 5.43 | 3 hr | Atlas14 |
| CSO205 | 8/9/13 5:15 PM | 8/9/13 5:30 PM | 0.01 | 431 | 0.27 | 1,595 | 0.31 | 0.15 | 3 hr | CloudBurst |
| CSO205 | 8/12/13 3:00 PM | 8/12/13 3:00 PM | 0.01 | 256 | 0.84 | 305 | 0.87 | 0.36 | 1 hr | CloudBurst |
| CSO205 | 9/2/13 2:00 PM | 9/2/13 2:00 PM | 0.01 | 287 | 0.55 | 521 | 1.45 | 0.48 | 1 hr | CloudBurst |
| CSO205 | 10/5/13 8:45 PM | 10/5/13 11:45 PM | 0.13 | 2,747 | 4.49 | 612 | 3.49 | 9.84 | 24 hr | CloudBurst |
| CSO205 | 10/30/13 5:15 AM | 10/30/13 5:15 AM | 0.00 | 136 | 2.05 | 67 | 1.98 | 1.78 | 1 hr | CloudBurst |
| CSO205 | 11/17/13 7:45 AM | 11/17/13 6:00 PM | 0.43 | 2,619 | 2.70 | 970 | 2.82 | 2.00 | 6 hr | CloudBurst |
| CSO205 | 4/3/14 12:00 PM | 4/3/14 6:30 PM | 0.27 | 1,124 | 2.65 | 424 | 2.49 | 0.93 | 24 hr | CloudBurst |
| CSO205 | 4/4/14 12:45 PM | 4/5/14 6:00 PM | 1.22 | 113,540 | 2.65 | 42,845 | 3.65 | 0.93 | 24 hr | CloudBurst |
| CSO205 | 4/7/14 10:45 AM | 4/7/14 12:00 PM | 0.05 | 3,156 | 0.80 | 3,944 | 3.53 | 0.49 | 1 hr | CloudBurst |
| CSO205 | 4/8/14 2:15 AM | 4/8/14 8:45 AM | 0.27 | 5,126 | 0.81 | 6,329 | 3.55 | 0.89 | 3 hr | Atlas14 |
| CSO205 | 4/28/14 4:00 AM | 4/28/14 4:00 AM | 0.01 | 132 | 1.70 | 78 | 0.60 | 0.68 | 3 hr | Atlas14 |
| CSO205 | 5/22/14 3:00 AM | 5/22/14 3:15 AM | 0.01 | 3,224 | 0.43 | 7,498 | 0.45 | 0.22 | 1 hr | CloudBurst |
| CSO205 | 5/29/14 8:30 PM | 5/29/14 8:30 PM | 0.01 | 377 | 1.13 | 333 | 0.80 | 0.90 | 1 hr | CloudBurst |
| CSO205 | 5/30/14 2:00 PM | 5/30/14 2:15 PM | 0.01 | 1,119 | 0.33 | 3,392 | 1.66 | 0.24 | 1 hr | CloudBurst |
| CSO206 | 1/2/14 4:00 AM | 1/2/14 10:45 AM | 0.28 | 96,325 | 0.27 | 356,760 | 0.79 | 0.14 | 3 hr | CloudBurst |
| CSO206 | 1/5/14 3:00 PM | 1/5/14 8:30 PM | 0.23 | 745,983 | 0.53 | 1,407,514 | 0.76 | 0.27 | 6 hr | CloudBurst |
| CSO206 | 1/11/14 12:15 AM | 1/11/14 6:15 AM | 0.25 | 1,455,197 | 1.08 | 1,347,405 | 1.63 | 0.59 | 6 hr | CloudBurst |
| CSO206 | 1/13/14 2:30 PM | 1/13/14 6:00 PM | 0.15 | 348,656 | 0.24 | 1,452,734 | 1.34 | 0.11 | 12 hr | CloudBurst |
| CSO206 | 2/2/14 3:00 AM | 2/2/14 8:30 AM | 0.23 | 874,855 | 0.44 | 1,988,307 | 0.17 | 0.17 | 24 hr | CloudBurst |
| CSO206 | 2/3/14 11:30 AM | 2/5/14 4:45 AM | 1.72 | 2,710,443 | 0.94 | 2,883,450 | 0.94 | 0.12 | 12 hr | CloudBurst |
| CSO206 | 2/14/14 4:00 PM | 2/14/14 7:30 PM | 0.15 | 197,173 | 0.45 | 438,163 | 0.48 | 0.24 | 6 hr | CloudBurst |
| CSO206 | 2/17/14 2:45 PM | 2/17/14 11:30 PM | 0.36 | 328,369 | 0.52 | 631,479 | 1.02 | 0.32 | 3 hr | CloudBurst |
| CSO206 | 2/20/14 8:00 PM | 2/21/14 1:15 AM | 0.22 | 161,169 | 0.22 | 732,588 | 1.25 | 0.12 | 6 hr | CloudBurst |
| CSO206 | 2/23/14 5:00 PM | 2/23/14 5:30 PM | 0.02 | 4,035 | 0.02 | 201,770 | 0.77 | 0.01 | 48 hr | CloudBurst |
| CSO206 | 3/2/14 9:30 AM | 3/2/14 4:45 PM | 0.30 | 219,534 | 0.63 | 348,467 | 0.34 | 0.24 | 24 hr | CloudBurst |
| CSO206 | 3/12/14 7:15 AM | 3/12/14 7:45 AM | 0.02 | 23,979 | 0.08 | 299,735 | 0.07 | 0.03 | 48 hr | CloudBurst |
| CSO206 | 3/19/14 1:15 PM | 3/19/14 6:45 PM | 0.23 | 560 | 0.21 | 2,668 | 0.34 | 0.16 | 1 hr | CloudBurst |
| CSO206 | 3/28/14 4:15 AM | 3/28/14 5:15 AM | 0.04 | 77,909 | 0.22 | 354,130 | 0.26 | 0.10 | 12 hr | CloudBurst |
| CSO206 | 3/29/14 5:15 AM | 3/29/14 2:15 PM | 0.38 | 590,250 | 1.31 | 450,573 | 1.57 | 0.61 | 12 hr | CloudBurst |
| CSO206 | 7/3/13 5:30 PM | 7/3/13 6:30 PM | 0.04 | 59,669 | 0.10 | 596,691 | 2.03 | 0.07 | 3 hr | CloudBurst |
| CSO206 | 7/4/13 6:30 AM | 7/4/13 7:30 AM | 0.04 | 119,032 | 0.63 | 188,939 | 1.17 | 0.27 | 12 hr | CloudBurst |
| CSO206 | 7/6/13 12:30 AM | 7/6/13 8:00 AM | 0.31 | 667,318 | 0.68 | 981,349 | 2.32 | 0.30 | 12 hr | CloudBurst |
| CSO206 | 12/5/13 7:00 AM | 12/6/13 2:15 PM | 1.30 | 906,893 | 0.71 | 1,277,314 | 0.46 | 0.23 | 48 hr | CloudBurst |
| CSO206 | 12/14/13 4:15 AM | 12/14/13 3:00 PM | 0.45 | 1,523,870 | 0.94 | 1,621,139 | 0.98 | 0.41 | 12 hr | CloudBurst |
| CSO206 | 12/21/13 4:15 AM | 12/22/13 9:00 PM | 1.70 | 11,648,683 | 2.69 | 4,330,366 | 3.41 | 1.02 | 24 hr | CloudBurst |
| CSO206 | 12/29/13 1:45 AM | 12/29/13 11:00 AM | 0.39 | 821,953 | 0.54 | 1,522,135 | 0.71 | 0.24 | 12 hr | CloudBurst |
| CSO206 | 1/9/14 4:45 AM | 1/9/14 9:00 AM | 0.18 | 730,451 | Discharge | | 0.60 | DWO | | |
| CSO206 | 1/26/14 2:15 PM | 1/26/14 3:45 PM | 0.06 | 46,740 | Discharge | | 0.20 | Snowmelt | | |
| CSO206 | 1/30/14 3:30 AM | 1/30/14 9:00 AM | 0.23 | 469,198 | Discharge | | 0.06 | DWO | | |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO206 | 4/1/14 8:15 PM | 4/1/14 9:00 PM | 0.03 | 108,005 | 0.12 | 900,040 | 1.70 | 0.09 | 1 hr | CloudBurst |
| CSO206 | 4/3/14 5:00 AM | 4/5/14 4:15 AM | 1.97 | 6,738,127 | 2.36 | 2,855,138 | 4.07 | 0.85 | 24 hr | CloudBurst |
| CSO206 | 4/7/14 7:45 AM | 4/7/14 2:15 PM | 0.27 | 1,108,335 | 0.80 | 1,385,419 | 3.29 | 0.46 | 1 hr | CloudBurst |
| CSO206 | 4/14/14 3:30 AM | 4/14/14 10:30 AM | 0.29 | 206,264 | 0.36 | 572,955 | 1.16 | 0.18 | 6 hr | CloudBurst |
| CSO206 | 4/14/14 7:15 PM | 4/15/14 3:00 AM | 0.32 | 820,607 | 0.54 | 1,519,642 | 0.91 | 0.25 | 12 hr | CloudBurst |
| CSO206 | 4/25/14 3:30 AM | 4/25/14 3:45 AM | 0.01 | 12,492 | 0.11 | 113,562 | 0.12 | 0.06 | 6 hr | CloudBurst |
| CSO206 | 4/27/14 7:45 PM | 4/28/14 8:30 PM | 1.03 | 1,717,784 | 2.02 | 850,388 | 2.13 | 0.83 | 3 hr | CloudBurst |
| CSO206 | 4/29/14 7:00 PM | 4/30/14 2:30 AM | 0.31 | 249,644 | 0.25 | 998,575 | 2.38 | 0.12 | 12 hr | CloudBurst |
| CSO206 | 5/9/14 7:15 PM | 5/10/14 4:00 PM | 0.86 | 2,403,936 | 1.99 | 1,208,008 | 2.05 | 0.77 | 24 hr | CloudBurst |
| CSO206 | 5/14/14 6:45 AM | 5/15/14 1:30 AM | 0.78 | 2,397,251 | 1.28 | 1,872,853 | 3.38 | 0.47 | 24 hr | CloudBurst |
| CSO206 | 5/16/14 3:45 AM | 5/16/14 4:45 AM | 0.04 | 212,803 | 0.10 | 2,128,027 | 3.48 | 0.07 | 3 hr | CloudBurst |
| CSO206 | 5/21/14 9:00 PM | 5/22/14 4:45 AM | 0.32 | 613,849 | 0.53 | 1,158,205 | 0.73 | 0.25 | 12 hr | CloudBurst |
| CSO206 | 5/29/14 9:00 PM | 5/29/14 10:45 PM | 0.07 | 683,759 | 0.68 | 1,005,528 | 0.91 | 0.57 | 1 hr | CloudBurst |
| CSO206 | 6/1/14 11:00 PM | 6/1/14 11:00 PM | 0.01 | 20,331 | 0.10 | 203,308 | 1.02 | 0.05 | 3 hr | CloudBurst |
| CSO206 | 6/2/14 10:15 PM | 6/2/14 11:00 PM | 0.03 | 99,387 | 0.06 | 1,656,454 | 1.10 | 0.05 | 1 hr | CloudBurst |
| CSO206 | 6/10/14 4:15 PM | 6/10/14 4:15 PM | 0.01 | 7,461 | 0.14 | 53,296 | 0.19 | 0.09 | 3 hr | CloudBurst |
| CSO206 | 6/11/14 9:00 AM | 6/11/14 3:30 PM | 0.27 | 200,737 | 0.24 | 836,405 | 0.47 | 0.15 | 1 hr | CloudBurst |
| CSO206 | 6/20/14 4:00 PM | 6/20/14 6:15 PM | 0.09 | 401,866 | 0.23 | 1,747,243 | 0.24 | 0.15 | 3 hr | CloudBurst |
| CSO206 | 6/24/14 1:45 PM | 6/24/14 9:00 PM | 0.30 | 391,843 | 0.24 | 1,632,678 | 0.56 | 0.17 | 1 hr | CloudBurst |
| CSO207 | 7/1/13 8:45 AM | 7/5/13 12:15 PM | 4.15 | 151,538 | 0.26 | 582,838 | 4.40 | 0.13 | 3 hr | CloudBurst |
| CSO207 | 7/5/13 10:15 PM | 7/7/13 7:45 AM | 1.40 | 97,383 | 0.61 | 159,644 | 2.02 | 0.27 | 12 hr | CloudBurst |
| CSO207 | 7/10/13 2:00 PM | 7/11/13 8:30 AM | 0.77 | 48,932 | 0.62 | 78,923 | 1.83 | 0.45 | 1 hr | CloudBurst |
| CSO207 | 7/14/13 7:30 PM | 7/15/13 9:00 AM | 0.56 | 10,400 | 0.10 | 104,004 | 0.78 | 0.09 | 1 hr | CloudBurst |
| CSO207 | 7/18/13 3:30 PM | 7/19/13 5:00 AM | 0.56 | 31,724 | 0.26 | 122,016 | 0.39 | 0.19 | 1 hr | CloudBurst |
| CSO207 | 7/21/13 7:45 PM | 7/23/13 3:30 AM | 1.32 | 173,665 | 1.89 | 91,886 | 2.17 | 0.73 | 24 hr | CloudBurst |
| CSO207 | 7/27/13 4:15 AM | 7/27/13 1:15 PM | 0.38 | 14,979 | 0.04 | 374,478 | 1.95 | 0.02 | 24 hr | CloudBurst |
| CSO207 | 7/30/13 5:00 PM | 7/31/13 6:30 AM | 0.56 | 24,415 | 0.12 | 203,457 | 0.17 | 0.07 | 6 hr | CloudBurst |
| CSO207 | 8/8/13 11:45 PM | 8/9/13 9:45 AM | 0.42 | 13,778 | 0.05 | 275,554 | 0.09 | 0.04 | 1 hr | CloudBurst |
| CSO207 | 8/10/13 8:45 AM | 8/10/13 12:45 PM | 0.17 | 4,116 | 0.07 | 58,797 | 0.25 | 0.05 | 3 hr | CloudBurst |
| CSO207 | 8/12/13 11:45 AM | 8/13/13 3:00 PM | 1.14 | 75,607 | 0.82 | 92,203 | 1.07 | 0.37 | 1 hr | CloudBurst |
| CSO207 | 8/20/13 6:15 PM | 8/21/13 9:00 AM | 0.61 | 28,859 | 0.17 | 169,759 | 0.19 | 0.09 | 6 hr | CloudBurst |
| CSO207 | 8/31/13 7:45 PM | 9/1/13 1:00 PM | 0.72 | 103,608 | 1.38 | 75,078 | 1.38 | 0.71 | 1 hr | CloudBurst |
| CSO207 | 9/2/13 1:30 PM | 9/3/13 4:15 AM | 0.61 | 37,996 | 0.56 | 67,850 | 1.94 | 0.49 | 1 hr | CloudBurst |
| CSO207 | 9/8/13 2:30 AM | 9/8/13 8:30 AM | 0.25 | 3,099 | 0.01 | 309,883 | 0.68 | 0.01 | 6 hr | CloudBurst |
| CSO207 | 9/11/13 10:15 AM | 9/11/13 11:30 AM | 0.05 | 644 | 0.01 | 64,409 | 0.02 | 0.01 | 6 hr | CloudBurst |
| CSO207 | 9/12/13 1:00 PM | 9/12/13 4:00 PM | 0.13 | 4,178 | 0.04 | 104,441 | 0.06 | 0.03 | 3 hr | CloudBurst |
| CSO207 | 9/18/13 1:00 PM | 9/18/13 1:30 PM | 0.02 | 75 | 0.03 | 2,512 | 0.07 | 0.03 | 1 hr | CloudBurst |
| CSO207 | 9/19/13 11:00 AM | 9/19/13 12:45 PM | 0.07 | 7,462 | 0.05 | 149,235 | 0.12 | 0.04 | 1 hr | CloudBurst |
| CSO207 | 9/20/13 4:00 PM | 9/21/13 3:15 PM | 0.97 | 177,406 | 1.14 | 155,619 | 1.22 | 0.47 | 12 hr | CloudBurst |
| CSO207 | 9/29/13 12:15 PM | 9/29/13 10:00 PM | 0.41 | 13,416 | 0.04 | 335,400 | 0.04 | 0.03 | 1 hr | CloudBurst |
| CSO207 | 4/1/14 7:30 PM | 4/2/14 1:00 AM | 0.23 | 2,325 | 0.08 | 29,060 | 1.63 | 0.06 | 1 hr | CloudBurst |
| CSO207 | 4/2/14 10:45 AM | 4/2/14 11:30 AM | 0.03 | 6,600 | 0.01 | 659,994 | 1.64 | 0.01 | 6 hr | CloudBurst |
| CSO207 | 4/3/14 5:45 AM | 4/4/14 6:00 PM | 1.51 | 87,880 | 3.03 | 29,003 | 4.65 | 1.37 | 24 hr | CloudBurst |
| CSO207 | 4/8/14 6:00 PM | 4/8/14 6:45 PM | 0.03 | 797 | 0.06 | 13,281 | 3.80 | 0.04 | 3 hr | CloudBurst |
| CSO207 | 4/14/14 3:00 AM | 4/15/14 9:30 AM | 1.27 | 30,221 | 0.96 | 31,480 | 1.63 | 0.36 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO207 | 4/25/14 12:45 AM | 4/25/14 11:30 AM | 0.45 | 11,989 | 0.09 | 133,213 | 0.10 | 0.04 | 12 hr | CloudBurst |
| CSO207 | 4/27/14 7:30 PM | 4/30/14 12:30 PM | 2.71 | 86,833 | 1.37 | 63,382 | 1.62 | 0.50 | 24 hr | CloudBurst |
| CSO207 | 5/9/14 10:30 AM | 5/11/14 4:00 PM | 2.23 | 92,880 | 0.09 | 1,032,002 | 1.77 | 0.07 | 1 hr | CloudBurst |
| CSO207 | 5/14/14 8:45 AM | 5/15/14 3:15 PM | 1.27 | 28,353 | 0.79 | 35,890 | 2.58 | 0.31 | 24 hr | CloudBurst |
| CSO207 | 5/16/14 3:45 AM | 5/16/14 3:45 PM | 0.50 | 7,378 | 0.07 | 105,406 | 2.65 | 0.04 | 3 hr | CloudBurst |
| CSO207 | 5/21/14 8:45 PM | 5/23/14 12:15 AM | 1.15 | 37,473 | 0.58 | 64,609 | 0.72 | 0.27 | 12 hr | CloudBurst |
| CSO207 | 5/28/14 8:15 PM | 5/29/14 1:00 PM | 0.70 | 30,293 | 0.20 | 151,466 | 0.79 | 0.17 | 1 hr | CloudBurst |
| CSO207 | 5/29/14 9:45 PM | 5/29/14 11:15 PM | 0.06 | 3,217 | 0.21 | 15,319 | 0.42 | 0.17 | 1 hr | CloudBurst |
| CSO207 | 6/1/14 2:00 PM | 6/2/14 8:00 AM | 0.75 | 10,026 | 0.09 | 111,401 | 0.52 | 0.04 | 12 hr | CloudBurst |
| CSO207 | 6/2/14 10:30 PM | 6/3/14 12:15 AM | 0.07 | 2,331 | 0.02 | 116,549 | 0.54 | 0.01 | 48 hr | CloudBurst |
| CSO207 | 6/4/14 4:00 PM | 6/4/14 4:00 PM | 0.01 | 40 | 0.04 | 1,005 | 0.56 | 0.03 | 1 hr | CloudBurst |
| CSO207 | 6/10/14 4:00 AM | 6/12/14 10:15 AM | 2.26 | 42,069 | 0.04 | 1,051,730 | 0.28 | 0.02 | 24 hr | CloudBurst |
| CSO207 | 6/13/14 8:00 AM | 6/13/14 9:15 AM | 0.05 | 1,338 | 0.05 | 26,754 | 0.29 | 0.03 | 6 hr | CloudBurst |
| CSO207 | 6/20/14 5:00 PM | 6/21/14 8:15 AM | 0.64 | 6,278 | 0.27 | 23,253 | 0.27 | 0.18 | 3 hr | CloudBurst |
| CSO207 | 6/23/14 4:00 PM | 6/24/14 12:45 AM | 0.36 | 3,161 | 0.08 | 39,515 | 0.35 | 0.04 | 12 hr | CloudBurst |
| CSO207 | 6/24/14 3:00 PM | 6/25/14 7:45 AM | 0.70 | 7,566 | 0.10 | 75,661 | 0.45 | 0.05 | 12 hr | CloudBurst |
| CSO207 | 6/27/14 9:15 PM | 6/28/14 1:00 AM | 0.16 | 3,202 | 0.01 | 320,201 | 0.19 | 0.01 | 6 hr | CloudBurst |
| CSO208 | 1/2/14 3:45 AM | 1/2/14 6:00 AM | 0.09 | 1,018 | 0.20 | 5,089 | 0.66 | 0.09 | 6 hr | CloudBurst |
| CSO208 | 1/5/14 2:30 PM | 1/5/14 6:45 PM | 0.18 | 5,833 | 0.47 | 12,410 | 0.61 | 0.24 | 3 hr | CloudBurst |
| CSO208 | 1/10/14 11:45 PM | 1/11/14 5:00 AM | 0.22 | 8,322 | 0.84 | 9,908 | 1.30 | 0.45 | 6 hr | CloudBurst |
| CSO208 | 1/13/14 2:00 PM | 1/13/14 5:15 PM | 0.14 | 1,352 | 0.20 | 6,761 | 1.05 | 0.09 | 12 hr | CloudBurst |
| CSO208 | 1/14/14 6:15 PM | 1/14/14 6:15 PM | 0.00 | 41 | 0.02 | 2,066 | 1.07 | 0.02 | 1 hr | CloudBurst |
| CSO208 | 1/25/14 2:00 PM | 1/25/14 2:00 PM | 0.00 | 11 | 0.06 | 180 | 0.21 | 0.03 | 12 hr | CloudBurst |
| CSO208 | 2/2/14 2:30 AM | 2/2/14 7:15 AM | 0.20 | 5,148 | 0.25 | 20,592 | 0.24 | 0.13 | 6 hr | CloudBurst |
| CSO208 | 2/4/14 6:15 PM | 2/5/14 1:00 AM | 0.28 | 14,665 | 0.58 | 25,285 | 1.13 | 0.29 | 6 hr | CloudBurst |
| CSO208 | 2/14/14 3:30 PM | 2/14/14 5:30 PM | 0.08 | 10,809 | 0.28 | 38,602 | 0.26 | 0.15 | 6 hr | CloudBurst |
| CSO208 | 2/17/14 2:15 PM | 2/17/14 5:45 PM | 0.15 | 11,474 | 0.61 | 18,810 | 0.93 | 0.36 | 3 hr | CloudBurst |
| CSO208 | 2/20/14 8:15 PM | 2/20/14 11:00 PM | 0.11 | 1,195 | 0.19 | 6,289 | 1.11 | 0.10 | 6 hr | CloudBurst |
| CSO208 | 3/2/14 9:15 AM | 3/2/14 11:15 AM | 0.08 | 3,395 | 0.52 | 6,529 | 0.26 | 0.20 | 24 hr | CloudBurst |
| CSO208 | 3/12/14 7:00 AM | 3/12/14 7:15 AM | 0.01 | 1,746 | 0.08 | 21,822 | 0.07 | 0.04 | 1 hr | CloudBurst |
| CSO208 | 3/19/14 8:30 AM | 3/19/14 8:45 AM | 0.01 | 974 | 0.08 | 12,174 | 0.13 | 0.05 | 3 hr | CloudBurst |
| CSO208 | 3/27/14 11:45 PM | 3/28/14 5:00 AM | 0.22 | 2,719 | 0.31 | 8,771 | 0.36 | 0.16 | 1 hr | CloudBurst |
| CSO208 | 3/29/14 5:00 AM | 3/29/14 12:30 PM | 0.31 | 7,835 | 0.75 | 10,447 | 1.05 | 0.35 | 12 hr | CloudBurst |
| CSO208 | 7/1/13 6:15 PM | 7/1/13 7:45 PM | 0.06 | 1,376 | 0.25 | 5,504 | 3.32 | 0.11 | 3 hr | CloudBurst |
| CSO208 | 7/2/13 12:45 PM | 7/2/13 1:30 PM | 0.03 | 33,560 | 0.09 | 372,888 | 3.41 | 0.08 | 1 hr | CloudBurst |
| CSO208 | 7/3/13 4:45 PM | 7/3/13 5:00 PM | 0.01 | 567 | 0.12 | 4,727 | 1.91 | 0.10 | 1 hr | CloudBurst |
| CSO208 | 7/4/13 6:00 AM | 7/4/13 5:45 PM | 0.49 | 11,857 | 0.51 | 23,250 | 1.49 | 0.22 | 12 hr | CloudBurst |
| CSO208 | 7/6/13 12:15 AM | 7/6/13 7:00 AM | 0.28 | 7,688 | 0.59 | 13,030 | 2.04 | 0.26 | 12 hr | CloudBurst |
| CSO208 | 7/10/13 1:45 PM | 7/10/13 2:15 PM | 0.02 | 44,289 | 0.69 | 64,186 | 1.92 | 0.53 | 1 hr | CloudBurst |
| CSO208 | 7/14/13 7:15 PM | 7/14/13 7:30 PM | 0.01 | 576 | 0.07 | 8,226 | 0.81 | 0.06 | 1 hr | CloudBurst |
| CSO208 | 7/18/13 3:30 PM | 7/18/13 4:15 PM | 0.03 | 78,481 | 0.41 | 191,416 | 0.55 | 0.30 | 1 hr | CloudBurst |
| CSO208 | 7/21/13 7:45 PM | 7/21/13 8:30 PM | 0.03 | 6,814 | 2.34 | 2,912 | 1.71 | 0.92 | 3 hr | Atlas14 |
| CSO208 | 7/22/13 6:00 AM | 7/22/13 1:45 PM | 0.32 | 73,261 | 2.34 | 31,308 | 2.77 | 0.92 | 3 hr | Atlas14 |
| CSO208 | 8/12/13 2:15 PM | 8/12/13 2:45 PM | 0.02 | 12,704 | 0.81 | 15,684 | 0.71 | 0.31 | 24 hr | CloudBurst |
| CSO208 | 8/13/13 2:00 AM | 8/13/13 3:15 AM | 0.05 | 3,083 | 0.81 | 3,807 | 1.09 | 0.31 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO208 | 8/20/13 6:00 PM | 8/20/13 6:00 PM | 0.01 | 6,839 | 0.20 | 34,196 | 0.15 | 0.11 | 6 hr | CloudBurst |
| CSO208 | 8/31/13 7:30 PM | 9/1/13 3:30 AM | 0.33 | 67,788 | 1.53 | 44,306 | 1.47 | 0.72 | 1 hr | CloudBurst |
| CSO208 | 9/2/13 1:15 PM | 9/2/13 2:30 PM | 0.05 | 78,955 | 0.39 | 202,448 | 1.92 | 0.34 | 1 hr | CloudBurst |
| CSO208 | 9/12/13 12:45 PM | 9/12/13 12:45 PM | 0.01 | 115 | 0.02 | 5,748 | 0.02 | 0.02 | 1 hr | CloudBurst |
| CSO208 | 9/19/13 10:45 AM | 9/19/13 11:00 AM | 0.01 | 492 | 0.05 | 9,836 | 0.10 | 0.04 | 1 hr | CloudBurst |
| CSO208 | 9/20/13 4:00 PM | 9/21/13 4:15 AM | 0.51 | 21,844 | 1.38 | 15,829 | 1.32 | 0.59 | 12 hr | CloudBurst |
| CSO208 | 10/5/13 12:00 PM | 10/6/13 3:15 PM | 1.14 | 265,416 | 3.72 | 71,349 | 3.86 | 4.40 | 24 hr | CloudBurst |
| CSO208 | 10/17/13 3:45 PM | 10/17/13 3:45 PM | 0.00 | 836 | 0.03 | 27,870 | 0.06 | 0.03 | 1 hr | CloudBurst |
| CSO208 | 10/19/13 7:00 AM | 10/19/13 9:30 AM | 0.10 | 315 | 0.20 | 1,573 | 0.21 | 0.10 | 6 hr | CloudBurst |
| CSO208 | 10/29/13 9:00 PM | 10/30/13 5:45 AM | 0.36 | 48,233 | 1.41 | 34,208 | 1.39 | 0.70 | 6 hr | CloudBurst |
| CSO208 | 10/31/13 11:30 AM | 10/31/13 8:30 PM | 0.38 | 39,407 | 0.65 | 60,627 | 2.01 | 0.26 | 12 hr | CloudBurst |
| CSO208 | 11/6/13 6:45 PM | 11/7/13 12:45 AM | 0.25 | 3,284 | 0.25 | 13,137 | 0.92 | 0.11 | 12 hr | CloudBurst |
| CSO208 | 11/17/13 4:00 AM | 11/17/13 5:45 PM | 0.57 | 91,850 | 2.67 | 34,401 | 2.58 | 1.61 | 6 hr | CloudBurst |
| CSO208 | 11/21/13 7:00 PM | 11/21/13 7:00 PM | 0.00 | 129 | 0.12 | 1,076 | 2.87 | 0.09 | 1 hr | CloudBurst |
| CSO208 | 12/5/13 5:00 AM | 12/6/13 1:30 PM | 1.35 | 9,144 | 0.82 | 11,152 | 0.51 | 0.27 | 48 hr | CloudBurst |
| CSO208 | 12/14/13 3:45 AM | 12/14/13 11:30 AM | 0.32 | 13,539 | 0.66 | 20,513 | 1.04 | 0.26 | 24 hr | CloudBurst |
| CSO208 | 12/20/13 7:15 AM | 12/20/13 11:00 AM | 0.16 | 253 | 0.11 | 2,298 | 0.77 | 0.06 | 6 hr | CloudBurst |
| CSO208 | 12/21/13 1:45 AM | 12/21/13 12:15 PM | 0.44 | 10,211 | 3.22 | 3,171 | 1.84 | 2.16 | 24 hr | CloudBurst |
| CSO208 | 12/21/13 9:00 PM | 12/22/13 3:00 AM | 0.25 | 102,816 | 3.22 | 31,930 | 3.31 | 2.16 | 24 hr | CloudBurst |
| CSO208 | 12/29/13 1:45 AM | 12/29/13 9:45 AM | 0.33 | 2,513 | 0.51 | 4,928 | 0.60 | 0.22 | 12 hr | CloudBurst |
| CSO208 | 4/3/14 5:00 AM | 4/4/14 7:45 AM | 1.11 | 44,341 | 2.77 | 16,008 | 3.96 | 0.97 | 24 hr | CloudBurst |
| CSO208 | 4/7/14 8:00 AM | 4/7/14 3:15 PM | 0.30 | 35,689 | 0.64 | 55,764 | 3.53 | 0.36 | 3 hr | CloudBurst |
| CSO208 | 4/14/14 3:15 AM | 4/14/14 10:30 AM | 0.30 | 843 | 1.10 | 766 | 1.09 | 0.41 | 24 hr | CloudBurst |
| CSO208 | 4/14/14 7:30 PM | 4/15/14 2:30 AM | 0.29 | 3,470 | 1.10 | 3,154 | 1.13 | 0.41 | 24 hr | CloudBurst |
| CSO208 | 4/28/14 3:45 AM | 4/28/14 7:45 AM | 0.17 | 121,418 | 1.78 | 68,212 | 1.42 | 0.72 | 3 hr | CloudBurst |
| CSO208 | 4/28/14 4:45 PM | 4/28/14 8:00 PM | 0.14 | 926 | 1.78 | 520 | 1.86 | 0.72 | 3 hr | CloudBurst |
| CSO208 | 4/29/14 7:00 PM | 4/29/14 7:00 PM | 0.01 | 69 | 0.20 | 344 | 1.96 | 0.09 | 12 hr | CloudBurst |
| CSO208 | 5/9/14 7:15 PM | 5/10/14 3:15 PM | 0.83 | 83,778 | 1.51 | 55,482 | 1.58 | 0.59 | 24 hr | CloudBurst |
| CSO208 | 5/14/14 7:15 AM | 5/14/14 11:15 PM | 0.67 | 2,834 | 0.73 | 3,882 | 2.35 | 0.28 | 24 hr | CloudBurst |
| CSO208 | 5/16/14 3:30 AM | 5/16/14 4:00 AM | 0.02 | 546 | 0.09 | 6,061 | 2.44 | 0.07 | 1 hr | CloudBurst |
| CSO208 | 5/21/14 8:45 PM | 5/22/14 3:30 AM | 0.28 | 2,229 | 0.66 | 3,378 | 0.82 | 0.31 | 12 hr | CloudBurst |
| CSO208 | 5/28/14 8:15 PM | 5/28/14 8:30 PM | 0.01 | 29,364 | 0.44 | 66,737 | 1.11 | 0.37 | 1 hr | CloudBurst |
| CSO208 | 6/11/14 2:00 PM | 6/11/14 2:00 PM | 0.01 | 9,334 | 0.10 | 93,339 | 0.27 | 0.08 | 1 hr | CloudBurst |
| CSO208 | 6/20/14 3:45 PM | 6/20/14 5:30 PM | 0.07 | 7,230 | 0.26 | 27,808 | 0.26 | 0.17 | 3 hr | CloudBurst |
| CSO208 | 6/24/14 2:15 PM | 6/24/14 2:15 PM | 0.01 | 189 | 0.10 | 1,890 | 0.39 | 0.05 | 12 hr | CloudBurst |
| CSO210 | 1/5/14 5:30 PM | 1/5/14 7:15 PM | 0.07 | 21,319 | 0.46 | 46,345 | 0.62 | 0.23 | 3 hr | Atlas14 |
| CSO210 | 1/11/14 1:00 AM | 1/11/14 6:30 AM | 0.23 | 482,723 | 0.97 | 497,652 | 1.44 | 0.52 | 6 hr | CloudBurst |
| CSO210 | 2/2/14 5:45 AM | 2/2/14 7:15 AM | 0.06 | 27,534 | 0.62 | 44,409 | 0.25 | 0.24 | 24 hr | CloudBurst |
| CSO210 | 2/4/14 8:00 PM | 2/4/14 8:45 PM | 0.03 | 56,181 | 0.62 | 90,614 | 1.00 | 0.30 | 6 hr | CloudBurst |
| CSO210 | 2/17/14 4:15 PM | 2/17/14 8:45 PM | 0.19 | 274,001 | 0.57 | 480,704 | 0.84 | 0.34 | 3 hr | CloudBurst |
| CSO210 | 3/2/14 11:15 AM | 3/2/14 1:15 PM | 0.08 | 29,603 | 0.49 | 60,414 | 0.28 | 0.18 | 24 hr | CloudBurst |
| CSO210 | 3/29/14 7:15 AM | 3/29/14 2:45 PM | 0.31 | 264,515 | 0.96 | 275,536 | 1.30 | 0.45 | 6 hr | CloudBurst |
| CSO210 | 3/31/14 11:15 PM | 3/31/14 11:45 PM | 0.02 | 1,875 | 0.01 | 187,500 | 1.31 | 0.01 | 6 hr | CloudBurst |
| CSO210 | 7/6/13 4:15 AM | 7/6/13 7:30 AM | 0.14 | 113,159 | 0.48 | 235,748 | 1.99 | 0.21 | 12 hr | CloudBurst |
| CSO210 | 7/10/13 2:15 PM | 7/10/13 4:45 PM | 0.10 | 149,640 | 0.63 | 237,523 | 1.73 | 0.50 | 1 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO210 | 7/17/13 6:30 PM | 7/17/13 6:30 PM | 0.01 | 2,974 | 0.08 | 37,179 | 0.16 | 0.07 | 1 hr | CloudBurst |
| CSO210 | 7/21/13 8:30 PM | 7/21/13 11:45 PM | 0.14 | 156,550 | 2.85 | 54,930 | 2.27 | 3.07 | 3 hr | Atlas14 |
| CSO210 | 7/22/13 8:00 AM | 7/22/13 5:00 PM | 0.38 | 582,116 | 2.85 | 204,251 | 3.00 | 3.07 | 3 hr | Atlas14 |
| CSO210 | 8/12/13 3:00 PM | 8/12/13 5:30 PM | 0.10 | 69,377 | 1.33 | 52,163 | 1.38 | 0.82 | 1 hr | CloudBurst |
| CSO210 | 8/13/13 4:00 AM | 8/13/13 5:15 AM | 0.05 | 20,059 | 1.33 | 15,082 | 1.56 | 0.82 | 1 hr | CloudBurst |
| CSO210 | 8/31/13 8:00 PM | 9/1/13 4:45 AM | 0.36 | 193,851 | 1.49 | 130,101 | 1.49 | 0.69 | 6 hr | CloudBurst |
| CSO210 | 9/2/13 1:45 PM | 9/2/13 4:45 PM | 0.13 | 55,704 | 0.56 | 99,472 | 2.05 | 0.49 | 1 hr | CloudBurst |
| CSO210 | 9/20/13 6:45 PM | 9/21/13 7:30 AM | 0.53 | 473,798 | 1.82 | 260,329 | 1.84 | 0.76 | 12 hr | CloudBurst |
| CSO210 | 10/5/13 1:15 PM | 10/6/13 12:15 PM | 0.96 | 3,238,802 | 4.50 | 719,734 | 4.73 | 9.84 | 24 hr | CloudBurst |
| CSO210 | 10/30/13 2:30 AM | 10/30/13 9:00 AM | 0.27 | 920,938 | 1.47 | 626,488 | 1.47 | 0.75 | 6 hr | CloudBurst |
| CSO210 | 10/31/13 6:45 PM | 10/31/13 11:15 PM | 0.19 | 170,469 | 0.95 | 179,441 | 2.42 | 0.38 | 12 hr | CloudBurst |
| CSO210 | 11/17/13 5:15 AM | 11/17/13 10:15 PM | 0.71 | 2,669,115 | 2.84 | 939,829 | 3.01 | 2.12 | 6 hr | CloudBurst |
| CSO210 | 12/5/13 7:15 AM | 12/5/13 10:15 AM | 0.13 | 68,125 | 0.81 | 84,105 | 0.25 | 0.26 | 48 hr | CloudBurst |
| CSO210 | 12/14/13 10:15 AM | 12/14/13 1:30 PM | 0.14 | 141,146 | 0.74 | 190,738 | 1.19 | 0.31 | 12 hr | CloudBurst |
| CSO210 | 12/21/13 6:45 AM | 12/22/13 6:30 AM | 0.99 | 2,146,823 | 3.19 | 672,985 | 3.58 | 1.90 | 24 hr | CloudBurst |
| CSO210 | 4/3/14 12:00 PM | 4/4/14 11:30 AM | 0.98 | 1,460,244 | 2.56 | 570,408 | 3.86 | 0.88 | 24 hr | CloudBurst |
| CSO210 | 4/7/14 10:30 AM | 4/7/14 4:00 PM | 0.23 | 532,992 | 1.09 | 488,983 | 3.72 | 0.69 | 1 hr | CloudBurst |
| CSO210 | 4/28/14 4:45 AM | 4/28/14 9:15 PM | 0.69 | 1,311,962 | 1.80 | 728,868 | 1.97 | 0.72 | 3 hr | CloudBurst |
| CSO210 | 5/9/14 7:15 PM | 5/9/14 9:30 PM | 0.09 | 5,730 | 1.64 | 3,494 | 0.35 | 0.64 | 24 hr | CloudBurst |
| CSO210 | 5/10/14 6:00 AM | 5/10/14 6:00 PM | 0.50 | 334,925 | 1.64 | 204,223 | 1.71 | 0.64 | 24 hr | CloudBurst |
| CSO210 | 5/14/14 9:15 AM | 5/15/14 1:30 AM | 0.68 | 198,306 | 1.07 | 185,332 | 2.84 | 0.41 | 24 hr | CloudBurst |
| CSO211 | 2/4/14 9:00 PM | 2/5/14 7:30 AM | 0.44 | 223,958,362 | 0.62 | 361,223,164 | 1.24 | 0.30 | 6 hr | CloudBurst |
| CSO211 | 2/17/14 4:15 PM | 2/17/14 7:45 PM | 0.15 | 12,384,748 | 0.57 | 21,727,628 | 0.84 | 0.34 | 3 hr | CloudBurst |
| CSO211 | 3/29/14 7:30 AM | 3/29/14 10:30 AM | 0.13 | 3,584,334 | 0.96 | 3,733,681 | 1.10 | 0.45 | 6 hr | CloudBurst |
| CSO211 | 7/2/13 2:00 PM | 7/2/13 2:30 PM | 0.02 | 451,222 | 0.02 | 22,561,098 | 3.23 | 0.02 | 1 hr | CloudBurst |
| CSO211 | 7/6/13 5:45 AM | 7/6/13 6:15 AM | 0.02 | 61,621 | 0.48 | 128,377 | 1.93 | 0.21 | 12 hr | CloudBurst |
| CSO211 | 7/10/13 2:00 PM | 7/10/13 4:15 PM | 0.09 | 18,936,515 | 0.63 | 30,057,960 | 1.73 | 0.50 | 1 hr | CloudBurst |
| CSO211 | 7/14/13 8:45 PM | 7/14/13 9:00 PM | 0.01 | 17,870 | 0.06 | 297,838 | 0.72 | 0.05 | 1 hr | CloudBurst |
| CSO211 | 7/21/13 8:30 PM | 7/21/13 10:30 PM | 0.08 | 5,837,269 | 2.85 | 2,048,165 | 2.17 | 3.07 | 3 hr | Atlas14 |
| CSO211 | 7/22/13 7:30 AM | 7/22/13 4:00 PM | 0.35 | 36,442,052 | 2.85 | 12,786,685 | 3.00 | 3.07 | 3 hr | Atlas14 |
| CSO211 | 8/12/13 2:30 PM | 8/12/13 5:00 PM | 0.10 | 13,230,725 | 1.33 | 9,947,914 | 1.38 | 0.82 | 1 hr | CloudBurst |
| CSO211 | 8/13/13 4:00 AM | 8/13/13 5:00 AM | 0.04 | 676,766 | 1.33 | 508,846 | 1.56 | 0.82 | 1 hr | CloudBurst |
| CSO211 | 8/31/13 9:00 PM | 9/1/13 12:30 AM | 0.15 | 1,223,657 | 1.49 | 821,246 | 1.20 | 0.69 | 6 hr | CloudBurst |
| CSO211 | 9/2/13 2:15 PM | 9/2/13 4:00 PM | 0.07 | 8,357,204 | 0.56 | 14,923,579 | 2.05 | 0.49 | 1 hr | CloudBurst |
| CSO211 | 9/20/13 7:15 PM | 9/21/13 6:00 AM | 0.45 | 20,864,024 | 1.82 | 11,463,749 | 1.84 | 0.76 | 12 hr | CloudBurst |
| CSO211 | 10/5/13 1:15 PM | 10/6/13 10:15 AM | 0.88 | 55,458,962 | 4.50 | 12,324,214 | 4.73 | 9.84 | 24 hr | CloudBurst |
| CSO211 | 10/30/13 3:45 AM | 10/30/13 8:00 AM | 0.18 | 36,961,147 | 1.47 | 25,143,638 | 1.47 | 0.75 | 6 hr | CloudBurst |
| CSO211 | 10/31/13 7:15 PM | 11/1/13 3:45 AM | 0.35 | 2,525,313 | 0.95 | 2,658,224 | 2.42 | 0.38 | 12 hr | CloudBurst |
| CSO211 | 11/17/13 5:45 AM | 11/17/13 8:30 PM | 0.61 | 47,889,375 | 2.84 | 16,862,456 | 3.01 | 2.12 | 6 hr | CloudBurst |
| CSO211 | 12/5/13 8:00 AM | 12/5/13 9:00 AM | 0.04 | 576,146 | 0.81 | 711,291 | 0.20 | 0.26 | 48 hr | CloudBurst |
| CSO211 | 12/13/13 7:30 PM | 12/13/13 7:45 PM | 0.01 | 1,854,583 | 0.74 | 2,506,194 | 0.52 | 0.31 | 12 hr | CloudBurst |
| CSO211 | 12/14/13 5:15 AM | 12/14/13 11:15 AM | 0.25 | 24,812,708 | 0.74 | 33,530,687 | 1.19 | 0.31 | 12 hr | CloudBurst |
| CSO211 | 12/21/13 8:00 AM | 12/21/13 1:30 PM | 0.23 | 11,684,375 | 3.19 | 3,662,814 | 1.51 | 1.90 | 24 hr | CloudBurst |
| CSO211 | 12/21/13 9:45 PM | 12/22/13 2:45 AM | 0.21 | 24,768,437 | 3.19 | 7,764,400 | 3.28 | 1.90 | 24 hr | CloudBurst |
| CSO211 | 4/3/14 7:00 PM | 4/4/14 3:00 AM | 0.33 | 355,797 | 2.56 | 138,983 | 3.31 | 0.88 | 24 hr | CloudBurst |

| CSO | Overflow Start Date | Overflow End Date | Overflow Duration (Days) | Volume (Gallons) | Overflow Event Rain (Inch) | Volume per Inch | Antecedent Rain | Storm Frequency (Years) | Period | Standard |
|--------|---------------------|-------------------|--------------------------|------------------|----------------------------|-----------------|-----------------|-------------------------|--------|------------|
| CSO211 | 4/7/14 11:00 AM | 4/7/14 12:00 PM | 0.04 | 14,222,038 | 1.09 | 13,047,742 | 3.72 | 0.69 | 1 hr | CloudBurst |
| CSO211 | 4/28/14 4:45 AM | 4/28/14 6:45 AM | 0.08 | 18,288,119 | 1.80 | 10,160,066 | 1.43 | 0.72 | 3 hr | CloudBurst |
| CSO211 | 5/10/14 6:15 AM | 5/10/14 2:30 PM | 0.34 | 2,016,817 | 1.64 | 1,229,767 | 1.54 | 0.64 | 24 hr | CloudBurst |
| CSO211 | 5/22/14 4:00 AM | 5/22/14 4:00 AM | 0.01 | 134,373 | 0.41 | 327,738 | 0.53 | 0.27 | 1 hr | CloudBurst |
| CSO211 | 5/28/14 8:30 PM | 5/28/14 8:45 PM | 0.01 | 1,844,643 | 0.39 | 4,729,853 | 0.79 | 0.32 | 1 hr | CloudBurst |
| CSO211 | 5/29/14 9:30 PM | 5/29/14 9:45 PM | 0.01 | 5,192,432 | 0.11 | 47,203,925 | 0.50 | 0.09 | 1 hr | CloudBurst |

APPENDIX E – ACRONYMS

Appendix E - Acronyms for Project WIN Annual Report

| | |
|-------|--|
| AAM | Advanced Asset Management |
| AAOV | Average Annual Overflow Volume |
| ADAPS | Automated Data Processing System |
| BAP | Blockage Abatement Program |
| BGC | Beargrass Creek |
| BMP | Best Management Practices |
| BUD | Before "U" Dig |
| CCP | Composite Correction Plan |
| CCTV | Closed Caption Television |
| CD | Consent Decree |
| CDS | Continuous Deflection Separator |
| CIPP | Cured in Place Pipe |
| CMF | Central Maintenance Facility |
| CMMS | Computerized Maintenance Management System |
| CMOM | Capacity Management Operations and Maintenance |
| CPE | Comprehensive Performance Evaluations |
| CSO | Combined Sewer Overflow |
| CSOFT | Software Name |
| CSS | Combined Sewer System |
| CSSA | Continuing Sewer System Assessment |
| DMR | Discharge Monitoring Report |
| DO | Dissolved Oxygen |
| DWO | Dry Weather Overflow |
| eB | Enterprise Bridge (Enterprise Informatics scanning software for document manage) |
| EGIS | Emergency Geographic Information System |
| EMC | Event Mean Concentration |
| EPA | Environmental Protection Agency |
| ERP | Enforcement Response Plan |
| ERPI | Emergency Response Pretreatment Inspectors |
| FCN | Field Correction Notice |
| FEMA | Federal Emergency Management Agency |
| FM | Force Main |
| FMIS | Fleet Management Information System |
| FOG | Fats, Oil & Grease |
| FPS | Flood Pump Station |
| FSE | Food Service Establishment |
| FY | Fiscal Year |
| GCE | Grease Control Equipment |
| GIS | Geographic Information System |
| GLPM | Gravity Line Preventive Maintenance |
| GPD | Gallons per Day |
| HMI | Human Machine Interface |
| HR | Human Resources |
| I&FP | Infrastructure & Flood Protection (MSD Division) |
| ICA | Interceptor Condition Assessment |

Appendix E - Acronyms for Project WIN Annual Report

| | |
|---------|---|
| ID | Identification |
| I&I | Inflow and Infiltration |
| IMS | Information Management System |
| IOAP | Integrated Overflow Abatement Plan |
| ISSDP | Interim Sanitary Sewer Discharge Plan |
| ID | Identification |
| IT | Information Technology |
| IWD | Industrial Waste Department |
| JCPS | Jefferson County Public Schools |
| KDEP | Kentucky Department of Environmental Protection |
| KPDES | Kentucky Pollutant Discharge Elimination System |
| KY | Kentucky |
| LE | Lateral Extension |
| LF | Linear Feet |
| LID | Low Impact Development |
| LIMS | Laboratory Information Management System |
| LMDPHW | Louisville Metro Department of Public Health and Wellness |
| LMPD | Louisville Metro Police Department |
| LTC | Long Term Control |
| LTCP | Long Term Control Plan |
| LOJIC | Louisville and Jefferson County Information Consortium |
| MDS | Main Diversion Structure |
| MEB | Main Equipment Building |
| MG | Million Gallons |
| MGD | Million Gallons Per Day |
| MH | Manhole |
| MO | Metro Operations |
| MOA | Memorandum of Agreement |
| MOR | Monthly Operating Report |
| MOU | Memorandum of Understanding |
| MSD | Metropolitan Sewer District (Louisville and Jefferson County) |
| NACWA | National Association of Clean Water Agencies |
| NDD | Non-Domestic Dischargers |
| NMC | Nine Minimum Controls |
| NOV | Notice of Violation |
| NPR | National Public Radio |
| MC | Mission Critical |
| ORD | Office of Research and Development |
| ORSANCO | Ohio River Valley Water Sanitation Commission |
| PACP | Pipeline Assessment and Certification Program |
| PCCM | Post Construction Compliance Monitoring |
| PI | Plant Information System |
| PM | Preventive Maintenance |
| POC | Pollutants of Concern |
| PRIDE | Personal Responsibility in a Desirable Environment |

Appendix E - Acronyms for Project WIN Annual Report

| | |
|--------|--|
| PS | Pump Station |
| PSC | Property Service Connection |
| QA/QC | Quality Assurance/Quality Control |
| RDII | Rainfall-Derived Infiltration and Inflow |
| RS | Regulatory Services |
| RTC | Real Time Control |
| S&F | Solids and Floatables |
| SAP | Software Name |
| SCADA | Supervisory Control And Data Acquisition |
| SCAP | System Capacity Assurance Plan |
| SEP | Supplemental Environmental Projects |
| SIU | Significant Industrial User |
| SNC | Significant not compliance |
| SOP | Standard Operating Procedure |
| SORP | Sewer Overflow Response Protocol |
| SSDP | Sanitary Sewer Discharge Plan |
| SSES | Sanitary Sewer Evaluation Study |
| SSO | Sanitary Sewer Overflow |
| SSOP | Sanitary Sewer Overflow Plan |
| SWO | Stop Work Order |
| SWOR2 | Southwestern Outfall Relief - Phase 2 |
| SWPS | Southwestern Pump Station |
| TISCIT | Totally Integrated Sonar and CCTV Inspection Technique |
| TM | Technical Memorandum |
| TMDL | Total Maximum Daily Load |
| TV | Television |
| UDR | Unusual Discharge Request |
| UIM | Utility Information Management |
| UK | University of Kentucky |
| UofL | University of Louisville |
| USACE | U.S. Army Corps of Engineers |
| USGS | United States Geological Survey |
| WDR | Wastewater Discharge Regulators |
| WIN | Waterway Improvements Now |
| WQT | Water Quality Tool |
| WQTC | Water Quality Treatment Center |
| WW | Wet Weather |
| WWT | Wet Weather Team |

APPENDIX F – MAY 1, 2014, LETTER TO RESIDENTS



Notice to our customers

AUGUST/SEPTEMBER 2014

OUR VISION

ACHIEVING CLEAN, SAFE WATERWAYS
FOR A HEALTHY AND VIBRANT COMMUNITY

The MSD Board has approved a rate increase of 5.5 percent for Louisville Metro wastewater, drainage and Environmental Protection Agency (EPA) surcharge fees on all bills to take effect **August 1, 2014**. The *average* monthly residential wastewater bill (based on 5,000 gallons per month) issued on or after August 1, 2014, will reflect an **increase of \$2.02—from \$36.90 to \$38.92**. Monthly stormwater drainage fees will **increase by 40 cents—from \$7.28 to \$7.68**.

MSD will continue to offer a 30 percent discount on the surcharge and wastewater charges to qualified senior citizens.*

Wastewater:

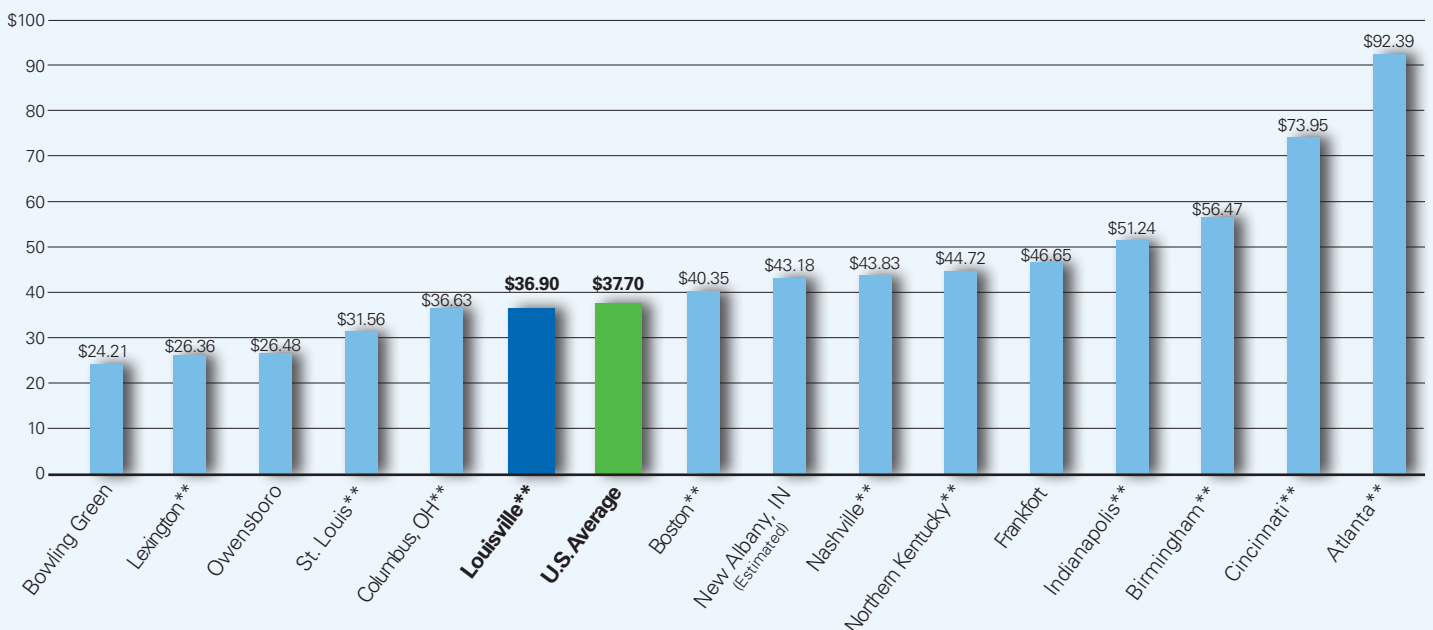
5,000 gallons x \$3.344 (rate per 1,000 gallons) = \$16.72

Half the bimonthly service charge (\$24.44 / 2) = \$12.22

Monthly EPA Consent Decree Surcharge = \$ 9.98

Total as of August 1, 2014 **\$38.92**

Projected 2014 NACWA Average Monthly Residential Wastewater Bill
Based on 5,000 Gallons
as of January 1, 2014



Based on information collected as of January 1, 2014, by the National Association of Clean Water Agencies (NACWA), MSD's wastewater bill of \$36.90 is \$0.80 lower than the national average, and the average rate during 2014 is estimated to increase by 5.0 percent.

* Senior citizens who are age 65 or older, have a gross annual household income of \$35,000 or less and are **both** Louisville Water Company **and** MSD customers may request an application for a 30 percent discount on wastewater charges and the EPA surcharge through MSD's website, msdlouky.org, or by calling Customer Relations at **502-587-0603**.

** Cities with consent decrees

Flood protection benefits Louisville Metro

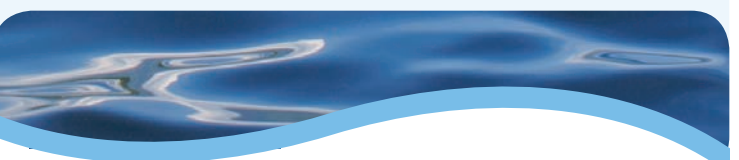
Louisville Metro's Ohio River Flood Protection System exists to keep the river at bay and out of the city. Our Flood Protection System consists of 29 miles of concrete wall and earthen levee; nearly 150 floodgates; and 80 movable and sandbag street closures. Located along this system are 16 flood pumping stations, which move inland water to the river when the floodwalls and levees are sealed.

When our area experiences heavy rains:

- Call center staffing levels are increased.
- Field staff takes action to perform repairs and corrections.
- Other MSD personnel evaluate conditions along streams, channels and known "hot spots."

Information collected from our network of rain gauges, customer calls and area monitoring allows resources to be directed to the most severely affected Louisville Metro areas.

Since 1998, MSD has developed a system of retention basins—which can store more than 1 billion gallons of stormwater until it can be released gradually—to safeguard neighborhoods that are situated in flood-prone areas from surface flooding. Additionally, MSD started a systematic plan in 2004 to upgrade the aging Flood Protection System. MSD staff members test the pumping stations monthly to ensure their proper function.



24/7 CUSTOMER RELATIONS:
502-587-0603
CUSTOMERRELATIONS@LOUISVILLEMSD.ORG
MSDLOUKY.ORG



Protect your family and property from flooding

Many Louisville Metro areas are at risk for flooding. With preparation, however, you can protect your property and family from possible flood damage. MSD offers advice about flood-proofing steps—like installing backwater valves, sump pumps,

emergency generators, glass-block basement windows and structural barriers. Call **502-587-0603** for more information. For flood-related information, visit the Federal Emergency Management Agency (FEMA) website at floodsmart.gov.

Flood-safety tips:

- **Transfer irreplaceable items and valuables** to areas that are safe from flooding.
- **Turn off the main electrical switch, water valve and gas valve to your property** before flooding starts.
- **Develop a safety plan in case of evacuation**, and inform family members and friends.
- **Assemble supplies in advance**, including a first-aid kit, bottled water, a battery-powered radio, a flashlight, extra batteries, rubber boots and gloves.

Follow these common-sense rules when flooding occurs:

- **Stay out of floodwaters.** As little as six inches of moving water can throw an adult off balance, while two feet of moving water can sweep away a vehicle.
- **Turn off gas, water and electricity if you can without wading into water.**
- **Move vehicles to higher ground.**
- **Do not walk into a flooded basement** because of the risk of electrocution.
- **Remember to take your pets with you** if you must evacuate.



Making a difference in the health of our streams

Simple daily activities may affect our environment. We can help prevent sewer overflows, and keep our waterways clean and safe when we all work together.



- **Delay using washing machines and dishwashers during peak rain events**, so they will not fill sanitary sewers and contribute to sewer overflows. Wait to run another load until the rain ends and waters begin to recede.



- **Collect grass clippings and leaf debris**, so they cannot reach a catch basin or stream. Rainwater carries them into waterways. The breakdown of leaves and grass clippings can decrease oxygen; increase nutrients to unsafe levels;

and cause the death of aquatic organisms within streams and rivers.

- **Free storm drains of debris** to prevent street flooding in your neighborhood during heavy rains. Call MSD Customer Relations, at 502-587-0603, for help if the drain still does not carry water away.
- **Limit your use of fertilizers, pesticides and herbicides**, especially right before a rainfall, to prevent polluting waterways that we and our pets use for recreational purposes. Take leftover chemicals to a facility that accepts household hazardous waste.
- **Do not pour oil, paint thinner, gasoline, or other petroleum-based chemicals or products into drains.** Contaminating streams is a very dangerous practice, which violates the Louisville and Jefferson County Hazardous Materials Ordinances.
- **Scoop the poop in yards and public spaces** to keep pet waste from entering local waterways.



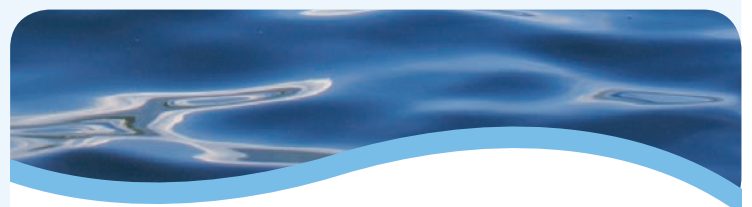
- **Drain pools in a way that will not result in basement backups or kill fish.**

- **Use a car wash** to decrease the risk of oil, dirt and grit running off to the creek or river; **or pull your vehicle into the grass**—if you

are washing it at home—to let pollutants soak into the ground.

- **Do not flush your prescription pills down the toilet** because doing so can cause problems for the sewers and for the quality of our waterways.

Visit msdprojectwin.org for more information concerning ways that you can be part of the solution for decreasing and eliminating Louisville Metro sewer overflows.



OUR MISSION
PROVIDING EXCEPTIONAL
WASTEWATER, DRAINAGE
AND FLOOD PROTECTION SERVICES
FOR OUR COMMUNITY

MSD
Metropolitan Sewer District

700 West Liberty Street
Louisville, KY 40203-1911

24/7 Customer Relations
502-587-0603

TDD/TTY: 502-540-6233

msdlouky.org

email:
customerrelations@louisvillemsd.org

En español: 502-540-6423
de 8:15 de la mañana a 5 de la tarde,
de lunes a viernes



*Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org*

April 18, 2014

Dear Louisville Metro Resident:

In January, 2014, the MSD Board adopted a new Strategic Business Plan with a new vision: "Achieving Clean Safe Waterways for a Healthy and Vibrant Community". This new vision demonstrates our commitment to cleaning our rivers, creeks, and streams for both recreational use and support of fish and wildlife.

This year, MSD is approaching a major program milestone, the midpoint of our 19-year comprehensive sewer improvement program called Project WIN (Waterway Improvements Now). This program is designed to eliminate major sources of water pollution by limiting the overloading of our sewers during major rain events. Project WIN will reduce the number of combined and sanitary sewer overflows that send raw, untreated sewage, into our local waterways.

Since you are living near a local waterway, such as the Ohio River or one of the forks of Beargrass Creek, you are more susceptible to come in contact with the pollutants in waterways from untreated sewage. For this reason, it's important to keep children and pets out of these waters during and following a storm.

We do have good news, as there are ways to minimize the health risk associated with these polluted waterways. The enclosed flyer provides important tips on minimizing health hazards due to storm-related water pollution, and easy actions you can take to help improve water quality in our rivers and streams. Working together, we can make a difference to achieve clean, safe waterways for future generations.

For more information, please call us at (502) 587-0603, or visit us online at www.msprojectwin.org to learn more about Project WIN and how you can become part of the WINning team!

Sincerely,

A handwritten signature in blue ink that reads "Greg C. Heitzman".

Greg C. Heitzman
MSD Executive Director



*Beneficial Use of Louisville's Biosolids
www.louisvillegreen.com*

RESOLVE TO DO YOUR PART FOR CLEAN WATERWAYS

DON'T HAVE YOUR PIPES IN A KNOT CAN THE GREASE!



Fats, oils and grease poured down the drain will congeal and clog sewer pipes. Sewers that are clogged can cause a back-up in YOUR basement. SO BE PART OF THE SOLUTION AND CAN THE GREASE!



For additional information visit us at www.MSDPROJECTWIN.org or call us at 502-587-0603





Sewer Work



Drainage Work



Flood Wall

MSD

Metropolitan Sewer District

Public Health, Safety and Flood Protection

To learn more call us at (502) 587-0603 or visit
MSDSTORMWATERQUALITY.org

Green Infrastructure



RESOLVE TO DO YOUR PART FOR CLEAN WATERWAYS




IF IT'S RAINING OUTSIDE, IT CAN WAIT INSIDE!

To minimize sewer overflows, do not use your washing machine or dishwasher while it's raining. During rain events, sewers can reach capacity. Additional water from appliances can cause YOUR basement to back-up and manholes to overflow.

So be part of the solution and help
IMPROVE OUR COMMUNITY WATERWAYS TOGETHER!



www.MSDPROJECTWIN.org



67,668 catch basins...

...billions of leaves!

On rainy days, rainwater—and anything else that is on the streets—flows into the storm drains, also known as catch basins. If they are clogged with leaves and debris, water can quickly flood the street. This localized flooding can result in hazardous conditions.

We salute the 98 powerful people in MSD Drainage and Flood Protection, who collectively work around the clock seven days a week—every day of the year. They do their best to keep our community safe from flooding.

You can see that, with 67,668 basins, we could use your help. Just a few minutes of your time can help prevent street flooding in your neighborhood. Rake leaves and debris away from the basins, and dispose of such debris properly. If basins are still clogged, **contact MSD Customer Relations— at 502-587-0603**—to receive assistance.

Together, we can achieve clean, safe waterways
for a healthy and vibrant community.



*Providing Exceptional Wastewater, Drainage
and Flood Protection Services for Our Community*

The work we do is beneath most people

... all **3,200 miles** of it

The MSD Collections System, which operates beneath your feet, carries away wastewater to be cleaned at one of our Water Quality Treatment Centers. This system consists of more than 3,200 miles of pipe and 286 pumping stations.

We salute the 149 powerful people in MSD Collections, who collectively keep this system running around the clock—seven days a week—every day of the year.

You can help keep this system running smoothly:

- Pour fats, oils and grease in the trash, not down the drain or into catch basins.
- Do not pour oil, paint thinner, gasoline or any petroleum products into drains or catch basins because doing so could contaminate our streams, and violates Louisville and Jefferson County Hazardous Materials Ordinances.
- Do not flush medications—liquid or pill—down the toilet or drain because doing so can cause problems with the quality of our water.
- Delay using washing machines and dishwashers during peak rain events, so that they will not fill sanitary sewers and contribute to sewer overflows.

Together, we can achieve clean, safe waterways
for a healthy and vibrant community.



*Providing Exceptional Wastewater, Drainage
and Flood Protection Services for Our Community*

Every day our customers flush **2,948 miles** of **toilet paper...**

**which is more than the distance
from New York to Los Angeles**

Our wastewater treatment equipment is designed for toilet paper and human waste. Other items cause trouble—creating clumps that become entangled in our pumps. This can lead to sewage backups, overflows and increased maintenance costs. Please help the environment and your wallet by putting these items in a trash can.

Do not flush:

- Condoms
- Dental floss
- Diapers
- Fats, oils and grease
- Feminine-hygiene products
- Hair
- Medications
- Paper towels
- Wipes

We salute the 125 powerful people in MSD Wastewater Treatment, who collectively work 24/7/365.

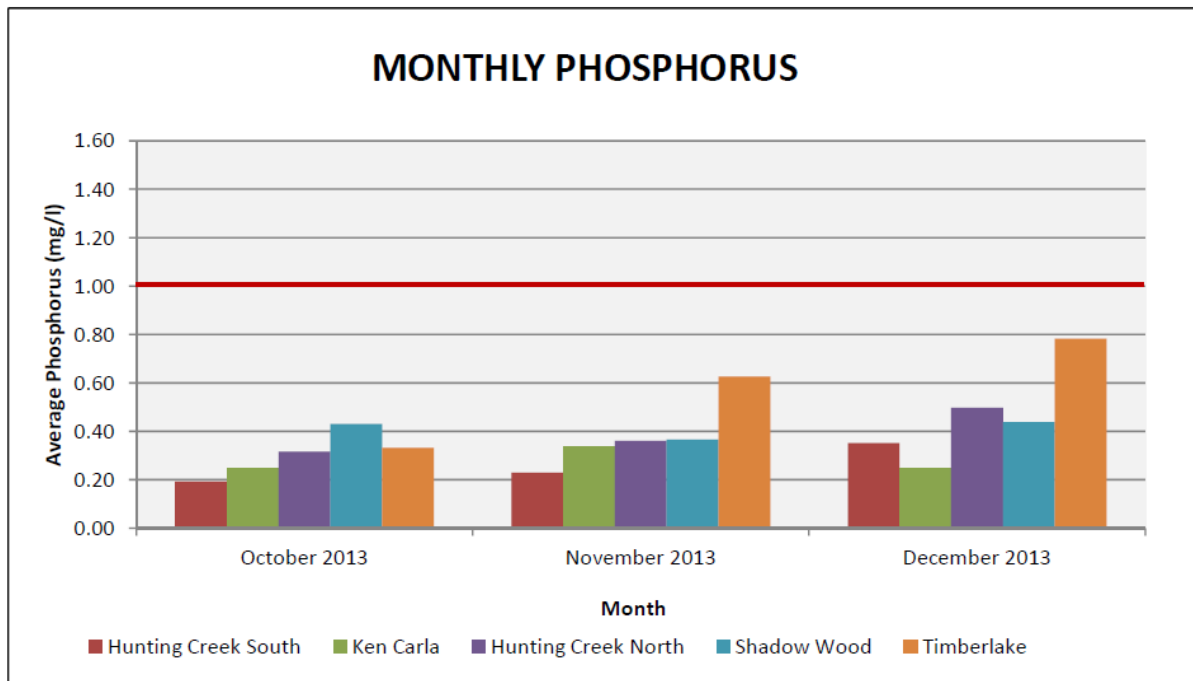
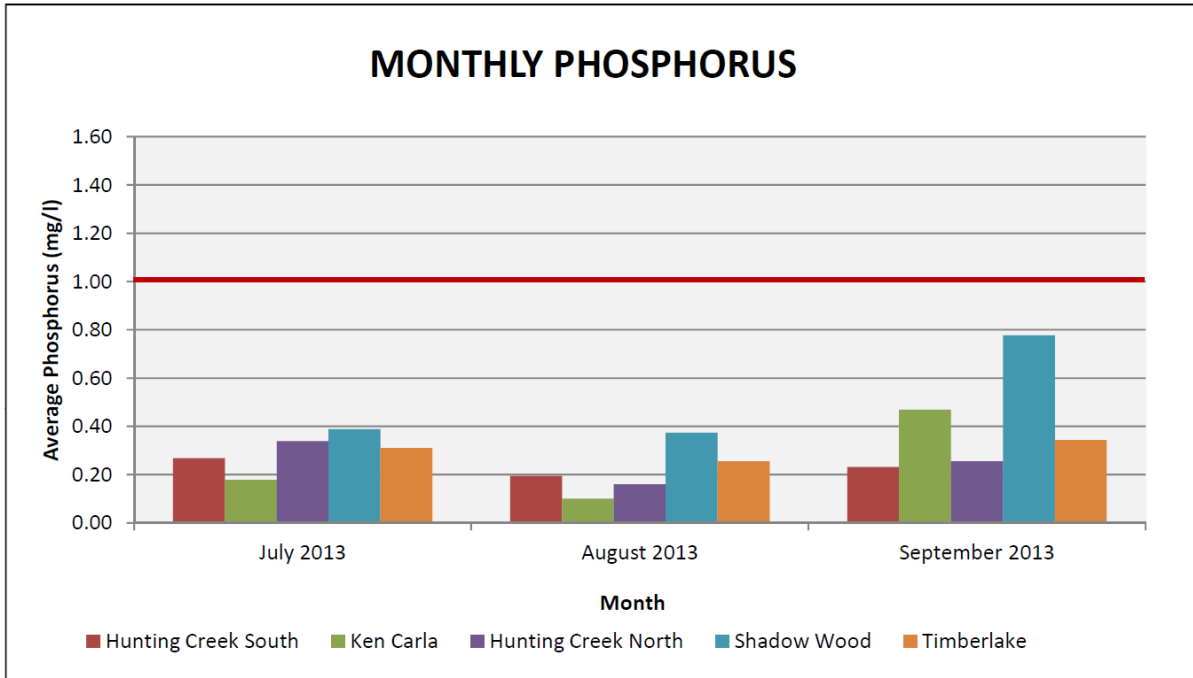
They do their best to help us achieve clean, safe waterways for a healthy and vibrant community.



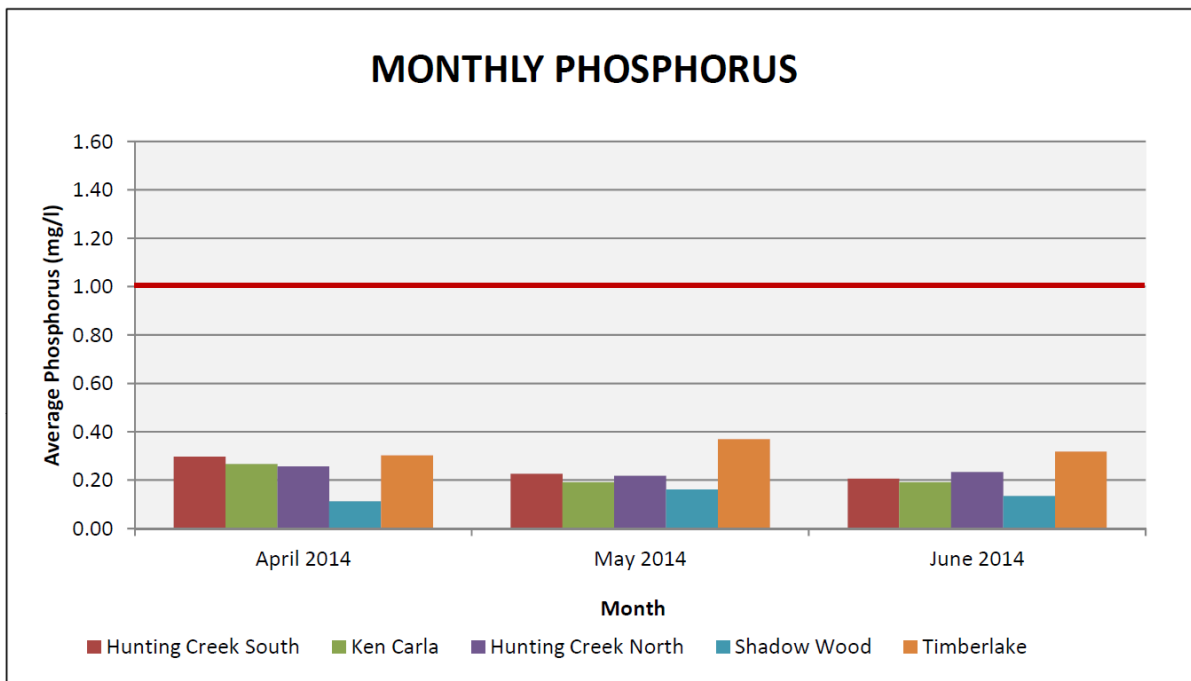
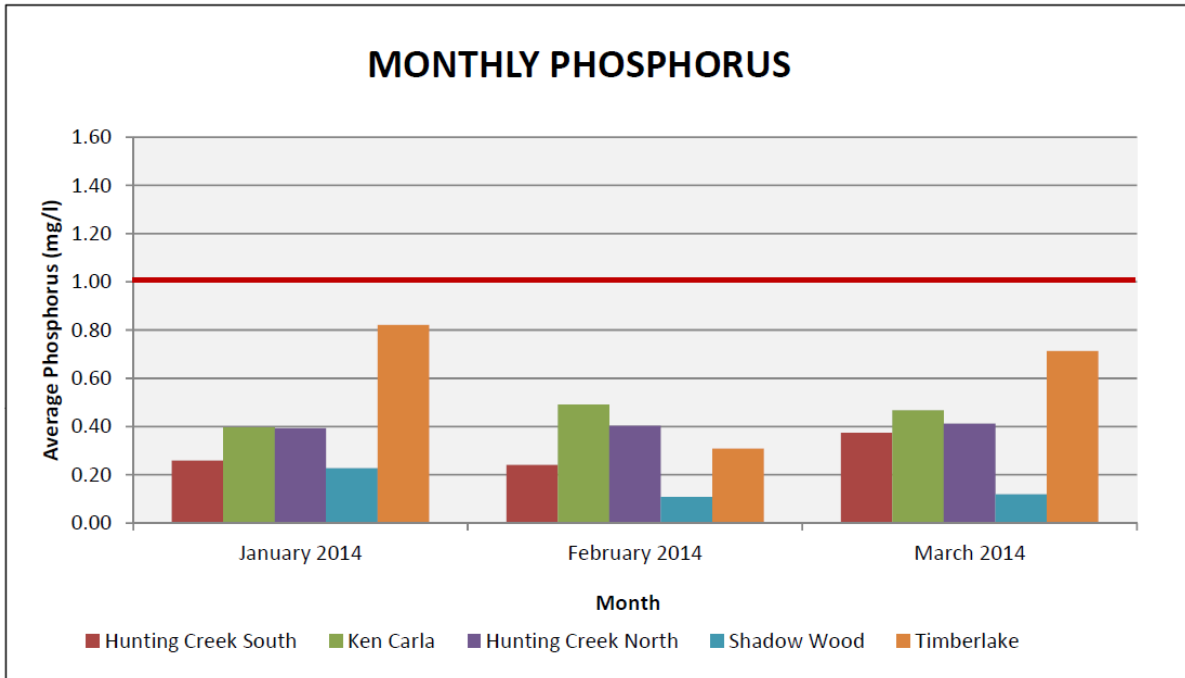
*Providing Exceptional Wastewater, Drainage
and Flood Protection Services for Our Community*

APPENDIX G – PHOSPHORUS MONITORING DATA

Appendix G -
FY 14 Phosphorus Data



Appendix G -
FY 14 Phosphorus Data



APPENDIX H – ORGANIZATIONAL CHART



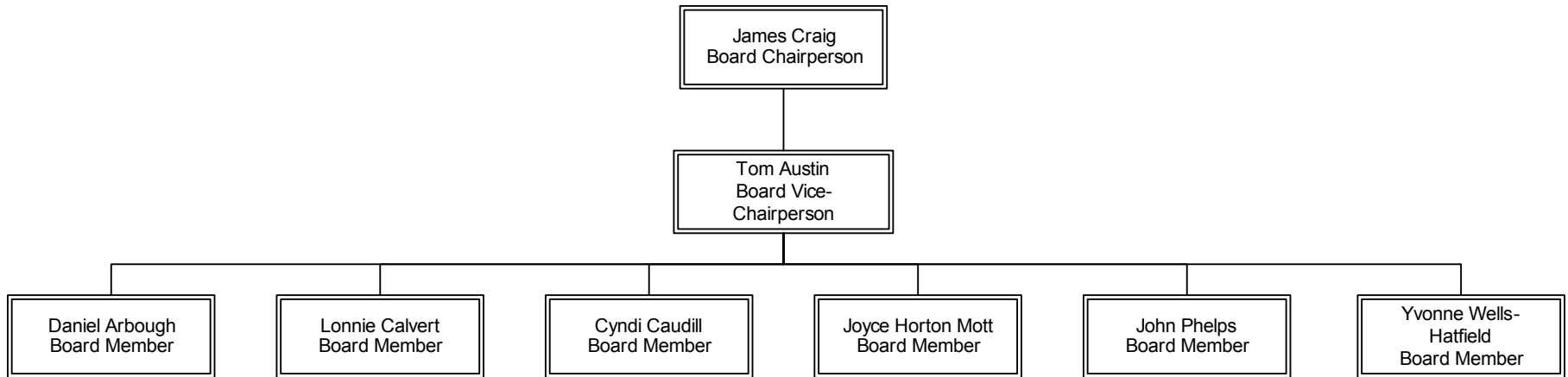
Louisville and Jefferson County
Metropolitan Sewer District

Organizational Chart
Effective 10/11/14

Organizational Summary

| | <u>Total</u> <u>Positions</u> | <u>Current</u> <u>Actual</u> | <u>Vacant</u> <u>(Budgeted)</u> | <u>New/</u> <u>Unbudgeted</u> <u>(Vacant)</u> | <u>Exempt</u> | <u>Non-</u> <u>Exempt</u> | <u>Unit</u> | <u>Net</u> <u>Overbudget</u> |
|------------------------------------|----------------------------------|---------------------------------|------------------------------------|---|---------------|------------------------------|-------------|---------------------------------|
| Executive Offices Division | | | | | | | | |
| Executive Offices | 4 | 4 | 0 | 0 | 3 | 1 | 0 | 0 |
| Customer Relations | 24 | 20 | 4 | 0 | 4 | 20 | 0 | 0 |
| Legal Division | 9 | 7 | 2 | 0 | 6 | 3 | 0 | 0 |
| Human Resources Division | 24.5 | 17 | 7.5 | 0 | 14 | 10.5 | 0 | 0 |
| Information Technology Division | 35 | 26 | 8 | 1 | 30 | 5 | 0 | 1 |
| Finance Division | 29 | 25 | 3 | 1 | 13 | 16 | 0 | 1 |
| Engineering Division | | | | | | | | |
| Design and Construction | 34.5 | 33.5 | 1 | 0 | 23 | 11.5 | 0 | 0 |
| Development | 26 | 24 | 2 | 0 | 14 | 12 | 0 | 0 |
| Regulatory Services & GIS | 23.5 | 20.5 | 3 | 0 | 16 | 7.5 | 0 | 0 |
| Operations Division | | | | | | | | |
| Administration | 2 | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| Treatment Facilities | 92 | 86 | 6 | 0 | 17 | 15 | 60 | 0 |
| Treatment Facilities (Maintenance) | 39 | 35 | 4 | 0 | 5 | 0 | 34 | 0 |
| Collections System | 80 | 71 | 7 | 2 | 12 | 24 | 44 | 2 |
| Collections System (Sanitary) | 72 | 70 | 2 | 0 | 8 | 2 | 62 | 0 |
| Drainage and Flood Protection | 98 | 90 | 7 | 1 | 10 | 1 | 87 | 1 |
| Support Services | 51 | 47 | 4 | 0 | 9 | 26 | 16 | 0 |
| Performance Metrics | 16 | 13 | 3 | 0 | 8 | 8 | 0 | 0 |
| DISTRICT TOTAL | 659.5 | 591 | 63.5 | 5 | 193 | 163.5 | 303 | 5 |

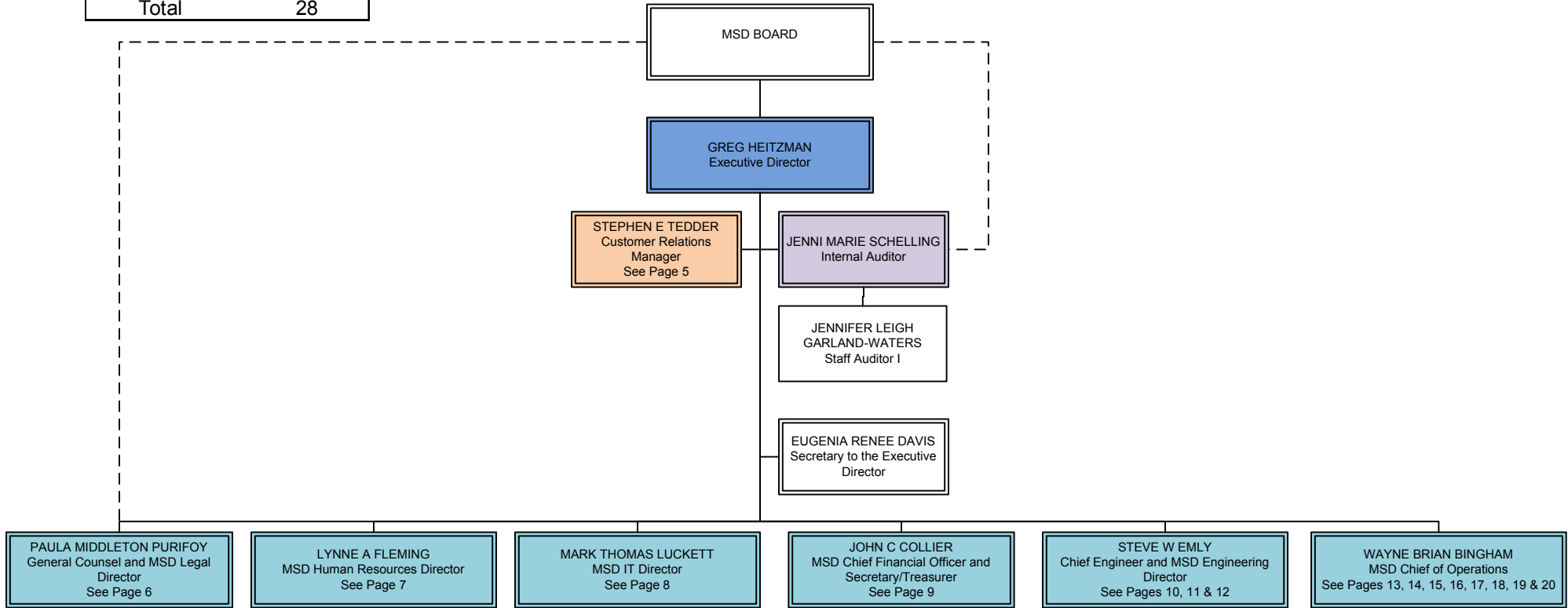
Board Members



Executive Offices Division Executive Offices

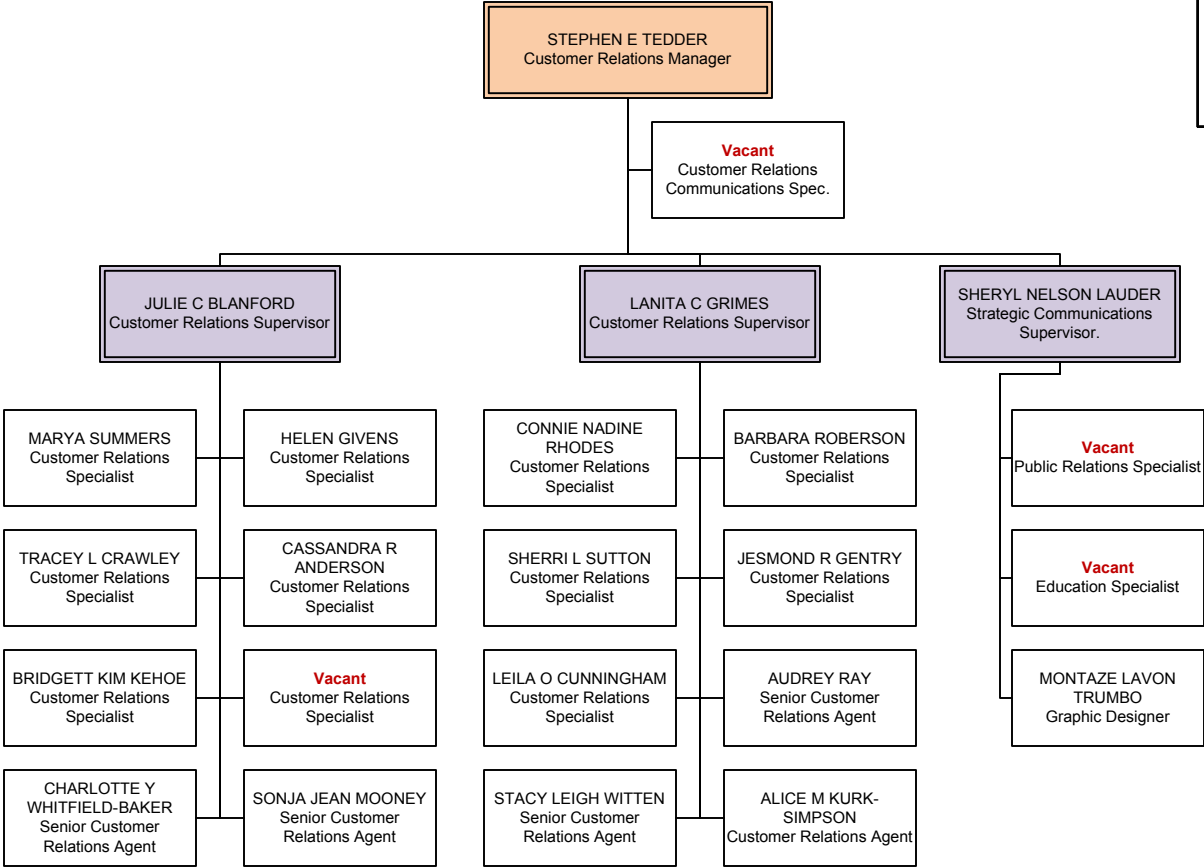
| DIVISION BUDGET STATUS | |
|------------------------|----|
| Actual | 24 |
| Vacant | 4 |
| Authorized | 28 |
| Exempt | 7 |
| Non-Exempt | 21 |
| Unit | 0 |
| Total | 28 |

| BUDGET STATUS | |
|---------------|---|
| Actual | 4 |
| Vacant | 0 |
| Authorized | 4 |
| Exempt | 3 |
| Non-Exempt | 1 |
| Unit | 0 |
| Total | 4 |



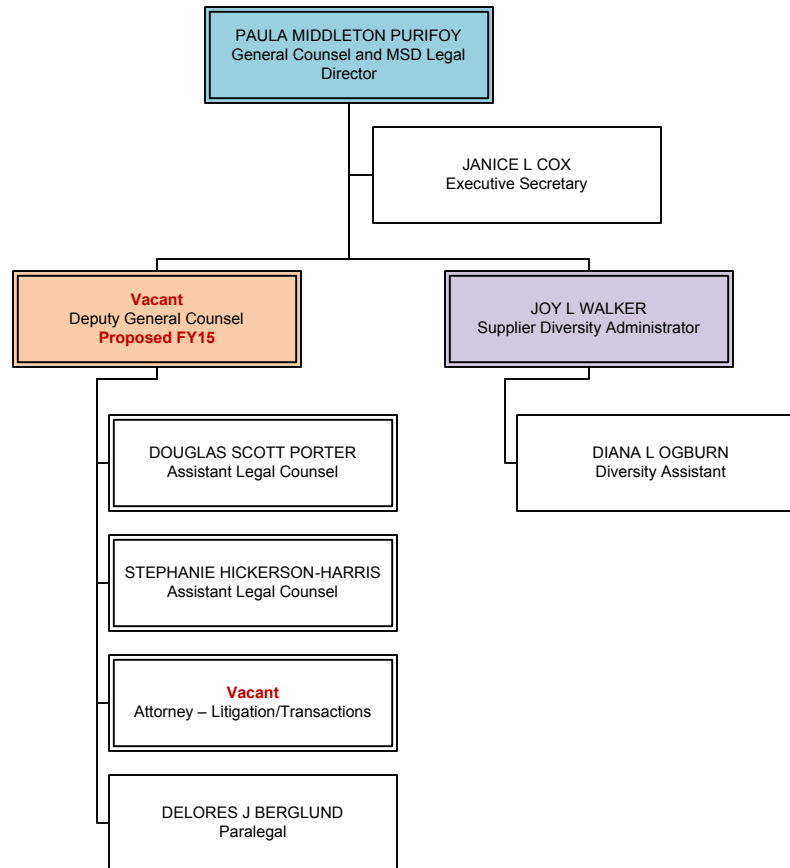
Executive Offices Division Customer Relations

| BUDGET STATUS | |
|--|----|
| Actual | 20 |
| Vacant | 4 |
| Authorized | 24 |
| Exempt | 4 |
| Non-Exempt | 20 |
| Unit | 0 |
| Total | 24 |



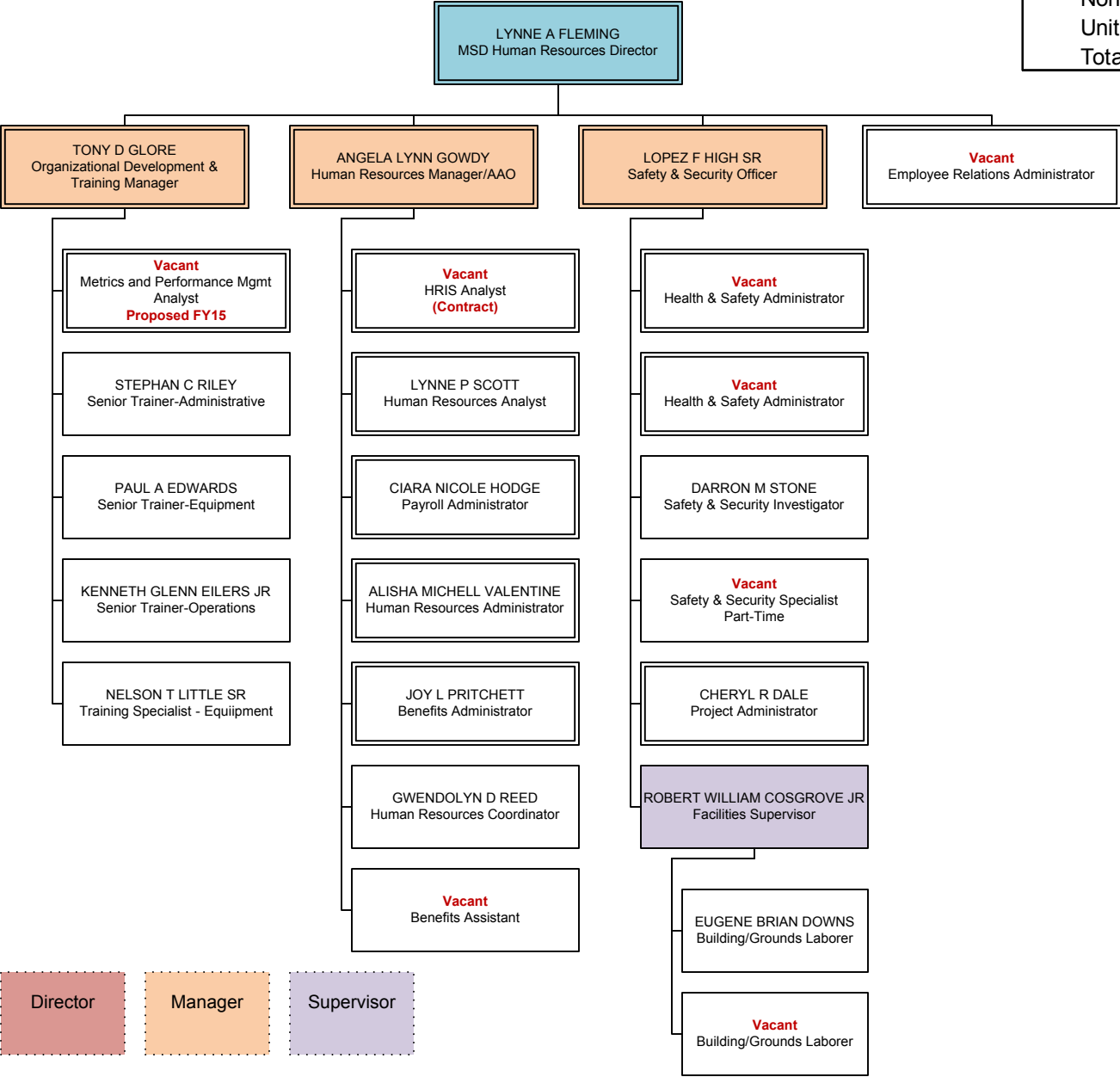
Legal Division

| BUDGET STATUS | |
|-----------------|----------|
| Actual | 7 |
| Vacant | <u>2</u> |
| Authorized | 9 |
| █ Exempt | 6 |
| — Non-Exempt | 3 |
| Unit | <u>0</u> |
| Total | 9 |



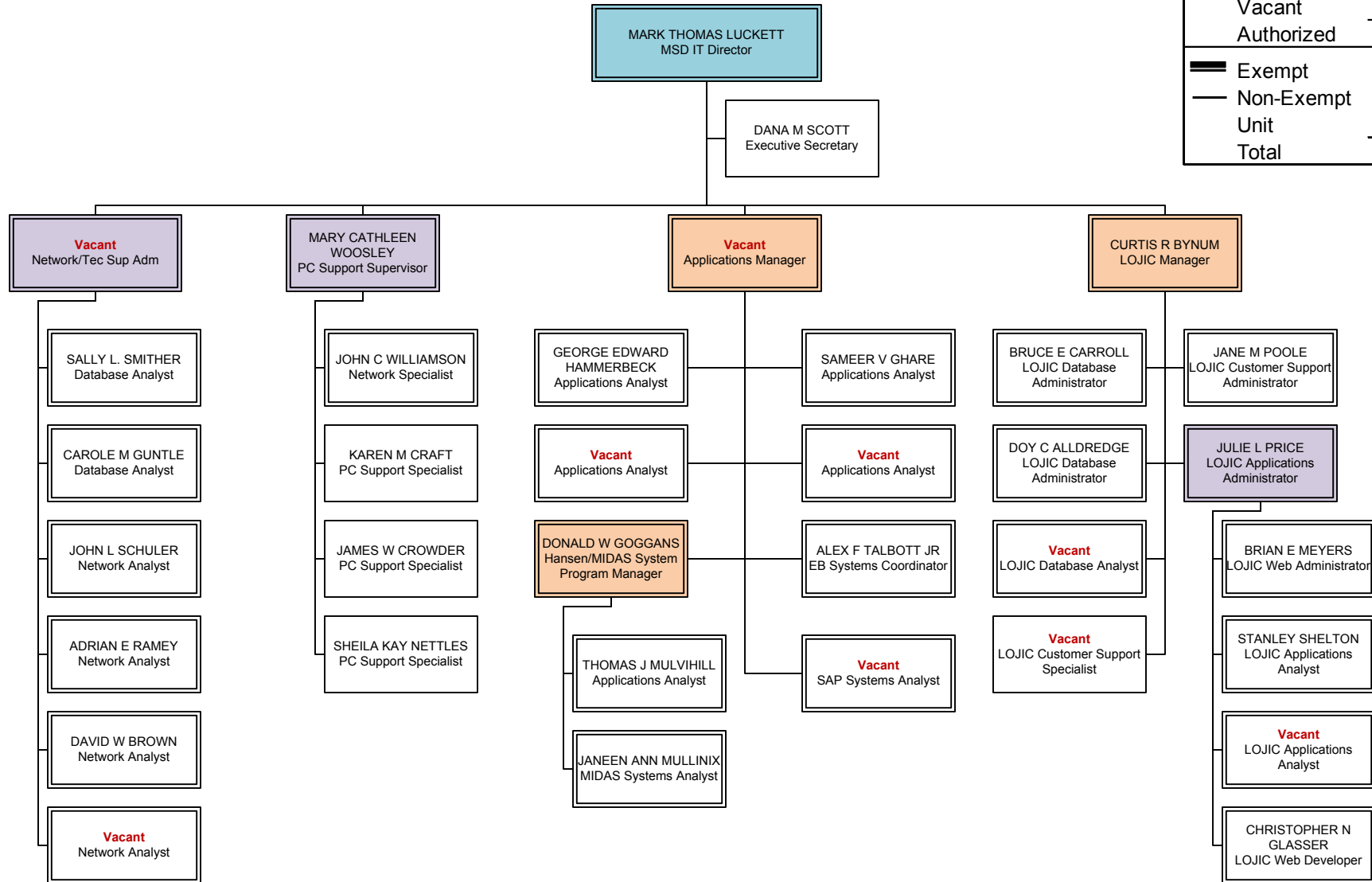
Human Resources Division

| BUDGET STATUS | |
|---------------|------------|
| Actual | 17.0 |
| Vacant | <u>7.5</u> |
| Authorized | 24.5 |
| <hr/> | |
| ■ Exempt | 14.0 |
| — Non-Exempt | 10.5 |
| Unit | <u>0.0</u> |
| Total | 24.5 |



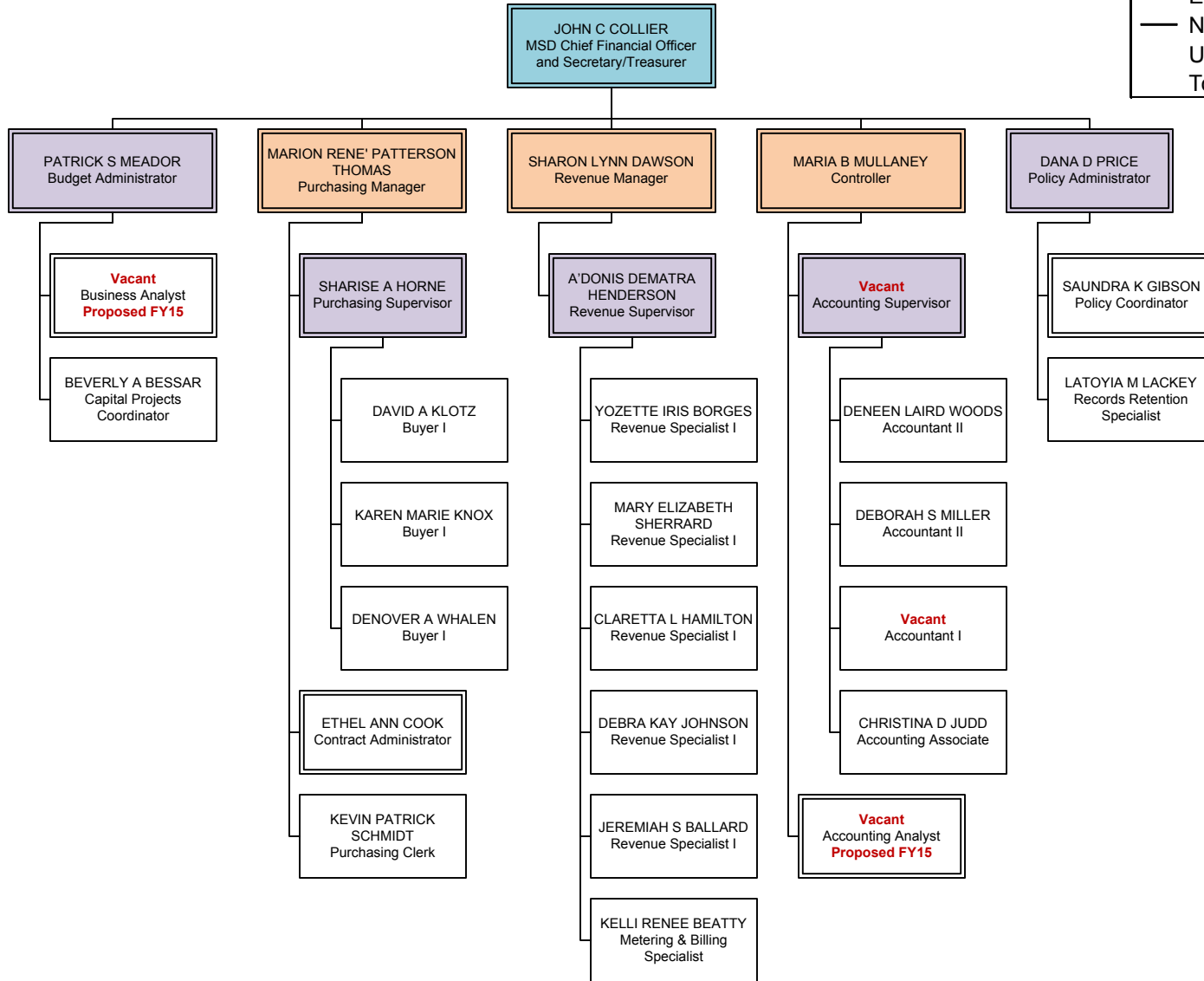
Information Technology Division

| BUDGET STATUS | |
|---------------|----|
| Actual | 26 |
| Vacant | 9 |
| Authorized | 35 |
| <hr/> | |
| Exempt | 30 |
| Non-Exempt | 5 |
| Unit | 0 |
| Total | 35 |



Finance Division

| BUDGET STATUS | |
|---------------|----|
| Actual | 25 |
| Vacant | 4 |
| Authorized | 29 |
| <hr/> | |
| Exempt | 13 |
| Non-Exempt | 16 |
| Unit | 0 |
| Total | 29 |

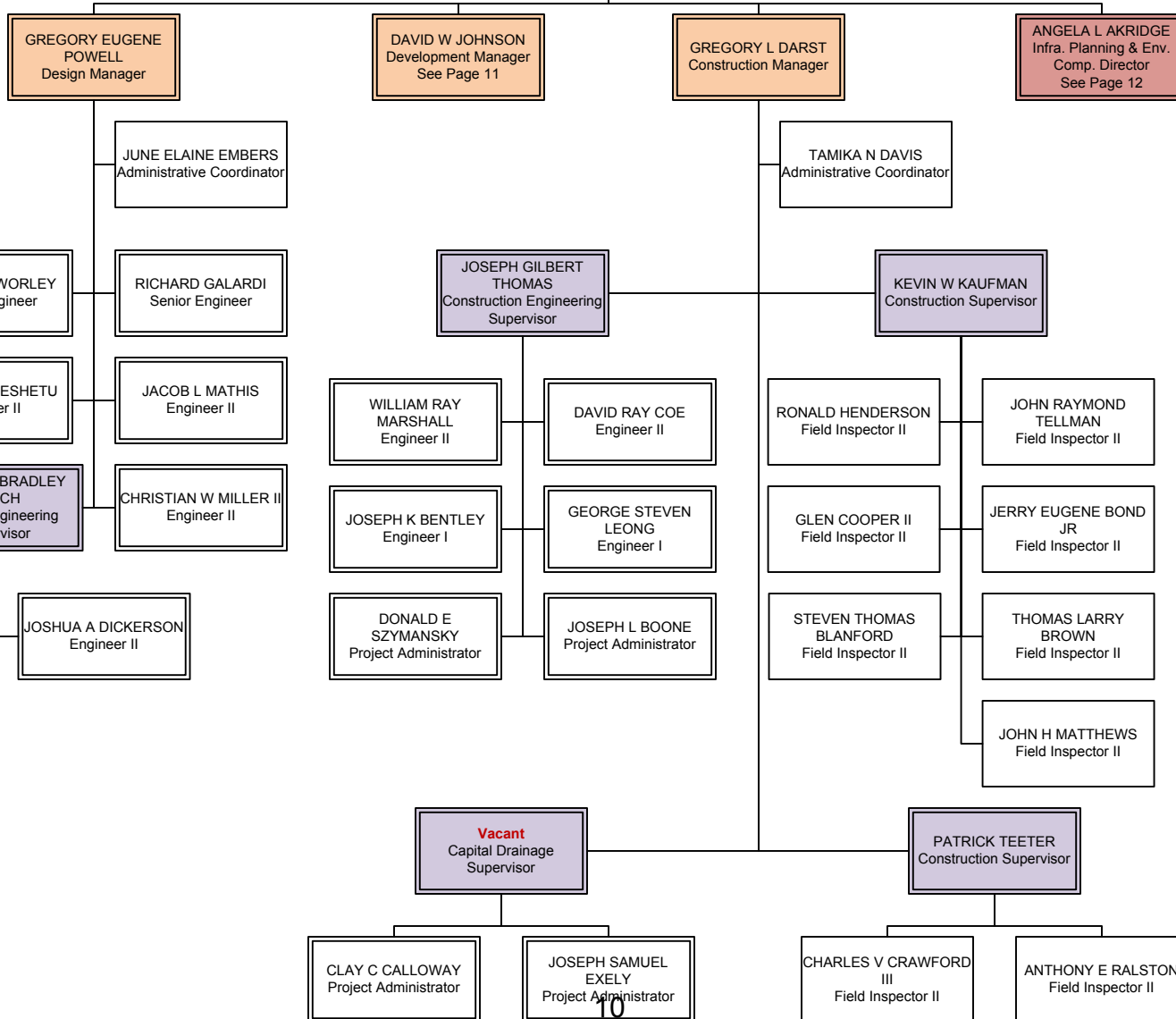


Engineering Division Design and Construction

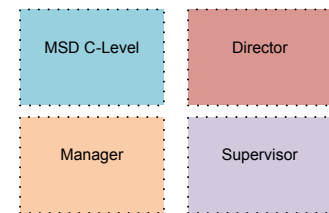
| DIVISION BUDGET STATUS | |
|------------------------|------------|
| Actual | 78.0 |
| Vacant | <u>6.0</u> |
| Authorized | 84.0 |
| Exempt | 53.0 |
| Non-Exempt | 31.0 |
| Unit | <u>0.0</u> |
| Total | 84.0 |

| BUDGET STATUS | |
|---------------|------------|
| Actual | 33.5 |
| Vacant | <u>1.0</u> |
| Authorized | 34.5 |
| Exempt | 23.0 |
| Non-Exempt | 11.5 |
| Unit | <u>0.0</u> |
| Total | 34.5 |

STEVE W EMLY
Chief Engineer and MSD Engineering
Director

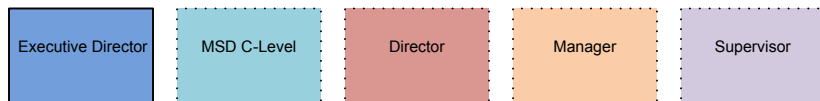
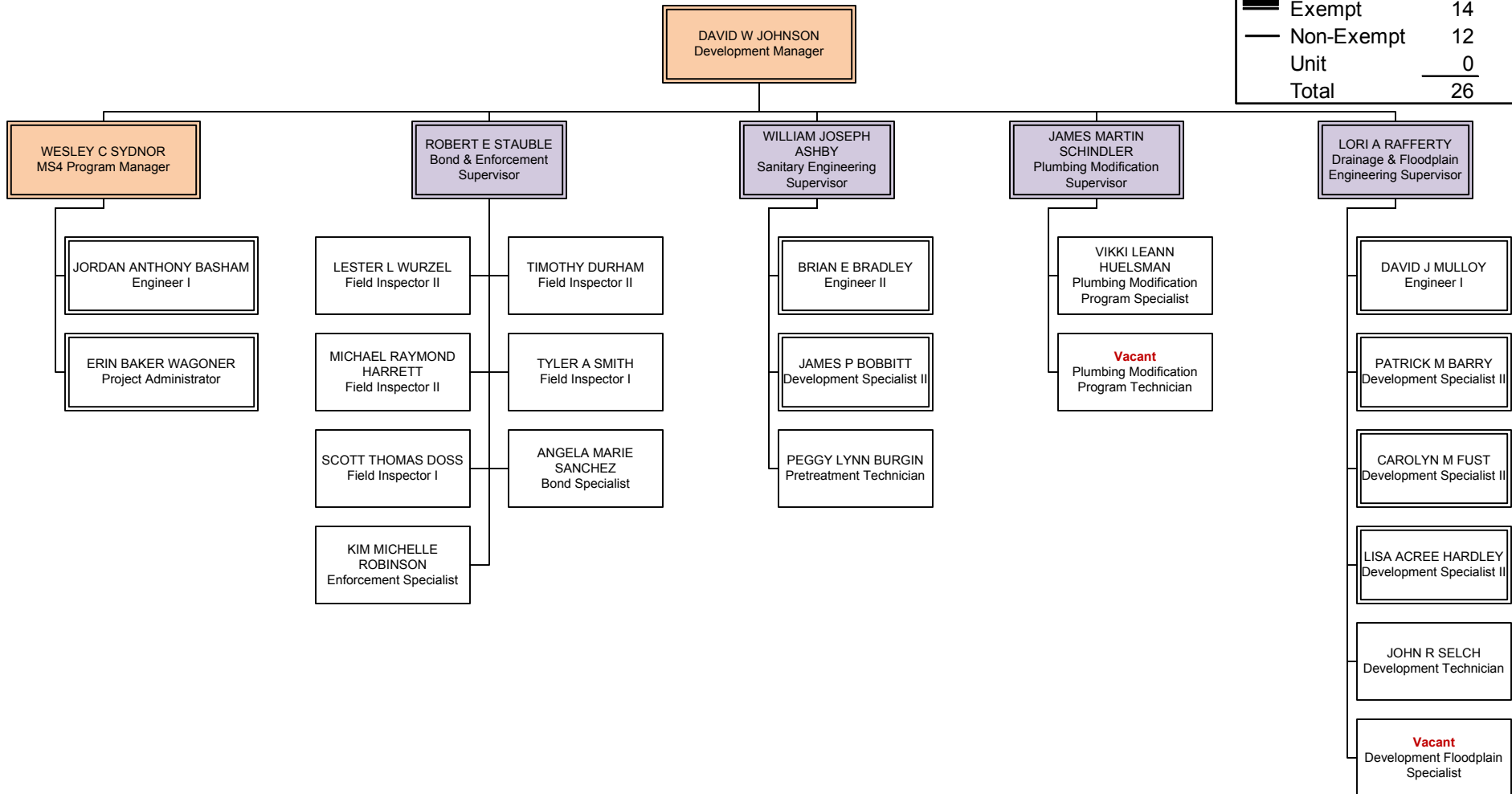


Executive Director



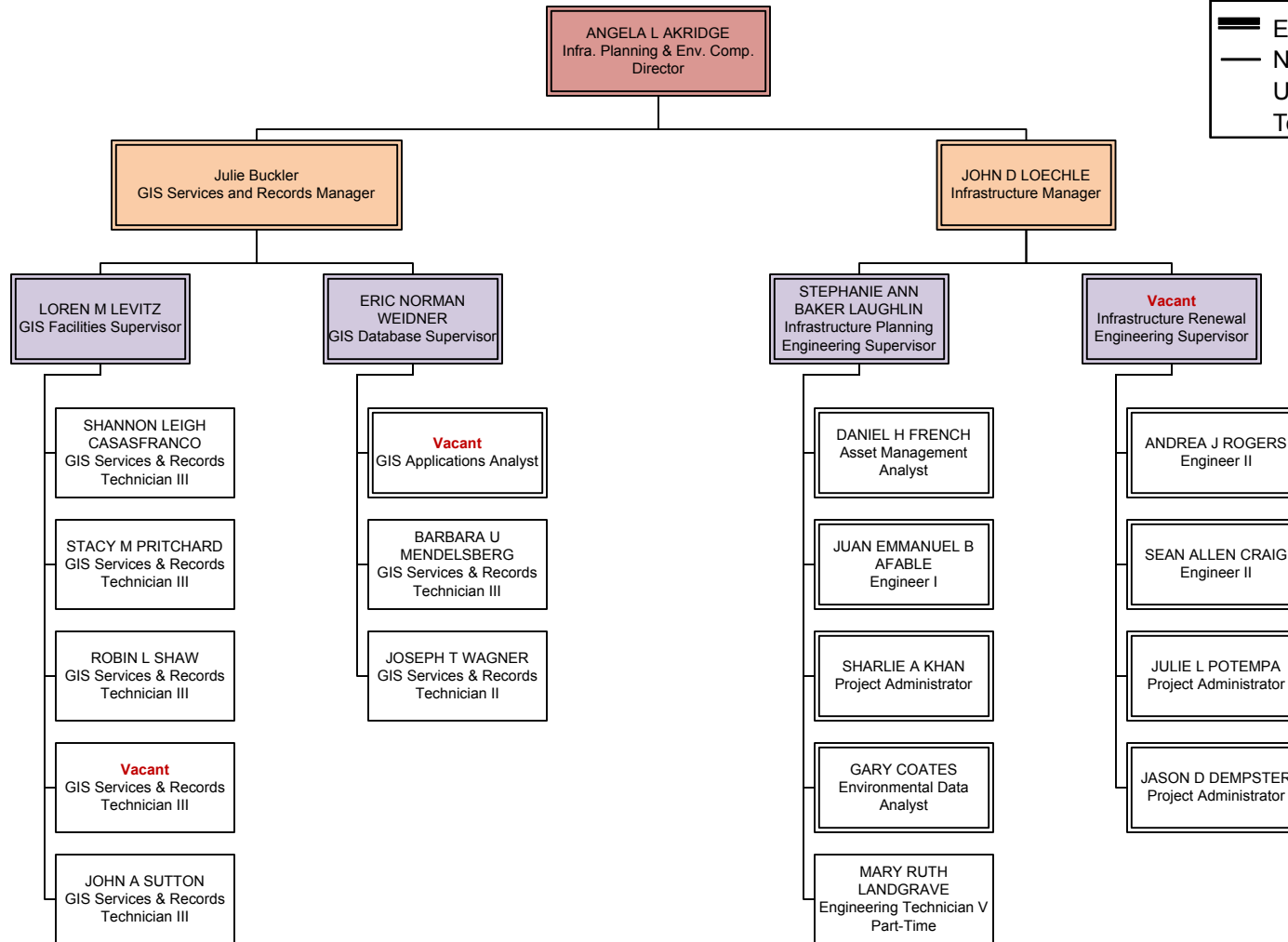
Engineering Division Development

| BUDGET STATUS | |
|--|----------|
| Actual | 24 |
| Vacant | <u>2</u> |
| Authorized | 26 |
| <hr/> | |
| Exempt | 14 |
| Non-Exempt | 12 |
| Unit | <u>0</u> |
| Total | 26 |



Engineering Division Regulatory Services & GIS

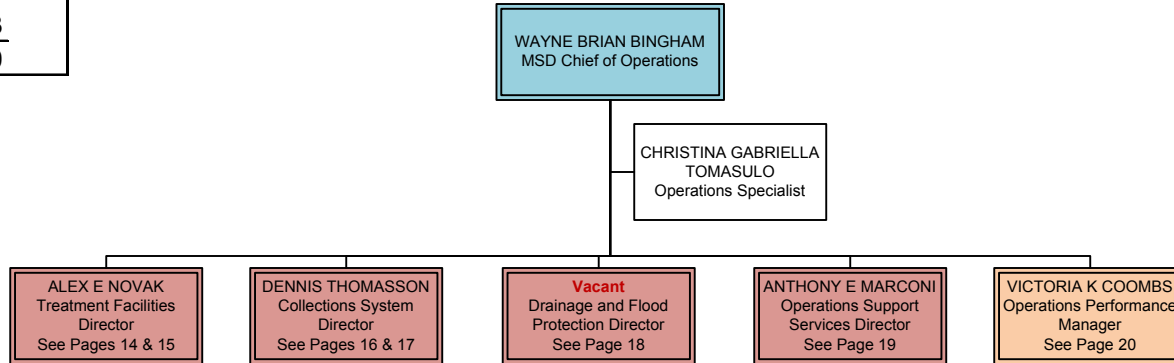
| BUDGET STATUS | |
|---------------|------------|
| Actual | 20.5 |
| Vacant | <u>3.0</u> |
| Authorized | 23.5 |
| — Exempt | 16.0 |
| — Non-Exempt | 7.5 |
| Unit | <u>0.0</u> |
| Total | 23.5 |





Operations Division Administration

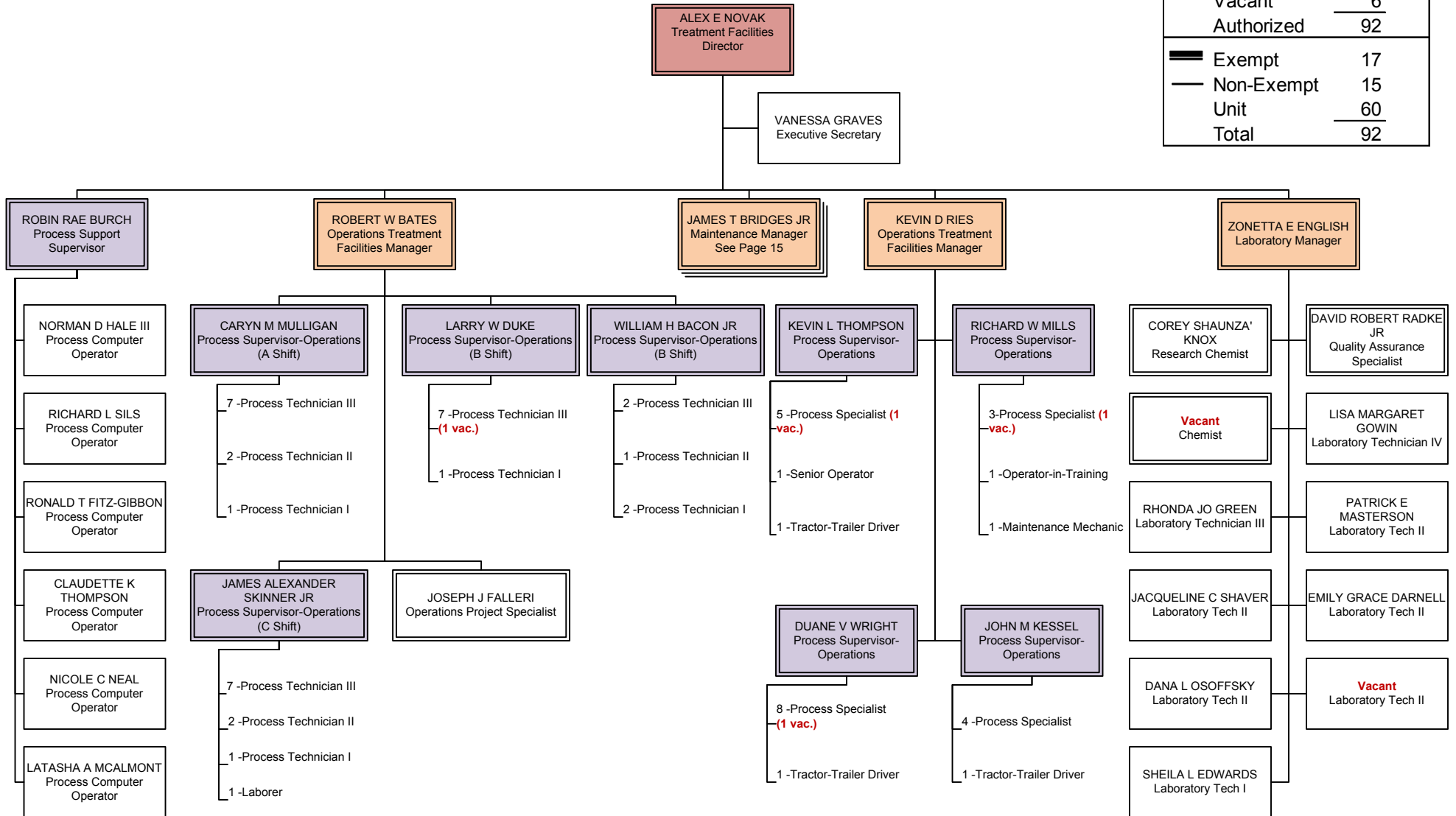
| DIVISION BUDGET STATUS | |
|------------------------|------------|
| Actual | 414 |
| Vacant | <u>36</u> |
| Authorized | 450 |
| <hr/> | |
| █ Exempt | 70 |
| — Non-Exempt | 77 |
| Unit | <u>303</u> |
| Total | 450 |

| BUDGET STATUS | |
|---------------|----------|
| Actual | 2 |
| Vacant | <u>0</u> |
| Authorized | 2 |
| <hr/> | |
| █ Exempt | 1 |
| — Non-Exempt | 1 |
| Unit | <u>0</u> |
| Total | 2 |



Operations Division Treatment Facilities

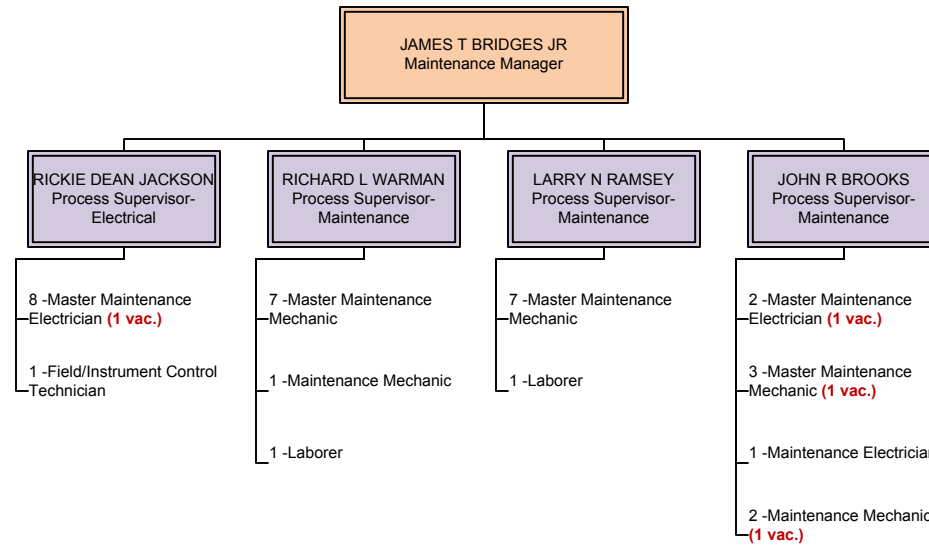
| BUDGET STATUS | |
|--|----|
| Actual | 86 |
| Vacant | 6 |
| Authorized | 92 |
|  Exempt | 17 |
|  Non-Exempt | 15 |
| Unit | 60 |
| Total | 92 |



| | | | | |
|--------------------|-------------|----------|---------|------------|
| Executive Director | MSD C-Level | Director | Manager | Supervisor |
|--------------------|-------------|----------|---------|------------|

14

Operations Division Treatment Facilities (Maintenance)

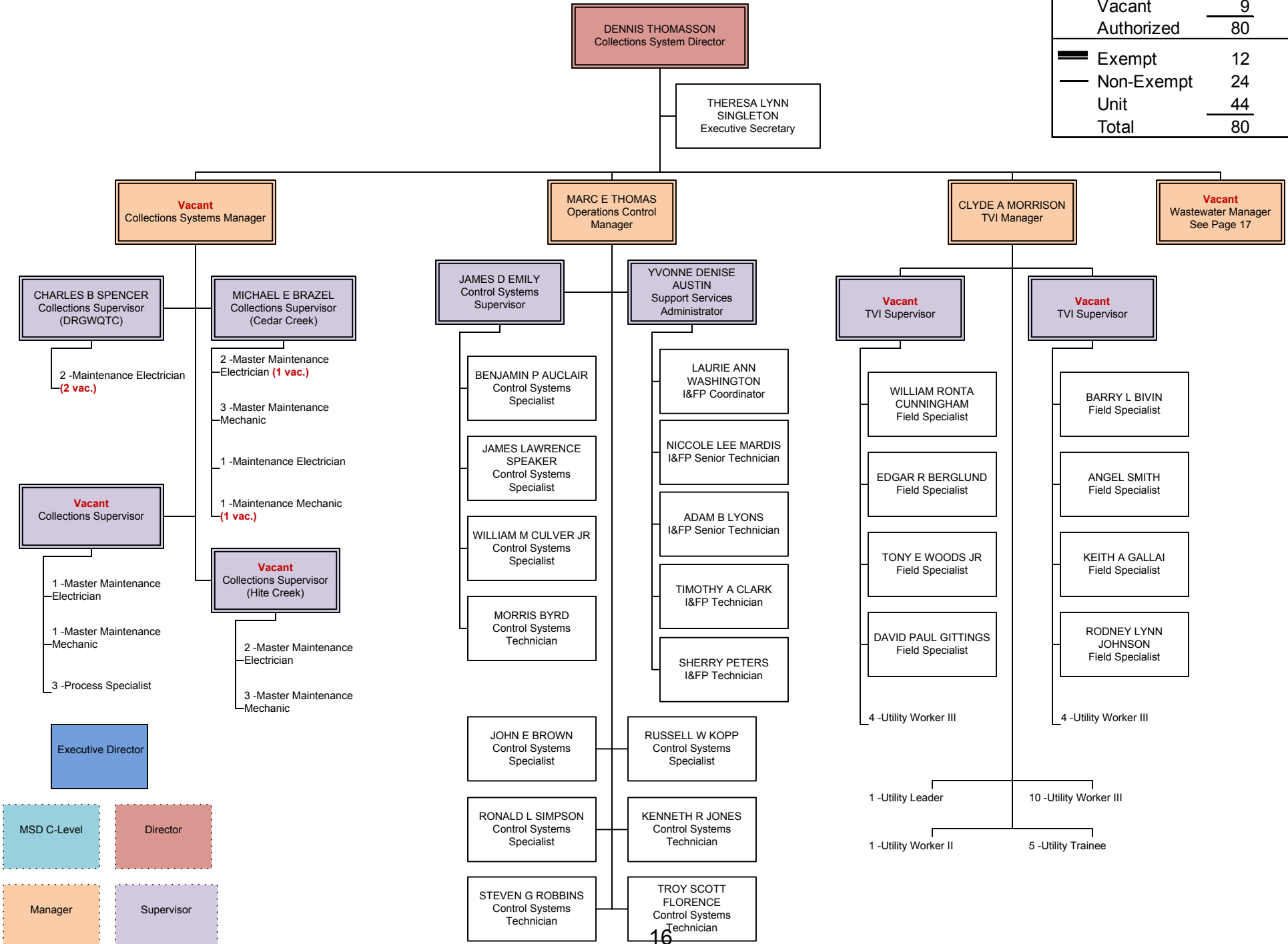


| BUDGET STATUS | |
|---------------|-----------|
| Actual | 35 |
| Vacant | 4 |
| Authorized | <u>39</u> |
| Exempt | 5 |
| Non-Exempt | 0 |
| Unit | <u>34</u> |
| Total | <u>39</u> |



Operations Division Collections System

| BUDGET STATUS | |
|--|-----------|
| Actual | 71 |
| Vacant | <u>9</u> |
| Authorized | 80 |
| <hr/> | |
| Exempt | 12 |
| Non-Exempt | 24 |
| Unit | <u>44</u> |
| Total | 80 |

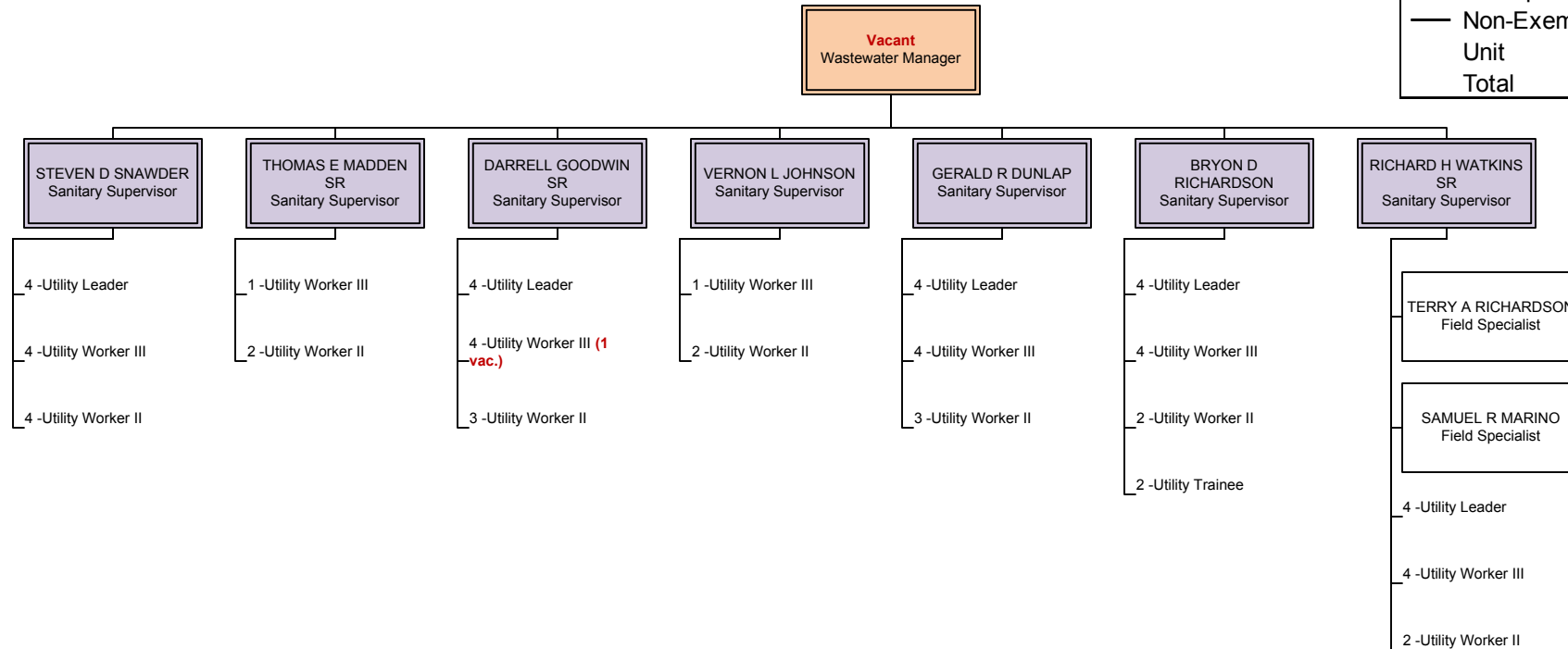


Executive Director

| | |
|-------------|------------|
| MSD C-Level | Director |
| Manager | Supervisor |

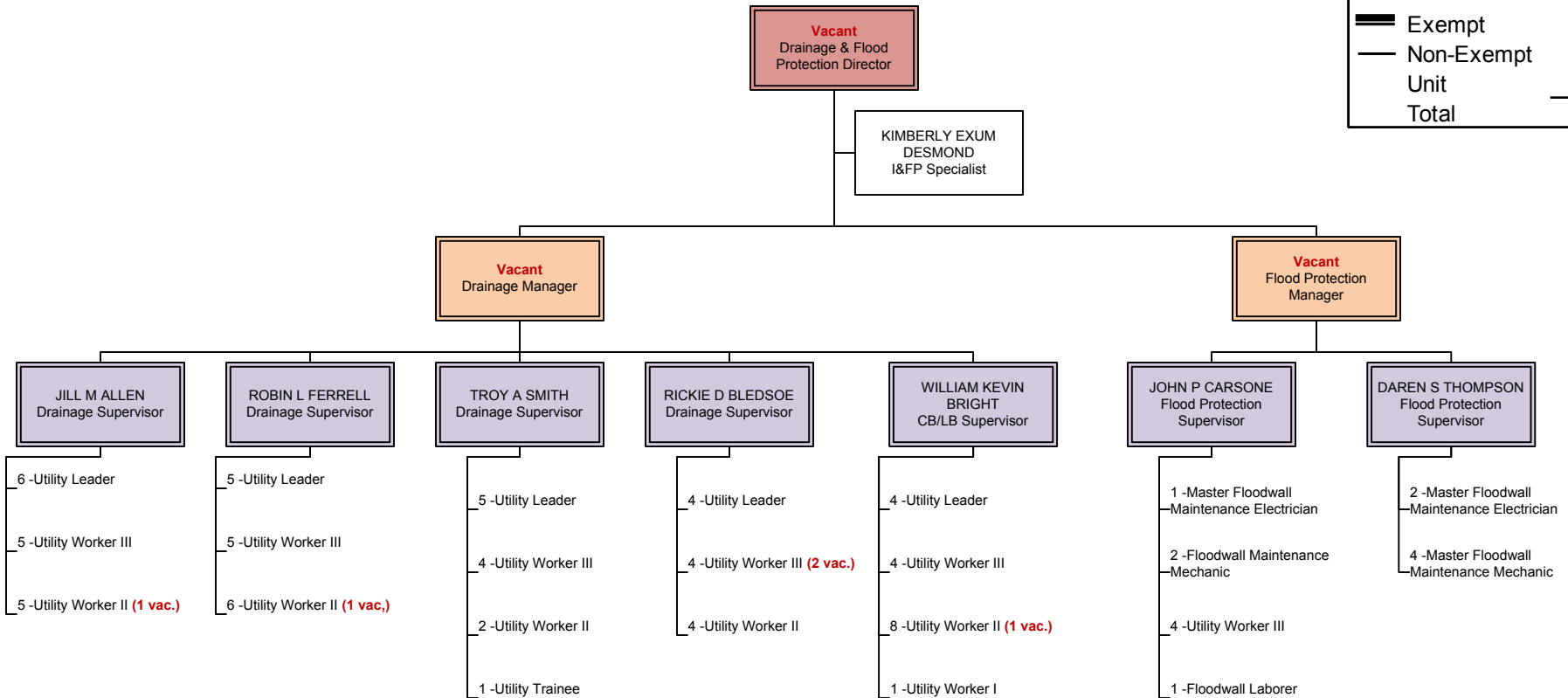
Operations Division Collections System (Sanitary)

| BUDGET STATUS | |
|--|-----------|
| Actual | 70 |
| Vacant | <u>2</u> |
| Authorized | 72 |
| <hr/> | |
| Exempt | 8 |
| Non-Exempt | 2 |
| Unit | <u>62</u> |
| Total | 72 |



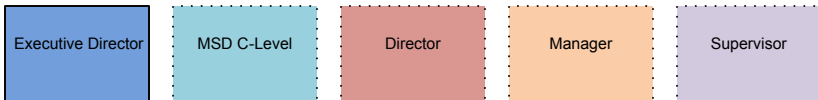
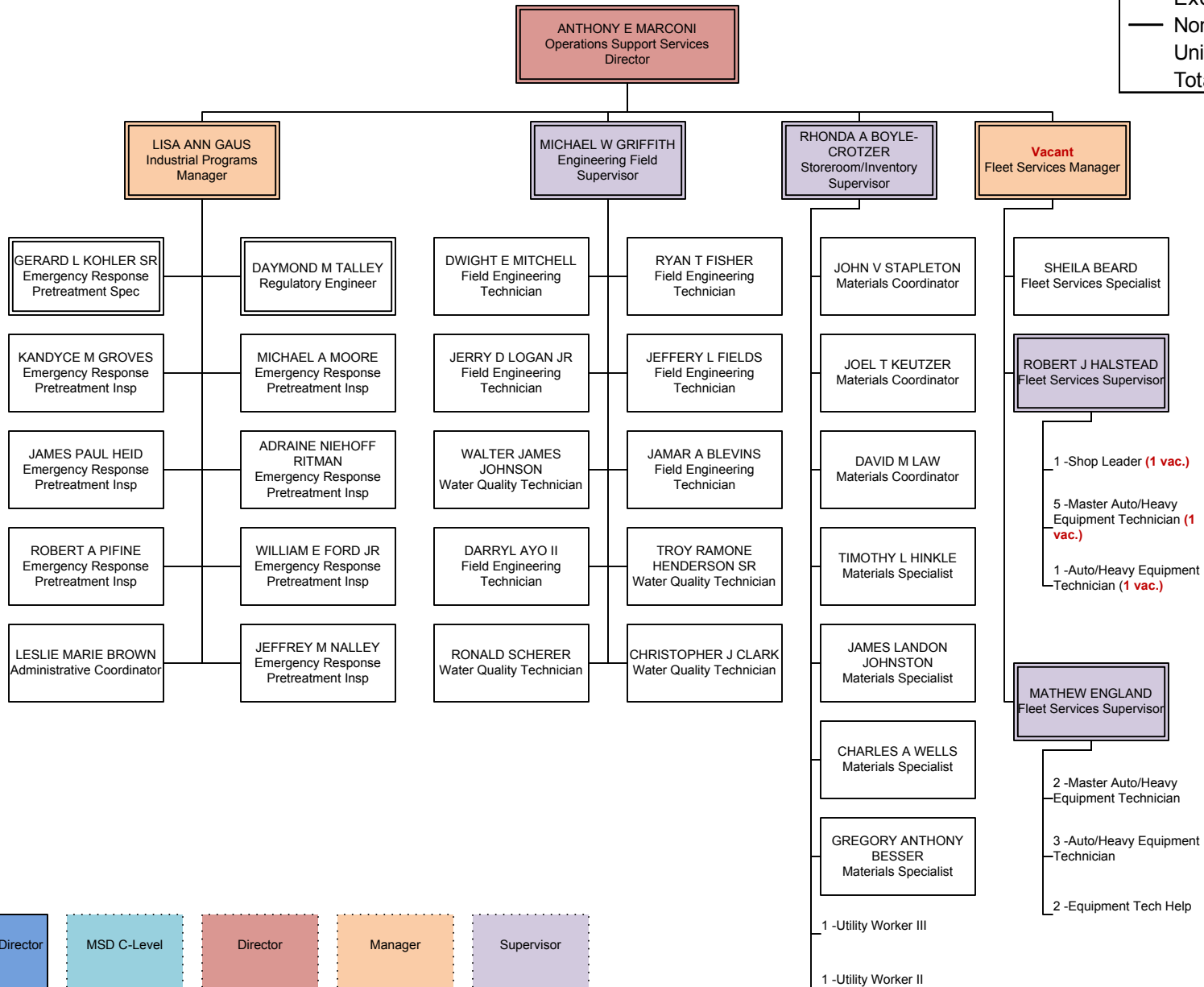
Operations Division Drainage and Flood Protection

| BUDGET STATUS | |
|--|-----------|
| Actual | 90 |
| Vacant | <u>8</u> |
| Authorized | 98 |
| <hr style="border: 1px solid black;"/> | |
| ■ Exempt | 10 |
| — Non-Exempt | 1 |
| Unit | <u>87</u> |
| Total | 98 |

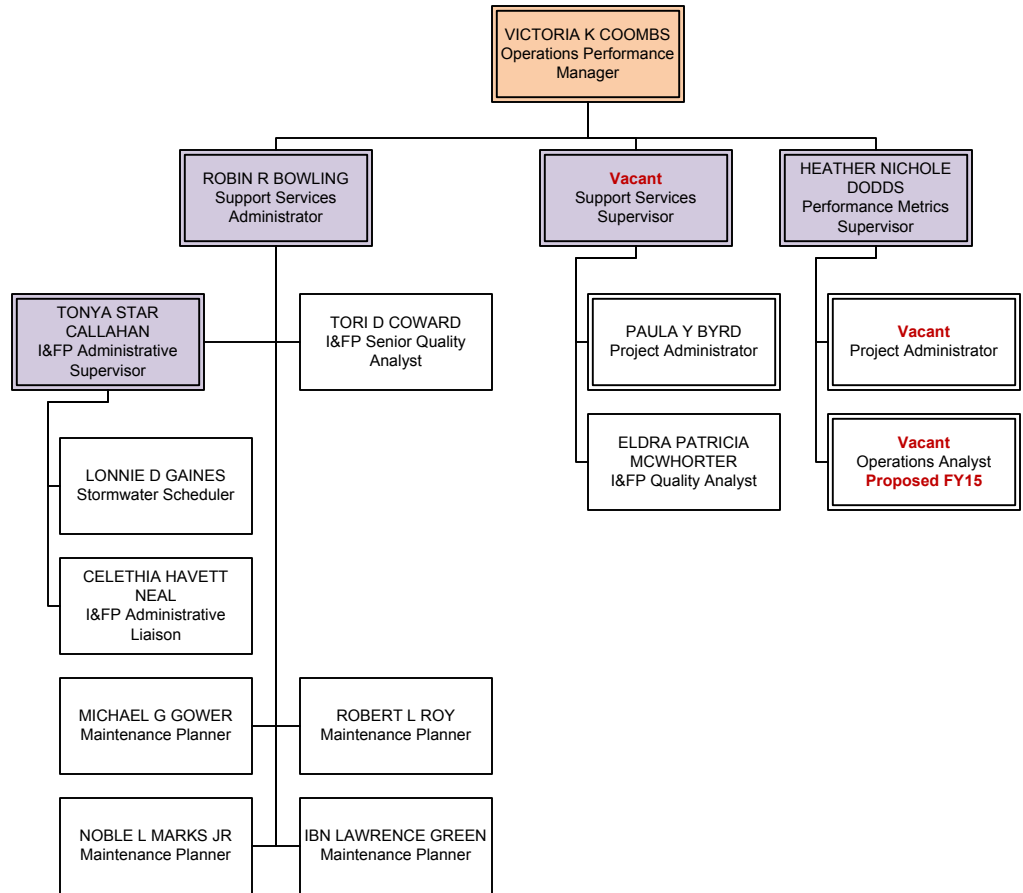


Operations Division Support Services

| BUDGET STATUS | |
|--|-----------|
| Actual | 47 |
| Vacant | <u>4</u> |
| Authorized | 51 |
| <hr/> | |
| Exempt | 9 |
| Non-Exempt | 26 |
| Unit | <u>16</u> |
| Total | 51 |



Operations Division Performance Metrics



| BUDGET STATUS | |
|---------------|----------|
| Actual | 13 |
| Vacant | <u>3</u> |
| Authorized | 16 |
| <hr/> | |
| █ Exempt | 8 |
| — Non-Exempt | 8 |
| Unit | <u>0</u> |
| Total | 16 |

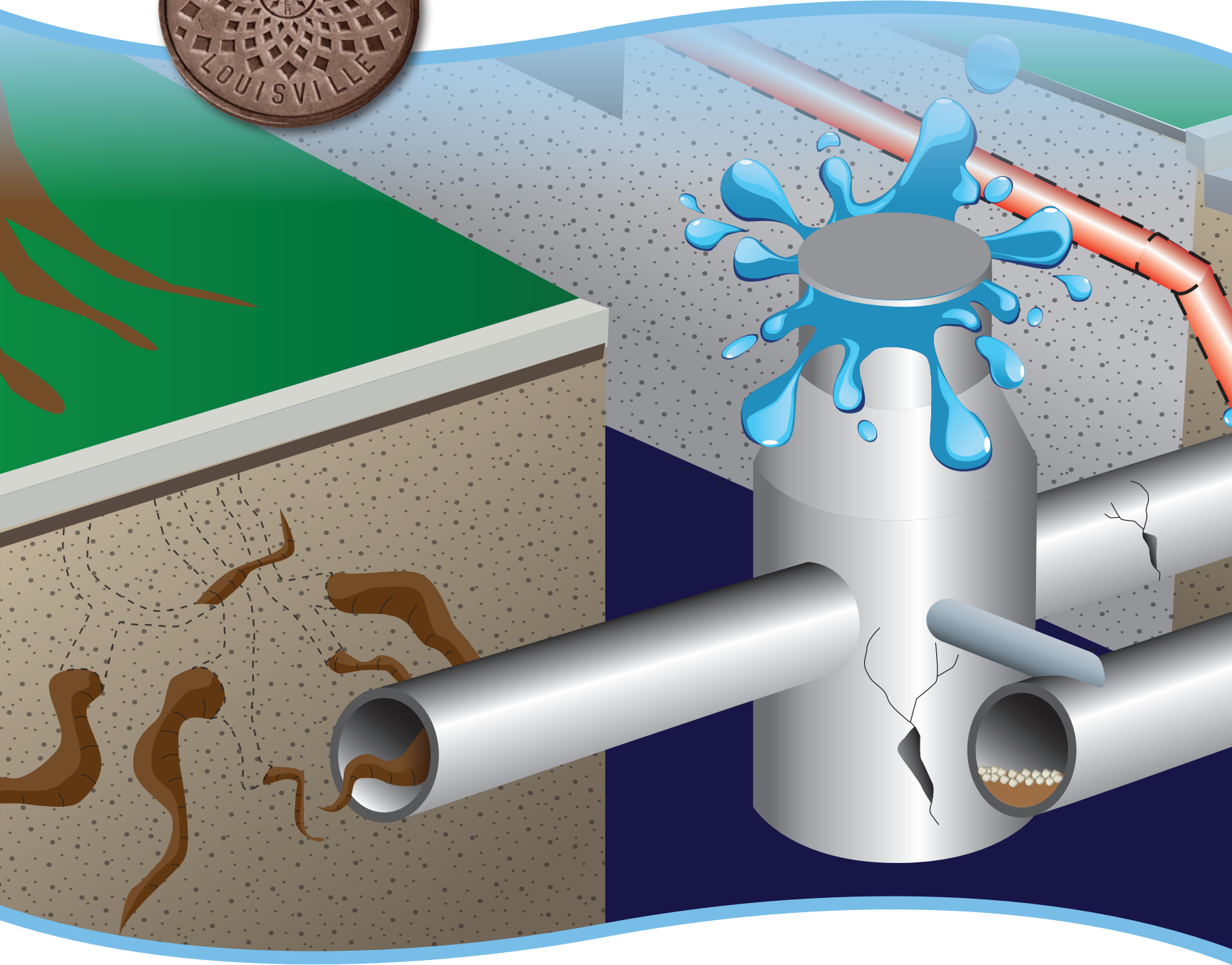


APPENDIX I – FY14 CSSA ANNUAL REPORT

Louisville and Jefferson County
Metropolitan Sewer District

Continuous Sewer System Assessment and Blockage Abatement Program

Fiscal Year 2014 Annual Report



A publication of
MSD ProjectWIN

Table of Contents

| | |
|--|-----------|
| 1. Program Background..... | 3 |
| 2. CSSA Program Inspection & Rehabilitation | 7 |
| 3. Blockage Abatement Program | 15 |

Acronyms and Abbreviations

| | |
|--------|--|
| AAM | Advanced Asset Management |
| BAP | Blockage Abatement Program |
| CCTV | Closed-Circuit Television |
| CMOM | Capacity, Management, Operation and Maintenance |
| CSO | Combined Sewer Overflow |
| CSS | Combined Sewer System |
| CSSA | Continuing Sewer System Assessment |
| DISDW | Sewer Discharge during Dry Weather |
| DISREV | Rain Event related Sewer Discharge |
| GIS | Geographical Information System |
| GLPM | Gravity Line Preventive Maintenance |
| ICA | Interceptor Condition Assessment |
| IOAP | Integrated Overflow Abatement Plan |
| IT | Information Technology |
| IFP | Infrastructure and Flood Protection Division |
| I/I | Inflow and Infiltration |
| LOJIC | Louisville Jefferson County Information Consortium |
| LTCP | Long-Term Control Plan |

| | |
|--------|---|
| MSD | Louisville and Jefferson County Metropolitan Sewer District |
| NMC | Nine Minimum Controls |
| QA/QC | Quality Assurance/Quality Control |
| PACP | Pipeline Assessment Certification Program |
| PM | Preventive Maintenance |
| PSC | Property Service Connection |
| RS | Regulatory Services |
| SCAP | System Capacity Assurance Plan |
| SMFTVI | Sewer Main Formula-based Television Inspection |
| SOP | Standard Operating Procedure |
| SSDP | Sanitary Sewer Discharge Plan |
| SORP | Sewer Overflow Response Plan |
| SSES | Sanitary Sewer Evaluation Study |
| SSO | Sanitary Sewer Overflow |
| TISCIT | Total Integrated Sonar and CCTV Inspection Technology |
| TM | Technical Memorandum |
| USI | Underground Sewers for Inspection (Walkable) |

1. Program Background

The Louisville and Jefferson County Metropolitan Sewer District (MSD) is responsible for the operation and maintenance of the sewer system within the public right-of-way and dedicated easements in Jefferson County, Kentucky, in addition to small areas in several of the surrounding counties. The sanitary sewer collection system includes over 3,200 miles of sewers ranging from 6 inches to 27.5 feet in diameter, built between the late 1800's and present day. The construction materials consist of brick, clay, polyvinyl chloride (PVC), clay pipe, vitrified clay pipe (VCP) and reinforced concrete pipe (RCP). There are over 75,000 combined and separate sanitary manholes in the system constructed of reinforced concrete and brick materials. MSD also operates and maintains the following assets:

- 67,651 catch basins and yard drains
- 270 sanitary pump stations
- 16 flood pump stations
- 6 regional water quality treatment centers (WQTCs)
- 11 small WQTCs

MSD is currently conducting an intensive sewer condition evaluation to comply with its federal Consent Decree as well as the Capacity, Management, Operations and Maintenance (CMOM) and Nine Minimum Control (NMC) programs. The Continuous Sewer System Assessment (CSSA) program and Blockage Abatement Program (BAP) addresses certain aspects of Paragraph 24c. "CMOM (Capacity, Management, Operation and Maintenance) Programs Self-Assessment" and Paragraph 24a. "Nine Minimum Controls (NMC)" from the ACD.

The primary objective of evaluating infrastructure assets is to develop and implement maintenance and rehabilitation recommendations that reduce sewer overflows and improve the capacity, structural integrity and functionality of existing assets. This annual report summarizes the CSSA and BAP accomplishments for Fiscal Year 2014 (July 1, 2013 – June 30, 2014) along with anticipated actions for Fiscal Year 2015. This summary will focus on two specific areas:

1. Sewer system inspection and rehabilitation; and
2. Sewer preventive maintenance (Blockage Abatement Program).

The CSSA and BAP programs require a defined approach to prioritize, perform, and track the inspection, cleaning, rehabilitation, replacement, and maintenance of sewer assets on a consistent and prioritized cycle. The two programs are also intended to achieve compliance with NMC 1 and 2, which require the proper operation, regular maintenance, and maximum use of MSD's combined sewer system.

Since initiating this CMOM and NMC program in 2008, MSD has spent over eleven million dollars and inspected approximately 80% of the combined and separate sewer system. Figure 1 below shows when and where inspection has been completed. Table 1 shows when and how much has been spent on inspection and cleaning activities.

Figure 1 – Cumulative Inspection Areas

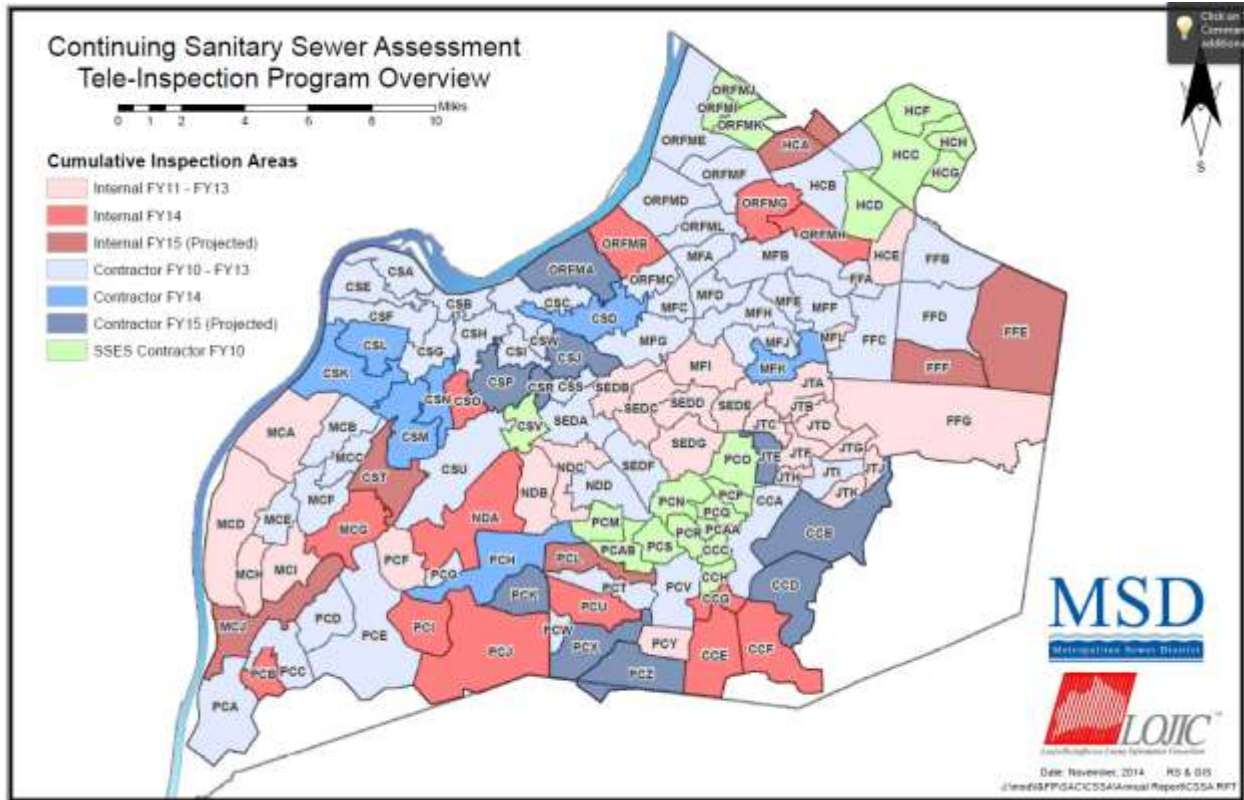


Table 1 – Inspection Summary

| Fiscal Year | I&FP Internal Cleaning | I&FP Internal Tving | I&FP Contractor Cleaning and Tving (Capital Budget) | Total I&FP (Internal + Contractor) Cleaning and Tving |
|--------------|------------------------|---------------------|---|---|
| FY09 | \$ 227,276 | \$ 63,070 | \$ - | \$ 290,346 |
| FY10 | \$ 122,712 | \$ 317,329 | \$ 1,976,449 | \$ 2,416,490 |
| FY11 | \$ 140,961 | \$ 266,960 | \$ 1,950,969 | \$ 2,358,890 |
| FY12 | \$ 111,079 | \$ 392,764 | \$ 2,035,149 | \$ 2,538,992 |
| FY13 | \$ 115,042 | \$ 286,303 | \$ 1,993,993 | \$ 2,395,338 |
| FY14 | \$ 353,794 | \$ 543,514 | \$ 937,500 | \$ 1,834,808 |
| TOTAL | \$ 1,070,864 | \$ 1,869,940 | \$ 8,894,060 | \$ 11,834,864 |

The CSSA program is an asset management program with the purpose of determining the functional and structural state of MSD’s existing sewer assets, both combined and separate,

and taking action to maintain or restore sewer capacity. Under this effort, all sewer mains will be inspected based on risk and other programmatic obligations. The inspection data is captured in a standardized format allowing for the comparison of various segment conditions, which facilitates remedial action prioritization.

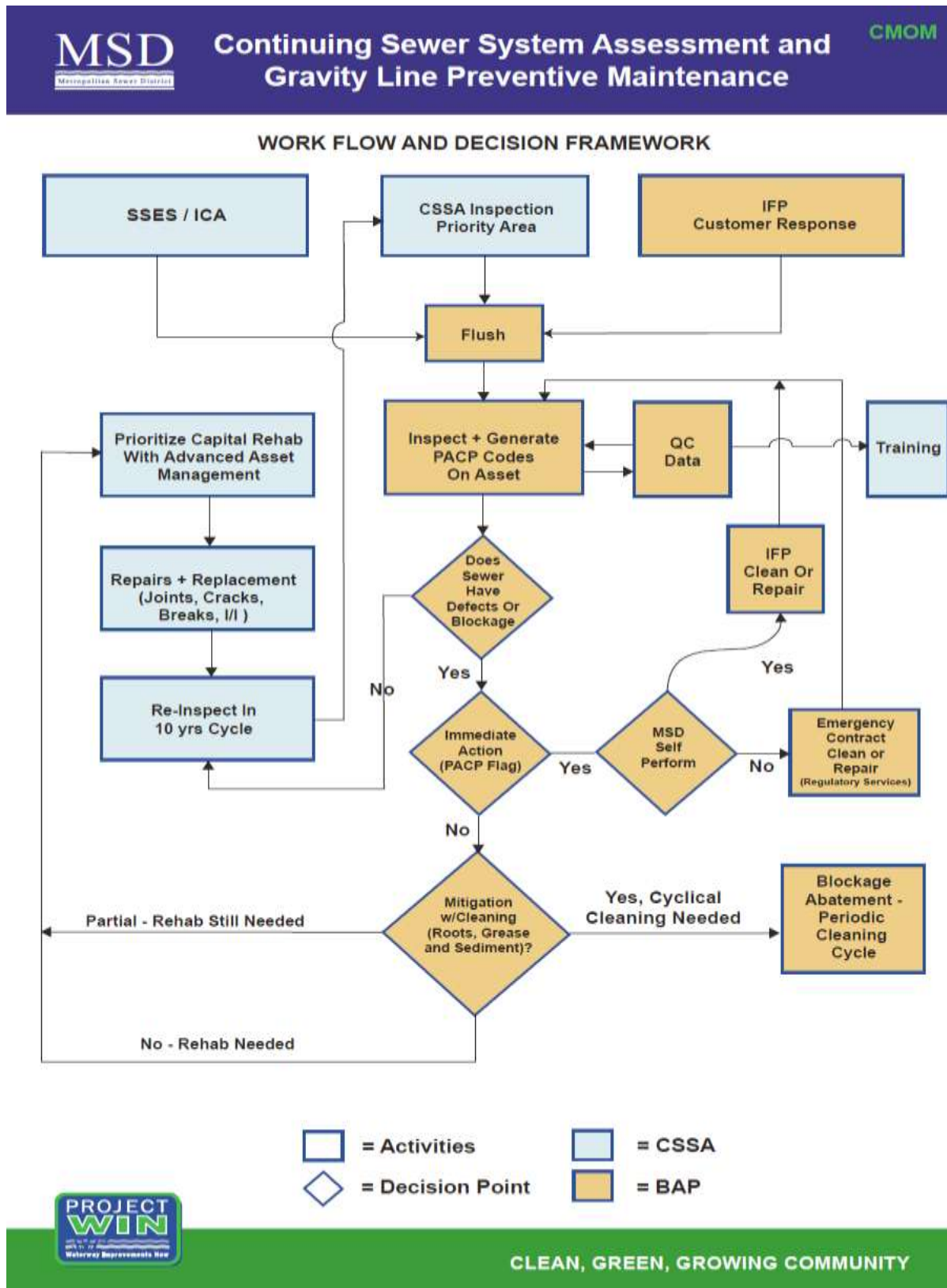
The BAP, a subsidiary program to the CSSA, encompasses sewer lines identified through the CSSA inspection and data analysis as having recurring maintenance needs due to root blockages, sedimentation, or oil and grease deposits. This program tracks the segments with operational defects, sets up recurring work orders, assigns work to available resources, tracks progress and documents the work performed. In the past, this program has been referred to as the Gravity Line Preventive Maintenance (GLPM) program.

Sewer infrastructure conditions are being assessed using a variety of desktop and field inspection techniques which include, but are not limited to, closed circuit television (CCTV), smoke testing, dye testing, visual manhole inspection, private property inspection and wet weather inspection.

Once inspection of a study area is complete, inspection data are evaluated through a pipe condition assessment process and appropriate maintenance and rehabilitation actions are taken. The inspection and rehabilitation activities are carried out under MSD's CSSA program, while recurring maintenance activities are addressed by the BAP. The process work flow for the two programs are outlined in the work flow diagram in Figure 2 below.

Previous annual reports for FY08, FY09, FY10, FY11, FY12, and FY13 describe the general programmatic structure in more detail and can be referenced in the Project WIN Annual Reports posted here: <http://www.msdpowerwin.org/Library.aspx> under Consent Decree Reporting and included as an appendix to the Project WIN Annual Report.

Figure 2 – CSSA and BAP Process Work Flow



2. CSSA Program Inspection & Rehabilitation

MSD developed a 3-pronged approach to gather asset inspection data. Using operational knowledge and various program drivers, MSD staff identified specific areas for the following:

1. Sanitary Sewer Evaluation Studies (SSESs) that include CCTV, smoke and dye testing and manhole inspection
2. Interceptor Condition Assessments (ICAs) for CCTV on large interceptors for CCTV condition assessment. This effort requires higher tech equipment and brighter lighting sources.
3. CCTV assessment on select SCAP basin, generally looking at line segments 6" to 48" in diameter. Inspection of sewers in these areas that began in FY11 were continued in FY14 (see Figure 3). A map depicting projected inspection areas for FY14 is shown in Figure 4. The areas are marked draft as projections are adjusted throughout the year for various reasons.

The following activities were completed during FY14:

- Assigned 421 miles of sanitary sewers in prioritized areas.
- Utilized standard Pipeline Assessment and Certification Program (PACP) coding protocols and employed a standard QA/QC process to ensure deliverables meet a consistent and acceptable standard.
- Continued to consolidate internal and external CCTV videos and field inspection pictures.
- Work with MSD IT department in order to develop a plan for integrating CCTV videos with Hansen 8 and eB.
- Completed six SSES involving CCTV, manhole inspection, smoke testing and private property inspection.
- Performed CCTV inspection on an additional 7 miles of collection system sewers.
- Completed assessments of ten inspection areas and generated recommendation packages.
- Utilized the NezteK software to communicate with the Hansen system to facilitate data transfer for PACP TV inspections from the Hansen asset management system to remote inspection software and back.
- Utilized a standard data QA/QC methodology to ensure data consistency.

Figure 3 – Inspection Areas Completed in FY14

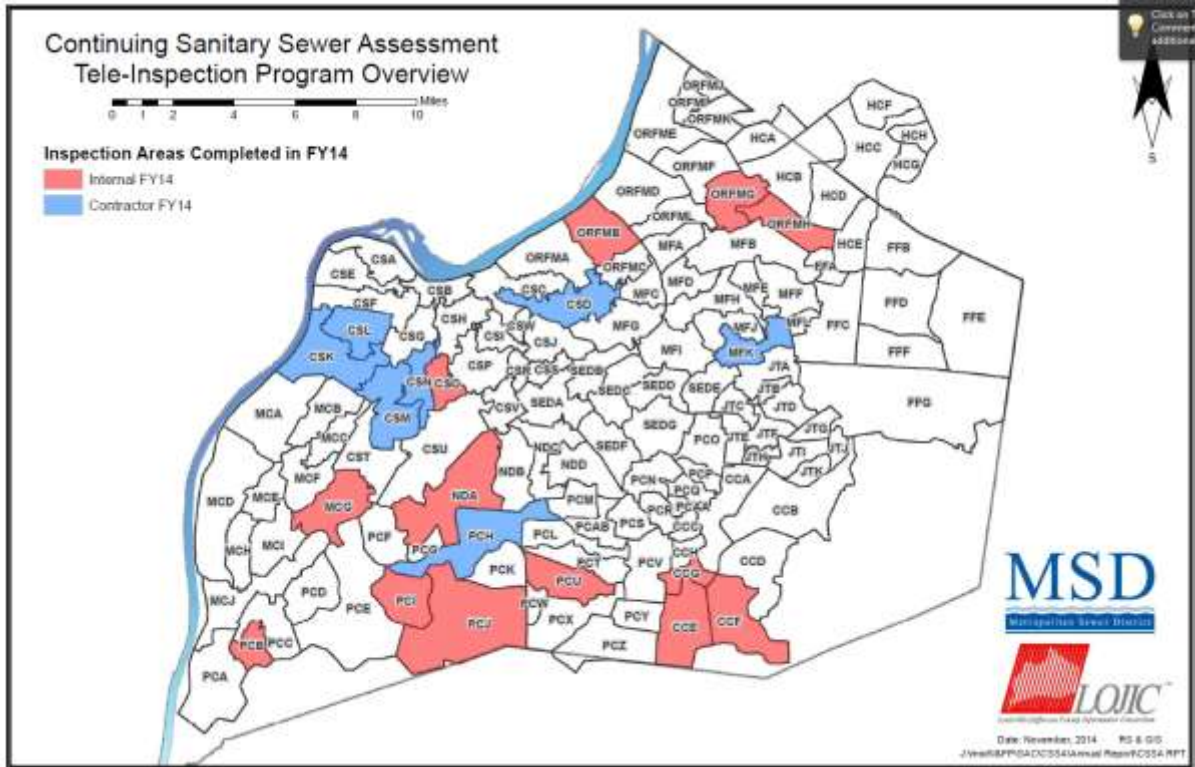
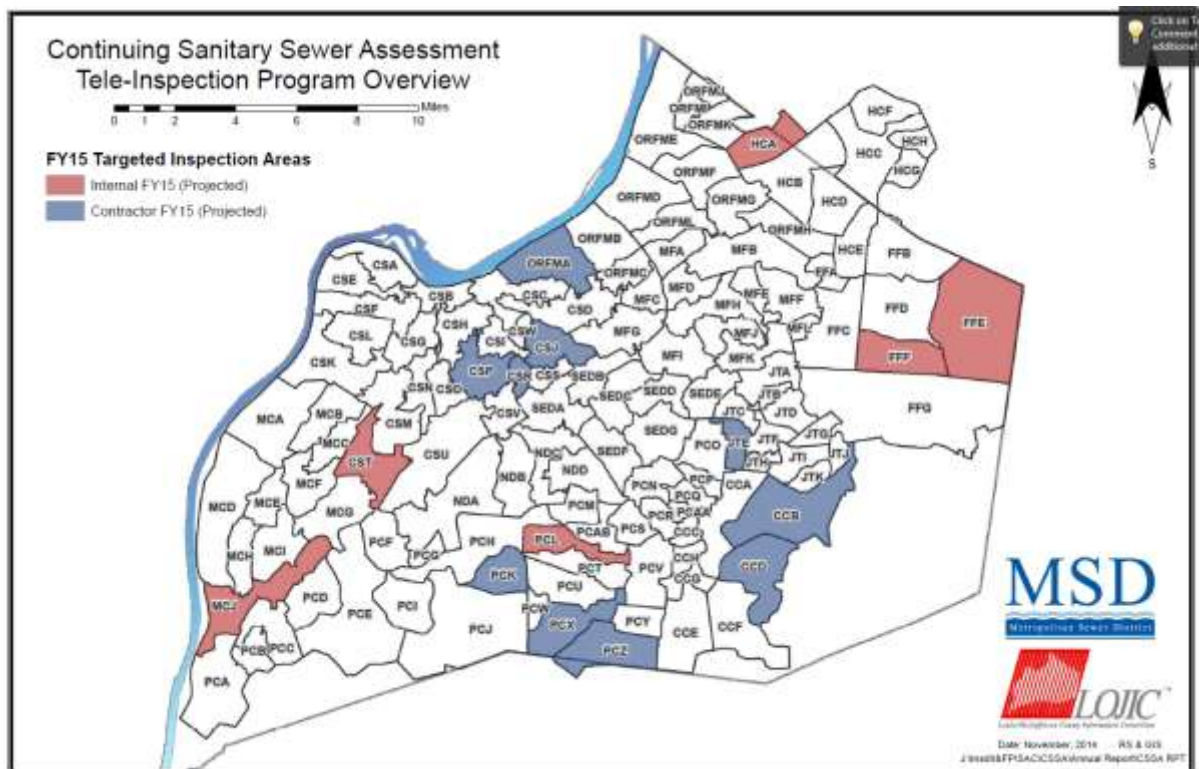


Figure 4 – FY15 Targeted Inspection Areas



Sanitary Sewer Evaluation Studies (SSES)

Sub-basins were selected for SSES projects to identify the cause of specific sewer overflows, capacity and performance, or Inflow and Infiltration (I/I) problems. Three SSES areas were identified in FY13 and completed in FY14 for a total of 558.4 miles of sewer. Each SSES project included:

- CCTV;
- Manhole Inspections;
- Smoke Testing;
- Private Property Inspections; and
- Wet Weather Inspections.

Specific data exchange protocols were utilized and data is being captured in MSD’s Hansen asset management system, once fully approved as a final product. See Table 2 for completed SSES studies.

Table 2- FY14 Completed SSES Studies

| Project | Linear Feet | Miles | Number of Manholes | Project Selection Criteria |
|-------------------|------------------|--------------|--------------------|--|
| Silver Heights | 35,815 | 6.8 | 160 | Integrated Overflow Abatement Plan Project Related |
| Yorktown | 37,733 | 7.1 | 175 | Integrated Overflow Abatement Plan Project Related |
| Caven Avenue | 25,201 | 4.8 | 119 | Integrated Overflow Abatement Plan Project Related |
| Goose Creek | 28,517 | 5.4 | 1,098 | Integrated Overflow Abatement Plan Project Related |
| Nightingale | 2,779,058 | 526.3 | 12,719 | Integrated Overflow Abatement Plan Project Related |
| Hillridge | 42,183 | 8.0 | 211 | Integrated Overflow Abatement Plan Project Related |
| TOTAL FY14 | 2,948,507 | 558.4 | 14,482 | |

Inspection work for these projects was completed during FY14. All final reports and rehabilitation recommendations for these areas were submitted to MSD during FY14. Table 3 lists projected SSES projects for FY15.

Table 3- FY15 Projected SSES Studies

| Project | Linear Feet | Miles | Number of Manholes | Project Selection Criteria |
|-------------------|------------------|--------------|--------------------|--|
| Goose Creek | 28,517 | 5.4 | 1,098 | Integrated Overflow Abatement Plan Project Related |
| Nightingale | 2,779,058 | 526.3 | 12,719 | Integrated Overflow Abatement Plan Project Related |
| TOTAL FY15 | 2,807,575 | 531.7 | 13,817 | |

Interceptor Condition Assessments

MSD has active or ongoing interceptor inspection activities along six interceptors in FY14. Inspection work includes 37,390 LF of CCTV and 58 Manhole Inspections. Table 4 summarizes current interceptor inspection activities for different areas.

MSD completed Interceptor Condition Assessments in nine areas during FY14. More than 63,037 LF of pipe was inspected with CCTV and 297 manholes were inspected as a result of this work. The interceptors selected for FY14 are listed in Table 4 and displayed in Figure 3.

Table 4 – FY14 Interceptor Condition Assessments

| Interceptor | Linear Feet | Miles | Number of Manholes | Issues of Concern | Status |
|------------------------------------|----------------|-------------|--------------------|--|----------------|
| Broadway Interceptor Phase IV | 13,902 | 2.6 | 66 | Nine Minimum Control 1 & 2 Related | Complete |
| Goose Creek Interceptor Phase IV | 21,623 | 4.1 | 86 | Nine Minimum Control 1 & 2 Related | Complete |
| Hite Creek Interceptor Phase IV | 17,410 | 3.3 | 68 | Sewer Capacity Assurance Plan (SCAP) Program Related | Complete |
| Southwestern Outfall Phase IV | 6,685 | 1.3 | 10 | Nine Minimum Control 1 & 2 Related | Active/Ongoing |
| Shively Interceptor Phase IV | 10,102 | 1.9 | 19 | Nine Minimum Control 1 & 2 Related | Complete |
| Pond Creek Interceptor Phase IV | 30,705 | 5.8 | 48 | Sewer Capacity Assurance Plan (SCAP) Program Related | Active/Ongoing |
| TOTAL FY14 [Active/Ongoing] | 37,390 | 7.1 | 58 | | |
| TOTAL FY14 [Complete] | 63,037 | 11.9 | 239 | | |
| TOTAL FY14 | 100,427 | 19.0 | 297 | | |

Collection System Sewer Assessments

Under the current reorganization, the Infrastructure and Flood Protection division has changed to the Operations Division. During the reporting period Operations continued to manage the division of labor related to the assessment MSD’s collection system using internal and external resources, based on pipe diameter and internal resource availability. In FY14, MSD crews inspected 243 miles of sewer while contractors inspected 203 miles as outlined in Table 6. Through these combined efforts, MSD inspected over 446 miles of sewer, well ahead of the 320 mile/year pace needed to inspect the 3,200 mile system as committed to in the CMOM Se-Assessment.

Three IFP trucks are primarily dedicated to CSSA CCTV work, with the remaining 4 trucks dedicated to customer request response and maintenance crew support. An off-shift crew continues to provide additional resources in the department. Each CSSA CCTV truck is coupled with a dedicated flusher or combination vacuum cleaner truck, so that cleaning is a more timely and responsive aspect of their condition assessment activities.

Sub-basin inspections that were completed or nearing completion during FY14, as a part of the Collection System Sewer Assessment are summarized in Table 5 and projected areas in Table 6.

Table 5 – FY14 Completed Collection System Assessment Areas

| Sub-Basin | Linear Feet | Miles | Internal / Contracted |
|---|------------------|--------------|---|
| Cedar Creek Areas E, F and G (CCE, CCF, CCG) | 118,156 | 22.4 | Internal |
| Combined Sewer Area (CSO) | 25,483 | 4.8 | Internal |
| Combined Sewer Area (CSD, CSL, CSK, CSM, CSN) | 879,702 | 166.6 | Contracted |
| Mill Creek Area (MCI, MCG) | 271,483 | 51.4 | Internal |
| Northern Ditch Area (NDA) | 107,683 | 20.4 | Internal |
| ORFM Area (ORFMB, ORFMG) | 328,618 | 62.2 | Internal |
| Pond Creek Area (PCB, PCI, PCJ, PCT, PCU) | 464,823 | 88.0 | Internal |
| Southeast Diversion Area (CED-G) | 109,318 | 20.7 | Internal |
| Shively Interceptor Annual Inspection | 15,216 | 2.9 | Contracted |
| Miscellaneous SEDB, SEDC, SEDD, MFI | 31,635 | 6.0 | Contracted |
| Total FY14 Assigned [Internal Crews] | 1,425,565 | 270.0 | Crews have a goal to complete 85% of the assigned lines and 85% of the assigned footage |
| Total FY14 Assigned [Contracted Crews] | 926,552 | 175.5 | |
| Total FY14 Assigned | 2,352,116 | 445.5 | |

Table 6 – FY15 Projected Collection System Assessment Areas

| Sub-Basin | Linear Feet | Miles | Internal / Contracted |
|---|------------------|--------------|---|
| Cedar Creek Area (CCB, CCD) | 250,000 | 47.3 | Contracted |
| Combined Sewer Area (CSJ, CSP, CSR) | 429,000 | 81.3 | Contracted |
| Floyds Fork Area (FFE, FFF) | 346,000 | 65.5 | Internal |
| Hite Creek Area (HCA) | 118,000 | 22.3 | Internal |
| Jeffersontown Area (JTE) | 99,000 | 18.8 | Internal |
| Ohio River Force Main Area (ORFMA) | 150,000 | 28.4 | Internal |
| Pond Creek Area (PCK, PCX, PCZ) | 308,000 | 58.3 | Contracted |
| Total FY15 Assigned [Internal Crews] | 713,000 | 135.0 | Crews have a goal to complete 85% of the assigned lines and 85% of the assigned footage |
| Total FY15 Assigned [Contracted Crews] | 987,000 | 186.9 | |
| Total FY15 Assigned | 1,700,000 | 322.0 | |

MSD follows the National Association of Sewer Service Companies (NASSCO) PACP Quality Control Standards for QA/QC of all inspection deliverables, whether part of an SSES project, ICA or collection system assessment. Each year MSD employees involved with inspection activities or rehabilitation efforts are either trained or recertified in PACP. The total number of MSD employees currently certified in PACP is 22.

To proactively address current and upcoming infrastructure issues, a detailed decision framework has been developed including inspection, assessment, prioritization, mapping, and remediation activities (including maintenance and/or rehabilitation).

Decision Framework

For the sewer assessment program, the decision framework steps are to inspect, evaluate, report and implement in a continuous cycle, as illustrated in Figure 2.

- Inspection is conducting manhole and pipe surveys of field conditions to document defects according to standardized PACP methods.
- Evaluation is reviewing the field surveys for major defects, and recommending remediation activities, if needed.
- Reporting is presenting recommended activities in a report with cost estimates, maps and a description of the required remediation effort.
- Implementation is carrying the recommendations through construction. The implementation step includes producing bid documents and tracking remediation

activities.

Assessment Results

The assessment process does not conclude with implementation, but with defining an inspection cycle to continue to monitor and assess the infrastructure. A findings report is developed for each study area including a summary of the area and issues present, rehabilitation or remediation and maintenance recommendations, cost estimates, maps, bid documents, and a determination of the future inspection interval. The findings report provides the foundation and guidance for future maintenance and rehabilitation activities including cost estimates and mapping of repairs and locations. This information is utilized to determine what repairs will be completed as rehabilitation projects and what maintenance activities will be diverted to the BAP.

Rehabilitation activities are selected and prioritized through the evaluation processes. Utilizing the recommendations, projects are bid and rehabilitation work is completed. During FY14, a total of eleven projects were active or completed. Table 7 summarizes FY14 rehabilitation project areas, linear feet of pipe and estimated costs associated with the rehabilitation projects. Table 8 summarizes planned work for FY15. An example of work performed in FY14 is shown in Figure 5.

In FY15, MSD will continue to assess inspection areas and generate maintenance and rehabilitation recommendations for focus areas. Rehabilitation projects are prioritized based on SSO frequency, basement backups and hauling operations.



Figure 5 - Cast in place pipe is installed to rehabilitate long stretches of dilapidated sewer mains

Table 7 – FY14 Areas Active Rehabilitation Projects

| Rehabilitation Area | CIPP (LF) | Miles | Manholes | Estimated Costs |
|---------------------------|----------------|-------------|--------------|-----------------------|
| Camp Taylor Prestonia | 15,782 | 3.0 | 55.0 | \$1,040,638.47 |
| Cavin I&I Phase I | 4,409 | 0.8 | 9.0 | \$366,470.30 |
| Fegenbush | 3,923 | 0.7 | 250.0 | \$476,240.00 |
| Fern Creek | 19,047 | 3.6 | 550.0 | \$2,162,933.53 |
| Goose Creek (FY14) | 9,584 | 1.8 | 87.0 | \$705,784.00 |
| Hillridge Phase I (FY14) | 7,227 | 1.4 | 64.0 | \$566,158.00 |
| Lake Forest | 1,749 | 0.3 | 359.0 | \$777,374.00 |
| Lea Ann Way Quad 3 (FY14) | 15,310 | 2.9 | 318.0 | \$1,405,685.00 |
| Meadow Stream | 1,415 | 0.3 | 752.0 | \$919,550.00 |
| Prospect | 19,966 | 3.8 | 425.0 | \$583,743.00 |
| Rosa Terrace (FY14) | 7,040 | 1.3 | 51.0 | \$531,927.00 |
| TOTAL FY14 | 105,452 | 19.9 | 2,920 | \$9,536,503.30 |

Table 7 – FY15 Areas Planned Rehabilitation Projects

| Rehabilitation Area | Linear Feet | Miles | Manholes | Estimated Costs |
|---------------------|---------------|------------|----------|---------------------|
| Silver Heights | 2,423 | 0.5 | 164.0 | \$ 379,899 |
| Lea Ann Way Quad 1 | 4,984 | 0.9 | 74.0 | \$ 479,329 |
| Lea Ann Way Quad 2 | 2,290 | 0.4 | 44.0 | \$ 111,989 |
| Lea Ann Way Quad 4 | 10,632 | 2.0 | 484.0 | \$ 1,079,799 |
| Middletown | 508 | 0.1 | 15.0 | \$ 98,500 |
| TOTAL FY15 | 20,837 | 3.9 | | \$ 2,149,515 |

3. Blockage Abatement Program

Overview

MSD is currently refining the procedures and protocols of its BAP, which initiates routine maintenance on those sewer lines exhibiting operational or maintenance related defect conditions as they are found through the Continuous Sewer System Assessment (CSSA) inspection program.

This program is a refinement of the gravity line preventive maintenance that MSD has implemented over the years. Maintenance activities related to this program include re-inspection, flushing and vacuum cleaning, root cutting, chemical root treatment, chemical grease treatment, and long-term rehabilitation assessment. Consistent, periodic preventive maintenance of the sewer system to maximize asset life and minimize overflows, property damage and health risks is the primary goal of the program.

MSD currently performs condition-driven maintenance activities on portions of the sewer system, along with a large amount of reactive maintenance and rehabilitation due to customer service calls and field review. As the 3,200-mile system is inspected through the CSSA program, MSD will use the BAP to expand its condition-driven maintenance to address those sewers demonstrating a need to be in the program. This program expansion requires planning and resources to execute effectively. Over time, the segments in the program will be reviewed to determine if the maintenance need can be remediated to eliminate the recurring maintenance activity.

FY14 Activities

In FY13, MSD began Chemical Grease Treatment of sanitary lines. Chemical Grease Treatment in a Maintenance measure that allows MSD to clean a sewer with a substantial amount of Grease buildup and flush it down stream. The chemical product MSD uses is a grease liquefier that liquefies grease in sewer lines on contact and allows it to wash downstream without re-coagulating. It is non-corrosive, biodegradable, non-acidic, and is treatment plant friendly. A 1% solution of grease liquefier is mixed within the water of a Jetter Truck. MSD did a few pilot areas that allowed crews to become familiar with using a product and helped engineers gain a better understanding of when and where to use product. Completed FY14 BAP activities are summarized in Table 8.

The following activities related to BAP accomplishments occurred during the FY14 reporting period:

- Performed chemical root treatment on 408,659 LF(1,899 line segments) of Separate Sanitary Sewer and 282 LF (2) of Combined Sewer.
 - Maintained chemical root control services budget of \$550,000 for FY14 and FY15.
- Performed sewer flushing and cleaning on 562,540 LF(3,053 line segments) of Separate Sanitary Sewer and 486,204 LF (2,641) of Combined Sewer.
- Performed root cutting on 118,102 LF (602 line segments) of Separate Sanitary Sewer and 55,141 LF (249) of Combined Sewer.

Table 8 – Completed FY14 BAP Activities

| Activity | Linear Feet | Miles |
|---------------------------|------------------|--------------|
| Flushing | 1,048,743 | 198.6 |
| Vacuum Cleaning | 1,560 | 0.3 |
| Root Cutting | 173,243 | 32.8 |
| Chemical Root Treatment | 408,941 | 77.5 |
| Chemical Grease Treatment | 1,285 | 0.2 |
| TOTAL FY14 | 1,633,773 | 309.4 |

Anticipated FY15 Activities

In FY15, data collection will continue on the pilot grease treatment dosing areas. Once a statistically acceptable data set is collected, a study will be performed to determine the next steps for grease treatment and target areas including staffing and equipment needs.

An aggressive approach will be taken to continue maintenance activity implementation and programmatic effectiveness and refinement. Sewers currently maintained within the program will remain and sewer lines identified as needing recurring maintenance through proactive condition assessment will be incorporated as needed. The sewers requiring intensive maintenance will be placed on a priority list for replacement and correction to minimize future maintenance. MSD will focus on reviewing reported overflows caused by blockages, grease, or roots to actively re-inspect and maintain lines to keep the overflows from recurring. Projected BAP activities are summarized in Table 9.

Table 9 – Projected FY15 BAP Activities

| Activity | Linear Feet | Miles |
|---------------------------|------------------|--------------|
| Flushing | 1,090,699 | 206.6 |
| Vacuum Cleaning | 3,000 | 0.6 |
| Root Cutting | 820,957 | 155.5 |
| Chemical Root Treatment | 400,000 | 75.8 |
| Chemical Grease Treatment | 5,000 | 0.9 |
| TOTAL FY15 | 2,319,656 | 439.3 |

Quarterly reports will continue to include project-specific progress on inspection, maintenance and rehabilitation efforts. Annual reports will continue to include programmatic updates on progress, refinements, and upcoming efforts.

Critical Sewers

Critical infrastructure is defined as combined and sanitary sewers that would have a significant negative impact to the community due to failure or may be considered highly susceptible to pipe degradation and failure due to I/I or other environmental factors.

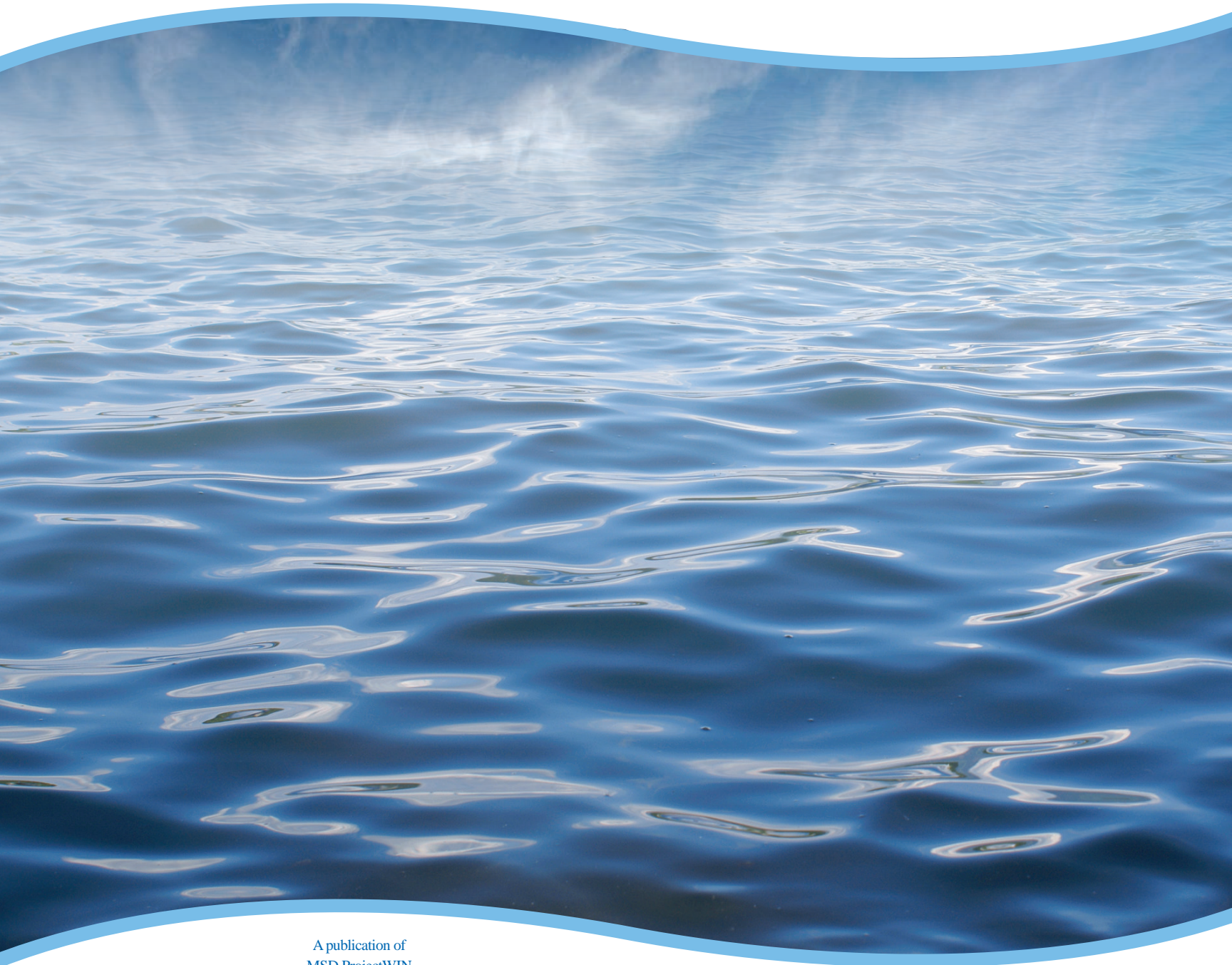
MSD has several initiatives to assist in determining sewers that will qualify as critical. As a starting point for the program, MSD conducted an in house GIS analysis to identify large diameter sewers that are old, in the floodplain and have significant defects based on data collected with the inspection programs. This analysis also identified sewers where MSD has recurring maintenance activities.

As a result of this analysis, MSD is re-evaluating the approach of the Blockage Abatement Program. This new approach will allow MSD to look at how MSD Maintenance crews prioritize maintenance activities such as root cutting, chemical root control, flushing, vacuum cleaning and grease control along with other cleaning activities. In FY15, MSD will enhance the program to tighten criteria for maintenance, frequency and a definitive criteria for prioritizing rehabilitation for eliminating the need for the recurring maintenance and sewer backups.

The third tool that MSD will learn more about in the coming year is the Advanced Asset Module now available in the Hansen 8 information management system. As part of the migration from Hansen 7 to Hansen 8 (which is now complete), MSD developed failure curves and decision models for many variables related to sewer life cycle. The Advanced Asset Module will assist with identifying and prioritizing areas for rehabilitation and further investigation on a regular basis.



*Achieving Clean, Safe Waterways
for a Healthy and Vibrant Community*



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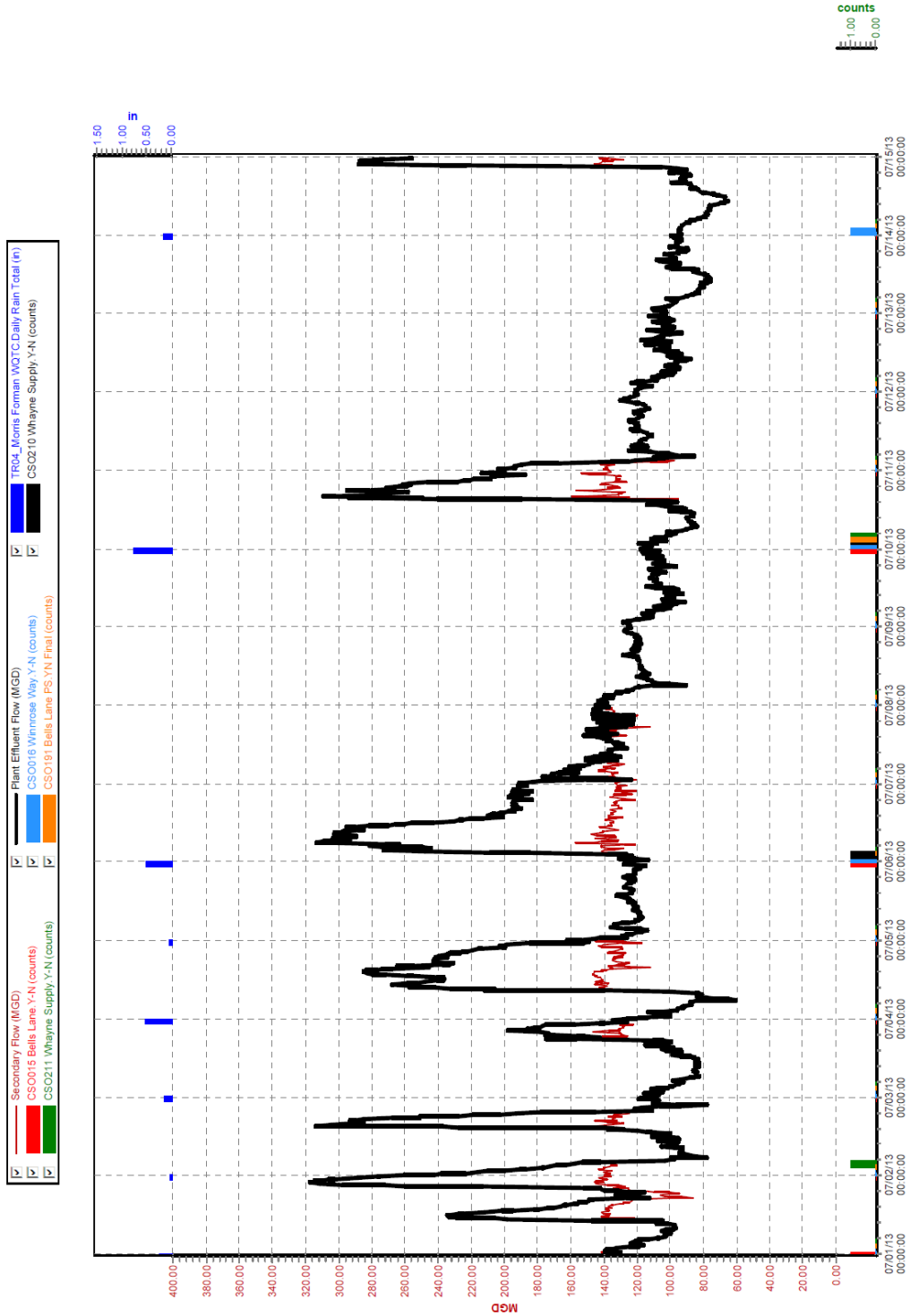
MSDprojectWIN.org | LouisvilleMSD.org

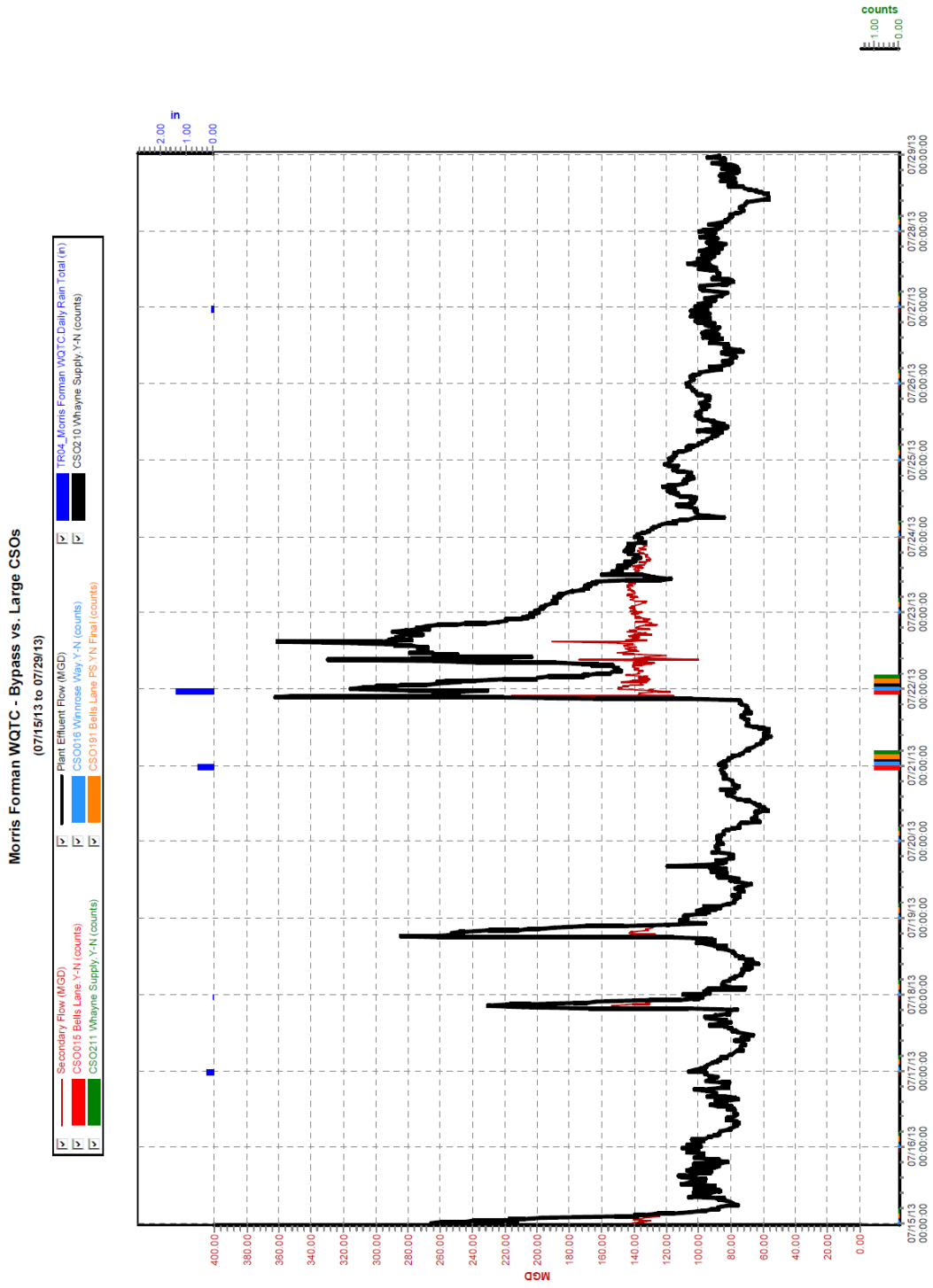
24/7 Customer Relations
502-587-0603

APPENDIX J – MORRIS FORMAN WQTC FY14 CHARTS

Morris Forman WQTC - Bypass vs. Large CSOs

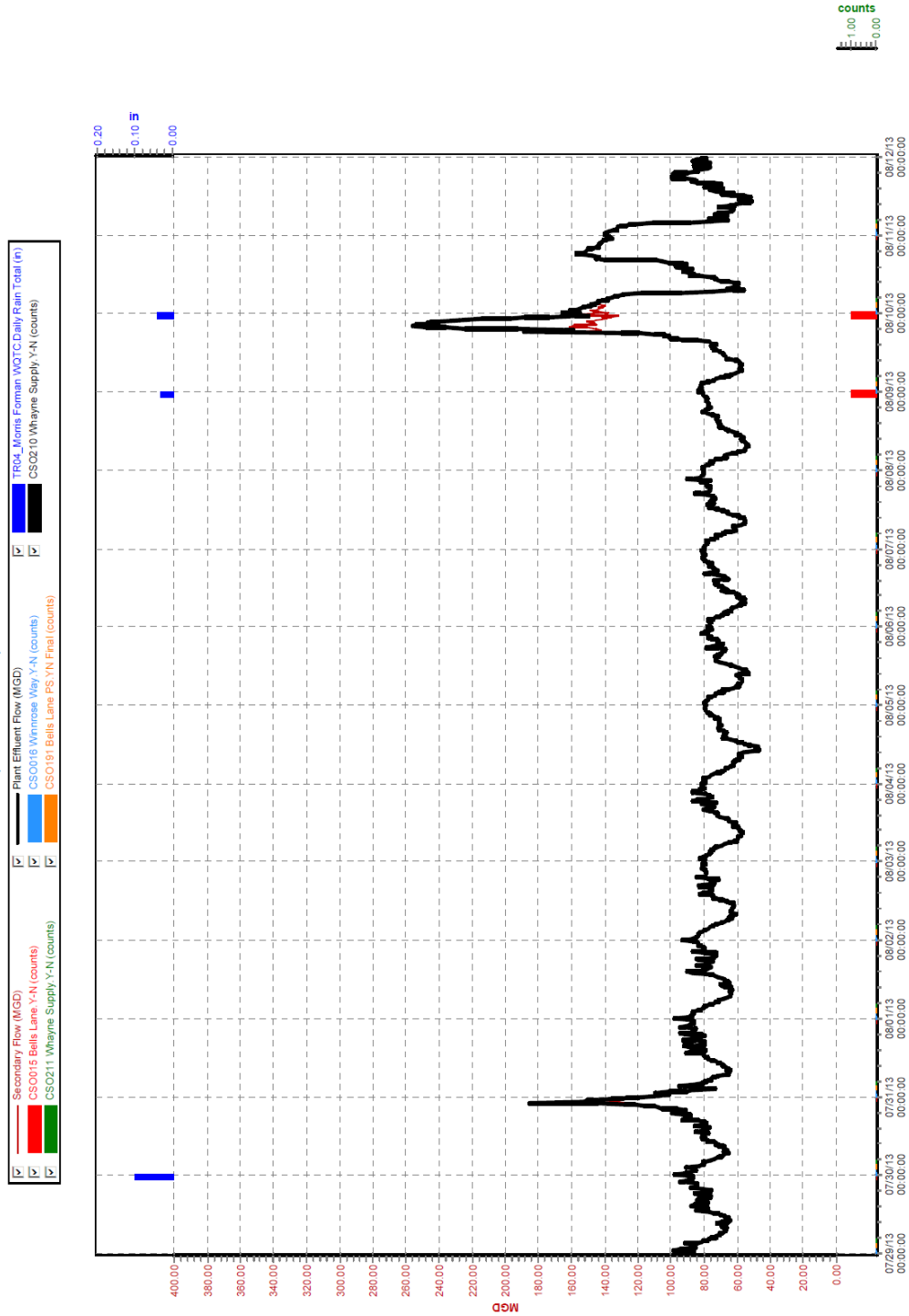
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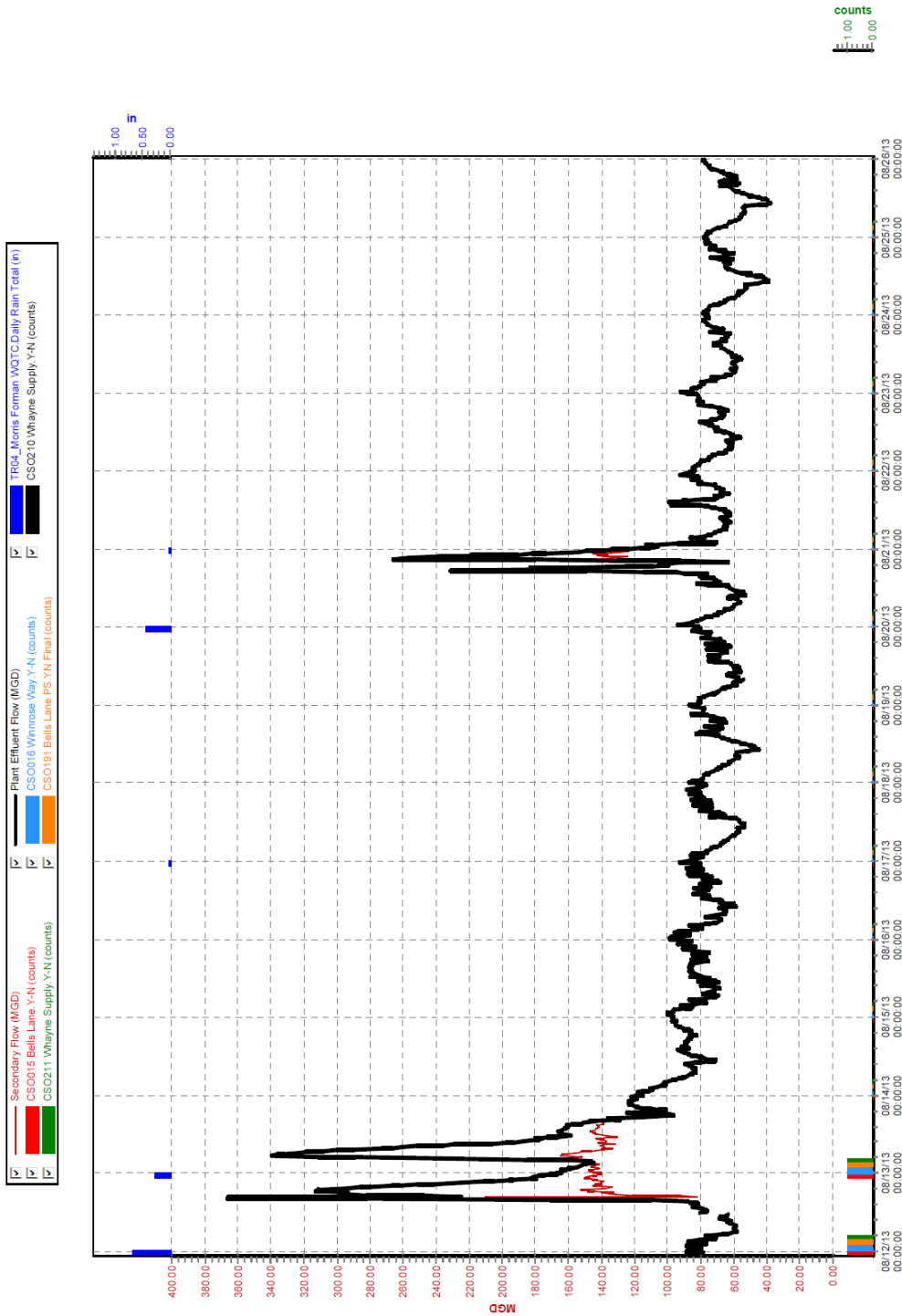


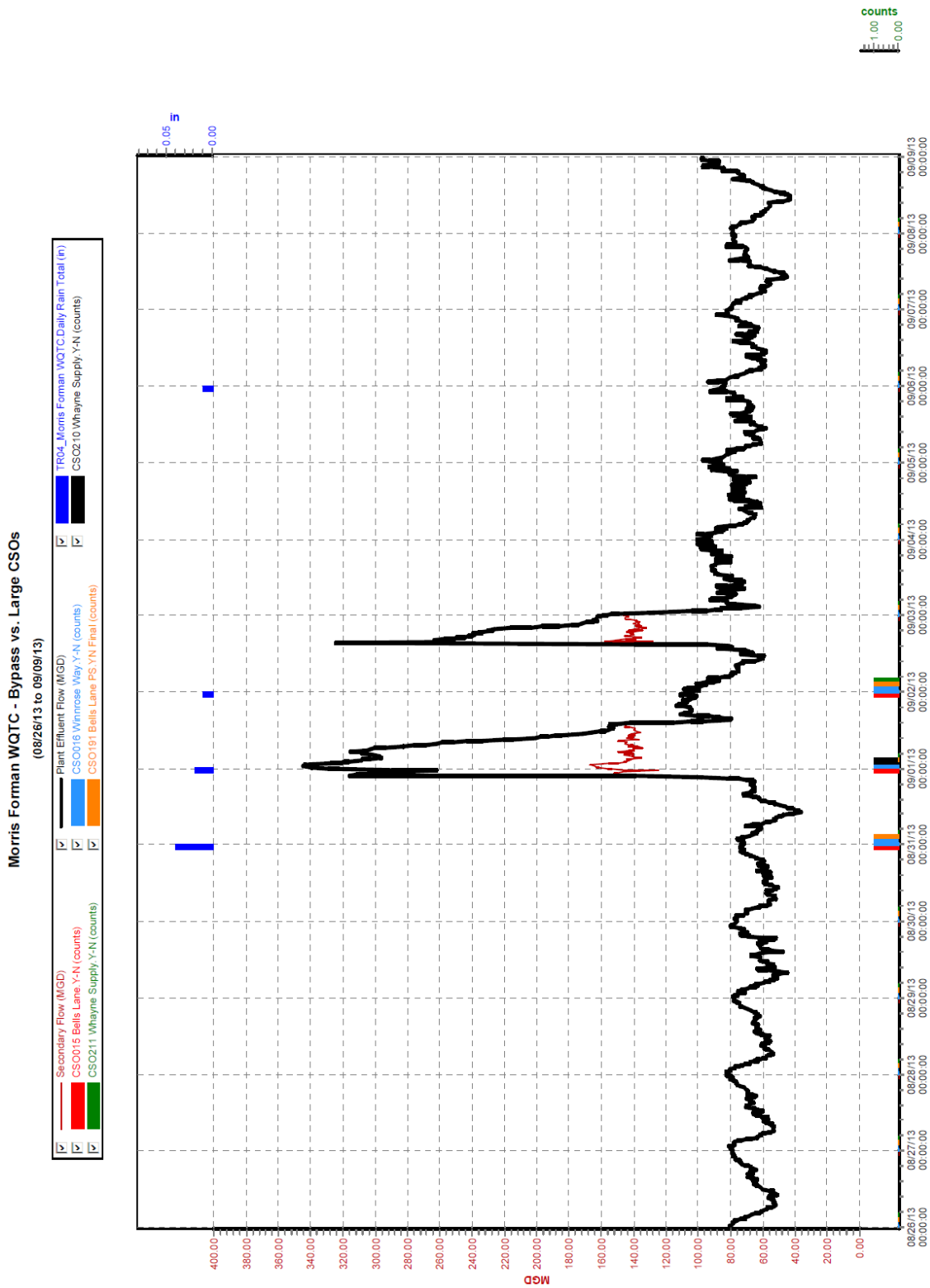
Morris Forman WQTC - Bypass vs. Large CSOs

(07/29/13 to 08/12/13)



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(08/11/13 to 08/26/13)

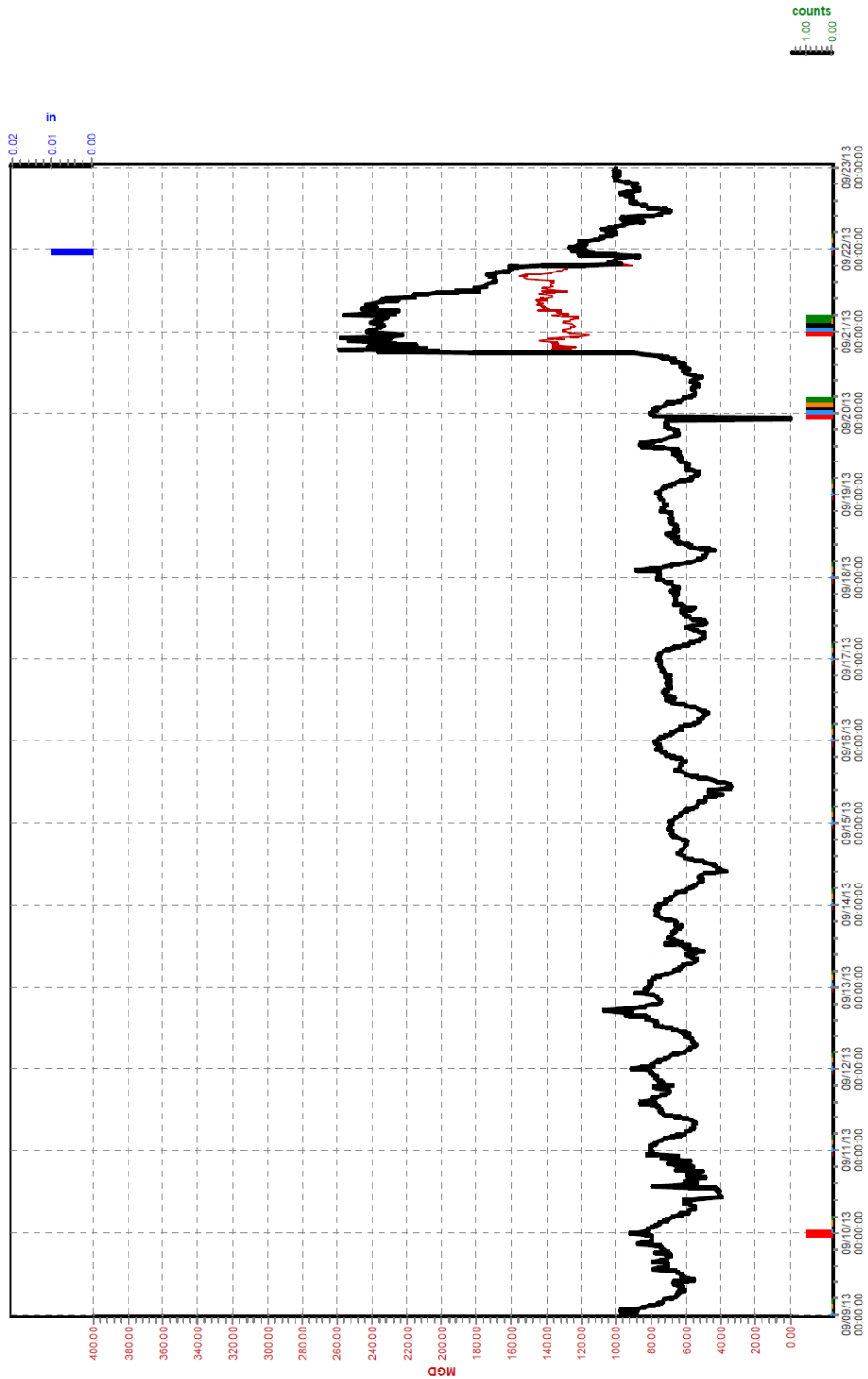




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(09/09/13 to 09/23/13)

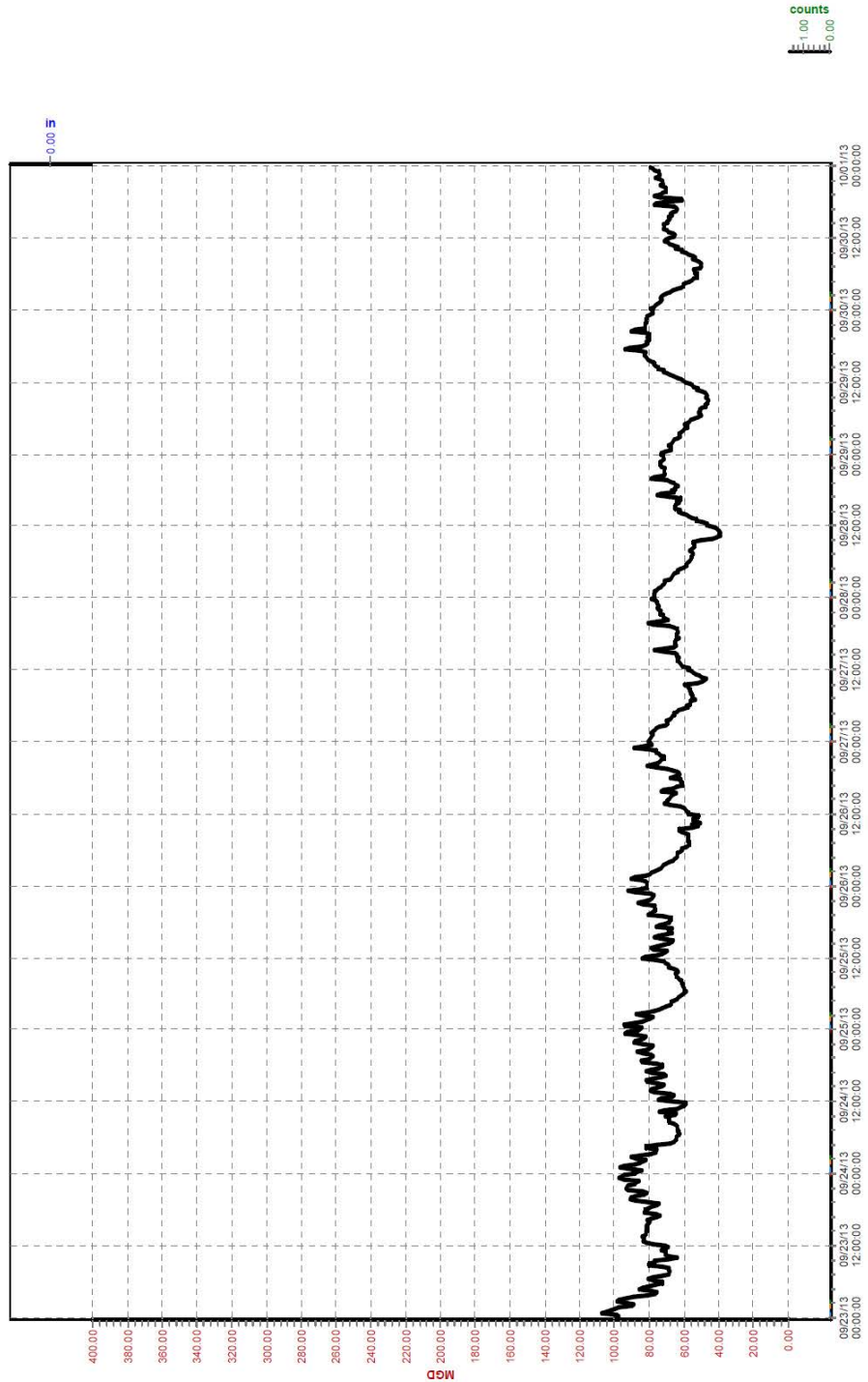
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- Plant Effluent Flow (MGD)
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- TR04_Morris Forman WQTC Daily Rain Total (in)
- CSO210 Whayne Supply X-N (counts)



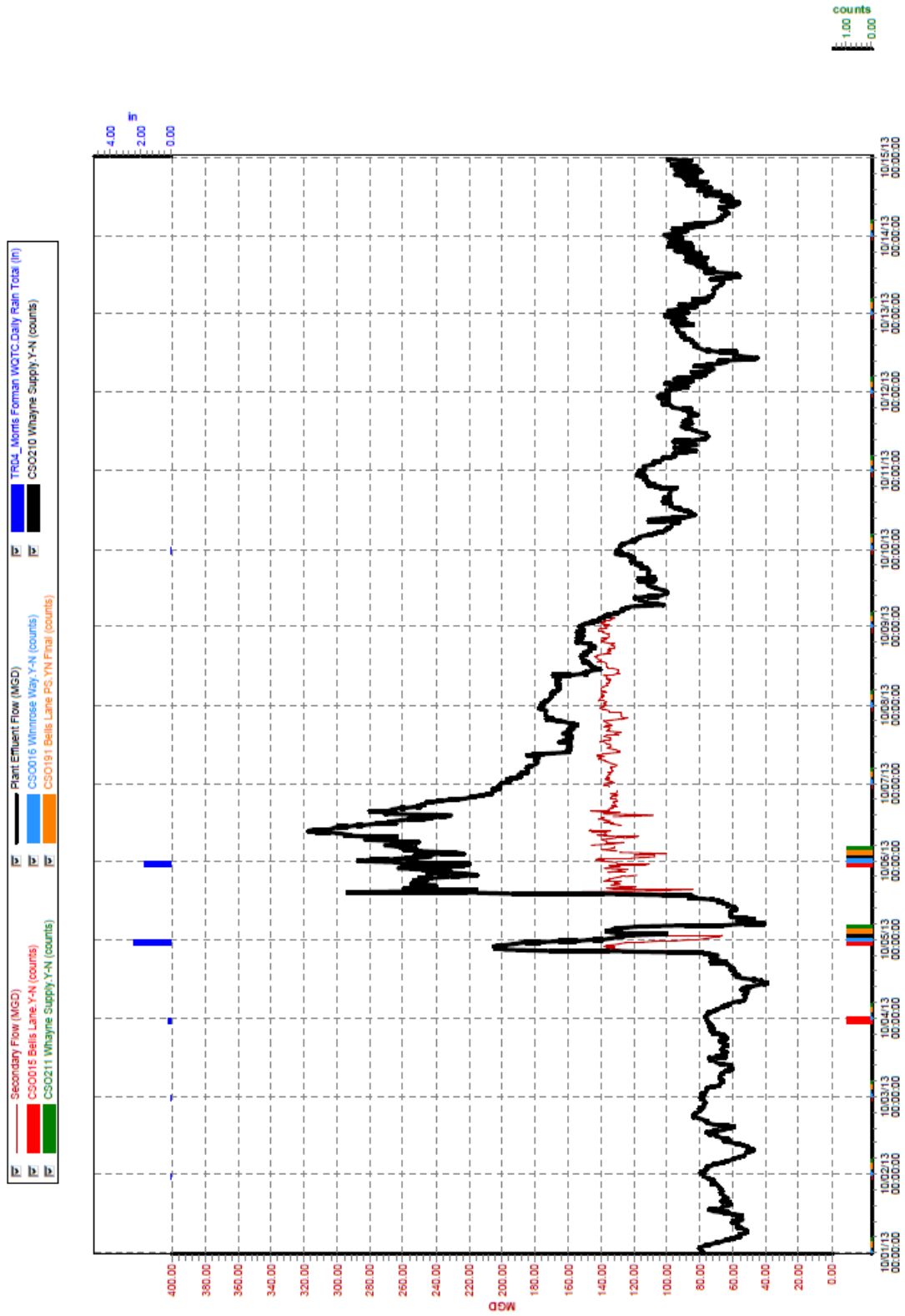
Morris Forman WQTC - Bypass vs. Large CSOs

(09/23/13 to 10/01/13)

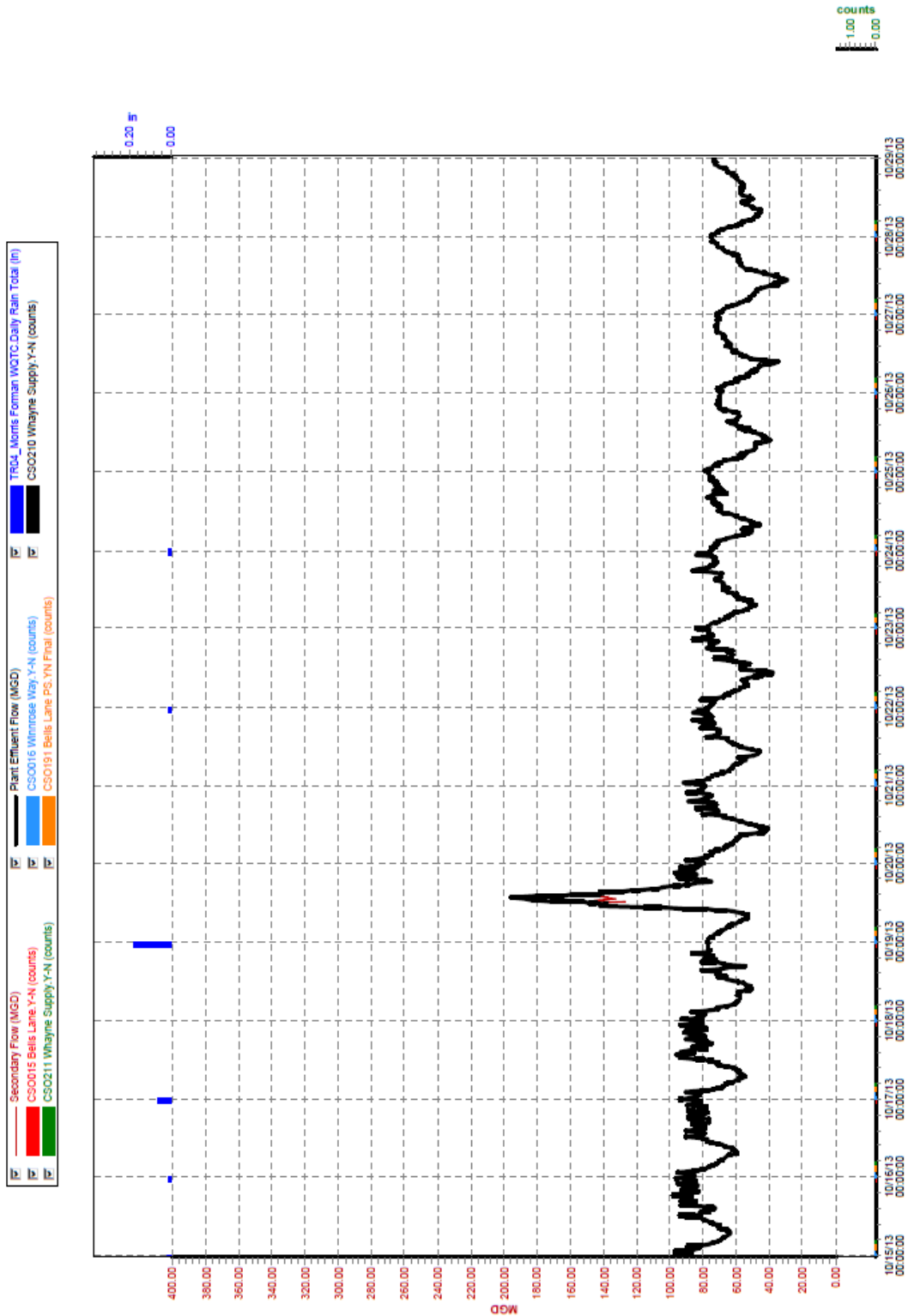
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- CSO191 Belle Lane PS YN Final (counts)
- TR04 Morris Forman WQTC Daily Rain Total (in)
- CSO210 Whayne Supply Y-N (counts)



Morris Forman WQTC - Bypass vs. Large CSOs
(10/01/13 to 10/15/13)

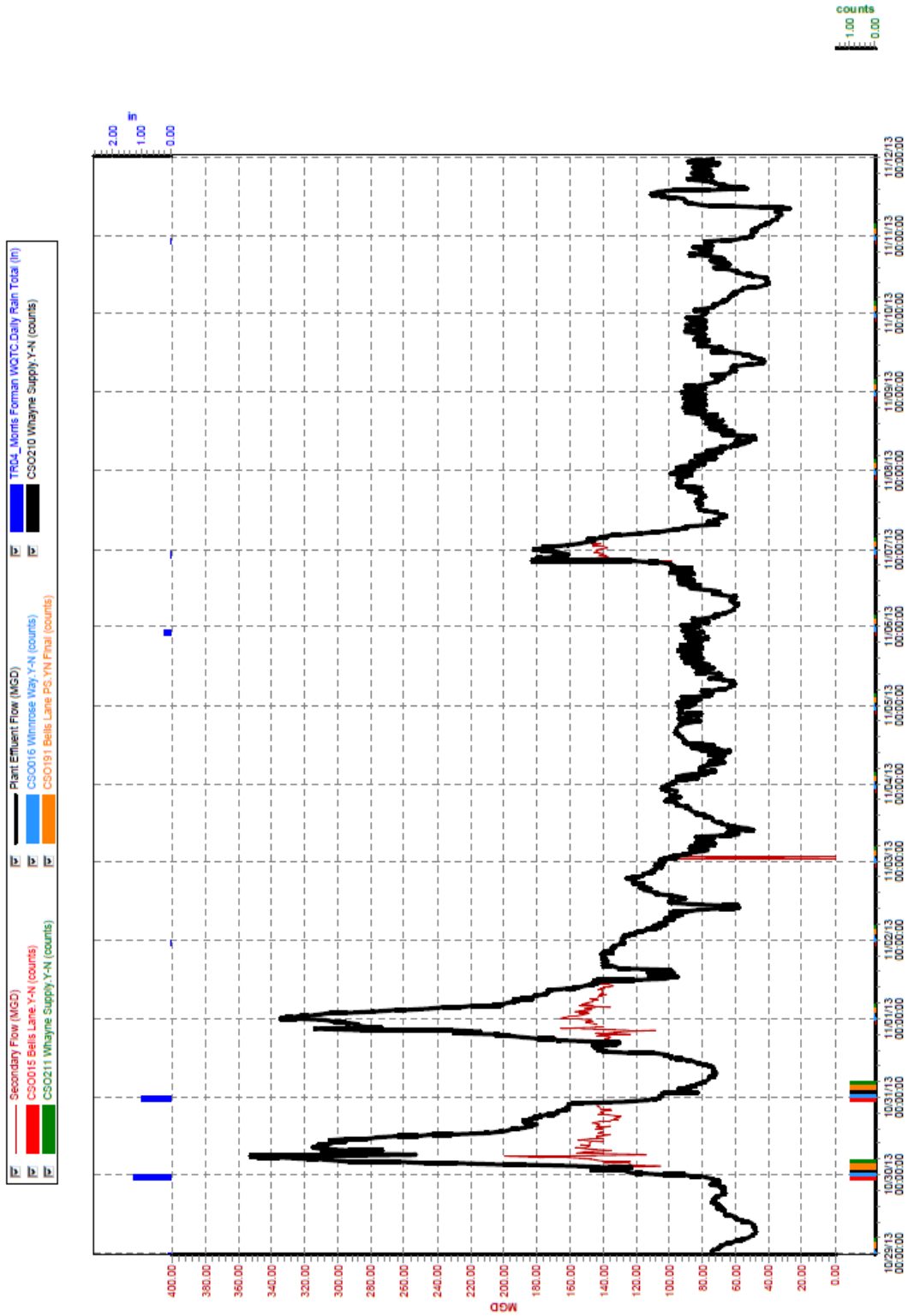


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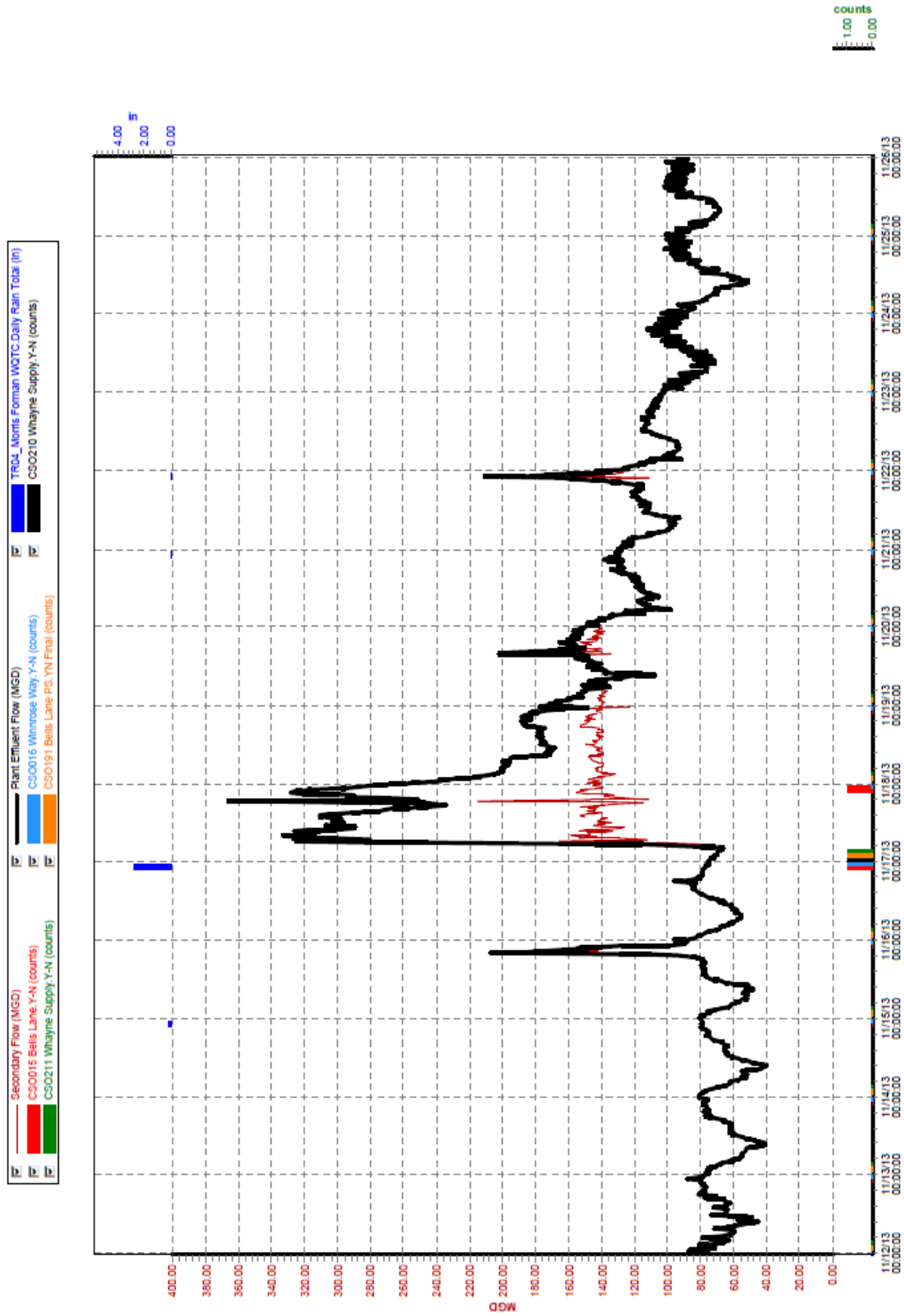


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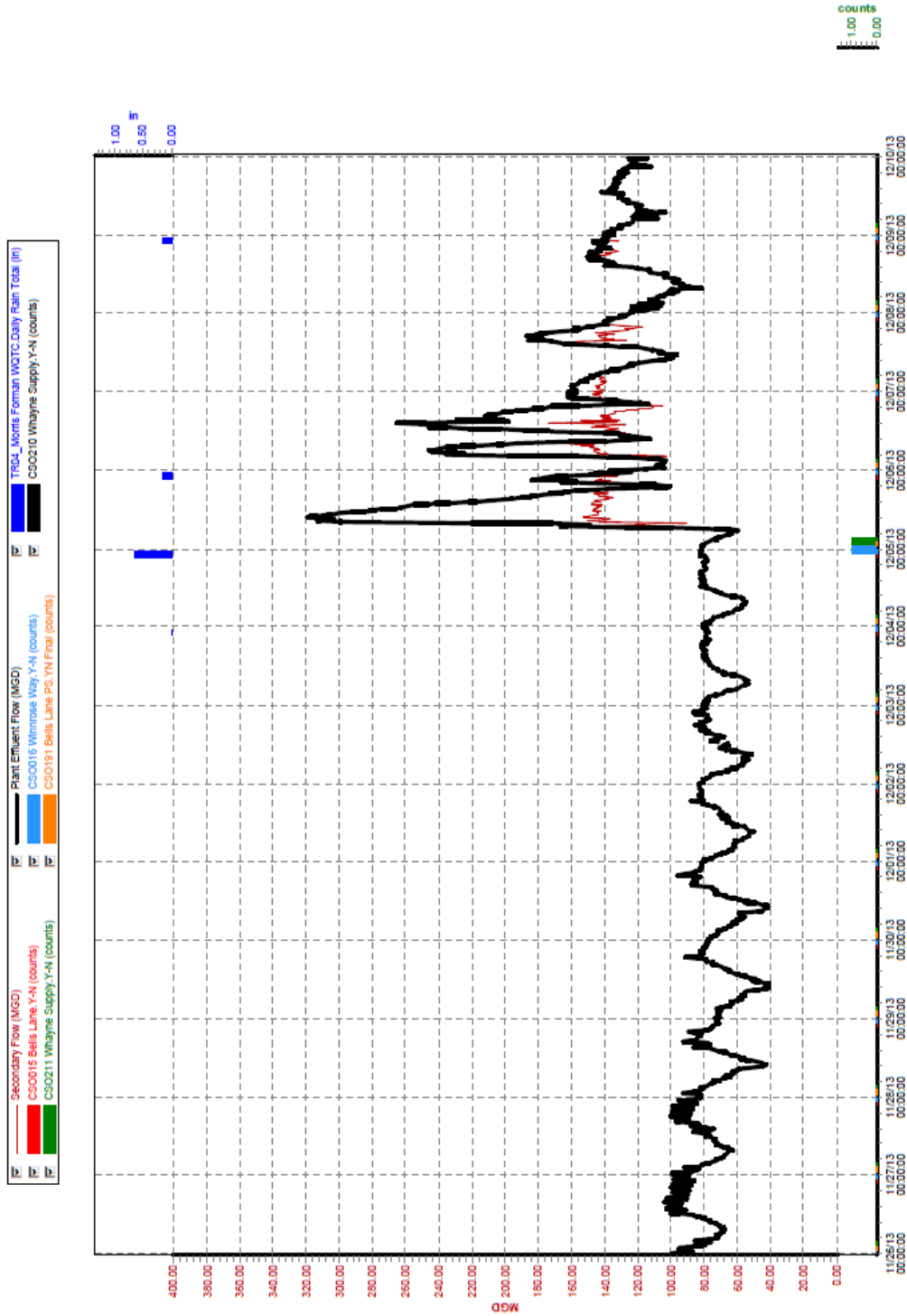
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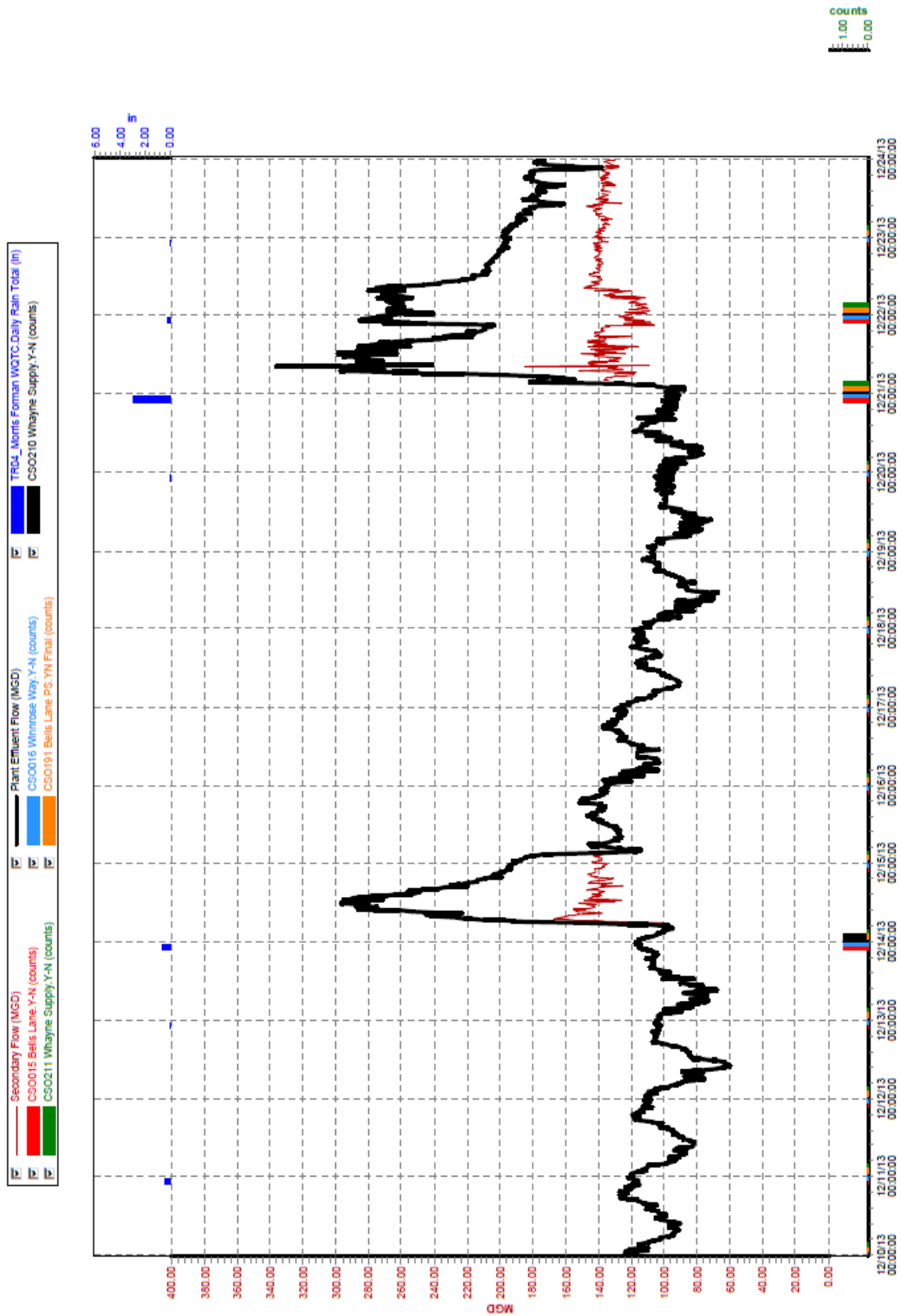
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(11/12/13 to 11/26/13)



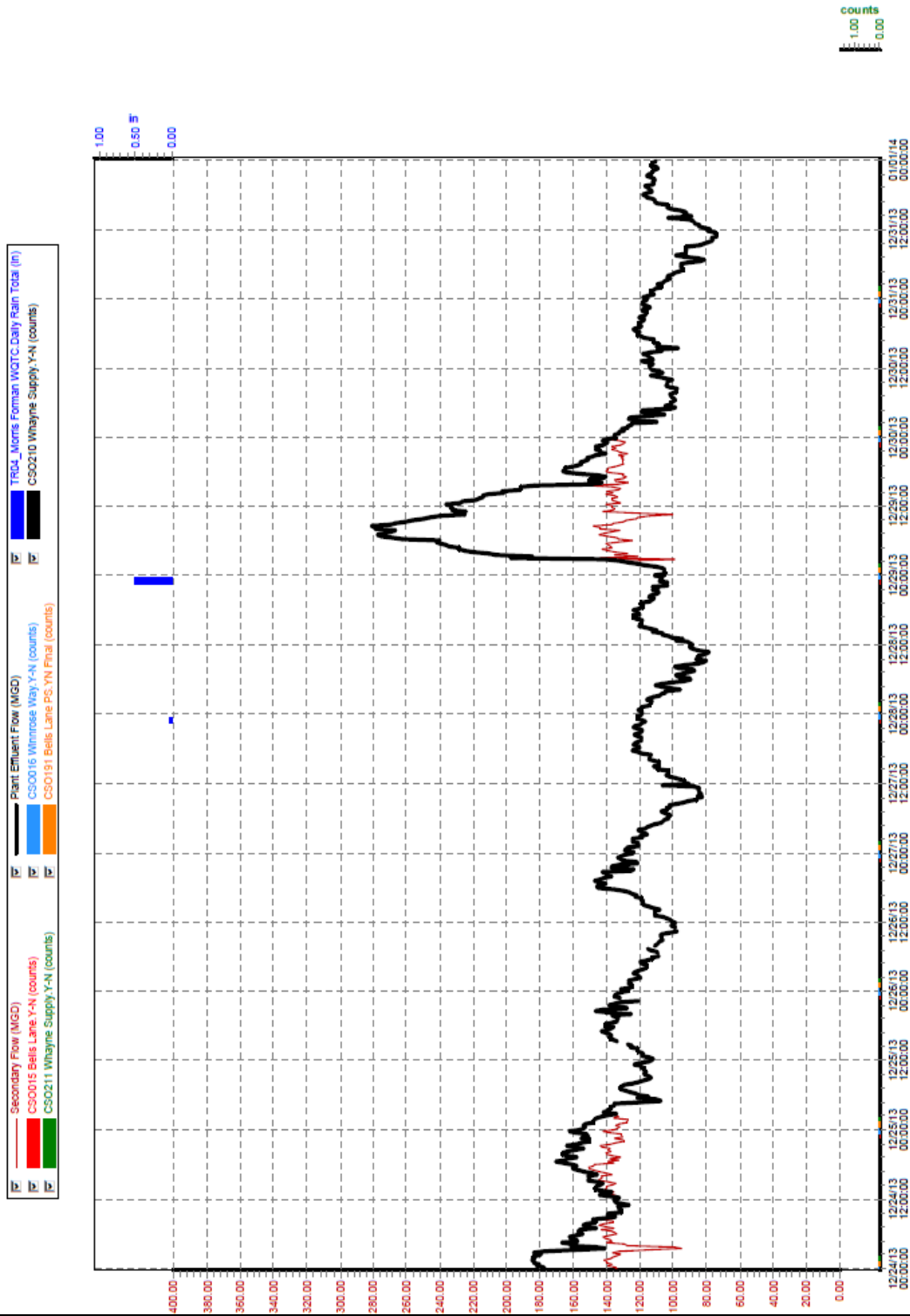
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(11/28/13 to 12/10/13)

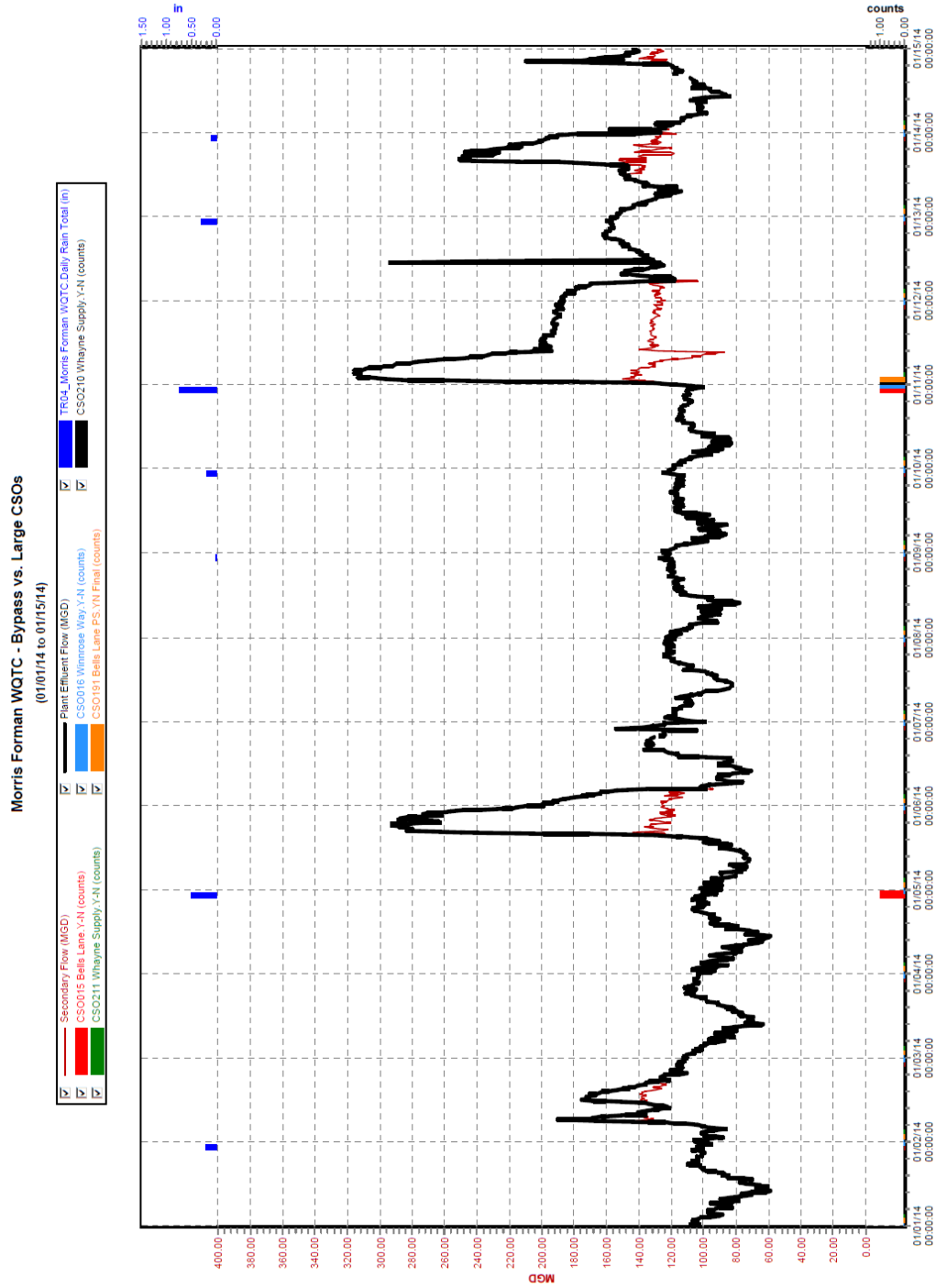


Morris Forman WQTC - Bypass vs. Large CSOs
(12/10/13 to 12/24/13)



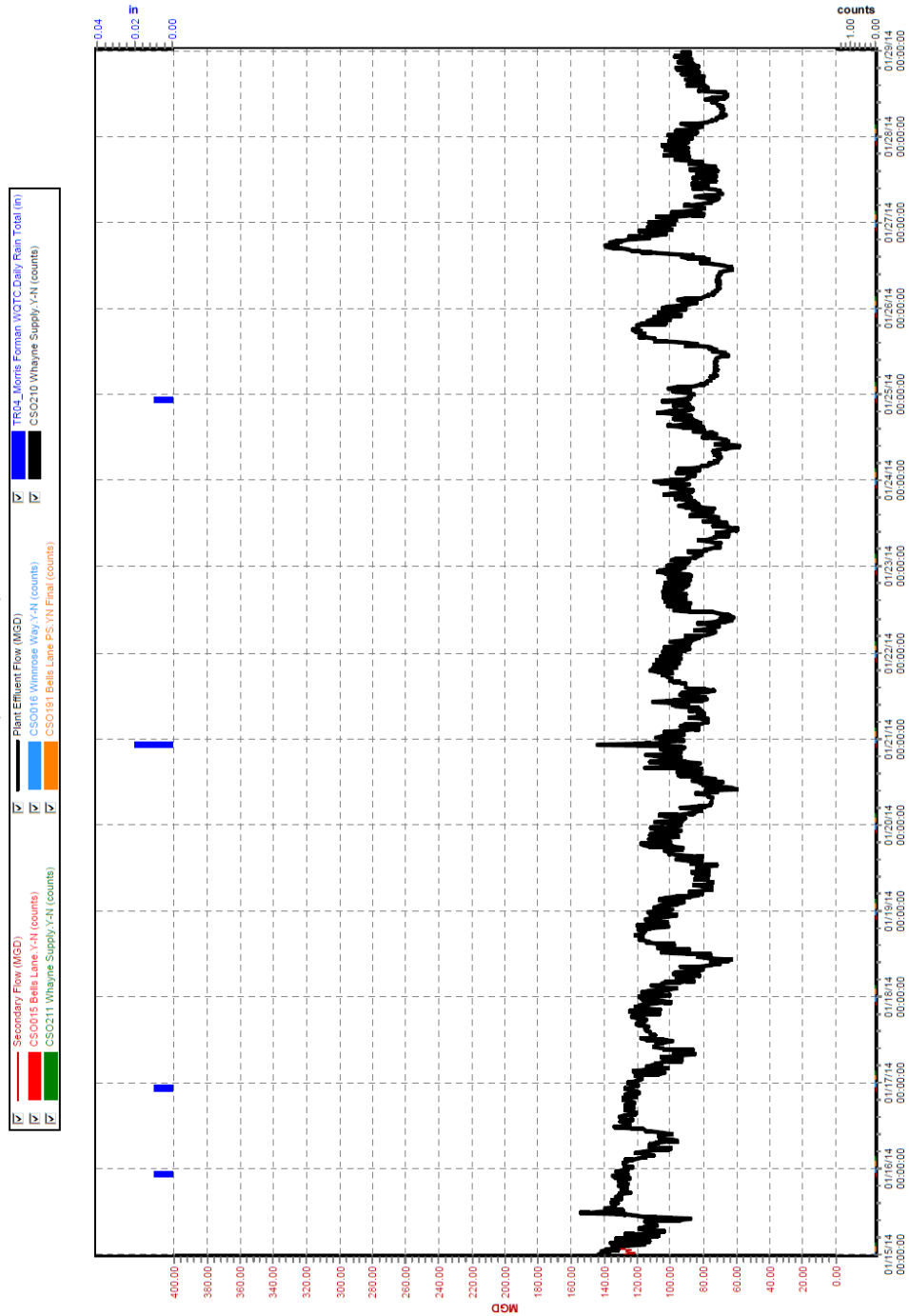
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(12/24/13 to 01/01/14)





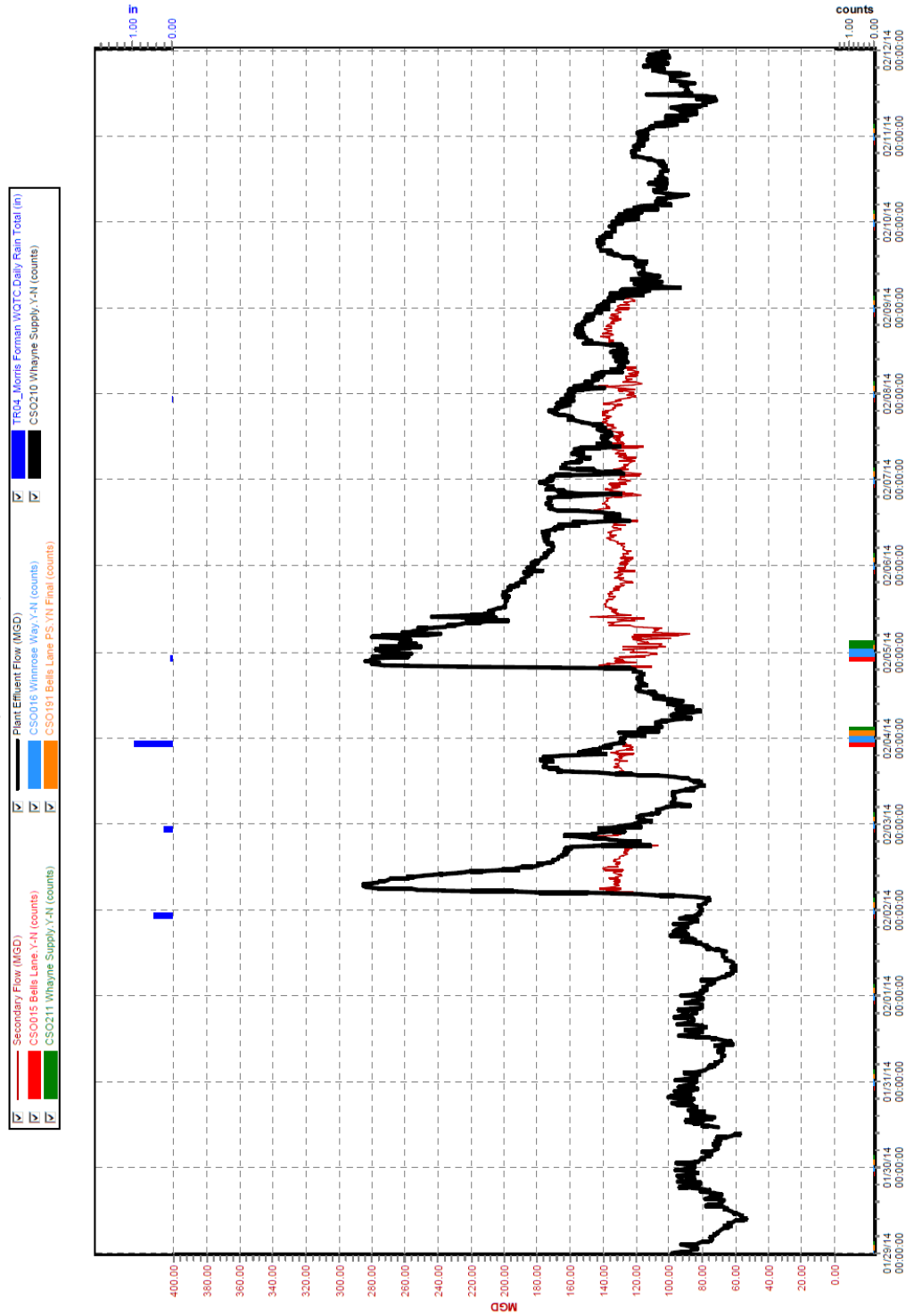
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(01/15/14 to 01/29/14)



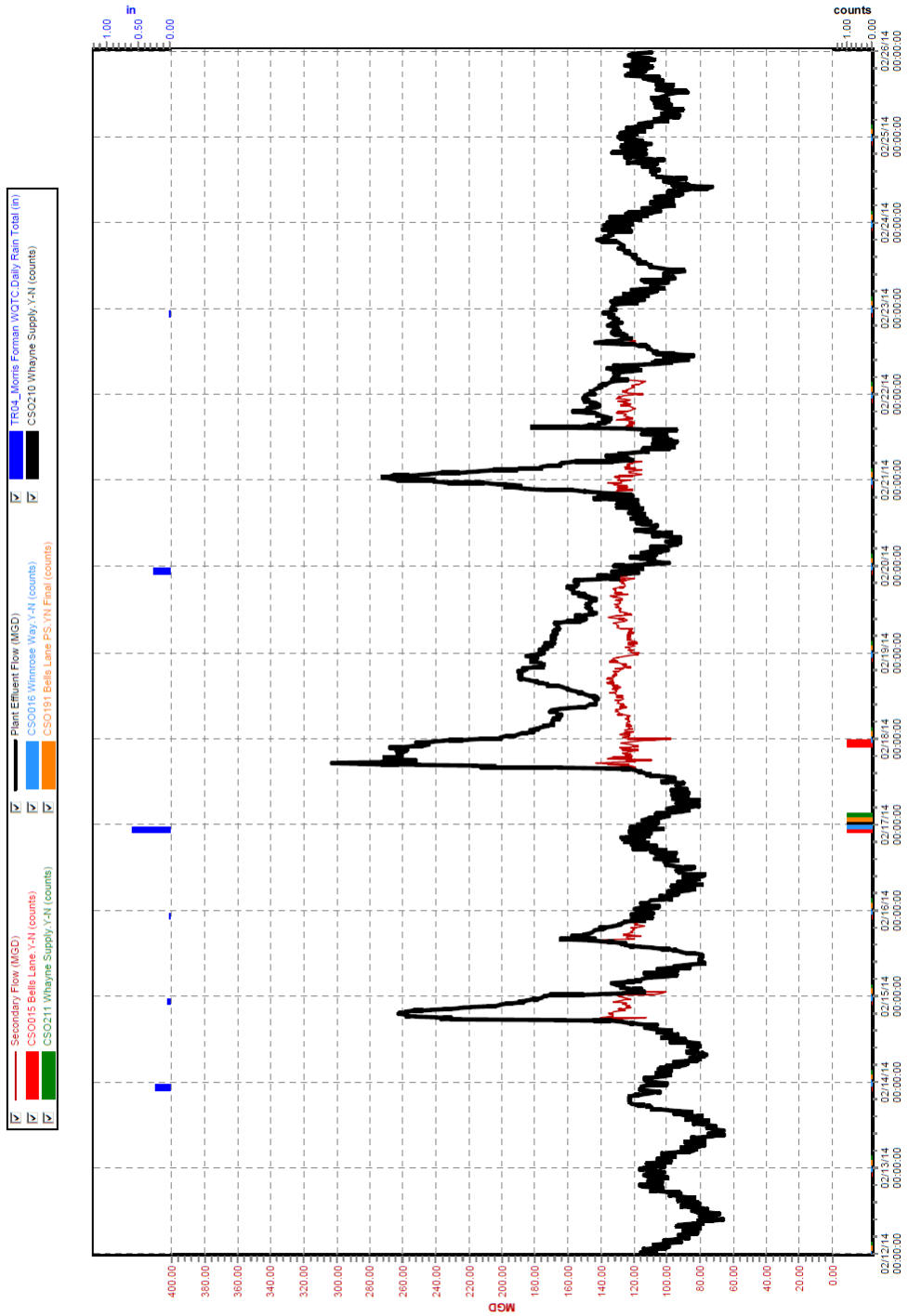
Morris Forman WQTC - Bypass vs. Large CSOs

(01/29/14 to 02/12/14)



Morris Forman WQTC - Bypass vs. Large CSOs

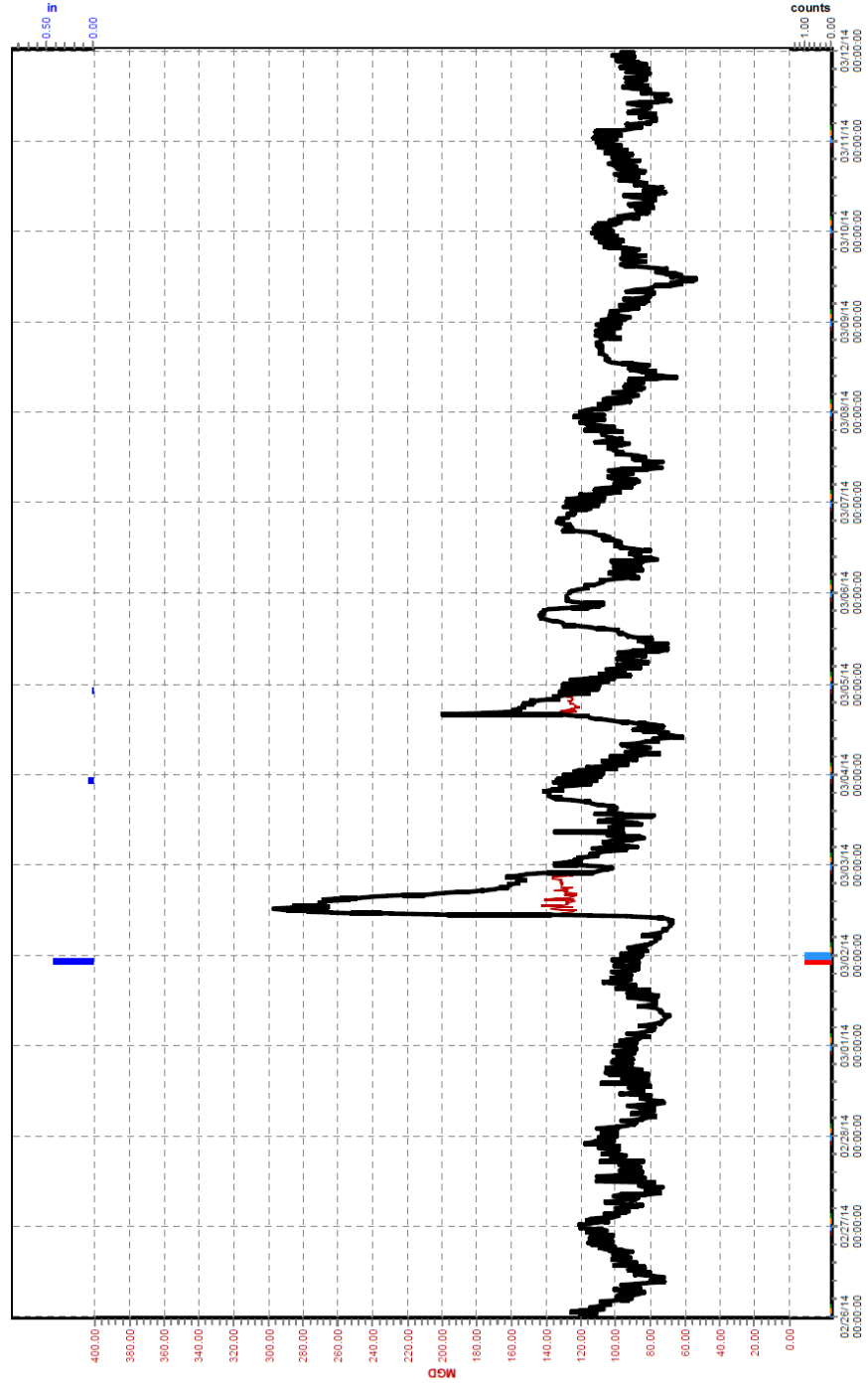
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(02/26/14 to 03/12/14)

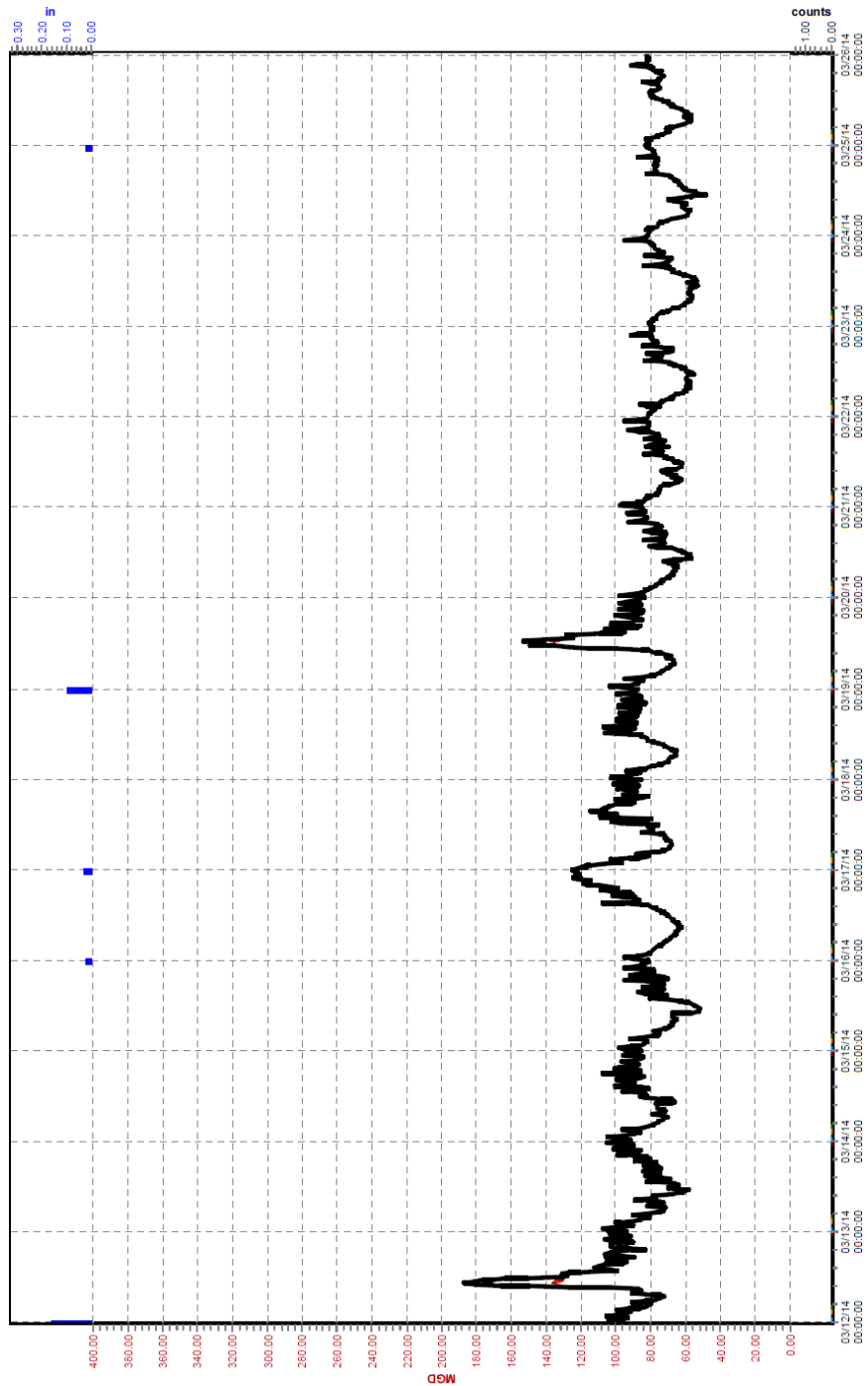
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- Plant Effluent Flow (MGD)
- CSO016 Winnese Way Y-N (counts)
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- CSO210 Whyne Supply Y-N (counts)



Morris Forman WOTC - Bypass vs. Large CSOs

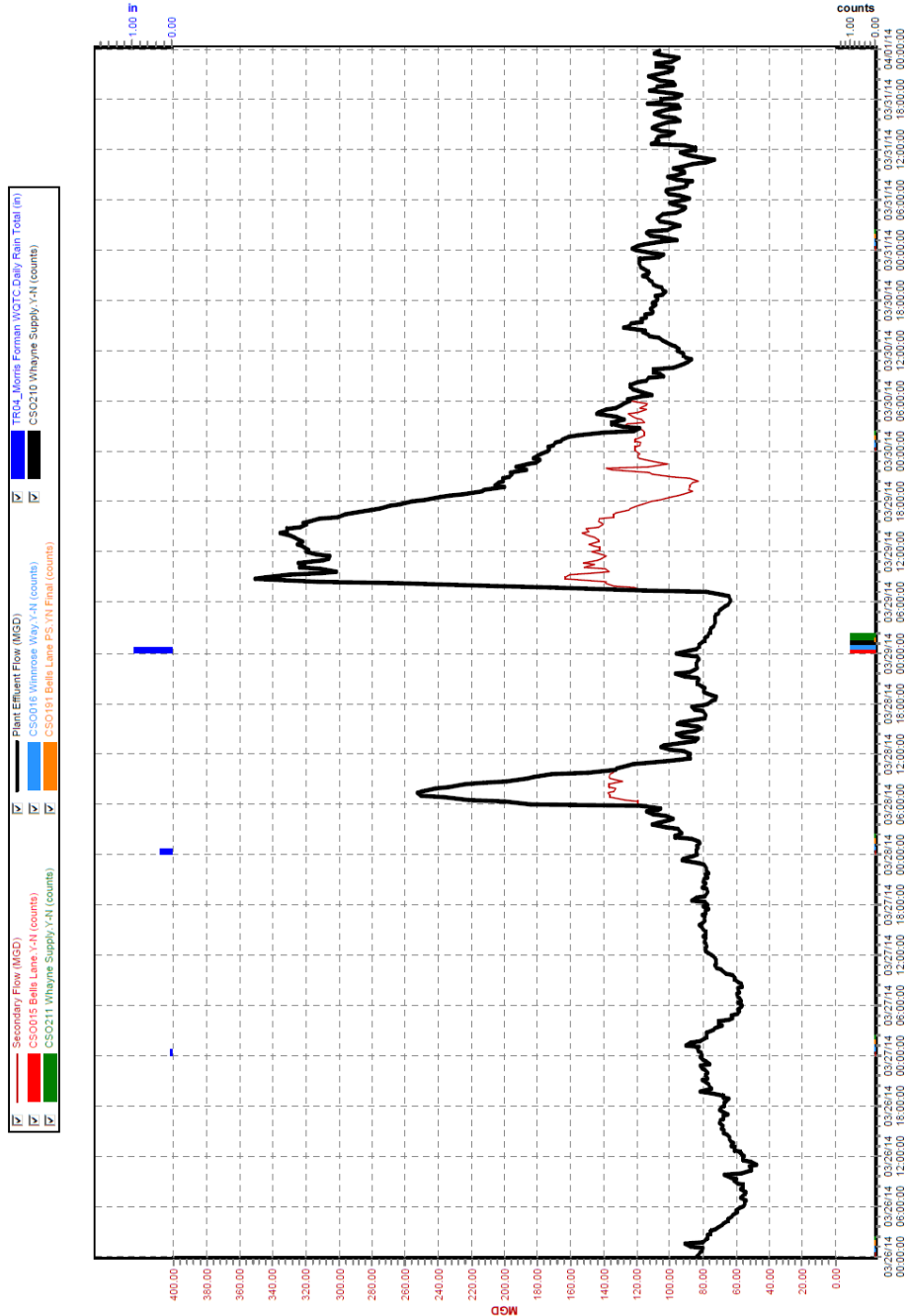
(03/12/14 to 03/26/14)

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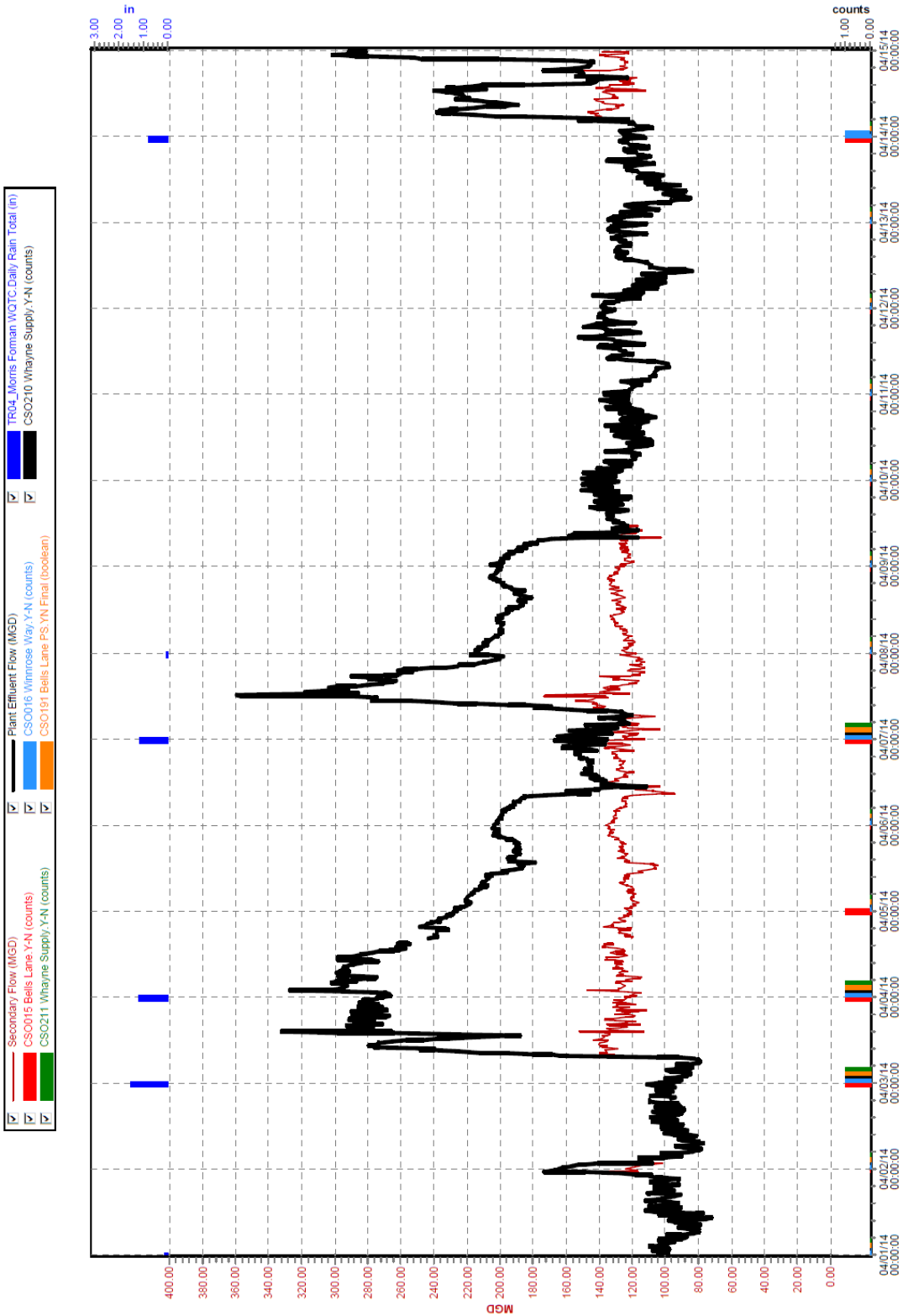


Morris Forman WQTC - Bypass vs. Large CSOs

(03/26/14 to 04/01/14)

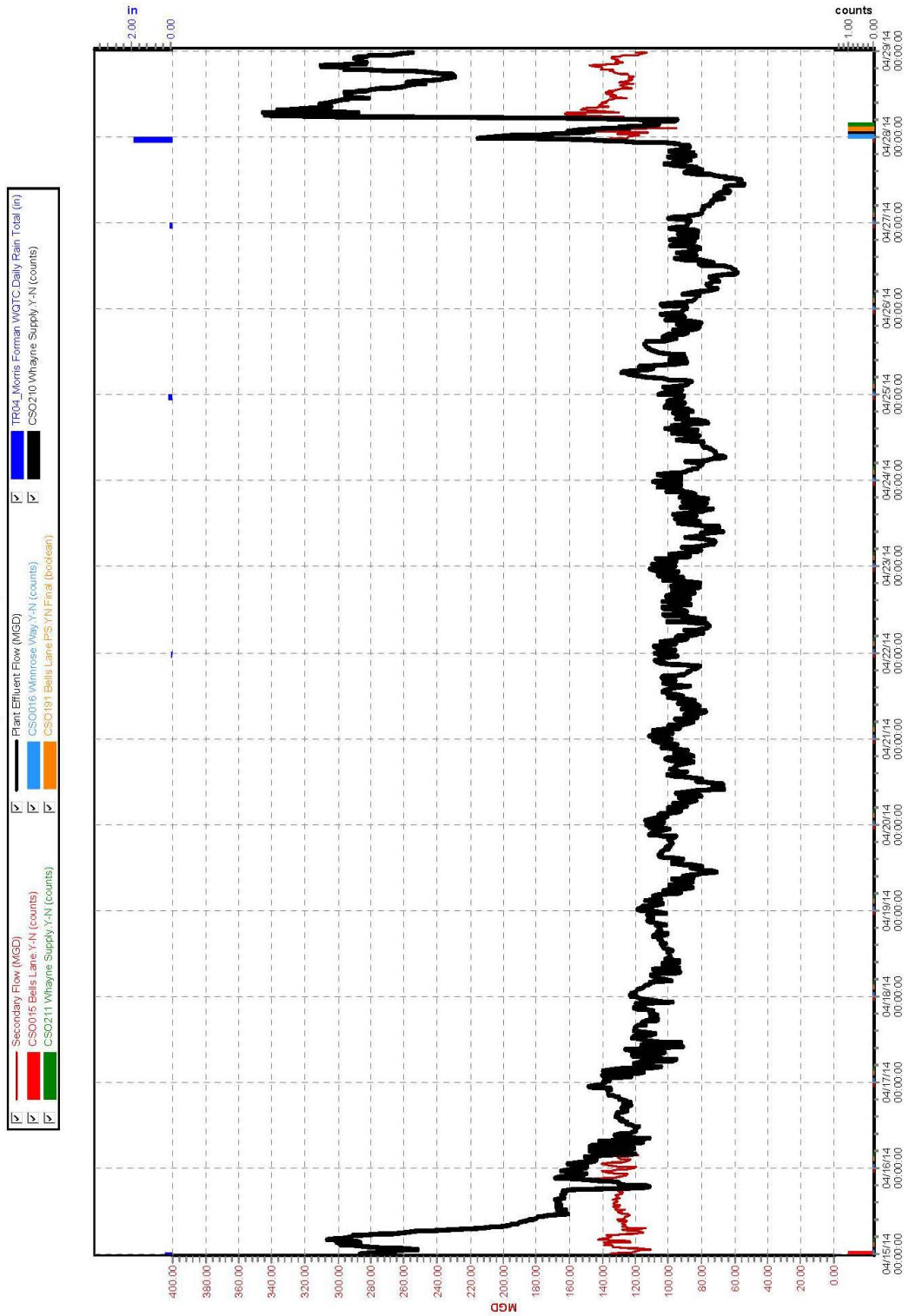


Morris Forman WQTC - Bypass vs. Large CSOs
(04/01/14 to 04/15/14)



Morris Forman WQTC -- Bypass vs. Large CSOs

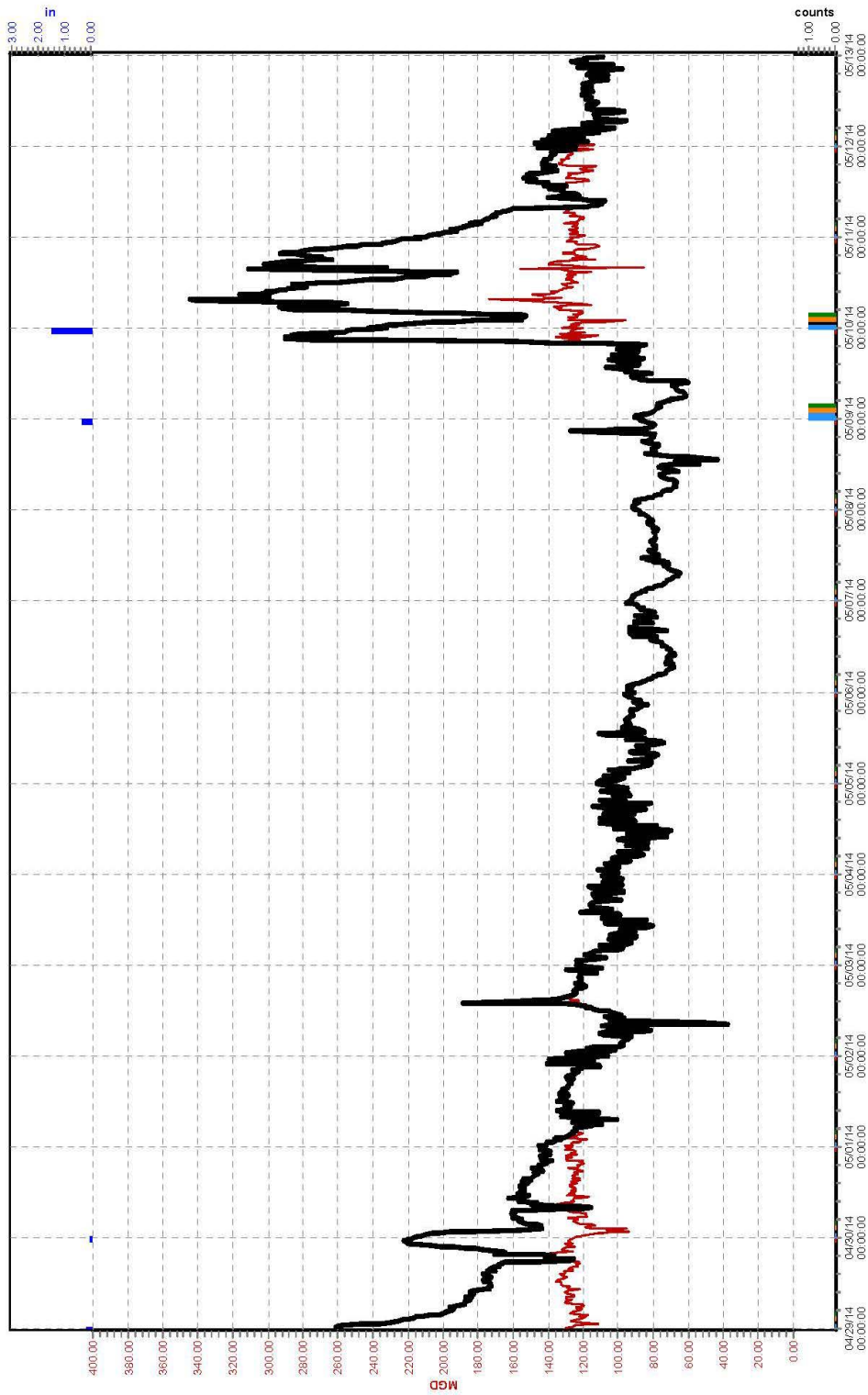
(04/15/14 to 04/29/14)



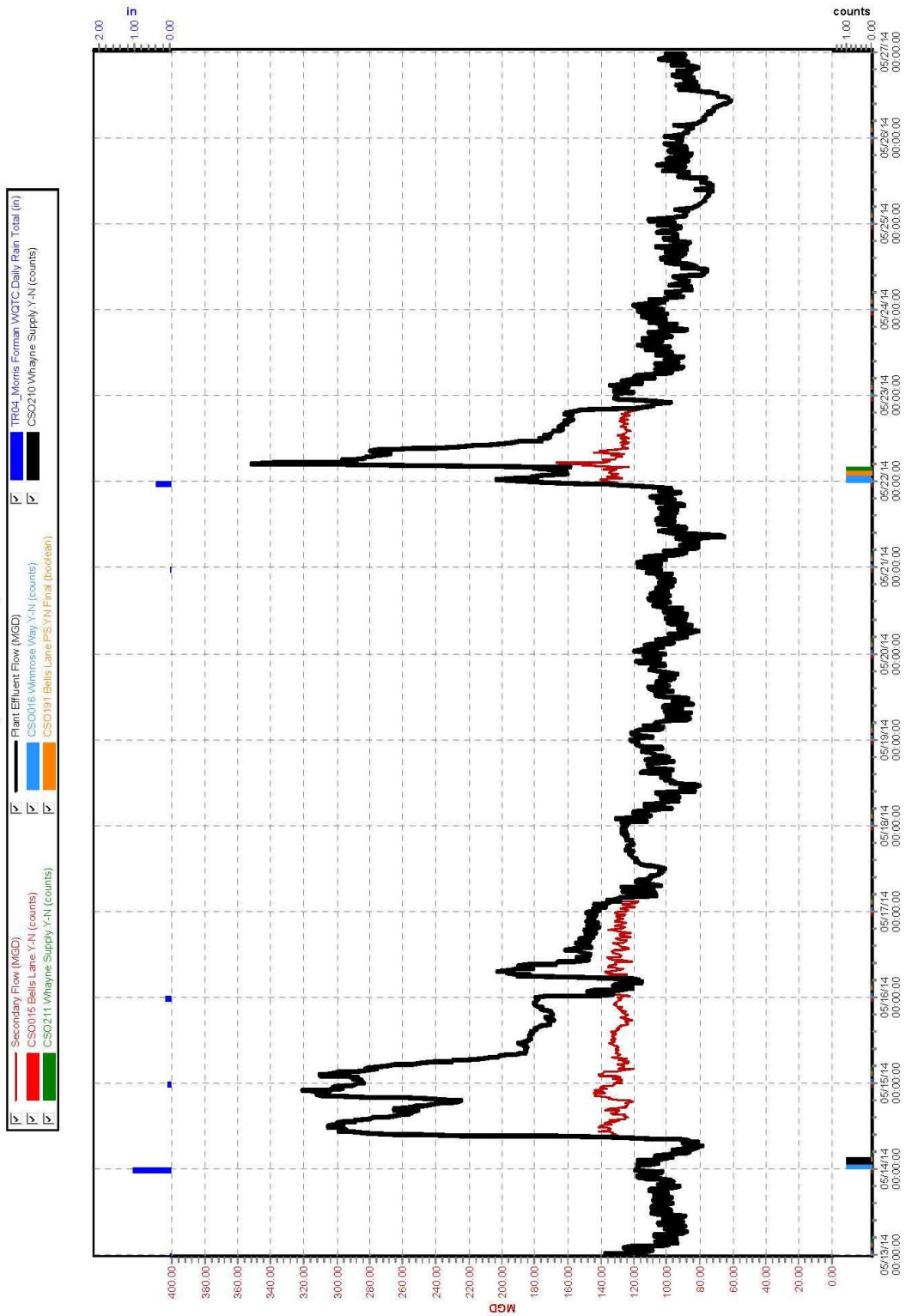
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(04/29/14 to 05/13/14)

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- Plant Effluent Flow (MGD)
- CSO016 Minnessa Way Y-N (counts)
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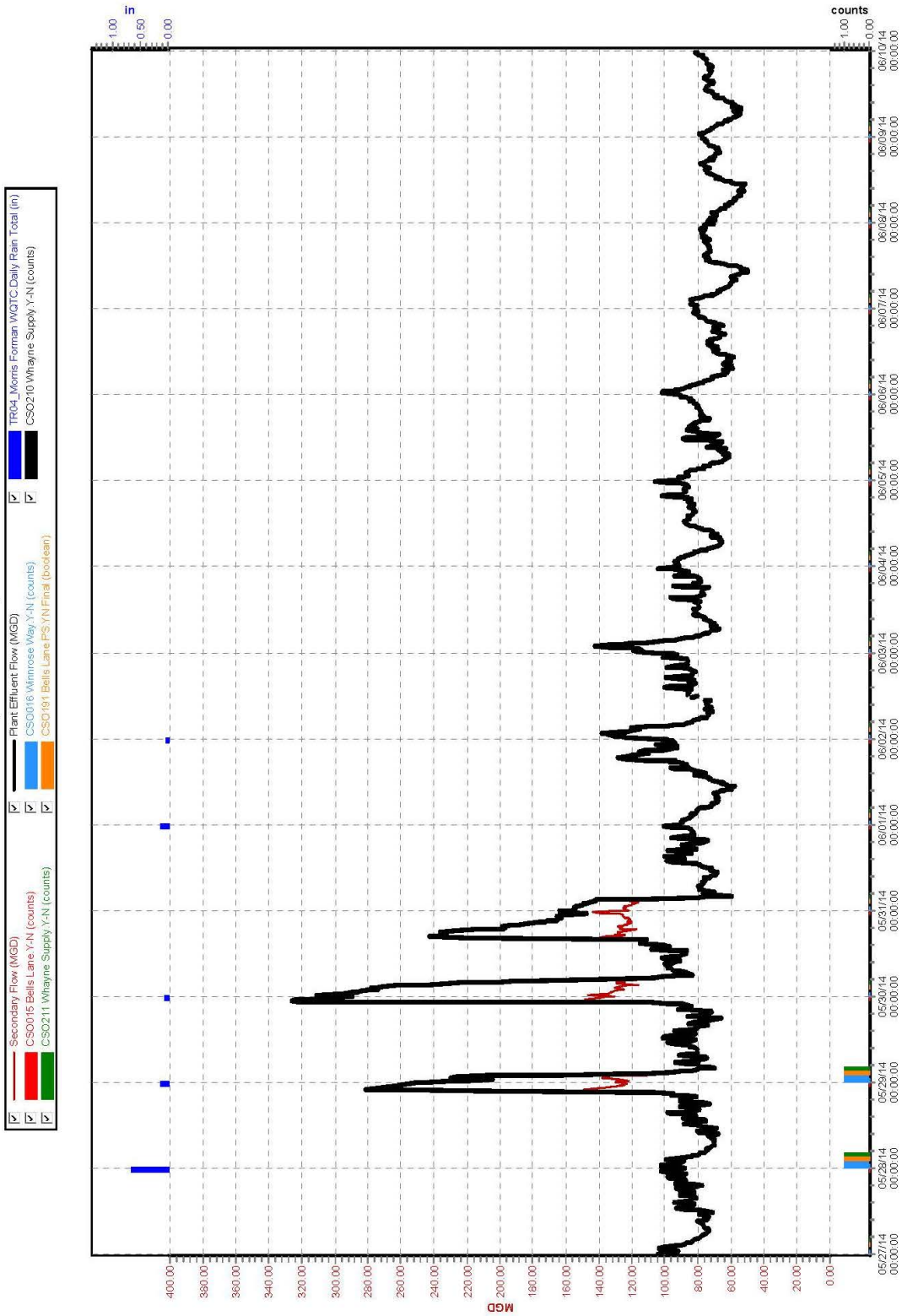


Morris Forman WQTC - Bypass vs. Large CSOs
(05/13/14 to 05/27/14)



Morris Forman WQTC - Bypass vs. Large CSOs

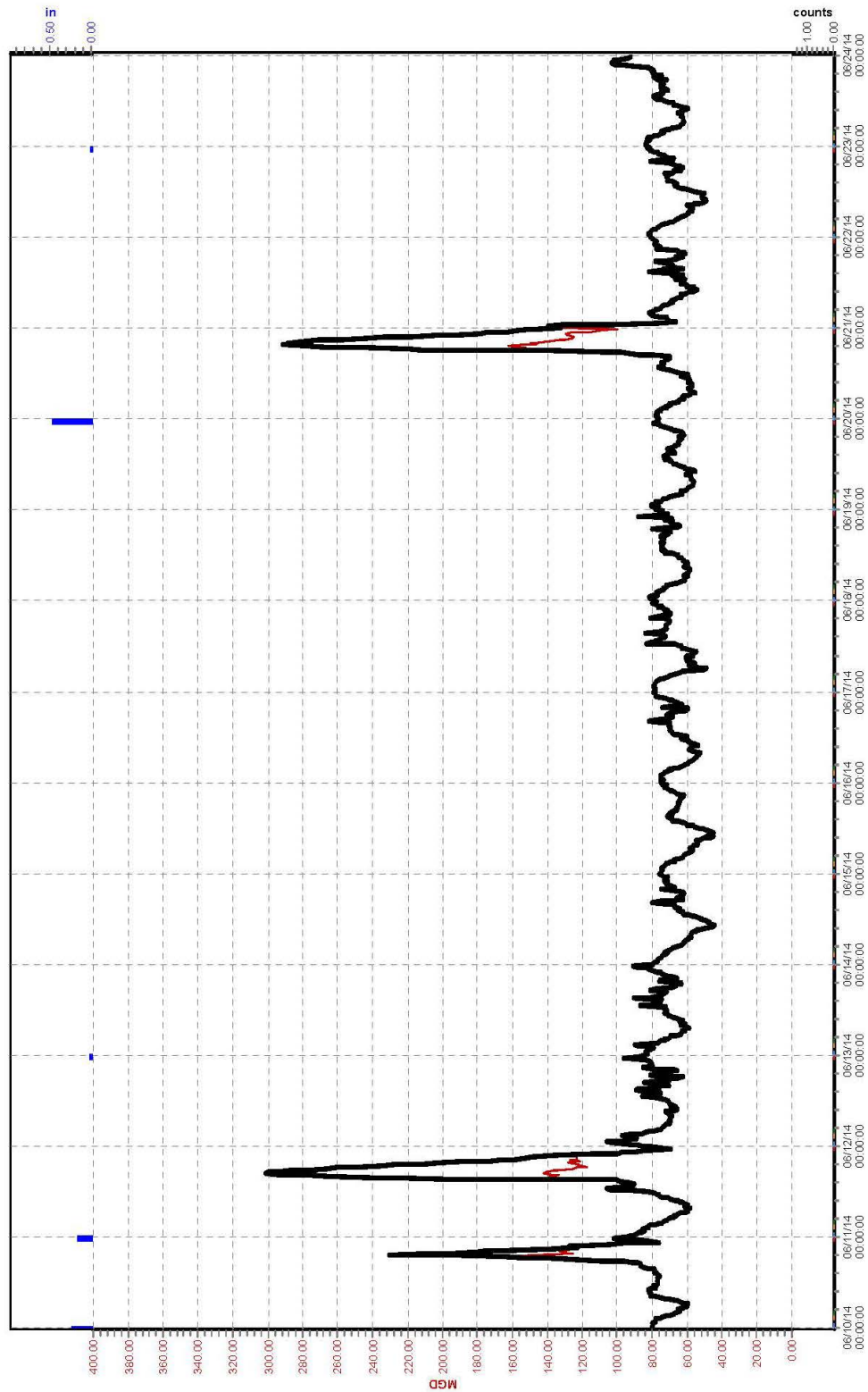
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(06/10/14 to 06/24/14)

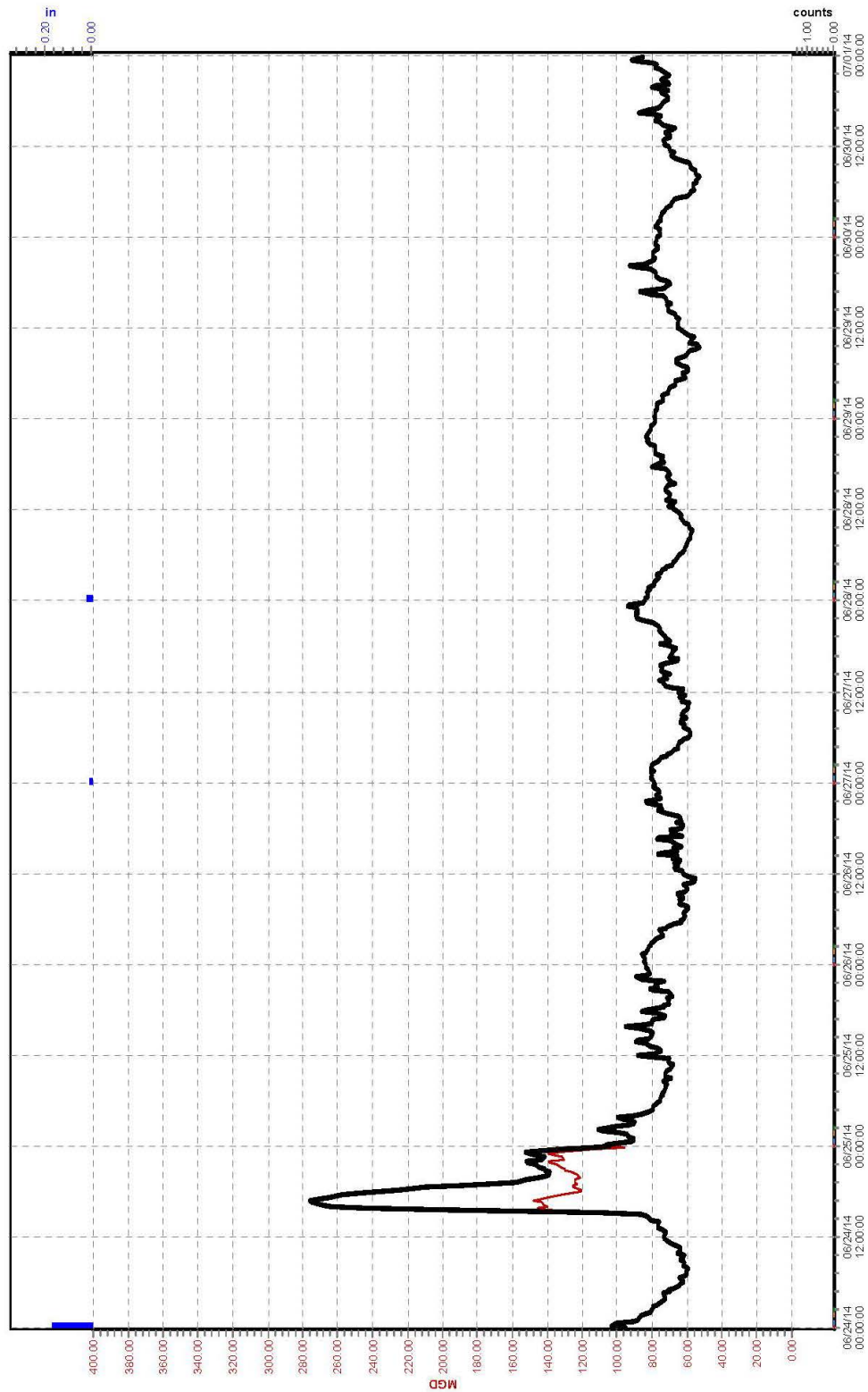
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Morris Forman WQTC - Bypass vs. Large CSOs

(06/24/14 to 07/01/14)

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- CS0211 Whayne Supply Y-N (counts)
- Plant Effluent Flow (MGD)
- CS0016 Winrose Way Y-N (counts)
- CS0181 Balls Lane PS Y-N Final (footcandle)
- TR04 Morris Forman WQTC Daily Rain Total (in)
- CS0210 Whayne Supply Y-N (counts)



**APPENDIX K - LOUISVILLE METRO HEALTH DEPARTMENT PROGRAM
ACCOMPLISHMENTS**



DEPARTMENT OF PUBLIC HEALTH & WELLNESS
LOUISVILLE, KENTUCKY

GREG FISCHER
MAYOR

LAQUANDRA S. NESBITT, MD, MPH, DIRECTOR

September 9, 2014

Mr. Larry C. Taylor
Environmental Scientist IV
Department for Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Re: Supplemental Environmental Project (SEP)

Dear Mr. Taylor:

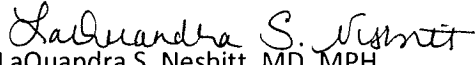
The Louisville Metro Department of Public Health and Wellness (LMPHW) is committed to creating a culture of health and wellness in the Metro Louisville community. The mission of LMPHW is to promote health and wellness; prevent disease, illness, and injury; and protect the health and safety of metro Louisville residents and visitors. The vision of LMPHW is to create a healthy metro Louisville by decreasing disease and death, eliminating disparities in health and healthcare, and giving everyone the chance to live a healthy life. We work to improve the health of the citizens of Louisville by providing individuals, groups, and communities with the tools to make informed decisions about their well-being.

I am pleased to submit our final activities report on the expenditure of the \$1,200,000 that the LMPHW received as a part of the April 2005 Consent Decree, Supplemental Environmental Project (Exhibit A). As noted in the attached report, the Community Health Screenings Project Report and annual reports have been submitted and are on file. The Louisville Metro Office of Management and Budget (OMB) worked closely with LMPHW to assure that funds were expended within our agreement. OMB has maintained a full accounting of the MSD-SEP project disbursements.

If you would like for us to provide any additional information, please do not hesitate to contact me. In your letter dated December 2, 2011, you indicated that you would document the completion of the SEP and that our obligations have been met. Upon receipt of the letter, we will consider the project closed.

Thank you for all of the guidance that you have provided to us.

Sincerely,


LaQuandra S. Nesbitt, MD, MPH
Director

**Louisville Metro Department of Public Health & Wellness
Supplemental Environmental Project, Jefferson County
Program Activities
July 1, 2013 – April 30, 2014**

The Louisville Metro Department of Public Health & Wellness (LMPHW) has exhausted the \$1,200,000 settlement fund it received to coordinate and provide community health screenings. This allocation was a part of the April 2005 consent decree known as the Supplemental Environmental Projects (Exhibit A). The consent decree, filed in the United States District Court, Western District of Kentucky, Louisville Division, stipulated that Public Health Screenings would be provided for residents in western Louisville. Furthermore, it designated that \$1,000,000 would be allocated to conduct the health screenings. The Commonwealth of Kentucky added \$200,000 to augment these funds. The partners agreed that the screenings would be held in identified neighborhoods and that no one residing outside the neighborhood boundaries would be denied a health screening if one was requested. In April 2007, a Memorandum of Agreement was executed by the Commonwealth of Kentucky Environmental and Public Protection Cabinet, Department for Environmental Protection; the Louisville and Jefferson County Metropolitan Sewer District; and the Louisville Metro Health Department (now known as the Louisville Metro Department of Public Health and Wellness).

The Community Health Screenings Project began April 15, 2007, and concluded November 9, 2007. The cost of providing the public health screenings was \$816,958.02 leaving a balance of \$383,041.98. To deplete this fund balance and to remain within the scope of the consent decree Exhibit A, the invested parties agreed to address the high prevalence of asthma and cancer by implementing asthma projects and providing cancer screenings for residents in the identified population area. The following community partners were approved to provide these services:

- Jefferson County Public Schools Education Foundation
- University of Louisville School of Public Health and Information Sciences
- Norton Healthcare
- University of Louisville Research Foundation – School of Medicine
- Family Health Centers, Inc.

MSD-SEP Reporting

The LMPHW has provided reports throughout the project period. Previous to this report, the following reports have been submitted and are on file:

1. Community Health Screenings Project Report – February 2008
2. MSD-SEP Asthma Program Activities Report – July 1, 2010 to June 20, 2011
3. MSD-SEP Program Activities Report – July 1, 2011 to June 30, 2012
4. MSD-SEP Program Activities Report – July 1, 2012 to June 30, 2013

This report covers the period of July 1, 2013 to April 30, 2014. It is the final MSD-SEP Activities Report and includes a summary table of activities and the allocation of the \$1,200,000 across the approved projects.

FY 2014 Projects

The University of Louisville Research Foundation, School of Medicine established a goal and measurable outcomes to improve the health and control of pediatric asthma patients in urban, low-income neighborhoods by partnering with the University of Louisville Pediatrics Broadway. An asthma nurse educator provided education, reinforcement, and support in both the office and home environments. Families were linked to community resources to modify factors which contribute to poorly controlled diseases. The program set out to demonstrate an improvement in asthma control utilizing the Passport database, a managed care organization, by showing a reduction in use of emergency services and hospital stays. The project demonstrated an improvement in control of asthma through medication use.

Patient enrollment – A total of 88 patients were enrolled in the program. All 88 patients completed visit #1; 79 patients completed visit #2; 61 patients completed visit #3. One patient withdrew from the project due to refusal of the home visit and 26 patients were lost to follow-up. This data will be made available upon request.

This project successfully obtained a \$7,500 supplemental grant from the Department of Pediatrics Intradepartmental Grants that allowed for 228 visits to be completed.

Data Collection – Patient data is being entered for visits 1, 2, and 3 and preliminary analysis is expected in the near future.

The Norton Healthcare entered into a second agreement with the LMPHW to provide cancer screening in the designated population area. The following table presents the type of screenings and the number of persons screened. Funds were allowed to cover the screenings, limited personnel expense, and outreach and education.

| Service | Number of Procedures |
|---------------------|----------------------|
| Screening Mammogram | 83 |
| Diagnostics | 7 |
| Cervical Screening | 39 |
| Colonoscopy | 3 |
| PSA Screening | 13 |

The Family Health Centers, Inc., (FHC) is a federally-qualified health center that provides primary healthcare services to low-income Louisville Metro residents including residents in the identified neighborhoods. FHC provided breast and cervical cancer screenings for 63 women as a part of the SEP MSD health screenings project.

Financial Accounting

The following table captures the \$1,200,000 disbursement of the Supplemental Environmental Projects funds from April 2007 through April 2014.

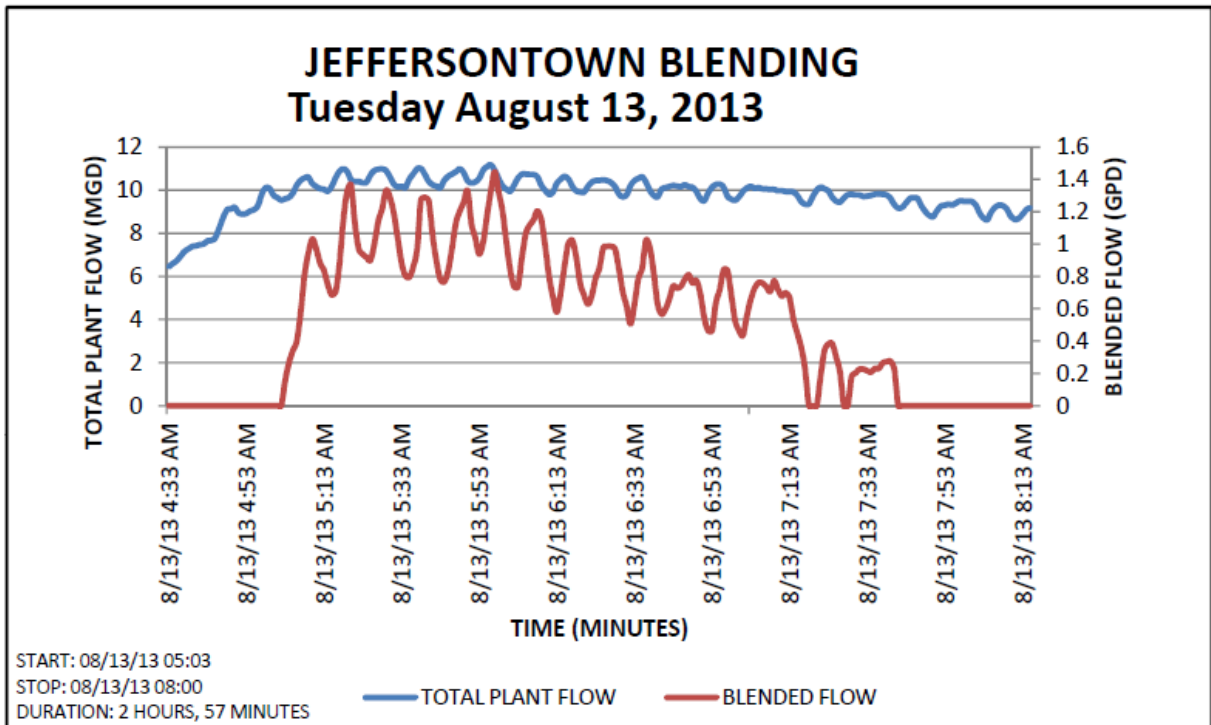
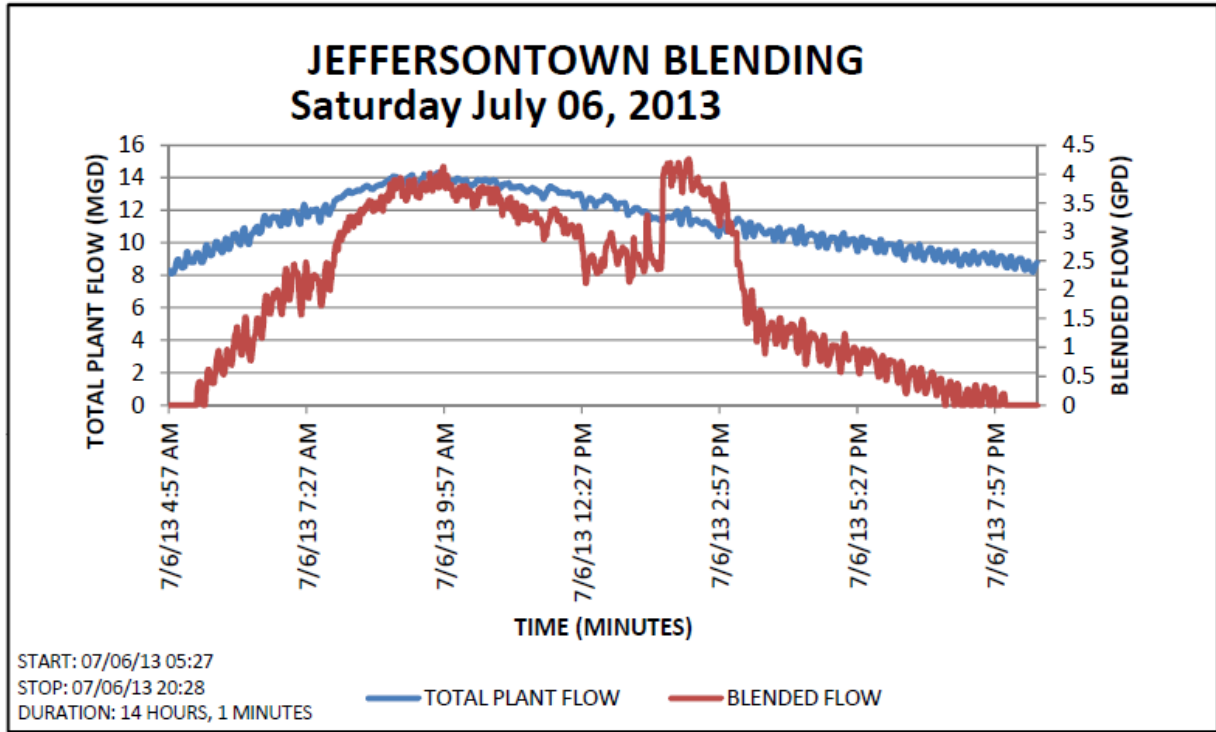
| Responsible Party | Final Expenses | Project Description | Time Period | Status | Comments |
|--|-----------------------|---|-------------------|----------|--|
| Public Health & Wellness | \$816,958.02 | Community Health Screenings | 2007-2008 | Complete | Final report on file |
| Asthma Program Administration | 136,093.08 | Asthma outreach and oversight of asthma programs | 2009-present | Complete | Asthma program oversight |
| Jefferson County Public Schools Education Foundation | \$3,602.99 | Asthma education, mentoring and fitness | 1/1/11-4/30/11 | Complete | Project at Gutermuth Elementary. Final report on file. |
| UL School of Public Health & Information Sciences | \$15,018.88 | Collection of asthma data from students attending 16 JCPS elementary schools in the Rubbertown area | 1/1/11-3/31/11 | Complete | Final report on file. |
| Norton Healthcare | \$118,036 | Provided cancer screenings to residents in the Rubbertown area | 9/1/11-12/30/12 | Complete | Final report on file. |
| UL Research Foundation - School of Medicine | \$83,990.06 | Provide an asthma nurse to work with pediatric asthma patients through education and support. | 7/1/11-4/30/14 | Complete | Final report on file. |
| Norton Healthcare | \$13,827.00 | Provide cancer screenings in the designated area | 7/1/13 - 4/30/14 | Complete | Final report on file. |
| Family Health Centers, Inc. | \$12,474.00 | Provide breast and cervical cancer screening for residents in the identified areas. | 3/19/14 - 4/30/14 | Complete | Final report on file. |
| TOTAL | \$1,200,000.03 | | | | |

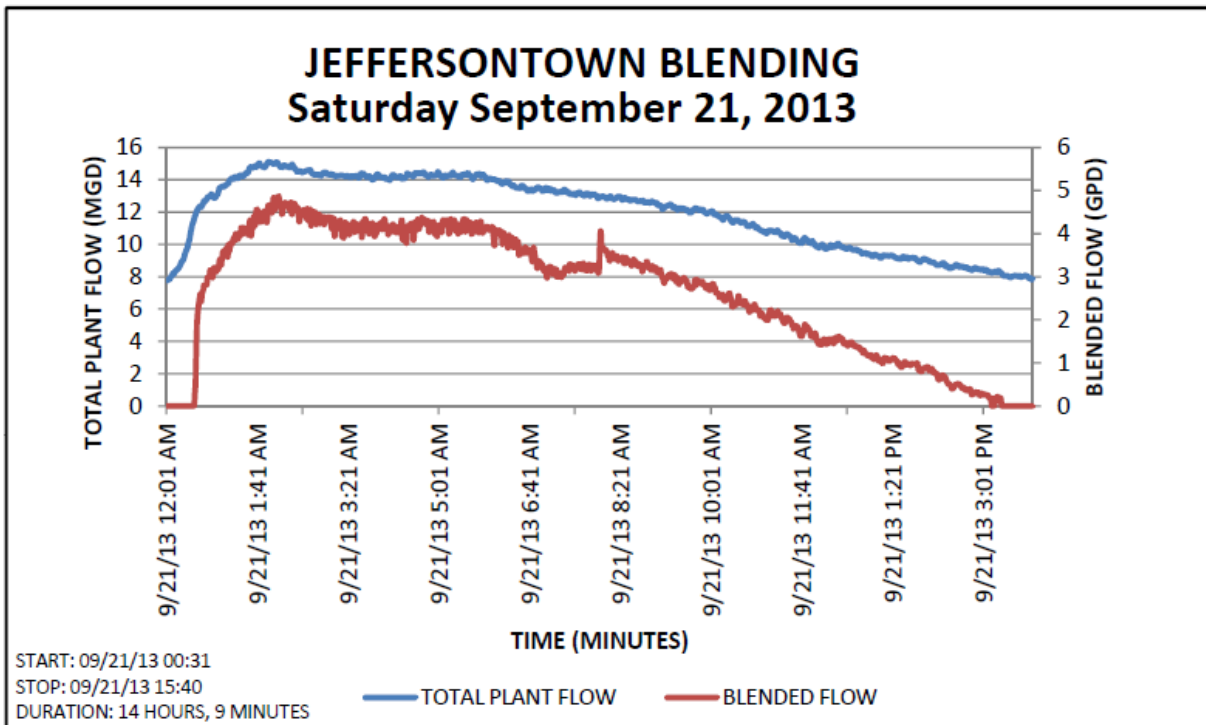
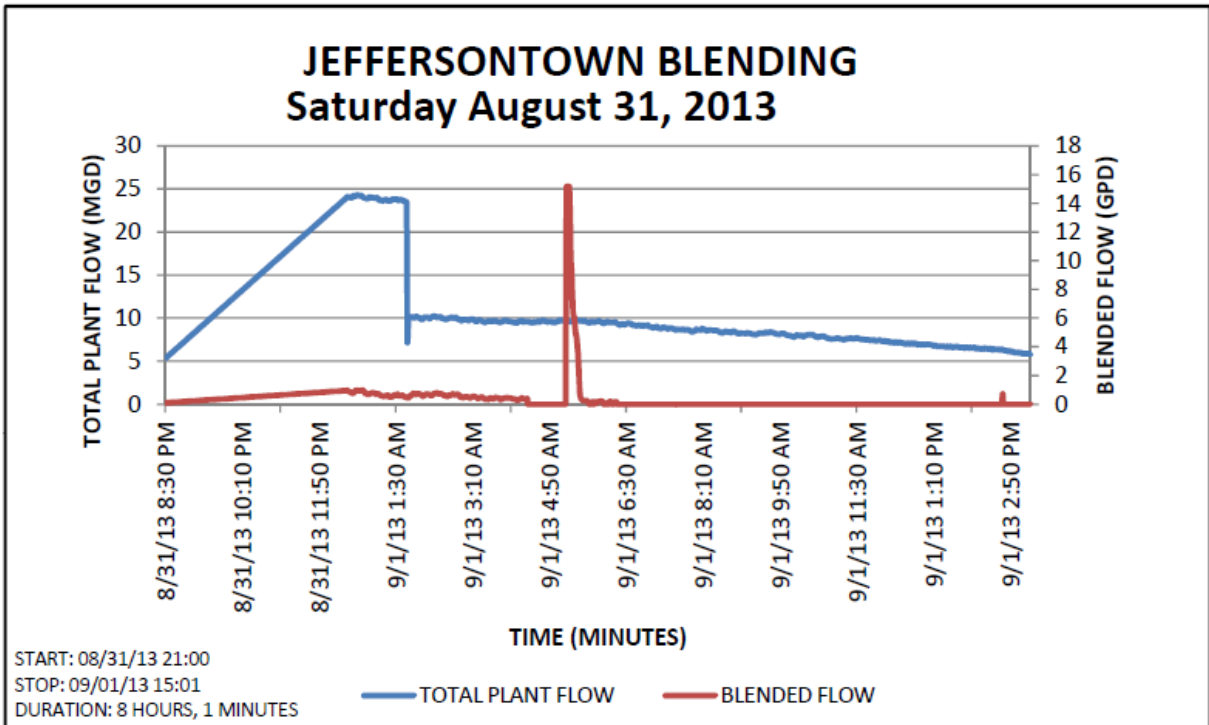
If any additional information is required, please do not hesitate to contact us. We appreciate this opportunity to work with all investors and the community.

Furthermore, we recognize and appreciate the effort provided by the Commonwealth of Kentucky in approving our requests so that we could successfully complete the Supplemental Environmental Projects (SEP).

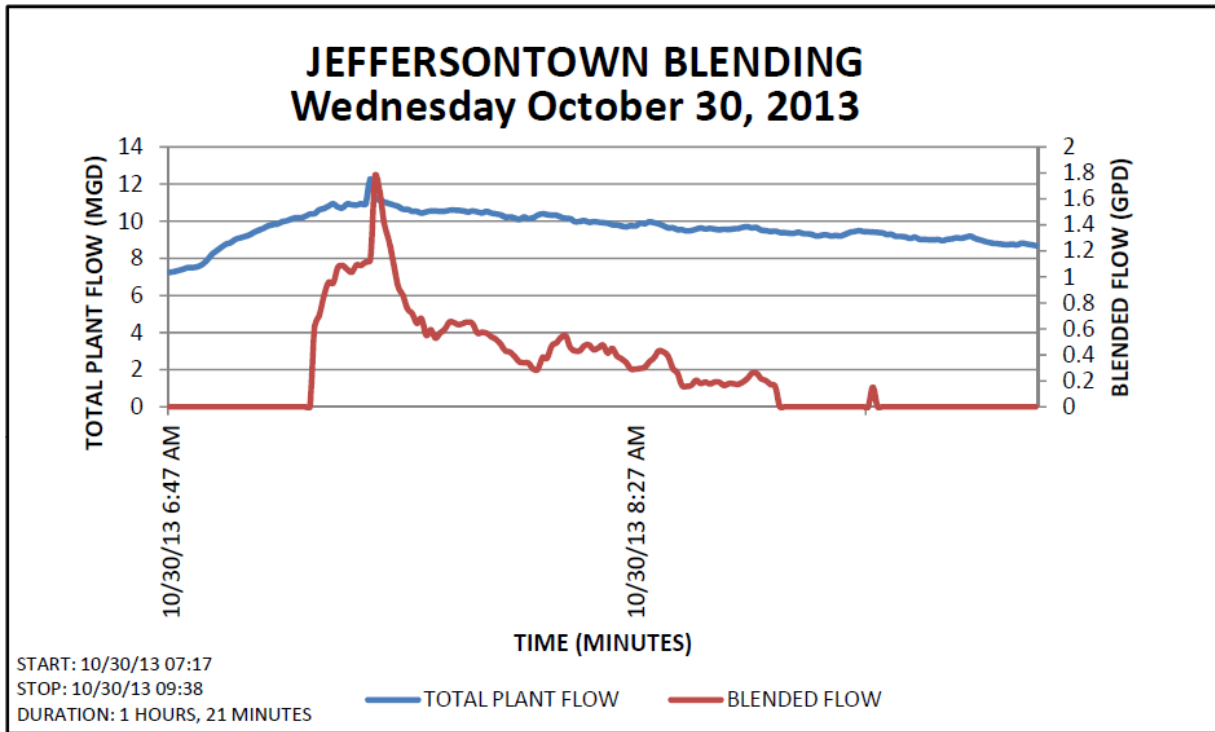
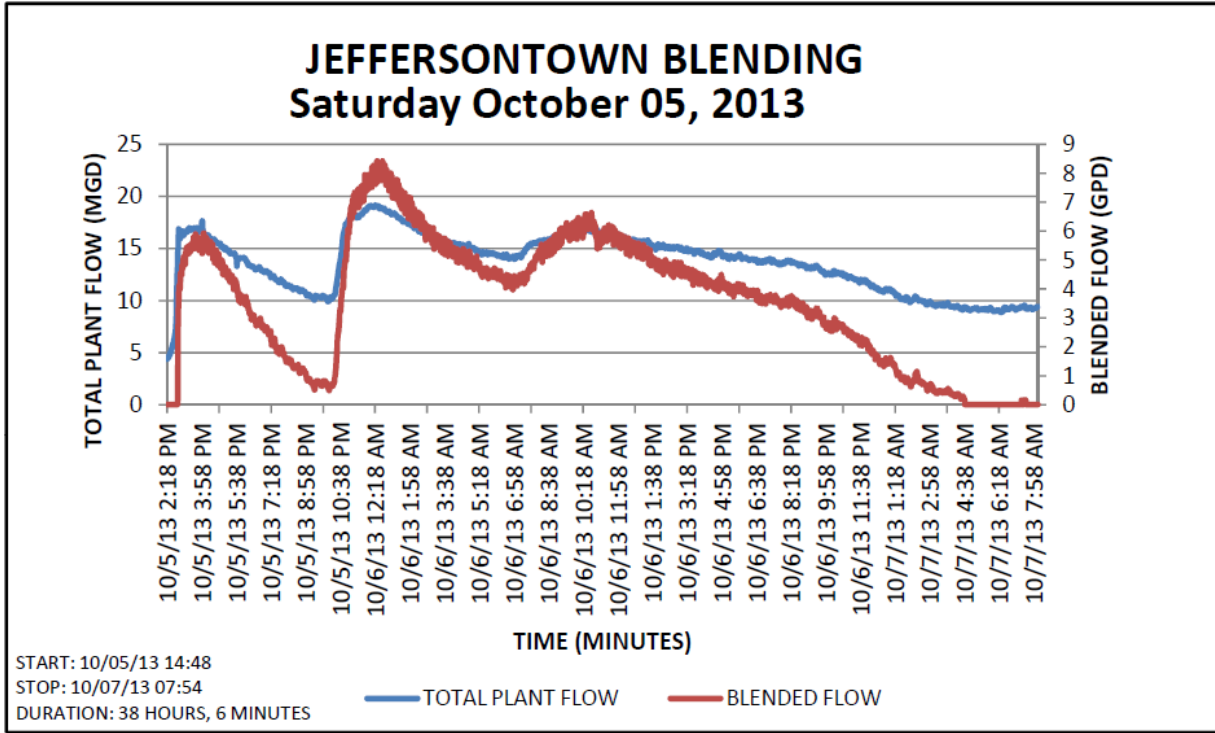
APPENDIX L – JEFFERSONTOWN WQTC BLENDING EVENT CHARTS

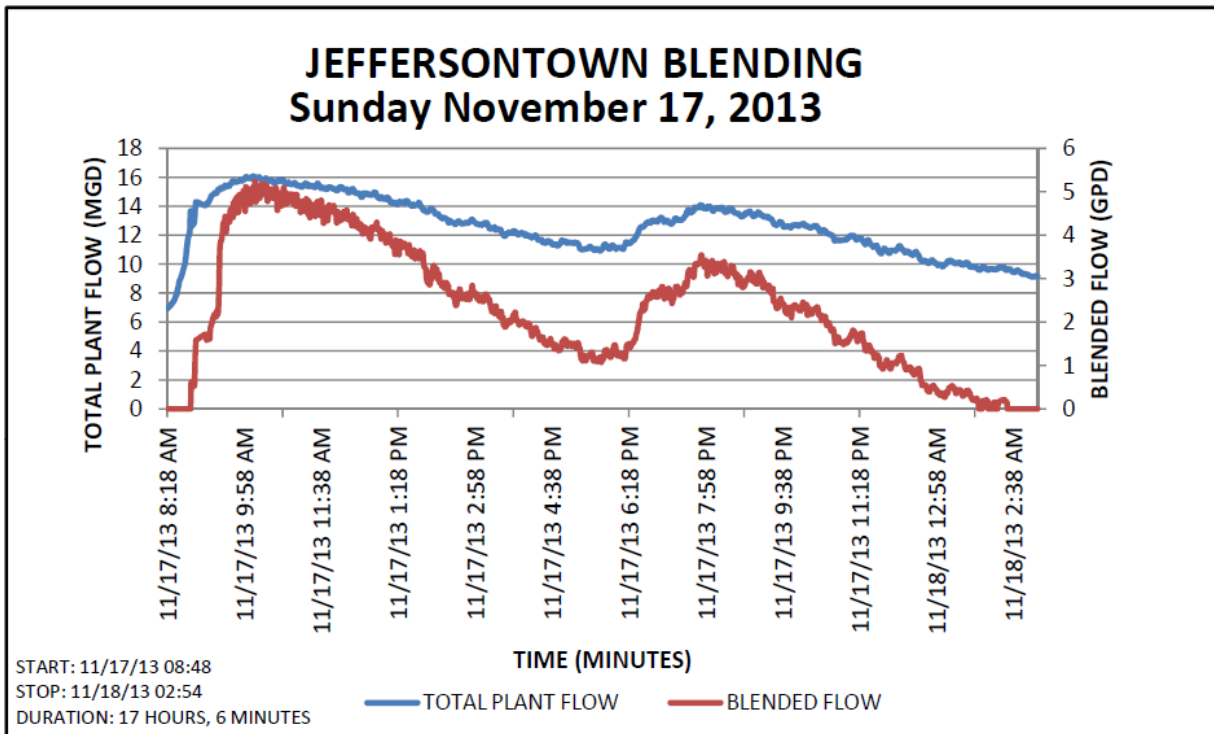
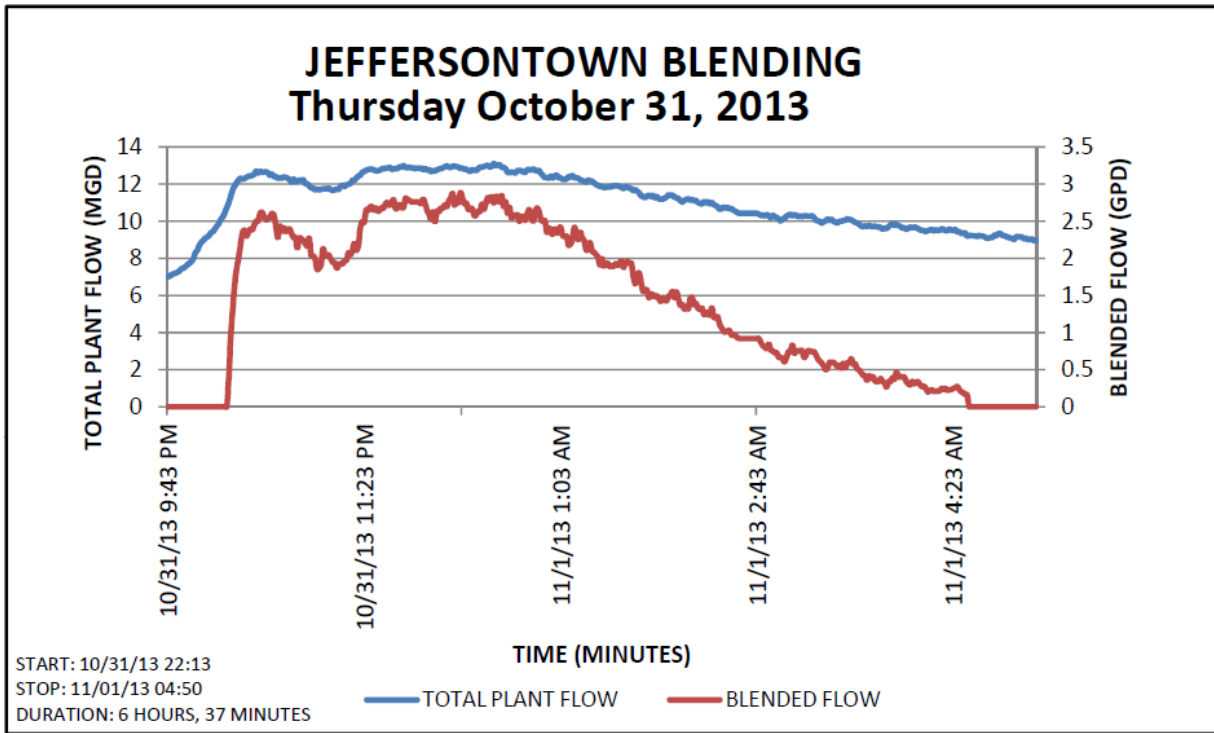
QUARTER 32 BLENDING: JULY 1, 2013 – SEPTEMBER 30, 2013

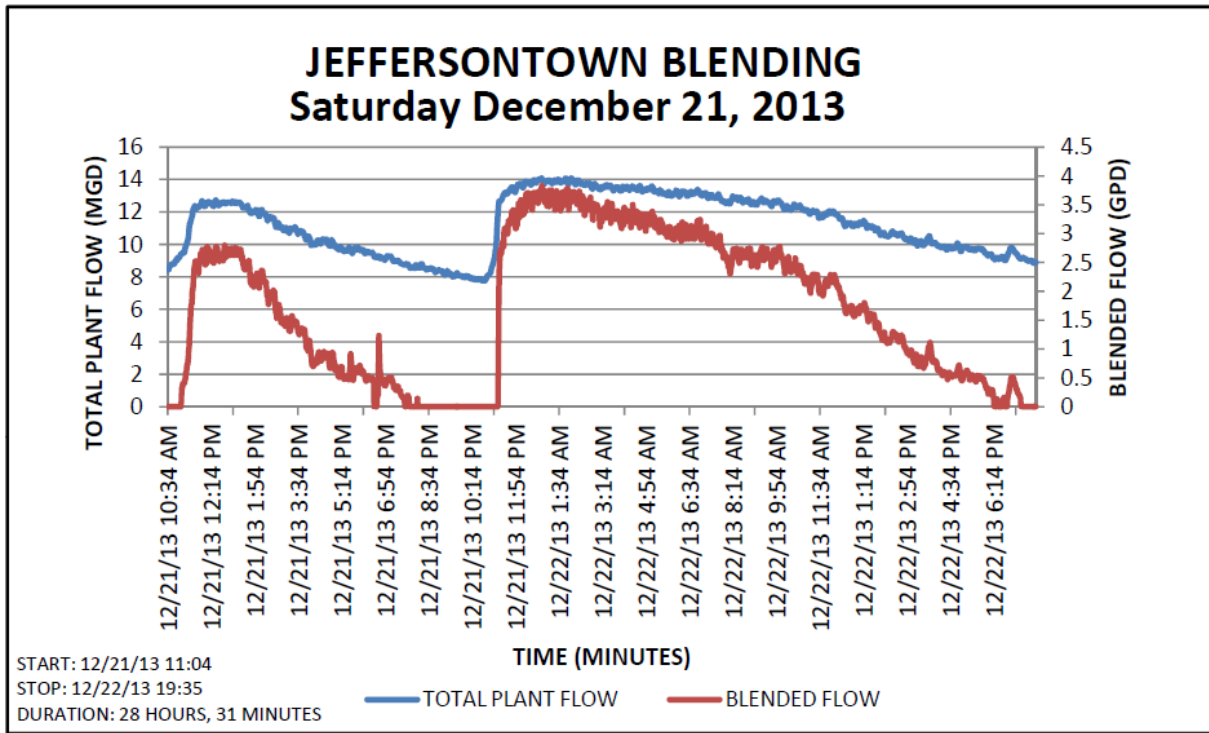




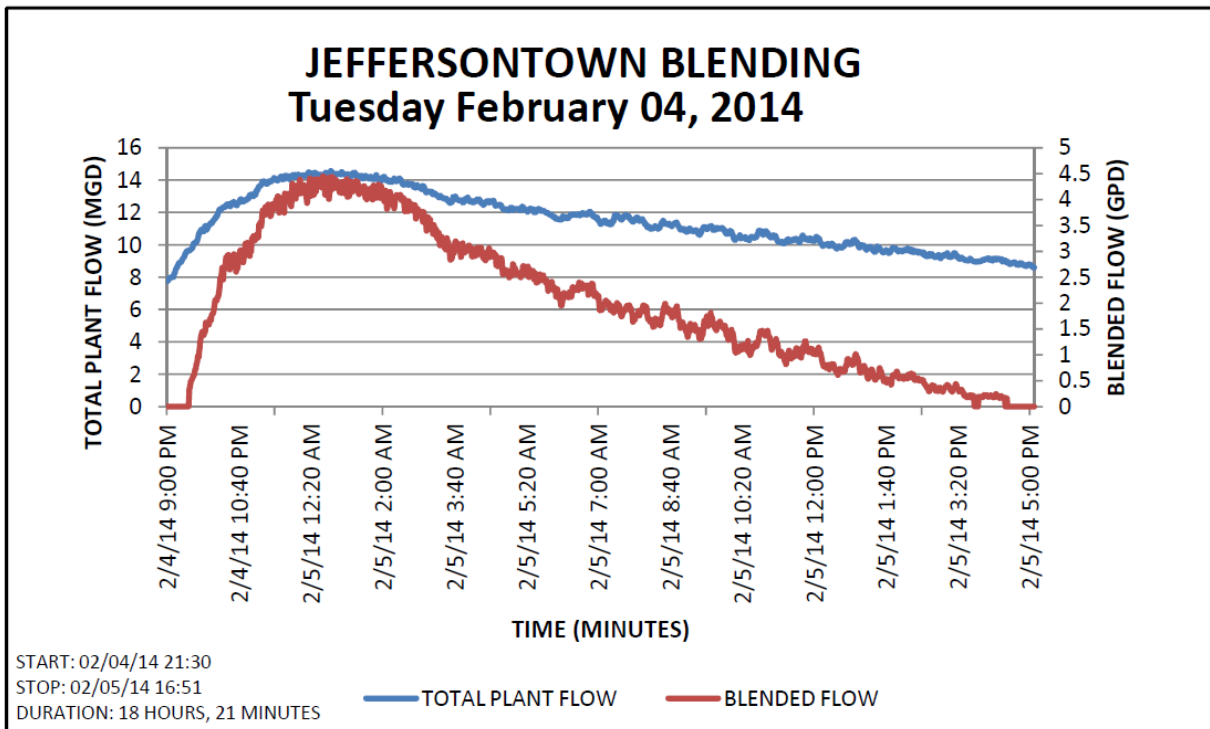
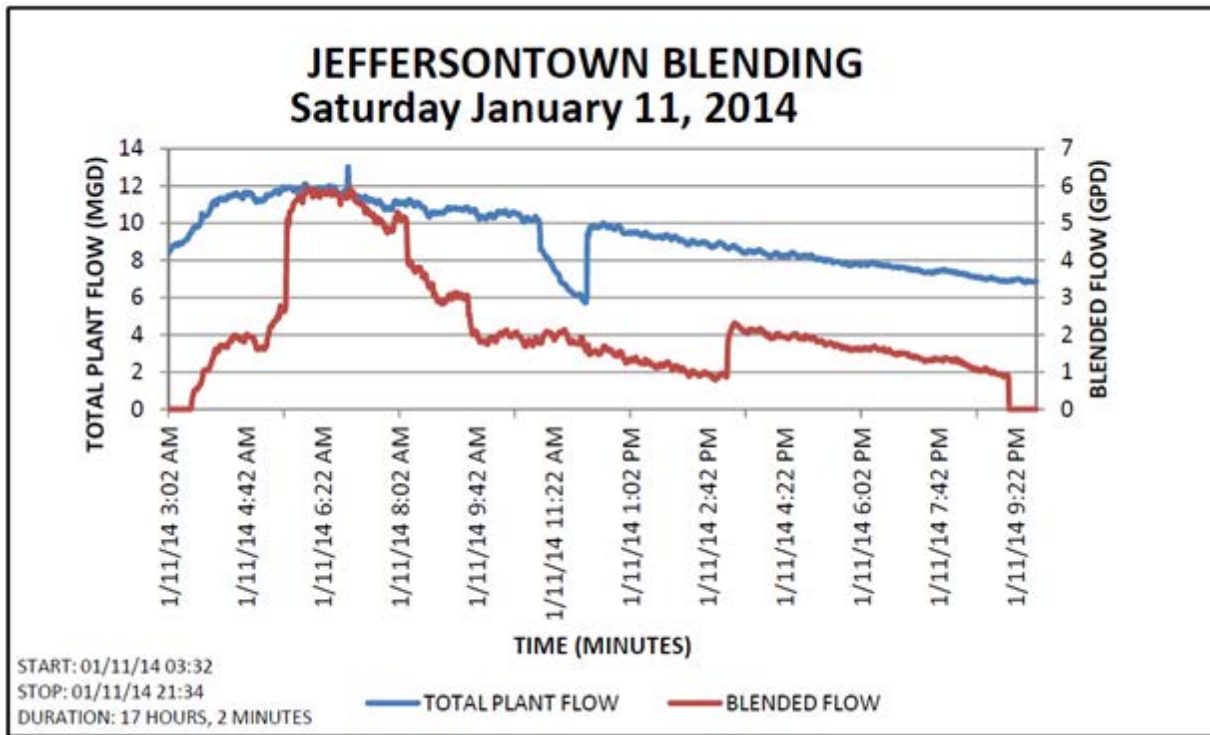
QUARTER 33 BLENDING: OCTOBER 1, 2013 – DECEMBER 31, 2013



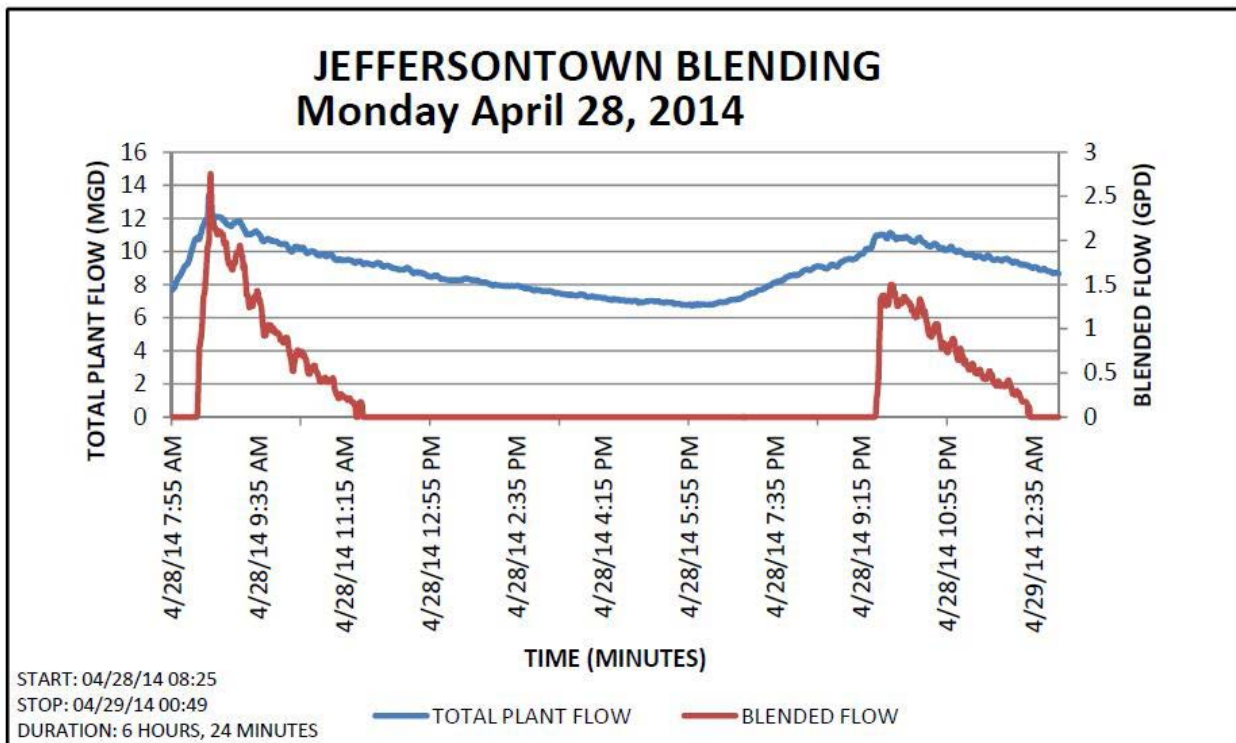
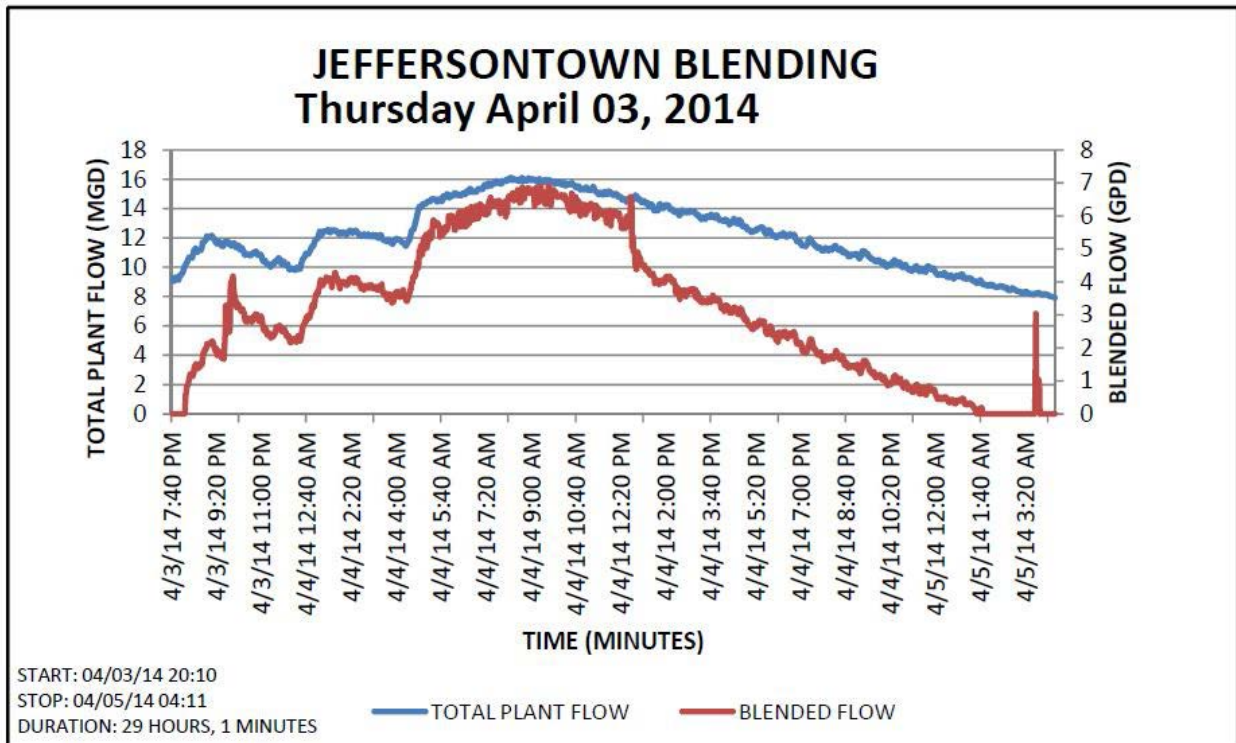


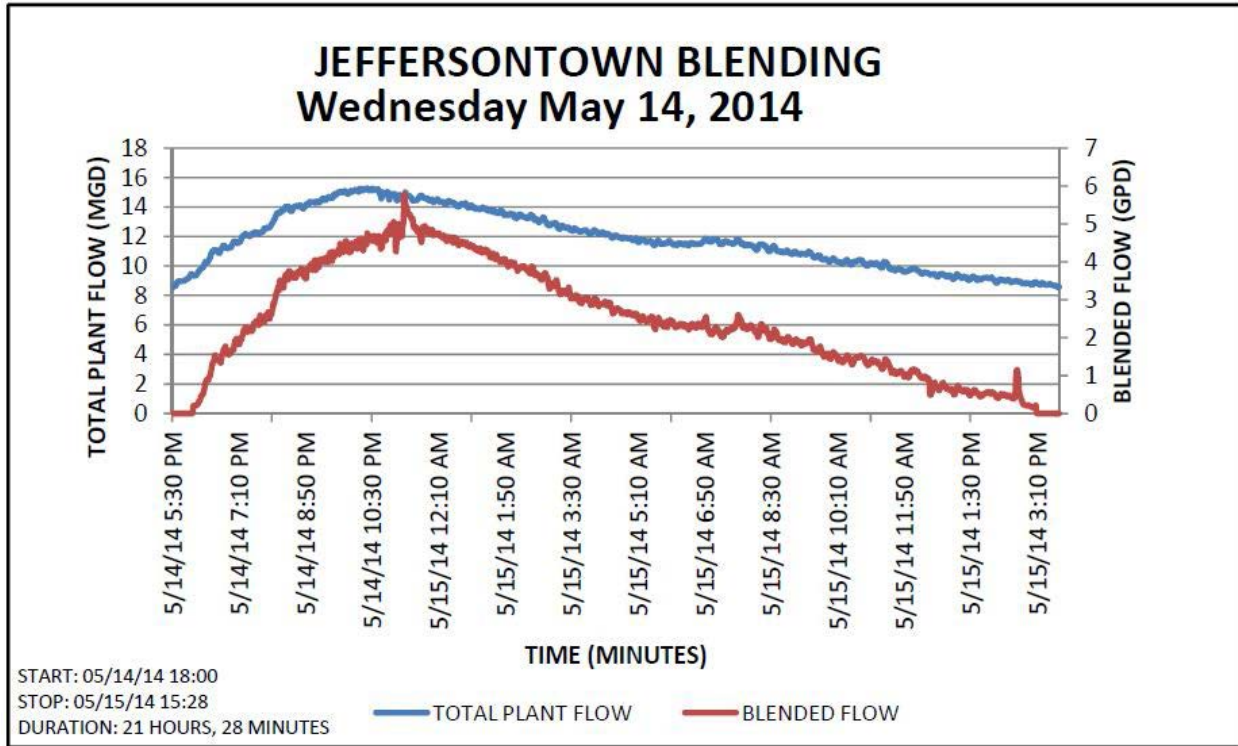


QUARTER 34 BLENDING: JANUARY 1, 2014 – MARCH 31, 2014



QUARTER 35 BLENDING: APRIL 1, 2014 – JUNE 30, 2014





APPENDIX M – BYPASS EVENT CORRECTIVE ACTIONS

| Bypass Summary - July 1, 2013 to September 30, 2013 | | |
|---|--|---------------------------|
| DATE/TIME | BYPASS DESCRIPTION | FAILURE RESOLUTION |
| Capacity (CAP) | | |
| | No bypasses of this category occurred during the reporting period. | N/A |
| Facility Failure (Mechanical - MCH, Electrical - ELE, Structural - SRT) | | |
| | No bypasses of this category occurred during the reporting period. | N/A |
| External Power failures (LGE Related-PWR) | | |
| | No bypasses of this category occurred during the reporting period. | N/A |
| Human Error (OPN) | | |
| | No bypasses of this category occurred during the reporting period. | N/A |
| Utility Damage | | |
| | No bypasses of this category occurred during the reporting period. | N/A |



**Project WIN – FY14 Annual Report
July 1, 2013 - June 30, 2014**

| Bypass Summary - October 1, 2013 - December 31, 2013 | | | | | | |
|--|-----------------|------------|--------------|--|---|--|
| DATE | WQTC | WORK ORDER | FAILURE CODE | BYPASS DESCRIPTION | FAILURE RESOLUTION | |
| CAPACITY (CAP) | | | | | | |
| 10/06/2013 | CEDAR CREEK | 2031221 | CAP | This WQTC experienced a bypass of 80 gallons of fully treated wastewater when a heavy rain event caused the effluent channel to overflow. The total flow for the day was 14.8 MG. The peak plant flow for this event was 26.66 MGD. The peak design flow for this plant is 25 MGD. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. | |
| 10/06/2013 | BERRYTOWN | 2031258 | CAP | The treatment plant experienced a bypass when an extremely unusual and heavy rain event caused elevated water levels in plant clarifier weirs. The bypassed flow received preliminary and secondary treatment. Because of the elevated levels in the tanks, water flowed out of cuts for air piping in walls between aeration tank and clarifiers. Approximately 12,100 gallons overflowed. The approximate total plant flow for October 6 was 0.1499 MGD. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is to be eliminated December 2015. | |
| 10/06/2013 | CHENOWETH HILLS | 2031261 | CAP | On October 6, 2013, due to increased plant flow caused by storm event, the surge tank overflowed, and resulted in a wet weather bypass to the waters of the U.S. Plant aeration was shut off prior to overflow. Approximately 596 gallons overflowed. The design flow to this plant is 0.200 MGD. The peak plant flow during this event was 1.743 MGD. Total plant flow for October 6 was 0.832 MG. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is scheduled to be eliminated in late 2014 or early 2015. | |
| 11/17/2013 | BERRYTOWN | 2060993 | CAP | The #1 treatment plant experienced a bypass when a heavy rain event caused elevated water levels in plant clarifier weirs. The bypassed flow received preliminary and secondary treatment. Because of the elevated levels in the tanks, water flowed out of cuts for air piping in walls between aeration tank and clarifiers. Air to aeration tank was shut off prior to bypass. Approximately 2,462 gallons overflowed. This plant is designed for 0.075 MGD. The approximate total plant flow for November 17 was 0.1095 MGD and 0.285 MGD for November 18. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is to be eliminated December 2015. | |





**Project WIN – FY14 Annual Report
July 1, 2013 - June 30, 2014**

| Bypass Summary - October 1, 2013 - December 31, 2013 | | | | | |
|---|---------------------|------------|--------------|---|--|
| DATE | WQTC | WORK ORDER | FAILURE CODE | BYPASS DESCRIPTION | FAILURE RESOLUTION |
| 11/17/2013 | BERRYTOWN | 2060998 | CAP | The #2 treatment plant experienced a bypass when a heavy rain event caused elevated water levels in plant clarifier weirs. The bypassed flow received preliminary and secondary treatment. Because of the elevated levels in the tanks, water flowed out of cuts for air piping in walls between aeration tank and clarifiers. Air to aeration tank was shut off prior to bypass. Approximately 2,462 gallons overflowed. This plant is designed for 0.075 MGD. The peak plant flow for the day was approximately 0.429 MGD. The approximate total plant flow for November 17 was 0.1095 MGD and 0.285 MGD for November 18. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is to be eliminated December 2015. |
| 12/21/2013 | BERRYTOWN | 2085476 | CAP | The treatment plant experienced a bypass due to rain event elevated water levels in plant #3. Approximately 11,525 gallons overflowed plant #3 clarifier and bypassed disinfection treatment process. The bypassed volume did receive preliminary and secondary treatment. The plant design flow is 0.075 MG. The peak flow during the duration of the bypass exceeded the maximum flow meter capacity. The maximum flow meter capacity is 0.430 MG. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is to be eliminated December 2015. |
| 12/21/2013 | BERRYTOWN | 2085477 | CAP | The treatment plant experienced a bypass due to rain event elevated water levels in plant #1. Approximately 11,525 gallons overflowed plant #1 clarifier and bypassed disinfection treatment process. The bypassed volume did receive preliminary and secondary treatment. The plant design flow is 0.075 MG. The peak flow during the duration of the bypass exceeded the maximum flow meter capacity. The maximum flow meter capacity is 0.430 MG. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is to be eliminated December 2015. |
| Facility Failure (Mechanical - MCH, Electrical - ELE, Structural - SRT) | | | | | |
| 12/24/2013 | HUNTING CREEK NORTH | 2086192 | MCH | Approximately 4,425 gallons of plant biosolids bypassed plant #2 clarifier to waters of the US. The bypass was caused by an obstruction in the clarifier return activated sludge (RAS) line. The bypassed biosolids received preliminary, disinfection and dechlorination treatment. | MSD cleared the obstruction in the return line and pumped down #2 clarifier to clean all leaves and debris out of the clarifier. |



| Bypass Summary - October 1, 2013 - December 31, 2013 | | | | | |
|--|-------------|------------|--------------|--|---|
| DATE | WQTC | WORK ORDER | FAILURE CODE | BYPASS DESCRIPTION | FAILURE RESOLUTION |
| 11/08/2013 | SHADOW WOOD | 2050519 | STR | The Shadow Wood WQTC pipe from the tertiary pond to disinfection tank became partially blocked with leaves causing the water level in the pond to rise. It is believed that the elevated water level is the cause of the bypass. On Friday November 8, after dye testing determined the levee was leaking, we pumped down the pond to stop the bypass. Approximately 500 gallons of waster water bypassed the disinfection tank. The bypass volume received full treatment except for chlorination. | MSD pumped down the pond and contractors are excavating to determine the location of the leak and to make repairs. |
| 11/21/2013 | SHADOW WOOD | 2062347 | STR | On Thursday November 21, 2013, the Shadow Wood WQTC's tertiary pond experienced a bypass to the waters of the US. To investigate the cause of the bypass, an excavation of the site was performed. This investigation determined that the bypass was caused by a significant amount of erosion that had occurred at the tertiary pond. After dye testing determined the levee was leaking again, we pumped the pond down to stop the bypass into the disinfection tank. Approximately 100 gallons of wastewater bypassed the disinfection tank. The bypass volume received full treatment except for chlorination. | On November 22, 2013, MSD contractor excavated and repaired the leak in the tertiary levee. |
| 12/03/2013 | SHADOW WOOD | 2070396 | STR | On Tuesday, December 03, 2013, the Shadow Wood WQTC tertiary pond experienced a bypass to the waters of the US. MSD investigated to determine the cause of the bypass. It was determined that a portion of the berm for the tertiary pond had settled. The pond was pumped down to stop the bypass into the disinfection tank. Approximately 309 gallons of wastewater bypassed the disinfection tank. The bypass volume received full treatment except for chlorination. | MSD has established communications with Kentucky Division of Water personnel in an attempt to eliminate the tertiary pond from our treatment process or determine the best course of action. MSD is currently operating the tertiary pond at a lower elevation to prevent a recurrence of a plant bypass. |



**Project WIN – FY14 Annual Report
July 1, 2013 - June 30, 2014**

| Bypass Summary - October 1, 2013 - December 31, 2013 | | | | | |
|--|-----------|------------|--------------|---|--|
| DATE | WQTC | WORK ORDER | FAILURE CODE | BYPASS DESCRIPTION | FAILURE RESOLUTION |
| 12/21/2013 | KEN CARLA | 2085427 | STR | The treatment plant experienced a bypass when the effluent discharge pipe was obstructed with roots due to a break in the pipe. Approximately 38,250 gallons bypassed at the v-notch weir in the chlorine contact channel. The bypassed volume received full treatment. However, it was not discharged at the permitted discharge location. We hauled the plant to stop effluent flow on 12/22/13 and had a contractor jet rod the effluent discharge pipe. | The contractor was unable to clear obstruction from effluent pipe. On 12/23/13, MSD personnel inspected the effluent pipe with a camera to determine the obstruction and were able to clear root obstruction. MSD is evaluating options to implement a best plan to either repair or replace the break in the effluent discharge pipe. |
| Human Error (OPN) | | | | | |
| | | | | No bypasses of this category occurred during the reporting period. | N/A |
| External Power failures (LGE Related-PWR) | | | | | |
| | | | | No bypasses of this category occurred during the reporting period. | N/A |
| Utility Damage | | | | | |
| | | | | No bypasses of this category occurred during the reporting period. | N/A |





**Project WIN – FY14 Annual Report
July 1, 2013 - June 30, 2014**

| Bypass Summary - January 1, 2014 to March 31, 2014 | | | | | |
|--|-----------|-------------------------|--------------------|--|---|
| DATE | WQTC | WORK ORDER FAILURE CODE | BYPASS DESCRIPTION | FAILURE RESOLUTION | |
| Capacity (CAP) | | | | | |
| January 11, 2014 | BERRYTOWN | 2095063 | CAP | The #1 treatment plant experienced a bypass when a heavy rain event caused elevated water levels in plant clarifier weirs. The bypassed flow received preliminary and secondary treatment. Because of the elevated levels in the tanks, water flowed out of cuts for air piping in walls between aeration tank and clarifiers. Air to aeration tank was shut off prior to bypass. Approximately 28,700 gallons overflowed. This plant is designed for 0.075 MGD. The approximate total plant flow for January 11 was 0.243408 MGD. | If operational needs for resources allow, in the event of heavy rain, MSD will haul wastewater from the plant. |
| January 11, 2014 | BERRYTOWN | 2095073 | CAP | The #2 treatment plant experienced a bypass when a heavy rain event caused elevated water levels in plant clarifier weirs. The bypassed flow received preliminary and secondary treatment. Because of the elevated levels in the tanks, water flowed out of cuts for air piping in walls between aeration tank and clarifiers. Air to aeration tank was shut off prior to bypass. Approximately 18,700 gallons overflowed. This plant is designed for 0.075 MGD. The approximate total plant flow for January 11 was 0.243408 MGD. | If operational needs for resources allow, in the event of heavy rain, MSD will haul wastewater from the plant. |
| February 5, 2014 | BERRYTOWN | 2107935 | CAP | On February 5, 2014, MSD personnel found Berrytown WQTC #1 plant bypassing to waters of the U.S. between the aeration tank and the secondary clarifier. The cause of the bypass was due to lack of system capacity. Approximately 3,175 gallons bypassed secondary treatment and disinfection treatment. However, it did receive full preliminary treatment. The plant SOP was followed. The secondary aeration was shut off prior to the bypass to reduce the volume of solids bypassing. Peak flow during this event was 0.430 MGD. Plant flow during this bypass was 0.118 MG. The plant design flow is 0.075 MG. | If operational needs for resources allow, in the event of heavy rain, MSD will haul wastewater from the plant. This treatment plant is scheduled to be eliminated by December 31, 2015. |





**Project WIN – FY14 Annual Report
July 1, 2013 - June 30, 2014**

| Bypass Summary - January 1, 2014 to March 31, 2014 | | | | | |
|---|-------------|------------|--------------|---|---|
| DATE | WQTC | WORK ORDER | FAILURE CODE | BYPASS DESCRIPTION | FAILURE RESOLUTION |
| Human Error (OPN) | | | | | |
| January 5, 2014 | TIMBERLAKE | 2091866 | OPN | The Timber Lake WQTC experienced a bypass of secondary solids at the #2 plant. Approximately 121 gallons of biosolids bypassed secondary treatment due to rags and other debris accumulating and clogging the influent gates to plant #3 and #4. Due to this obstruction, all of the influent flow was forced to plants #1 and #2. This increased amount of flow exceeded treatment capacity and displaced solids in plant #2. The bypass volume did receive preliminary and disinfection treatment. | MSD staff raised the plant influent splitter box slide gates to ensure rags and debris will not obstruct flow. |
| February 5, 2014 | CEDAR CREEK | 2107913 | OPN | On February 5, 2014, MSD personnel found secondary clarifier effluent water overflowing to waters of the U.S. at the tertiary sand filter channel. Upon discovery, MSD personnel manually opened the tertiary sand filter hydraulic relief gate to stop the bypass. Approximately 100 gallons of partially treated sewage bypassed. The bypass was caused by the tertiary sand filter relief gate not being in "automatic" control mode. The bypassed volume received full preliminary and secondary treatment. However, it did not receive tertiary filter treatment or UV disinfection treatment. Peak flow during bypass was 23.12 MGD. Plant design flow is 7.5 MG. | MSD is currently in the process of implementing a wet weather SOP for Cedar Creek WQTC. Upon completion of the SOP, MSD will train Cedar Creek WQTC assigned operators on the wet weather SOP. In the meantime, MSD will re-train Cedar Creek WQTC assigned operators on proper operation of tertiary sand filters and related equipment. |
| Facility Failure (Mechanical - MCH, Electrical - ELE, Structural - SRT) | | | | | |





**Project WIN – FY14 Annual Report
July 1, 2013 - June 30, 2014**

| Bypass Summary - January 1, 2014 to March 31, 2014 | | | | | |
|--|----------------|------------|--------------|--|--|
| DATE | WQTC | WORK ORDER | FAILURE CODE | BYPASS DESCRIPTION | FAILURE RESOLUTION |
| February 5, 2014 | SILVER HEIGHTS | 2108069 | STR | On February 5, 2014, MSD personnel found Silver Heights WQTC bypassing to waters of the U.S. at the plant effluent discharge pipe. The cause of the bypass was due to a break in the effluent discharge pipe. Approximately 100 gallons bypassed. The bypassed volume received full preliminary, secondary and disinfection treatment. However, it was not discharged to the permitted location of the receiving stream. | Once plant flow decreased, MSD hauled the plant to stop effluent discharge. MSD contractor excavated site and repaired broken discharge pipe on February 6, 2014. This treatment plant is scheduled to be eliminated by December 31, 2015. |
| External Power failures (LGE Related-PWR) | | | | | |
| N/A | N/A | N/A | N/A | No bypasses of this category occurred during the reporting period. | N/A |
| Utility Damage | | | | | |
| N/A | N/A | N/A | N/A | No bypasses of this category occurred during the reporting period. | N/A |



| Bypass Summary - April 1, 2014 to June 30, 2014 | | | | | |
|---|-----------|------------|--------------|--|--|
| DATE | WQTC | WORK ORDER | FAILURE CODE | BYPASS DESCRIPTION | FAILURE RESOLUTION |
| Capacity (CAP) | | | | | |
| April 4, 2014 | BERRYTOWN | 2141361 | CAP | The #1 treatment plant experienced a bypass when a heavy rain event caused elevated water levels in plant clarifier weirs. The bypassed flow received preliminary and secondary treatment. Because of the elevated levels in the tanks, water flowed out of cuts for air piping in walls between aeration tank and clarifiers. Air to aeration tank was shut off prior to bypass. Approximately 41,750 gallons overflowed. This plant is designed for 0.075 MGD. The approximate total plant flow for April 4 cannot be calculated due to flow being too high for the sensor to read. Maximum flow capacity for the flow meter is 0.430 MGD. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is to be eliminated in 2015. |
| April 4, 2014 | BERRYTOWN | 2141357 | CAP | The #1 treatment plant experienced a bypass when a heavy rain event caused elevated water levels in plant clarifier weirs. The bypassed flow received preliminary and secondary treatment. Because of the elevated levels in the tanks, water flowed out of cuts for air piping in walls between aeration tank and clarifiers. Air to aeration tank was shut off prior to bypass. Approximately 62,625 gallons overflowed. This plant is designed for 0.075 MGD. The approximate total plant flow for April 4 cannot be calculated due to flow being too high for the sensor to read. Maximum flow capacity for the flow meter is 0.430 MGD. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is to be eliminated in 2015. |
| April 4, 2014 | BERRYTOWN | 2141490 | CAP | The #1 treatment plant experienced a bypass when a heavy rain event caused elevated water levels in plant aeration tanks. The bypassed flow received preliminary treatment. Because of the elevated levels in the tanks, water flowed out of aeration tank. Air to aeration tank was shut off prior to bypass. Approximately 445 gallons overflowed. This plant is designed for 0.075 MGD. The approximate total plant flow for April 4 cannot be calculated due to flow being too high for the sensor to read. Maximum flow capacity for the flow meter is 0.430 MGD. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is to be eliminated in 2015. |
| April 4, 2014 | BERRYTOWN | 2141473 | CAP | The treatment plant experienced a bypass when a heavy rain event caused elevated water levels in the influent pump station. The bypassed flow received no treatment. Because of the elevated levels in the pump station, water flowed out of pump station. Approximately 190,000 gallons overflowed. This plant is designed for 0.075 MGD. The approximate total plant flow for April 4 cannot be calculated due to flow being too high for the sensor to read. Maximum flow capacity for the influent pump station is 1.1 MG. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is to be eliminated in 2015. |
| May 15, 2014 | BERRYTOWN | 2161788 | CAP | The #2 treatment plant experienced a bypass when a heavy rain event caused elevated water levels in plant clarifier weirs. The bypassed flow received preliminary and secondary treatment. Because of the elevated levels in the clarifiers, water flowed out of a hole in the side of the clarifier above the normal water level. Air to aeration tank was shut off prior to bypass. Approximately 2,350 gallons overflowed. This plant is designed for 0.075 MGD. The approximate total plant flow for May 15 was 0.162 MGD. Maximum flow capacity for the flow meter is 0.430 MGD. | If operational needs for resources allow, in the event of heavy rain, MSD will haul water from the plant. Plant is to be eliminated in 2015. |



**Project WIN – FY14 Annual Report
July 1, 2013 - June 30, 2014**

| Bypass Summary - April 1, 2014 to June 30, 2014 | | | | | |
|---|-----------------|------------|--------------|--|--|
| DATE | WQTC | WORK ORDER | FAILURE CODE | BYPASS DESCRIPTION | FAILURE RESOLUTION |
| Human Error (OPN) | | | | | |
| May 6, 2014 | CHENOWETH HILLS | 2158488 | OPN | Contractors were drilling test holes to check the depth of the rock and drilled into the effluent force main from Chenoweth Hills WQTC. A portion of the effluent did not reach the permitted discharge outfall at this WQTC. Approximately 5,250 gallons of fully treated wastewater entered waters of the U.S at a location other than the permitted outfall. | Contractors repaired the pipe May 7, 2014. A vendor complaint form was sent to contractor with a requirement to attend Quarterly SORP Training and reinforce appropriate response and reporting procedures. This plant is to be eliminated by December 31, 2015. |
| June 16, 2014 | MCNEELY LAKE | 2181192 | OPN | MSD Operator found CL2 & SO2 tank valves were not opened after tanks were changed. Tank valve issue was found at 7:10 am and valves were opened immediately. We had a pre effluent CL2 residual at 7:35 am. Wastewater received full preliminary and secondary treatment, but did not received disinfection. Approximately 1,359 gallons of treated sewage reached the waters of the U.S. | MSD is investigating the nature of the operator error associated with this bypass event, and pending results of the investigation, may intensify training efforts with personnel involved. This plant is anticipated to be eliminated by December 31, 2014. |
| June 16, 2014 | CHENOWETH HILLS | 2181384 | OPN | SO2 tanks were found to be empty at 8:17am and new tanks were installed immediately. The treatment plant had a pre effluent CL2 residual of 2.0 and <0.010 total residual chlorine at 8:40 am. Wastewater received full preliminary, secondary and disinfection treatment, but did not receive dechlorination. Approximately 2,174 gallons of treated sewage, without dechlorination, reached the waters of the U.S. | MSD is investigating the nature of the operator error associated with this bypass event, and pending results of the investigation, may intensify training efforts with personnel involved. This plant is anticipated to be eliminated by December 31, 2014. |
| Facility Failure (Mechanical - MCH, Electrical - ELE, Structural - SRT) | | | | | |
| April 4, 2014 | STARVIEW | 2141531 | STR | On April 4, 2014, due to elevated flows in the effluent, the pipe between the clarifiers and the chlorine contact tank was found leaking. Wastewater received preliminary and secondary treatment. Approximately 300 gallons reached waters of the U.S. Total flow for April 4, 2014 cannot be calculated due to the flow being too high for the sensor to read flow. Maximum flow capacity for the flow meter is 0.438 MGD. | The piping between the clarifiers and the chlorine contact tank was repaired on July 28, 2014. This plant is to be eliminated by December 31, 2015. |
| External Power failures (LGE Related-PWR) | | | | | |
| N/A | N/A | N/A | N/A | No bypasses of this category occurred during the reporting period. | N/A |
| Utility Damage | | | | | |
| N/A | N/A | N/A | N/A | No bypasses of this category occurred during the reporting period. | N/A |



| Bypass Events - October 1, 2013 - December 31, 2013 | | | |
|---|----------|---------|---------------------|
| Type of Bypass | Date | ID | Facility Name |
| RAIN EVENT DISCHARGE | 12/21/13 | MSD0208 | KEN CARLA |
| RAIN EVENT DISCHARGE | 10/06/13 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 11/17/13 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 11/17/13 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 12/21/13 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 12/21/13 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 10/06/13 | MSD0263 | CHENOWETH HILLS |
| RAIN EVENT DISCHARGE | 10/06/13 | MSD0289 | CEDAR CREEK |
| DRY WEATHER DISCHARGE | 12/24/13 | MSD0291 | HUNTING CREEK NORTH |
| DRY WEATHER DISCHARGE | 11/08/13 | MSD0404 | SHADOW WOOD |
| DRY WEATHER DISCHARGE | 11/21/13 | MSD0404 | SHADOW WOOD |
| DRY WEATHER DISCHARGE | 12/03/13 | MSD0404 | SHADOW WOOD |

| Bypass Events - January 1, 2014 - March 31, 2014 | | | |
|--|----------|---------|----------------|
| Type of Bypass | Date | ID | Facility Name |
| RAIN EVENT DISCHARGE | 01/11/14 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 01/11/14 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 02/05/14 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 02/05/14 | MSD0258 | SILVER HEIGHTS |
| RAIN EVENT DISCHARGE | 02/05/14 | MSD0289 | CEDAR CREEK |
| DRY WEATHER DISCHARGE | 01/05/14 | MSD0293 | TIMBERLAKE |

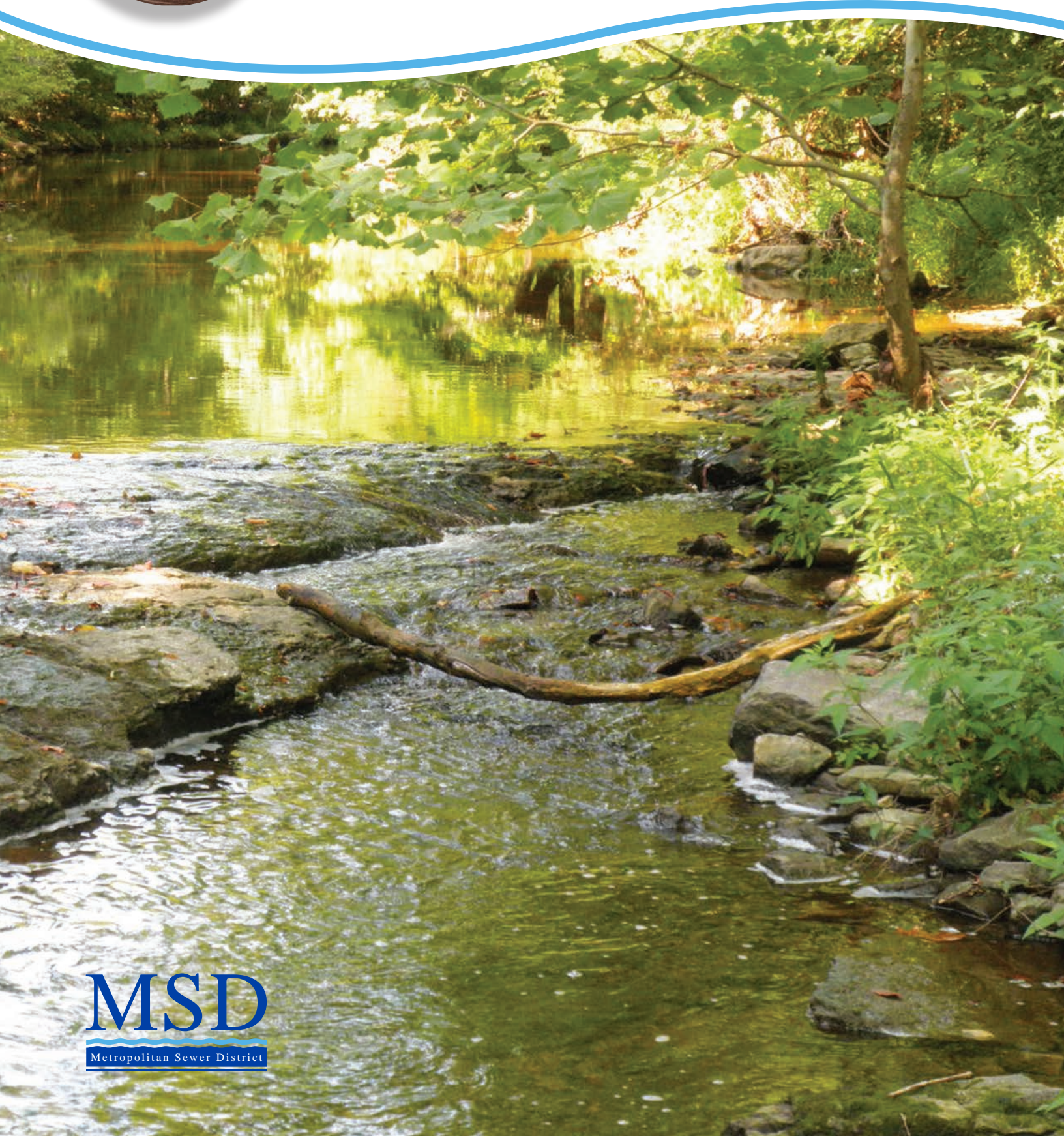
| Bypass Events - April 1, 2014 - June 30, 2014 | | | |
|---|----------|---------|-----------------|
| Type of Bypass | Date | ID | Facility Name |
| RAIN EVENT DISCHARGE | 04/04/14 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 04/04/14 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 04/04/14 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 04/04/14 | MSD0209 | BERRYTOWN |
| RAIN EVENT DISCHARGE | 05/15/14 | MSD0209 | BERRYTOWN |
| DRY WEATHER DISCHARGE | 06/16/14 | MSD0228 | MCNEELY LAKE |
| RAIN EVENT DISCHARGE | 04/04/14 | MSD0247 | STARVIEW |
| DRY WEATHER DISCHARGE | 05/06/14 | MSD0263 | CHENOWETH HILLS |
| DRY WEATHER DISCHARGE | 06/16/14 | MSD0263 | CHENOWETH HILLS |

APPENDIX N – 2014 DRAFT WATER QUALITY SYNTHESIS REPORT



State of the Streams

2014 Water Quality Synthesis **DRAFT** Report



To Our Community



As we share the progress of the past few years and our future plans in this report, MSD is continuing along a path of providing clean, safe waterways for our community. Our 2014 Water Quality Synthesis Report is the culmination of more than 15 years assessing the water quality of our local streams and the Ohio River.

We collect physical, chemical and biological data from 27 locations along our waterways, in partnership with the U.S. Geological Survey. A network of sampling devices—known as the Long-Term Monitoring Network—record stream flow and dissolved oxygen. Teams of biologists collect samples of algae, fish and aquatic insects at these locations every two years between May and October. Additionally, the teams collect water samples before, during and after significant rain events in the warmer months.

The most recent data reveal:

- Bacteria levels are an ongoing concern with most of our waterways.
- The Middle and South Fork of Beargrass Creek continue with a rating of “poor.”
- Northern Ditch, in the Okolona area, shows significant improvement for fish and aquatic insects.
- Harrods Creek, Floyds Fork, Brier Creek and Cedar Creek in Bullitt County—which are less developed watersheds—in general support better aquatic life.

MSD has made significant progress with decreasing sewer overflows into our waterways, but there is more work to be done. The Clean Water Act—passed in 1972—contains aggressive water quality standards for cities like Louisville. MSD entered into a Consent Decree in 2005 with the Kentucky Division of Water, the U.S. Environmental Protection Agency (EPA)-Region 4 and the U.S. Department of Justice to satisfy Clean Water Act requirements.

The Consent Decree program requires MSD to minimize combined sewer overflows and eliminate sanitary sewer overflows, while rehabilitating our community’s aging sewer system. The program is nearly 50 percent complete, on schedule and within budget to meet these goals by 2024.

MSD is committed to setting a national standard for best practices in offering Louisville Metro exceptional wastewater, drainage and flood protection services. I invite you to join with us in making Louisville Metro a better place for all. The community and environment benefit when we all join together to do our part.

Sincerely,

A handwritten signature in black ink that reads "Greg C. Heitzman". The signature is fluid and cursive.

Greg C. Heitzman

Executive Director



This 2014 Water Quality Synthesis report provides a snapshot of the streams in our community – how they’re doing and whether or not they’re improving. The data we collect will help us make decisions about where we should focus our attention and tell us how we are doing in our mission to improve water quality in the region.

DRAFT

| | | | | | |
|----------|--|----|----------|--|----|
| 1 | EXECUTIVE SUMMARY..... | 1 | 3.4 |MIDDLE FORK OF BEARGRASS CREEK..... | 31 |
| 2 | INTRODUCTION..... | 3 | 3.5 |SOUTH FORK OF BEARGRASS CREEK..... | 37 |
| | ABOUT MSD..... | 3 | 3.6 |FLOYDS FORK..... | 43 |
| | PARTNERS WITH THE COMMUNITY..... | 4 | 3.7 |CEDAR CREEKS / PENNSYLVANIA RUN..... | 51 |
| | LONG TERM MONITORING NETWORK..... | 8 | 3.8 |POND CREEK..... | 57 |
| 3 | WATERSHED REPORTS..... | 13 | 3.9 |MILL CREEK..... | 63 |
| 3.1 |HARRODS CREEK..... | 15 | 3.10 |OHIO RIVER..... | 67 |
| 3.2 |GOOSE CREEK..... | 21 | 4 | SUMMARY AND CONCLUSIONS..... | 69 |
| 3.3 |MUDDY FORK OF BEARGRASS CREEK..... | 27 | 5 | IMPORTANT TERMS..... | 73 |

Wet Weather Stream Sampling



Executive Summary

The Louisville and Jefferson County Metropolitan Sewer District (MSD), in cooperation with the United States Geological Survey (USGS), operates a Long-Term Monitoring Network (LTMN) to collect physical, chemical and biological data about streams in the Metro Area. MSD collects the water quality and biological data and USGS collects stream flow. This Synthesis Report is focused on the conditions of fish, aquatic insects, algae, stream habitat, bacteria, nutrients (nitrogen and phosphorus compounds), total suspended solids, stream flow, dissolved oxygen, and water temperature of the streams in our community, and whether or not these things are improving. We've been collecting data at twenty-seven Long Term Monitoring Network sites since 1999. This information will help us make decisions about where to focus our attention, and tell us how we're doing in our mission to improve water quality in the region.

The health of aquatic communities (fish, insects and algae) in streams can be compromised by one or more factors associated with urban streams:

- overflows from sewer systems
- significant and rapid runoff from impervious (hard surfaced) areas
- stream bank erosion due to increases in runoff
- sediment that covers habitat needed by fish and aquatic insects
- channel modifications such as straightening and shoring up with concrete or stones
- lack of rocks and boulders that create cascades and ponding areas
- insufficient vegetation along the banks
- periods of very low flow, high temperatures, or low dissolved oxygen

We can't control some of these factors - like low flows due to dry spells or high temperatures. Making improvements related to other factors will require numerous projects over several years, and we're committed to a program that should help. There are also things that individuals can do on private property, like minimizing the use of lawn chemicals, not mowing up to the banks of streams, or not cutting trees on the banks. We'll review these things throughout the report, and we'll look at how our major watersheds are doing with detailed sections in the report.

The charts on the next page reflect analyses of data as far back as 1999. They tell us that in 2013 for fish, algae and stream habitat, more than half the sites were in "good to excellent" condition, whereas for aquatic insects most sites were classified "poor to fair." The cooler than normal stream temperatures during 2013 sampling likely resulted in lower than normal observed aquatic insect health. Trends in fish, aquatic insects and stream habitat health indicate that more than half of the sites were improving. The algal communities at most sites either had no trend or were declining.



Biologist using a D-frame dip net to sample aquatic insects in a stream riffle.

We're also looking at other things like bacteria, nutrients and trace metals that can affect water quality. In 2013, we found that:

- 17 of the 27 Long-Term Monitoring Network sites had fecal coliform readings that averaged more than the recreational contact standard of 240 colonies per 100 milliliters. From 2000 to 2013, 14 of the sites' average readings were above the recreational contact standard, so this is a concern for us.
- Oxygen is a necessary element for all forms of life, including fish and other aquatic life forms. In 2013, only one site had a "poor" status for dissolved oxygen, four were "fair", nineteen were "good" and three sites do not have data. An analysis of trends in dissolved oxygen conditions (2007 to 2012) indicates that two sites were declining (Pennsylvania Run at Mt. Washington Road and the South Fork of Beargrass Creek at Brownsboro Road), eighteen had no trend, and four sites were improving.
- In 2013 twelve sites met water temperature standards of being no more than 31.7°C (89.1°F) 90% of the time, twelve sites met the criteria 100% of the time and there was no data for the other three sites.

*Partnering with the community
for clean and safe waterways*

- Nutrients consist of nitrates, total Kjeldahl nitrogen, and total phosphorus. We found that sites in the east and southeast parts of the region had the highest readings for nutrients while areas to the northeast and southwest had lower levels.
- For total suspended solids, only the site along Pond Creek at Manslick Road was a concern, with the other sites showing much lower readings.
- Trace metals (cadmium, copper, lead, and zinc) rarely exceed the criteria for aquatic life, and they are not a large issue of concern.

In general, we’ve found that streams within urban sections of our community have poorer results, especially in the lower sections of the watersheds. A variety of things contribute to the poorer water quality, but bacteria is the pollutant of major concern. As we continue to address sewer overflows, we expect this to improve. Our challenge will be to implement our projects and programs, along with cooperative agreements with others that will show tangible improvements.

For additional details on individual watersheds, please refer to the appropriate chapters in this report.

| 2013 Status Category | Fish | Aquatic Insects | Algae | Stream Habitat | Dissolved ¹ Oxygen | Water ¹ Temp | Fecal Coliform ² | Percent of Site’s Samples that are in the Upper Third of All Samples ³ | | | |
|----------------------|---------|-----------------|----------|----------------|-------------------------------|-------------------------|---|---|-------------------------|------------------|------------------------|
| | | | | | | | | Nitrate | Total Kjeldahl Nitrogen | Total Phosphorus | Total Suspended Solids |
| Excellent | 7 Sites | | 7 Sites | | | | Average of 2013 Monthly Geometric Means | | | | |
| Good | 6 Sites | 1 Site | 10 Sites | 14 Sites | 19 Sites | 12 Sites | 10 Sites | 13 Sites | 13 Sites | 12 sites | 13 sites |
| Fair | 8 sites | 14 sites | 7 sites | 6 sites | 4 sites | 12 Sites | – | 6 sites | 7 sites | 7 sites | 8 sites |
| Poor | 6 sites | 12 sites | 3 sites | 7 sites | 1 site | 0 Sites | 17 Sites | 8 sites | 7 sites | 8 sites | 6 sites |

¹ Three of the sites have no data for these parameters.

² Green color indicates that the average is less than the bacteria criteria for recreational contact and red indicates that average is greater than the bacteria criteria for recreational contact.

³ Green color indicates that percent is less than 29%, yellow indicates percent between 29-47% and red indicates percent greater than 47%.

| Trend Category | Fish | Aquatic Insects | Algae | Stream Habitat | Dissolved ¹ Oxygen | Water ¹ Temp | Fecal Coliform ⁴ |
|----------------|----------------|-----------------|----------|----------------|-------------------------------|-------------------------|---|
| | Oldest to 2013 | | | | 2007 to 2012 | | Period of Record Median (middle value) of the Monthly Geometric Means |
| Improving | 18 sites | 13 sites | 6 sites | 14 sites | 4 sites | 0 sites | 13 sites |
| No Trend | 6 sites | 9 sites | 10 sites | 10 sites | 18 sites | 24 sites | – |
| Declining | 3 sites | 5 sites | 11 sites | 3 sites | 2 sites | 0 sites | 14 sites |

¹ Three sites have no data for these parameters.

⁴ Green color indicates that the long-term median of monthly geometric means is less than the bacteria criteria for recreational contact and red indicates that the long-term median is greater than the bacteria criteria for recreational contact.

Introduction

About Metropolitan Sewer District (MSD)

MSD was formed in 1946 to take over the operation and maintenance of Louisville’s sewer systems. While wastewater treatment was added with the construction of the Morris Forman plant in the late 1950s, the basic mission remained the same through the 1970s.

Today, MSD is responsible for a much larger wastewater collection and treatment network, which continues to expand; a comprehensive public stormwater drainage system for most of Jefferson County; the operation and maintenance of the community’s Ohio River flood protection system; the LOJIC computerized mapping and geographic information system; and several other programs — including stream monitoring and hazardous materials control — designed to protect and enhance the environment.

MSD is a non-profit regional utility service. Its revenue comes from wastewater and stormwater service fees, plus

charges for extending wastewater lines and connecting new customers. MSD does not receive supplementary income from taxes or from other local government agencies. All of the agency’s revenue is used for operation, maintenance and extension, and improvement of services.

MSD is governed by an eight-member board. All members are appointed by the Louisville Metro Mayor, with the approval of the Metro Council. Members serve three-year terms and can be reappointed. The full Board meets once a month; committees meet as needed.

MSD periodically reports on the condition and quality of streams within its jurisdiction. This report fulfills requirements for MSD to produce a biennial Synthesis Report. As described below, MSD monitors the condition of streams in the Long Term Monitoring Network (LTMN) using a variety of methods.



Wet weather stream sampling.

MSD monitors streams throughout Louisville Metro, collecting samples on a regular basis and under various conditions in order to assess the quality of the water. Several steps have already been taken that are aimed at improving water quality. The stream monitoring program has been in place for more than twenty years. Projects that contribute to improving water quality have been underway longer than that. In the 1980s MSD began an effort to eliminate small neighborhood wastewater treatment plants and to replace aging, on-site septic systems with new sanitary sewers. In the past 30 years, over 260 small treatment plants and approximately 190 pumping stations have been eliminated by diverting their flow to larger, regional facilities, and more than 40,000 homes that relied on septic tanks or straight pipes have been connected to sanitary sewers.

More recently, MSD has initiated programs that improve maintenance of its collection and treatment facilities, assess the conditions of sewer systems (replacing them when practical), and offer assistance to property owners who are willing to reduce the amount of rainfall runoff into combined sewer systems that currently carry both wastewater and stormwater.

This report looks at several different criteria to assess how the streams and their watersheds are doing. What we're most interested in is whether or not water quality is improving.

MSD is spending millions of dollars to reduce pollution from overflows and to provide more effective treatment of wastewater. The water quality in our streams is an indicator of how much progress is being made, and it can guide us in selecting and scheduling future projects.

In selecting the criteria for assessing water quality, we should also ask ourselves:

- Is the parameter a good indicator of water quality / ecosystem health?
- Do the indicators tell a meaningful story about the streams?
- Are the tests we run affordable, and will they continue to be available in the future?

So how do we go about assessing the water quality in our streams? Some of the criteria we use are identified in our Municipal Separate Storm Sewer System (MS4) permit. They're mostly related to bacteria, chemicals and metals. But we also look at conditions in the streams that either support, or hamper, other living organisms like fish, algae and macroinvertebrates. We'll explain these in more detail later in the report, but they're good indicators when it comes to the health of the streams.

MSD has eliminated over 260 small treatment plants and approximately 190 pumping stations in Jefferson County

Partners with the Community

Eliminating and reducing overflows from sanitary and combined sewers is an obvious way to improve water quality, but there are also other methods that can be very effective, providing additional benefits to the community and the environment. Let's look at some of those other projects.

Eliminating Wastewater Treatment Plants

In 1980 MSD owned and operated six wastewater treatment plants. Three were regional facilities, serving large areas of the community, and three were small neighborhood plants, also known as package plants. A large portion of the community was served by privately owned package plants. These smaller facilities are expensive to operate and difficult to properly maintain. Some of the treatment plants were overstressed with more customers than they could handle, and nearing the end of their useful lives, requiring major investments in upgrades, but the private owners were reluctant to spend money on them.

In the mid-1980s MSD began a program to expand its wastewater system and to eliminate several of the package plants. Over the next 30+ years new regional plants were constructed and existing regional plants were expanded and upgraded. MSD also extended its network of sanitary sewers from the regional plants and diverted flow from the package plants to the regional systems. With every package plant elimination a "point source" of pollution was also eliminated. Today there are six regional plants, and eight package plants that are owned by MSD with only a handful of privately owned package plants still in existence. Within the next five years, MSD plans to eliminate all of the remaining package plants and one of their regional plants.

Eliminating On-Site Wastewater Disposal Systems

Before sanitary sewers were available to provide service, many areas outside the city limits of Louisville were served by on-site wastewater disposal systems. This usually consisted of a septic tank where the waste would decompose and settle to the bottom. The water at the top then went to either a seepage pit or a lateral field.

A seepage pit usually consisted of a brick-lined hole in the ground. The pit was approximately three feet in diameter and sometimes more than twenty feet deep. They were usually located in the southwestern part of Jefferson County, where sandy soils were thought to allow better absorption of water from the septic tank. In reality, they do not work very well, and the State of Kentucky no longer approves the installation of seepage pits anywhere.

Lateral fields consist of a series of pipes with holes that allow the water to soak into the ground. The system can work relatively well if the tank is cleaned regularly and if the soil characteristics are such that the ground will absorb the water slowly, but in many areas of Jefferson County the soil is primarily clay and poorly drained, and the water table high. During periods of rain, the ground becomes saturated and the ground water table rises above the level of the septic tank system, potentially allowing sewage to make its way to the streams.

In the mid-1980s, MSD's sewer expansion program was constructed with the capacity to allow property owners to abandon their on-site systems and connect to new sanitary sewers that would convey raw wastewater to regional treatment plants for treatment.

BENEFITS OF ELIMINATING WASTEWATER TREATMENT PLANTS

- ✓ Wastewater can be treated more effectively at regional facilities
- ✓ Flow from the system will be discharged to the Ohio River or to a larger stream
- ✓ Overflows from small package plants are eliminated

BENEFITS OF ELIMINATING ON-SITE WASTEWATER DISPOSAL SYSTEMS

- ✓ Regional treatment plants are much more effective at treating wastewater than septic tanks
- ✓ Failing septic systems create health hazards from raw wastewater standing in yards
- ✓ Drainage is improved since the flow from each home (approximately 200 gallons per day) doesn't have to be absorbed

Green Infrastructure

Capturing and infiltrating stormwater before it can reach streams and sewers reduces pollution in waterways. MSD's green infrastructure program uses engineered systems that act like natural landscapes to capture, cleanse and ultimately reduce the amount of stormwater entering sewers, creeks and waterways.

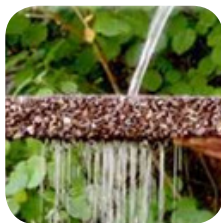
In combined sewer areas where pipes carry both wastewater and stormwater flows, green infrastructure projects help to

reduce sewer overflows. By keeping rainwater from entering sewer systems, pipes are less full and less likely to overflow.

Solutions can take many forms and can also be installed by homeowners and businesses. A program was initiated in 2009 that allows MSD to partner with commercial, industrial and institutional property owners who are willing to install green infrastructure projects (see www.msddgreen.org).



RAIN GARDENS
and Bio-swales are shallow areas with amended soil that absorb rainwater runoff into the ground.



PERVIOUS PAVEMENT
consists of porous materials that allow stormwater to soak through the pavement and into the soil.



GREEN ROOFS
capture stormwater with vegetation or other devices before it drains into sewers and waterways.



RAIN BARRELS
and Cisterns allow property owners to collect stormwater and then use the water during dry periods.

Sewer System Evaluation Studies

MSD is under a federal Consent Decree that requires an inspection of their sewer system over a 10-year period. Besides assessing the condition of their sewers, MSD also uses the studies to develop recommendations for improvements that will reduce the amount of stormwater and groundwater that enters the sewers. Sewer System Evaluation Studies (SSESs) are extensive, and several different methods are used to gather information on the lines. Some of these methods include:

- **Closed Circuit Television Inspection.** A small camera is inserted in a manhole and run through the sewer while a technician makes notes on the condition of the pipe. Items noted include roots, hairline cracks, larger breaks, offset pipe joints, leaks, and property service connections that were not installed correctly.
- **Manhole Inspections.** A crew assesses the condition of the inside of manholes, noting any structural defects or areas where water is entering the manhole.
- **Smoke Testing.** A harmless white smoke is forced into sewers at manholes. The smoke finds its way to the surface through cracks in the sewer, from catch basins or downspouts that may be connected to the sewer, or sometimes inside homes if sump pumps and floor drains are connected directly to the sewer.

Sewer Replacement Projects

In some cases, the problems are so extensive that MSD has chosen to replace the sanitary sewers in entire areas rather than doing point repairs or lining specific sections of pipes. In the Camp Taylor area, near the Louisville Zoo, sewers were installed during World War I to serve an army training facility. After the war ended, the property was subdivided and homes

BENEFITS OF SEWER REPLACEMENT PROJECTS

- ✓ New sewer systems that are less prone to wet weather problems
- ✓ Backups into homes and businesses caused by wet weather are eliminated
- ✓ In Beechwood Village the amount of wastewater being pumped from manholes into streams has been reduced from 20 million gallons per year to zero gallons per year

MSD has more than 3,200 miles of combined and sanitary only sewers that will be inspected over a ten year period.

Once the studies are completed, the data is used to make recommendations for corrective actions. These can include replacing pipes, lining pipes and manholes, making repairs and disconnecting catch basins and downspouts. Removing excess rainwater and groundwater increases the available capacity in sewers and reduces the number and frequency of overflows that pollute streams.

built with little thought to planning for utilities. This resulted in buildings being constructed over sanitary sewers and lines that are undersized for the number of properties that are connected to them. MSD has recently initiated a project to replace all of the sewers in two sections of Camp Taylor, affecting almost 500 properties.

In the Beechwood Village area just east of Louisville, groundwater levels are high, and several homes had their sump pumps connected directly to the sanitary sewer system. During rainstorms, water from the sump pumps would overwhelm the sanitary sewers, resulting in back-ups into homes. In order to prevent the back-ups, MSD would pump wastewater from a number of manholes directly into nearby creeks and ditches. As part of MSD's federal Consent Decree, these pumping arrangements had to be ended, and MSD decided to rehabilitate the sewers and disconnect all sump pumps from the system. It took six years and more than \$6.5 million to complete the project, but since its completion in 2011 MSD has not had to pump any water from the Beechwood Village area manholes.

It only takes four sump pumps running at the same time to completely fill an eight-inch diameter sewer.

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Wet Weather Storage Basins

Sometimes it's just too expensive to remove enough stormwater from the sewer system to eliminate overflows. In those cases it makes more sense to capture the excess flows, hold the water in a nearby basin until the level in the sewer drops back to normal, and then return the excess volume of water to the sewer system where it can be transported to a regional treatment plant.

MSD has constructed two large wet weather storage basins in the past year, allowing them to capture up to 120 million gallons of wastewater during any rain event where flows exceed the capacity of the sewer system.

Flood Protection Projects

Most people don't associate flood protection projects with improving water quality, but capturing the peak flows from storms reduces both the volume and the velocity in creeks and streams. Much of the erosion along stream banks is caused by rushing water, as it scours the sides of the streams. This increases the solids in the stream and chokes off the oxygen, both of which are harmful to fish and other stream life. Trees along the sides of streams can be lost during rain events, leading to less shade over the water. This raises the water temperature, which is also harmful to fish and plant life.

Flood storage basins are primarily intended to reduce flooding volumes, but reducing the velocity in creeks and streams is an added benefit.



18 million gallon wet weather storage basin at the Derek R. Guthrie Water Quality Treatment Center



Bells Lane wet weather storage basin under construction

The Long-Term Monitoring Network

In 1988, the Louisville and Jefferson County Metropolitan Sewer District (MSD) and the United States Geological Survey (USGS) began monitoring water quality and stream flow throughout the Jefferson County area. This program, called the Long-Term Monitoring Network (LTMN), has changed over the years and currently includes 27 LTMN sites selected to represent streams in the Metro area (see map on page 14).

Streams are constantly changing. They are affected by rainfall runoff, temperature, land use, man-made pollutants, and a number of other factors. Assessing water quality in streams can be complicated, and MSD uses a wide variety of chemical, physical, and biological data at each LTMN site to evaluate stream quality. MSD collects and analyzes the information in accordance with standards set by the Environmental Protection Agency and the Kentucky Division of Water. A Quality Assurance Project Plan has been implemented to ensure high quality data for all these methods.

This report provides information on the important chemical and physical aspects of water quality, such as data on nutrients, total suspended solids, trace metals, dissolved oxygen, water temperature, and stream flow that are collected frequently each year. Information also is collected on things that actually live in or near the streams, such as fish, aquatic insects (macroinvertebrates), algae, indicator bacteria, and stream habitat. Known as the biological community in streams, these organisms require clean water and suitable habitat to survive, and therefore they are an integrative tool that can be used to indicate whether streams are clean or polluted, doing better, or getting worse.

MSD has been collecting biological data since 1999, but it is not enough just knowing whether some of these organisms live in the waters. We need to know about their biological communities - what kinds (species) there are, how many of each, and if they are healthy. These communities are excellent indicators of stream health because they live in the water prior to sampling for weeks (algae) to months (insects) to years (fish) and, over that time, integrate environmental conditions such as water quality, stream flow, and the influence of other communities and habitat quality. More importantly, different species have different tolerances to the amount and types of water quality and flow conditions. Their presence, abundance, and health are indicative of conditions they experienced during their lives. By comparing past monitoring results to the most recent measures, we can determine whether sections of our streams are improving, staying the same, or declining. Also, with the right equipment they are easy to collect and identify in the field or laboratory.

The fish, aquatic insect, and algal communities and stream habitat each were evaluated using separate number scoring systems that consider the types and numbers of species

and other factors present and the ability of each species to tolerate stressful conditions and other factors (see tables on each type). The resulting number scores are translated into a narrative rating of “excellent”, “good”, “fair”, or “poor” that considers the region of the state and the size of the stream.

Data analysis for most parameters in this report included evaluating the newest results (status in 2013) and determining general trends based on a comparison of the oldest and newest results for each monitoring site. A trend was noted if the category changed by ten percent or more over time.

Fish: Fish are used as biological indicators in streams because of their stable populations. Fish can live for several years and are the most mobile of the three communities, moving to areas most suitable for their growth and survival as needed. Fish are particularly responsive to changes in flows, food supply, and habitat quality. They are found in many different types of streams, it's easy to distinguish different species, and much is known about the life histories and tolerance levels of various species. Data collected between 1999 and 2013 were included in this report.



Fish are collected using a common scientific survey method known as electro-fishing. Electricity is used to stun fish before they are caught. This method is used to sample fish populations and normally the fish are returned to the stream unharmed in as little as ten minutes after being stunned. One person operates the equipment that stuns the fish while others catch the stunned fish with a net and place them in a bucket of stream water. The fish are identified and then returned to the stream.

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Aquatic Insects: Aquatic insects that live on, under, and around rocks and sediment on the bottoms of streams, also called benthic macroinvertebrates, are useful as biological indicators in streams. Macroinvertebrates are organisms without backbones, which are visible to the eye without the aid of a microscope. These insects can live in water for weeks or months but are less able than fish to move to areas most suitable for their growth and survival. They include beetles, mayflies, stoneflies, dragonflies, aquatic worms, snails, leeches and a number of other organisms. They are particularly responsive to changes in flows, sediment, food supply, and habitat quality. Data collected between 2000 and 2013 was included in this report.



Collecting aquatic insects with a net, called a kick sampler, or from rocks that are in the sampling area. The “bugs” are picked, bottled in alcohol, and sent to a lab where they are identified, counted, and results are entered into a database for analysis.

Algae: The small green plant-like organisms that live on the rocks and other materials on the bottoms of streams are called benthic algae. These algae have limited mobility, staying in areas suitable for their survival for weeks to months. They are particularly responsive to stream nutrient concentrations, sunlight, and the effects of sedimentation. Data collected between 2001 and 2013 were included in this report. The photo below shows a biologist placing ceramic tiles for collecting algae in the Middle Fork of Beargrass Creek. Tiles are securely anchored in a stream and left to grow algae for a minimum of 15 days before collection for later identification and enumeration in a lab.



Placing ceramic tiles for collecting algae in the Middle Fork of Beargrass Creek.

Stream Habitat: Stream habitat is both the underwater environment that is used as a living space by fish, aquatic insects, other plants and animals, and the vegetation conditions near the stream channel. Fish, aquatic insects, and algae must rely on their local environment for food and shelter. Streams that have a variety of habitats, with shallow and deep areas, fast and slow water, and places with plenty of rocks and shade

are characteristics of good habitats (photo below). Streams with eroding banks, large amounts of silt and sediment, and straightened stream channels are characteristics of poorer habitats. Data collected between 2005 and 2013 were included in this report. A Kentucky stream habitat index was used that has ten metrics (measures) to determine habitat condition and includes measures of the frequency of riffles and bends, overall bank stability, velocity/depth variability, amount of flow, percent vegetative protection along banks, width of the riparian area, suitability of streambed for insect/fish cover, sediment deposition/bed stability, embeddedness of rocks, and the degree of channel alteration.



Streams that have a variety of habitats, with shallow and deep areas, fast and slow water, and places with plenty of rocks and shade are characteristics of good habitats.

Indicator Bacteria: Bacteria and viruses that live in the water and on the bottom of streams are both natural and critical components in healthy streams. Some bacteria and viruses in wastewater inflows and runoff from urban surfaces, however, can lead to less healthy conditions, especially if they come from untreated animal or human waste. There are two types of bacteria that are commonly used to indicate whether streams are clean or polluted, getting better or worse. Fecal coliform bacteria are one type, more generally indicative of the presence of some kinds of fecal material. The other type, *E. coli* bacteria, is more indicative of the presence of fecal material from warm blooded animals, including humans. Both bacteria types have established criteria by the Kentucky Division of Water, mainly related to body contact recreation by humans. MSD has collected data on fecal coliform bacteria since 2000 and *E. coli* bacteria since 2011. These data were included in this report. Unlike fish and aquatic insects, which used computed indices of health, the status and trends of bacteria at each site were measured by computing the geometric means of samples collected in each month from April through October and comparing the average (status of 2013) and the period of record medians of these geometric means to the Kentucky criteria for contact recreation.

AQUATIC COMMUNITIES ARE ASSESSED USING MULTIPLE INDICATORS (KNOWN AS METRICS) DEVELOPED BY THE KENTUCKY DIVISION OF WATER. METRICS FOR EACH COMMUNITY ARE COMBINED FOR AN OVERALL COMMUNITY SCORE FOR A STREAM. NARRATIVE CRITERIA (GOOD, FAIR, POOR) FOR A SCORE ARE BASED ON REGIONAL STREAM DATA AND SIZE.

| FISH COMMUNITY METRICS | AQUATIC INSECT COMMUNITY METRICS | ALGAE COMMUNITY METRICS (MOSTLY DIATOMS) |
|---|--|--|
| Total number of native species present in a sample. Non-natives are indicators of impairment (only used in wadeable streams). | A measure derived from pollution tolerance values assigned to insects present within a sample (Modified Hilsenhoff Biotic Index). | Total number of certain species present in a sample that are susceptible to impairment by sedimentation (Siltation Index). |
| Total number of species present that fall within the darter tribe, madtom genus, and sculpin genus. | Total number of mayfly, stonefly, and caddisfly classifications present in a sample. | How many different species and how evenly distributed they are (Shannon Diversity Index). |
| Total number of intolerant (most susceptible to impairment) species present in a sample. | Total number of all classifications present in a sample, also known as taxa richness. | Total number of diatom taxa, also known as taxa richness. |
| Total number of species that require relatively clean gravel for simple spawning. | Relative abundance (percent) of mayfly, stonefly, and caddisfly taxa excluding the relatively tolerant caddisfly genus <i>Cheumatopsyche</i> . | Relative abundance of pollution tolerant species that increase in abundance due to impairment (Pollution Tolerance Index). |
| Relative abundance of individuals of species that consume insects, excluding tolerant individuals. | Relative abundance of organisms that require hard, silt-free surfaces on which to “cling”. | Relative abundance of individuals that are in the <i>Fragilaria</i> Group (<i>Fragilaria</i> Group Richness). |
| Relative abundance of pollution tolerant species that increase in abundance due to impairment. | Relative abundance of midges and freshwater worms, which are generally pollution tolerant organisms. | Relative abundance of individuals that are in the <i>Cymbella</i> Group (<i>Cymbella</i> Group Richness). |
| Relative abundance of species that are atypical of headwater streams. | Relative abundance of mayfly taxa (only in headwater streams). | |

Dissolved Oxygen and Stream Temperature: Both fish and aquatic insects rely on oxygen that is dissolved in water to “breathe”. When oxygen levels are too low, it causes stress on all aquatic organisms. A dissolved oxygen reading less than four milligrams per liter at any time, or average readings of less than five milligrams per liter over a 24-hour period are considered stressful for aquatic organisms. Dissolved oxygen can be lowered by natural factors such as low streamflow, hot days, and lack of shade, and also by excessive algae and organic pollution. Stream temperature also is important to the health of aquatic communities. Water temperatures in excess of 31.7°C (89.1°F) also stress the aquatic communities both by increasing metabolism and respiration, and by lowering the capacity of water to actually hold dissolved oxygen.

MSD and the USGS have continuously monitored stream temperature and dissolved oxygen at the 27 LTMN sites since 2000. This level of effort highlights MSD’s commitment to effectively monitor the quality and condition of streams in Jefferson County. The data are collected using protocols developed by the USGS. It is important to note that collection of continuous dissolved oxygen data requires diligent attention to cleaning and calibrating the monitor probes that are used to collect the readings every 15 minutes. In some streams, the probes can frequently become dirty or covered by silt, resulting in missing or erroneous data. MSD has developed a Quality Assurance Project Plan with USGS to improve the maintenance of these probes. Dissolved oxygen and water temperature data collected by MSD and USGS between 2005 and 2013 were assessed for this report.

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For this report, the average daily dissolved oxygen concentration was calculated from dissolved oxygen readings collected at 15 minute intervals. Days with more than half of the data missing were not included in the analysis. Results were grouped into rating categories based on the percent of days when average dissolved oxygen concentrations were above five parts per million. A “good” rating is when 100 percent of the days with valid data per year were above five parts per million, a “fair” rating is when more than 90 percent of days with valid data per year were above five parts per million; and a “poor” rating is when less than 90 percent of days with valid data per year were above five parts per million.

Total Suspended Solids: The amount of sediment carried in a stream depends on the amount of erosion of unprotected land surfaces, wash off of impervious surfaces, and erosion or scouring of the stream banks and beds in the watershed during rainfall events. When carried in large amounts, sediment can deposit on and reduce the quality of stream habitat for fish and other aquatic organisms downstream. Data on the concentrations of total suspended solids in streams is a measure of those processes. MSD monitored concentrations of total suspended solids in streams periodically from 2000 to 2004 and on a quarterly basis since 2005 at all sites.

Stream Nutrients: The amount of nutrients carried in a stream depends on the amount of wash off of various land surfaces and the erosion or scouring of the stream bed and banks during rainfall events. Nutrients are necessary for the growth of algae, which is a food source for fish and aquatic insects. When carried in large amounts, however, nutrients can lead to excessive algal growth and reduce both the dissolved oxygen and quality of stream habitat needed by fish and other aquatic organisms in a stream. Data on the concentrations of total phosphorus, nitrate nitrogen, and total Kjeldahl nitrogen (a laboratory measure of the total ammonia and organic nitrogen) in streams are chemical analyses that help measure, in part, the chemical health of a stream. MSD monitored concentrations of nutrients (nitrogen and phosphorus) in streams periodically from 2000 to 2004 and on a quarterly basis since 2005 at all sites.

Owing to a current lack of water quality criteria for nutrients and total suspended solids in streams, a relative comparison of all LTMN data was used. The breakpoint concentration between the upper third and lower two thirds of all samples at all 27 MSD LTMN sites collected since 2005 were calculated for each of these constituents. The percent of samples above these breakpoints for each site was considered indicative of how each site qualitatively relates to other streams in the Louisville Metro area. In a sense, by using all data at all sites for comparison, this approach is a combined measure of status and trends.

Trace Metals: Trace metals generally are carried, as the name implies, in trace amounts, either dissolved or more commonly on particles (sediment) in stream flow. The amount of metals carried in a stream not only depends on the amount of wash off of various land surfaces during rainfall events but also in the discharge of wastewaters during both low and high flows. Trace amounts of metals are necessary for the healthy growth of algae, fish, and aquatic insects. When carried in excess of their needs, however, metals in water can lead to unhealthy exposure to fish and other aquatic organisms. Data on the concentrations of total metals in streams are chemical analyses that, in part, reflect the chemical health of a stream. MSD monitored concentrations of total metals in streams periodically from 2000 to 2004 and on a quarterly basis since 2005. Concentrations of total metals at each site were compared to the Kentucky acute Aquatic Life Criteria (ALC), where they exist, based either on a published value or on an equation using total hardness concentrations.



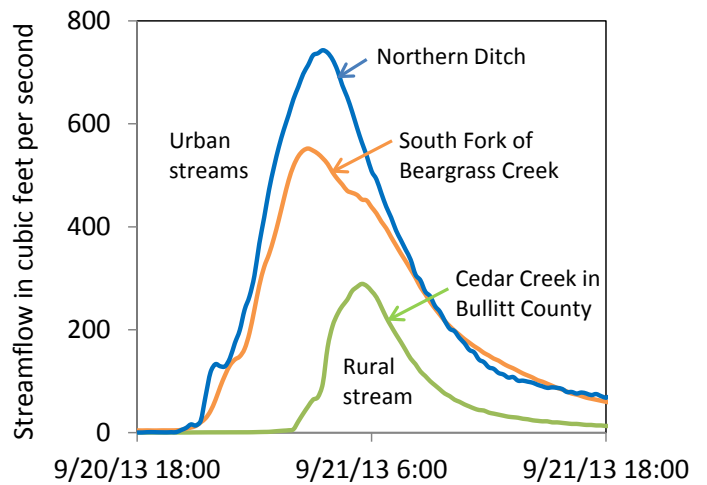
MSD Laboratory personnel perform analyses of water samples.

Streamflow: The amount of flow in a stream has a major influence on fish and aquatic insects. Streamflow varies naturally in response to rain, and seasonally tends to be higher in the winter and spring, lower in summer and fall. Streams may flow very little or not at all during times of drought. Periodic low flows can stress aquatic organisms by reducing the amount of stream habitat available to them, and if concurrent with hot air temperatures, can lead to excessive stream temperature and low dissolved oxygen conditions. Very high flow can reduce habitat quality critical to organisms by eroding stream banks and beds, by moving or covering stream bed habitat like rocks and woody

debris, and by physical scouring or displacement of organisms. Higher stream flow can increase significantly both in frequency and volume in areas where hard surfaces (impervious) such as roofs and roads prevent water from filtering into the soil. MSD and the USGS have continuously monitored stream flow at 25 of the 27 LTMN sites. The analysis of stream flow for this report focused simply on a comparison of the average annual runoff at each LTMN site since 1999. Stream flow data is used by many agencies besides MSD for a variety of purposes, including planning for water supply, floods, and droughts, as well as understanding stream conditions in different land use settings.

The graph of streamflow (to the right) illustrates the differences in runoff from three watersheds of different land use. The urban watersheds, Northern Ditch and the South Fork of Beargrass Creek, tend to have higher streamflow during the same storm than the similar sized rural or undeveloped watershed, Cedar Creek in Bullitt County. These urban streams have more impervious surfaces (17 and 22 percent, respectively), including roadways, rooftops and driveways, where decreased infiltration of rain results in more water running off and therefore, higher stream flows. Less developed watersheds in the outer perimeter of the Louisville Metro area tend to have a more gradual or at least smaller rise in stream flow, like the Cedar Creek example.

Comparison of Streamflow in Urban and Rural Streams for a Storm of Over Two Inches of Rain



This USGS streamflow gage (gray box in photo) is located on Cedar Creek at Thixton Lane. This type of gage is used to continuously monitor stream temperature, dissolved oxygen, and stream flow. The antenna on top of the box transmits data to a satellite for real time monitoring results via the web at <http://waterwatch.usgs.gov>

Watershed Reports

There are ten primary watersheds in Jefferson County, Kentucky (see the map on the facing page). Two of the streams (Harrods Creek and Floyds Fork) have their headwaters in other counties and flow into Jefferson County. About a quarter of the Pond Creek watershed lies in Bullitt County, and that water enters the main stem of the creek near the southwestern tip of Jefferson County.

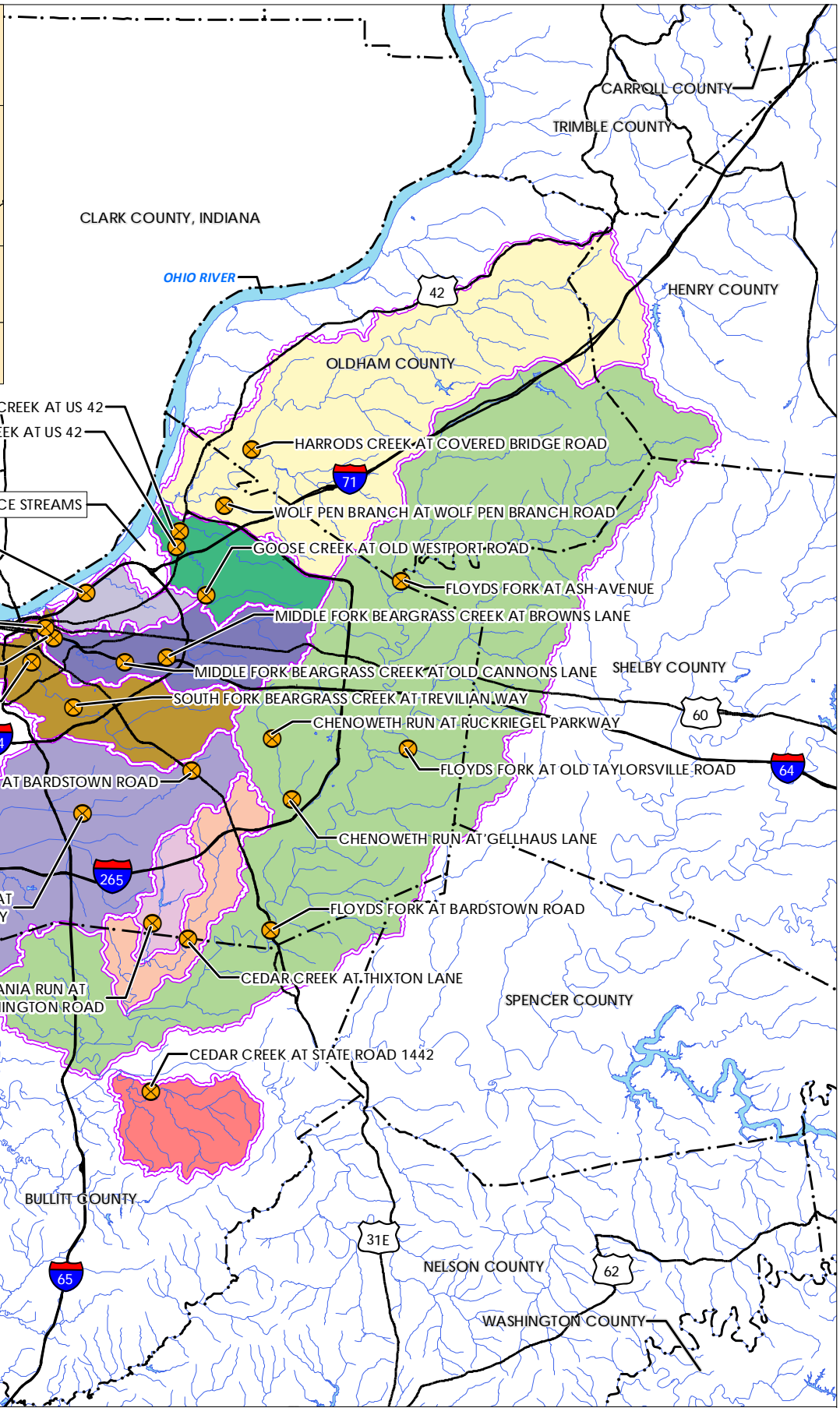
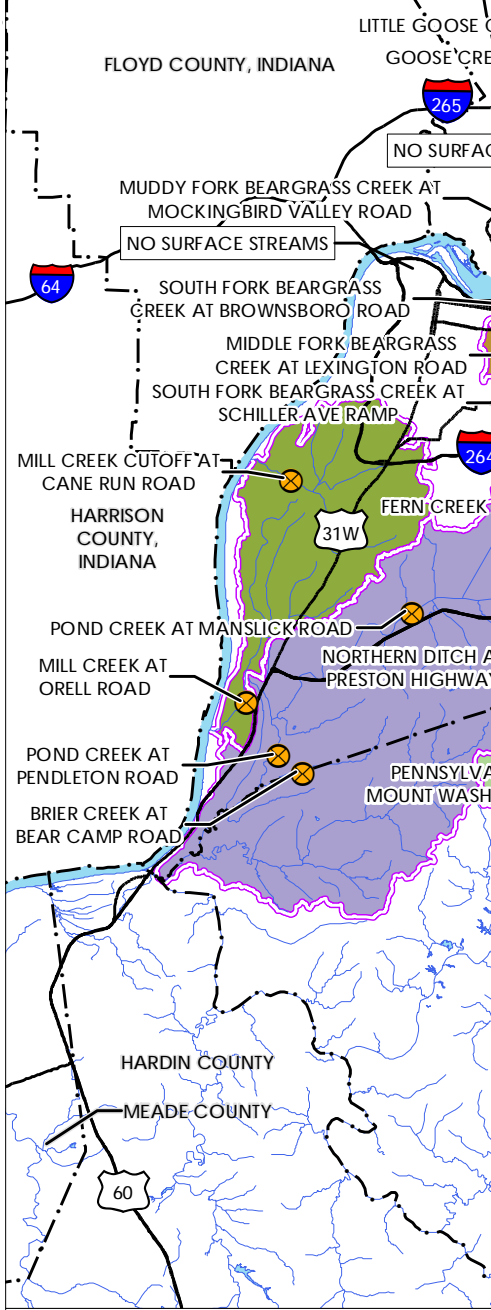
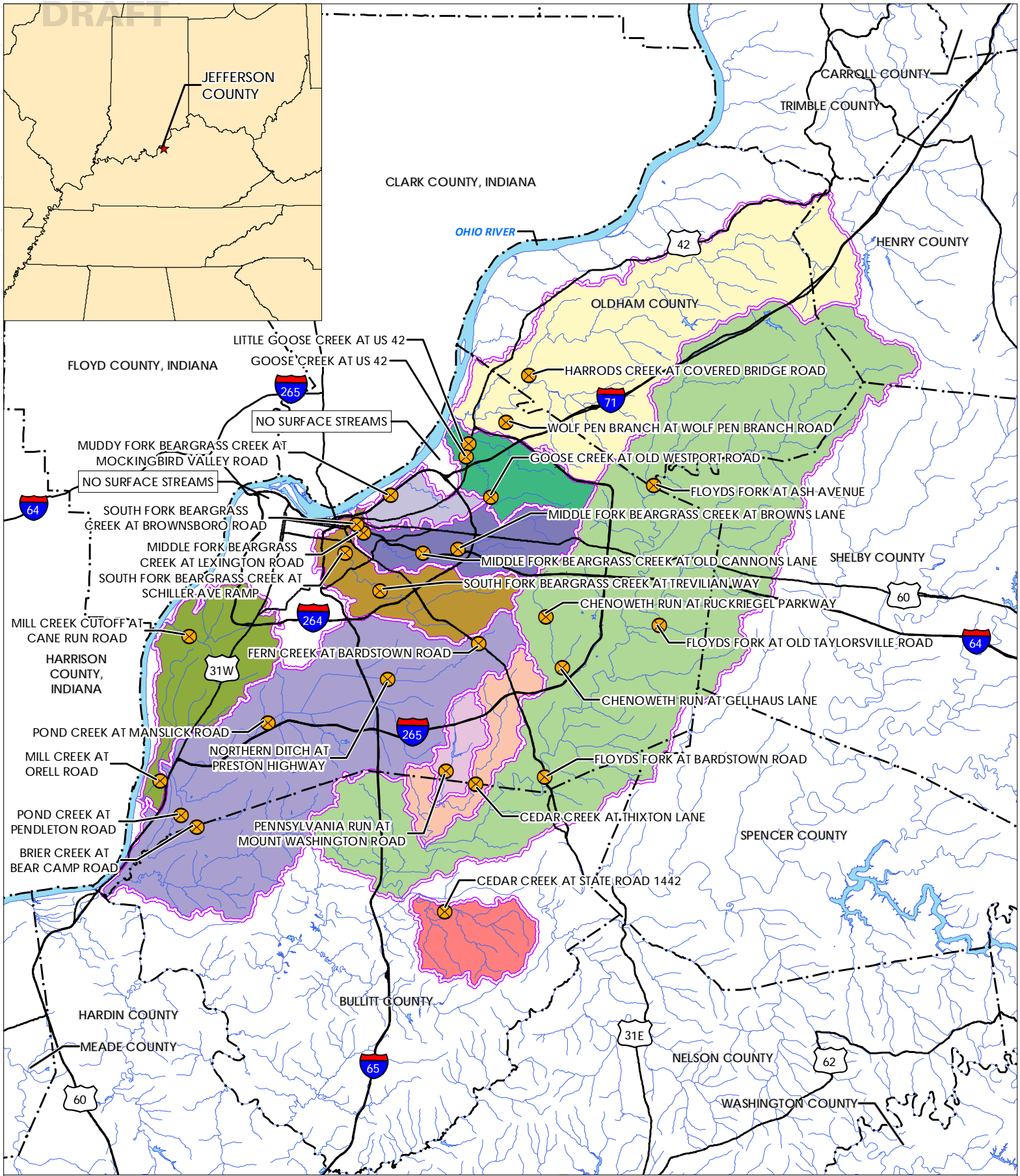
MSD has been collecting stream samples from these watersheds for decades, along with a watershed that lies entirely in Bullitt County. Cedar Creek in Bullitt County was included in MSD’s sampling program to act as a “control” because there is relatively little development

in the watershed and impervious surfaces (roads, parking lots, roofs, etc.) are minimal when compared to the ten other watersheds.

In order to assess our past efforts to improve water quality, and to make decisions on future actions, samples are collected from streams and those samples are analyzed for a number of parameters, including bacteria, suspended solids, oxygen demand, nutrients, metals and more. We also evaluate habitats in the streams for a variety of organisms like fish, algae and aquatic insects. This information is compared to previous samples and compiled into reports for each watershed. The results are presented on the following pages in this section.



Big Run, along the Glenmary golf course in Southeastern Jefferson County



Harrods Creek Watershed

The small streams that eventually form Harrods Creek originate in Trimble County. Harrods Creek flows southwest through Oldham County and drains into the Ohio River in northern Jefferson County near Prospect. The Harrods Creek watershed drains approximately 92 square miles. Commercial and residential development has been expanding in the area.

Watershed Assessment

The health of the aquatic communities in the two sites of the Harrods Creek watershed was variable over time and between sites. The fish communities in Harrods Creek currently were rated “good” but were variably in “fair” to “excellent” condition over time. Fish communities in Wolf Pen Branch have been declining from “good” in 2002 to “fair” condition in 2005-2013. Since 2000, the aquatic insect community at the Harrods Creek site has declined steadily from an “excellent” to a “fair” condition in 2013 and also has declined since 2005 in Wolf Pen Branch from “fair” to “poor” conditions. The algal community at the Harrods Creek site improved from “good” in 2001 to “excellent” in 2011 and 2013. The Wolf Pen Branch site was in “fair” condition in 2013, and was rated variably “fair” to “excellent” in the past.

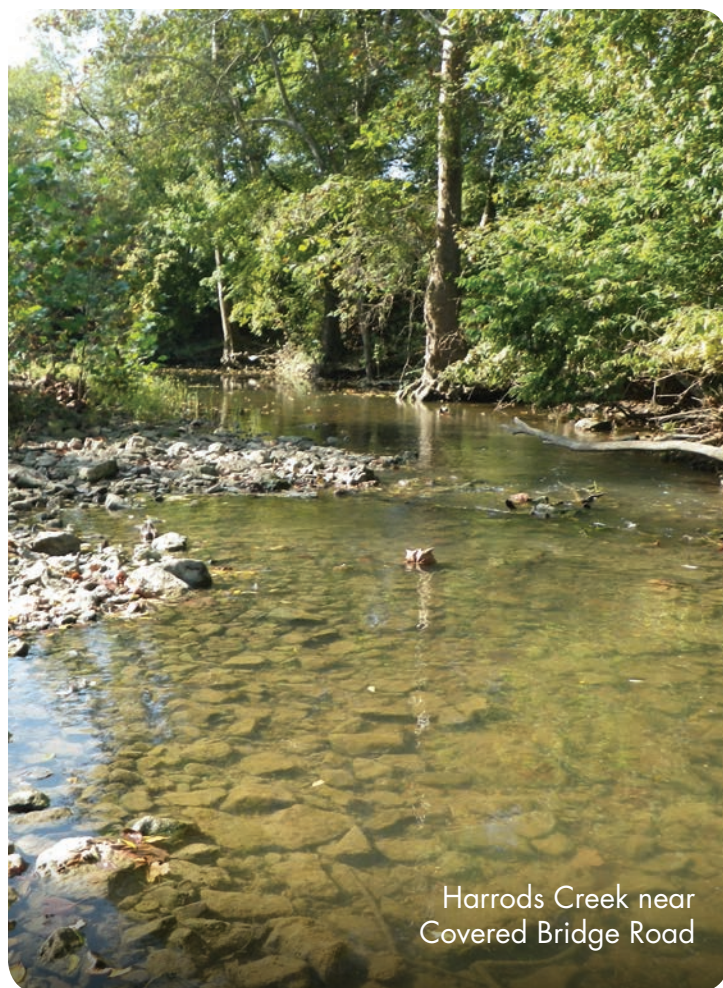
In Harrods Creek, stream habitat quality was classified as “good” in all years since 2005. Habitat quality improved from “poor” to “good” in Wolf Pen Branch between 2005 and 2013. Sediment deposition and an unstable stream bed were identified as habitat limitations in Wolf Pen Branch during previous years.

For fecal coliform bacteria, the period of record median (the middle value) of the monthly geomeans for the Harrods Creek site was below the recreational standard of 200 colonies/100ml, whereas, the median for Wolf Pen Branch was above the standard. Individual monthly geomeans were variably above and below the standard, with no apparent trend over time. For the three years of data of *E. coli* bacteria, most of the monthly geomeans at the Wolf Pen Branch site were above the recreational standard of 130 colonies/100ml, whereas, many of Harrods Creek geomeans were not.

Total phosphorus, nitrate, total Kjeldahl nitrogen, and total suspended solids values were relatively low at both sites compared to other LTMN sites, indicating that currently excessive nutrients are not a major concern in the watershed.

More recent wet weather event sampling data confirms the historical data here in that trace metals are not much of an issue of concern in these streams.

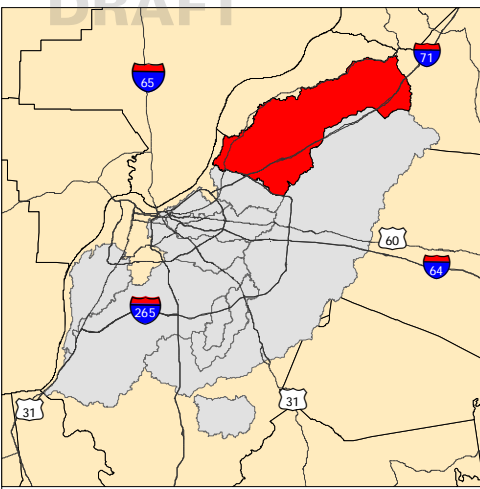
Dissolved oxygen conditions were in “good” condition at the Harrods Creek site for the last five years and water temperature criteria (no more than 31.7°C (89.1°F)) were met 96.7 to 100 percent of the time. The Wolf Pen Branch site had no data. Periodic hot days and low stream flows occasionally can cause exceedances of dissolved oxygen or temperature criteria.



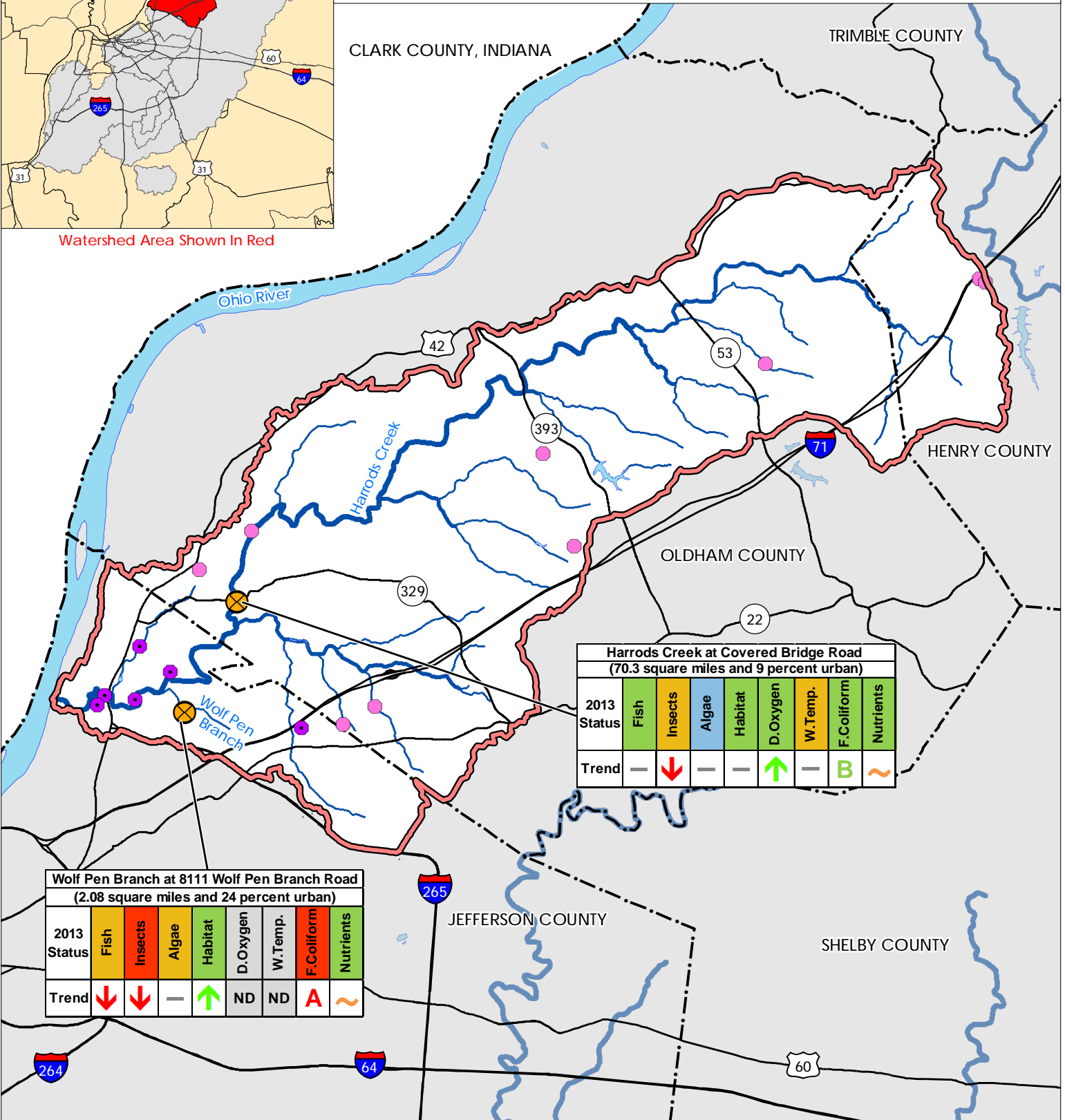
Harrods Creek near Covered Bridge Road

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HARRODS CREEK WATERSHED WATER QUALITY STATUS AND TRENDS



Watershed Area Shown In Red



Harrods Creek at Covered Bridge Road
(70.3 square miles and 9 percent urban)

| 2013 Status | Fish | Insects | Algae | Habitat | D. Oxygen | W. Temp. | F. Coliform | Nutrients |
|-------------|------|---------|-------|---------|-----------|----------|-------------|-----------|
| Trend | — | ↓ | — | — | ↑ | — | B | ~ |

Wolf Pen Branch at 8111 Wolf Pen Branch Road
(2.08 square miles and 24 percent urban)

| 2013 Status | Fish | Insects | Algae | Habitat | D. Oxygen | W. Temp. | F. Coliform | Nutrients |
|-------------|------|---------|-------|---------|-----------|----------|-------------|-----------|
| Trend | ↓ | ↓ | — | ↑ | ND | ND | A | ~ |



Legend

- Monitoring Site
- Sewage Treatment Plant (Operated by MSD)
- Sewage Treatment Plant (Operated by Other Agency)
- Stream
- Road
- County Boundary
- Watershed Boundary
- Lake

TREND

- Improving
- Declining
- Varies
- No Change
- No Data

STATUS

- Excellent
- Good
- Fair
- Poor / Very Poor
- A Long Term Median Above the Criteria
- B Long Term Median Below the Criteria

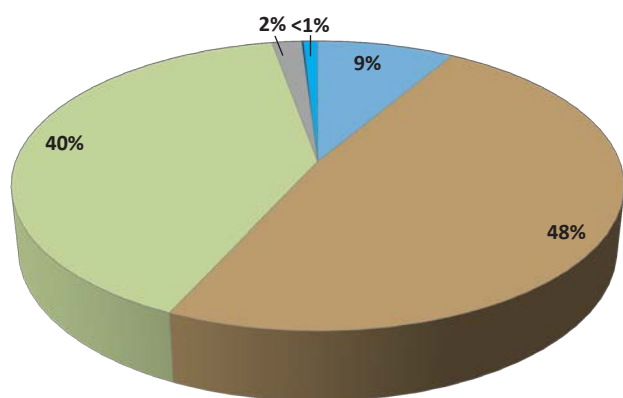
RATINGS KEY

Background and Land Use

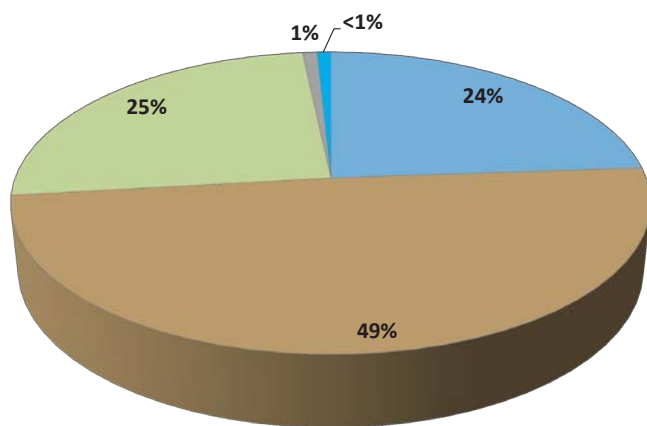
MSD has been monitoring water quality and flow in Harrods Creek at Covered Bridge Road since 1999. There are 70.3 square miles of land draining to the monitoring site on Harrods Creek at Covered Bridge Road. This land is mostly agricultural and forest. Nine percent of the land has been developed for urban and suburban uses. Approximately 1.3 percent of the land is covered by impervious surfaces such as roads, rooftops and driveways.

MSD has been monitoring water quality of the Wolf Pen Branch tributary since 2002; flow is not monitored at this location. There are 2 square miles of land draining to the monitoring site on Wolf Pen Branch. This land is a mix of agricultural, forest, and 24 percent is developed for urban and suburban uses. Approximately 7 percent of the land is covered by impervious surfaces.

Land Use Upstream of Harrods Creek at Covered Bridge Road



Land Use Upstream of Wolf Pen Branch at 8111 Wolf Pen Branch Road



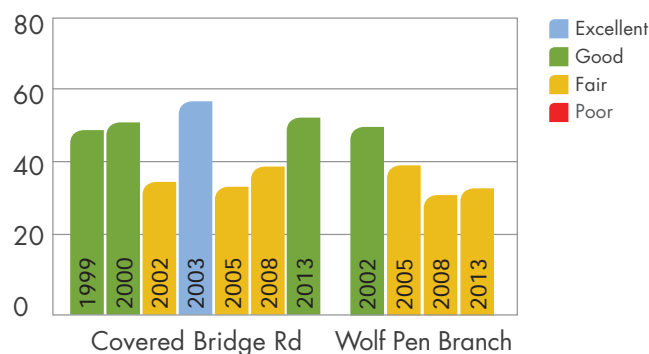
- Urban & Suburban
- Agriculture
- Barren
- Water & Wetland
- Forest
- Grassland

Monitoring Findings

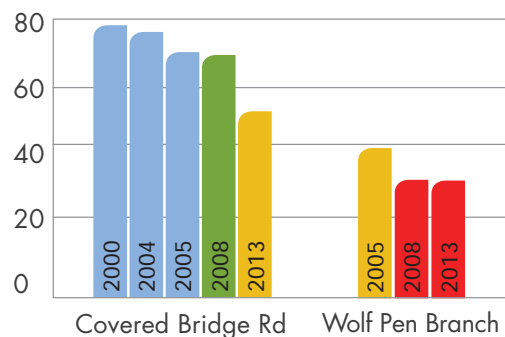
MSD has monitored the fish communities in Harrods Creek at Covered Bridge Road since 1999. During this time, the fish communities were variably in “fair” to “excellent” condition and currently “good”. Fish communities in Wolf Pen Branch have been declining from “good” in 2002 to “fair” condition in 2005-2013.

Since 2000, the aquatic insect communities at the Harrods Creek site have declined steadily from an “excellent” to a “fair” condition in 2013. The aquatic insect communities in Wolf Pen Branch also have declined since 2005 from “fair” to “poor” condition.

Condition of the Fish Communities in the Harrods Creek Watershed



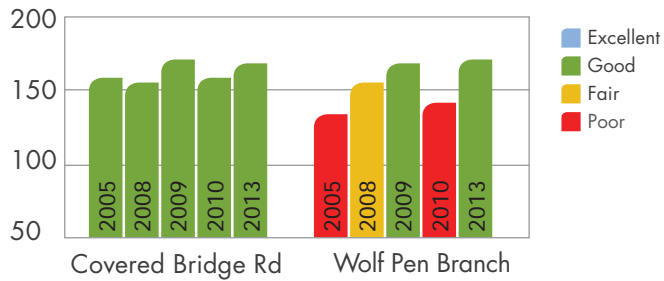
Condition of Aquatic Insect Communities in the Harrods Creek Watershed



MSD has assessed stream habitat when fish and aquatic insects were sampled since 2005. In Harrods Creek, habitat was classified as “good” in all years since. Habitat quality improved from “poor” to “good” in Wolf Pen Branch between 2005 and 2013. Sediment deposition and an unstable stream bed were identified as habitat limitations in the Wolf Pen Branch site in previous years.

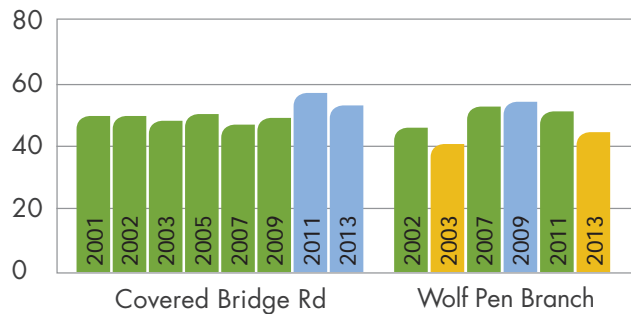
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Condition of Stream Habitat Communities in the Harrods Creek Watershed



MSD has monitored benthic algal communities, largely diatoms, in the Harrods Creek watershed since 2001. Using a Diatom Bioassessment Index (DBI), the Covered Bridge Road site was rated “good” from 2001 through 2009 and improved to an “excellent” condition in 2011 and 2013. The Wolf Pen Branch site was rated variably “fair” to “excellent” through 2009 but has declined to a “fair” condition in 2013.

Condition of Algal Communities in the Harrods Creek Watershed



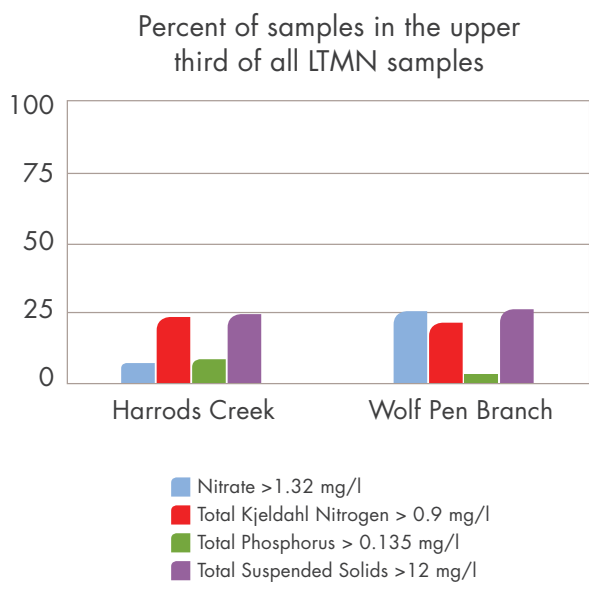
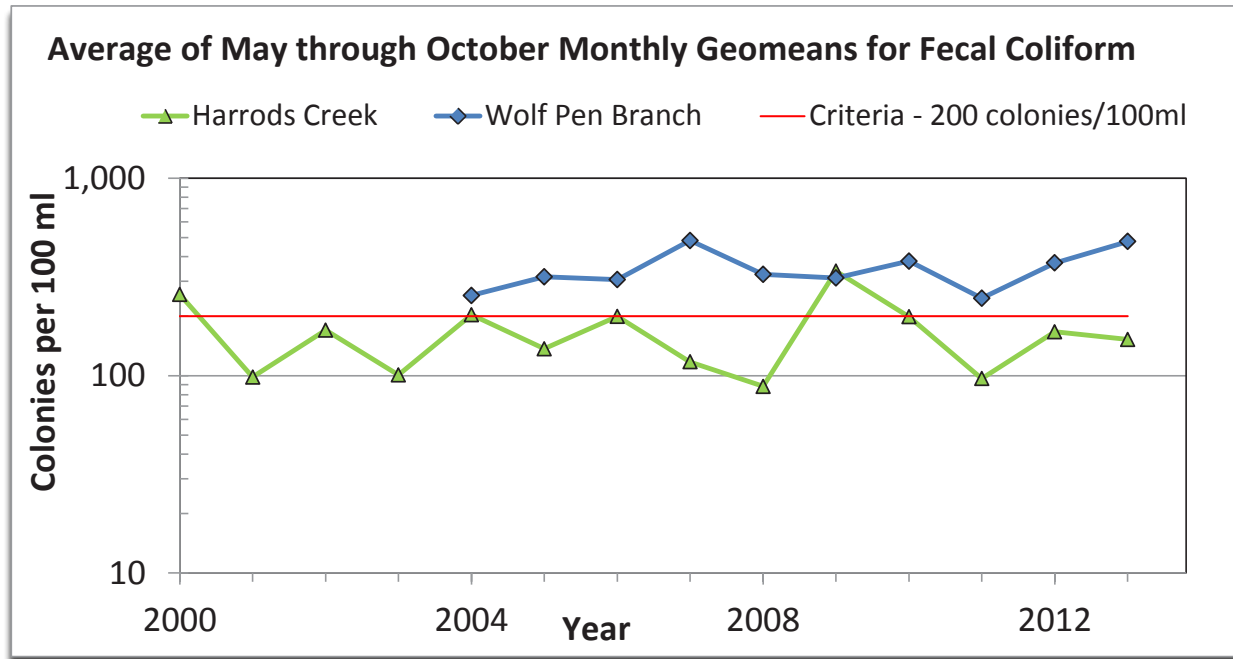
MSD plans to eliminate five neighborhood wastewater treatment plants in the Prospect area in 2015, including the Timberlake plant (*above right*) and the Hunting Creek South plant (*right*).

Since 2000, MSD has monitored fecal coliform bacteria 3 to 5 times a month during the recreational season (April-October). *E. coli* bacteria were collected similarly, but only since 2011. The monthly geomeans of bacteria concentrations were calculated and compared to the recreational contact standard or criteria for each type.

For fecal coliform bacteria, people should not swim in streams if the readings are higher than 200 colonies/100ml during the recreational season, which runs from May 1 through October 31 each year. The period of record median (the middle value) of the monthly geomeans for the Harrods Creek site was below the

recreational standard of 200 colonies/100ml, whereas, the 10 year median for Wolf Pen Branch was above the standard. Individual monthly geomeans were variably above and below the standard (not shown), with no apparent trend over the period of record. There was a tendency, however, for higher monthly geomeans earlier in the recreational season than later in the season for some years, which could be related to lower stream flows later in the season.

For the three years of data collection of *E. coli* bacteria (not shown), most of the monthly geomeans at the Wolf Pen Branch site were above the recreational standard of 130 colonies/100ml, whereas, many of Harrods Creek geomeans were not.



MSD monitored the concentrations of nutrients (nitrogen and phosphorus) and total suspended solids in streams periodically from 2000 to 2005 and on a quarterly basis since 2005 at two sites in the Harrods Creek watershed. The percent of samples taken at these sites which fall into the upper third of all samples at all 27 sites were calculated as a comparison to other streams in the watershed and throughout the Metro area.

Both sites in the Harrods Creek watershed had relatively low numbers of samples in the upper third for nutrient data, with most parameters under 25%. The sites also had very similar values for all parameters with the exception of nitrate, which was somewhat higher at the Wolf Pen Branch site than the Harrods Creek site.

MSD monitored concentrations of trace metals in streams periodically from 2000 to 2005 and on a quarterly basis since 2005. For those metals with criteria, total metal concentrations in stream samples were compared to the acute Aquatic Life Criteria (ALC) for each metal. The acute ALC for total concentrations of cadmium, copper, lead, mercury and zinc were not exceeded in any samples at either of the two sites.

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MSD and the US Geological Survey continuously monitor streamflow, dissolved oxygen, and water temperature on Harrods Creek at Covered Bridge Road (Highway 329). Streamflow has been monitored at this USGS gage (number 03292470) since 1999.

Fish and aquatic insects need dissolved oxygen to breathe, and amounts greater than four parts per million (as an instantaneous standard) or five parts per million (as a mean daily standard) are what is deemed necessary. Water temperatures in excess of 31.7°C (89.1°F) are very stressful on the aquatic communities both by increasing metabolism and respiration, and by lowering the capacity of water to actually hold dissolved oxygen. In general, extended periods of low stream flows also can cause stress on aquatic communities.

Dissolved oxygen criteria were met 95.5 to 100 percent of the time and in “good” condition at the Harrods Creek site for the last five years, but in 2007 it was 87.8 percent and in ‘fair’ condition. Occasional excursions of low dissolved oxygen likely were a result of very low stream flows on very warm days or some other transient factor.

Water temperature criteria were met 100 percent of the time in 2008 to 2010 at the Harrods Creek site. The percent of the time that the criteria were met in 2007, 2011, and 2012 was 99.3, 96.7, and 98.6 percent, respectively. Temperature data was not available for the Wolf Pen Branch site. Periodic hot days and low stream flows are common in the summer and occasionally cause an exceedance of the criteria.



Goose Creek Watershed

The streams that form the Goose Creek Watershed, Little Goose Creek and Goose Creek, flow northwest from Anchorage to Glenview Acres. Goose Creek enters into the Ohio River near Lime Kiln Lane and River Road.

Watershed Assessment

The fish and algal communities and stream habitat at all three Goose Creek sites are in “good to excellent” health in 2013, whereas, the aquatic insect communities generally were in “poor” or “fair” health at all three sites. The health of the fish communities and stream habitat generally have improved over time, but conditions in aquatic insect and algal communities in Goose Creek at US 42 have declined, while the algal communities upstream at Old Westport Road have improved over time. Sediment deposition and unstable banks have been identified in these streams as a limitation of the habitat quality that would affect both insects and algae health.

For fecal coliform bacteria, the period of record median (the middle value) of the monthly geomeans for Little Goose Creek site was below the recreational standard of 200 colonies/100ml, whereas, the period of record medians for the two Goose Creek sites were above the standard. Individual monthly geomeans were variably above and below the standard, with no apparent trend over time. For the three years of data on *E. coli* bacteria, most of the monthly geomeans at the three sites were above the recreational standard of 130 colonies/100ml.

Compared to the other LTMN sites, Little Goose Creek at US 42 had some of the highest values for nitrate, total Kjeldahl nitrogen, and total suspended solids, with nearly 80 percent of its samples in the upper third of all LTMN samples for nitrate and over 60 percent of samples in the upper third for the latter two parameters. Goose Creek at US 42 also had a relatively high number of nitrate samples in the upper third at 48 percent. The farthest upstream site, Goose Creek at Old Westport Road, had lower numbers of samples in the upper third for all parameters compared to the other two sites in the watershed. Total suspended solids are relatively low at the two Goose Creek sites. Total phosphorus is relatively low at all the three sites.

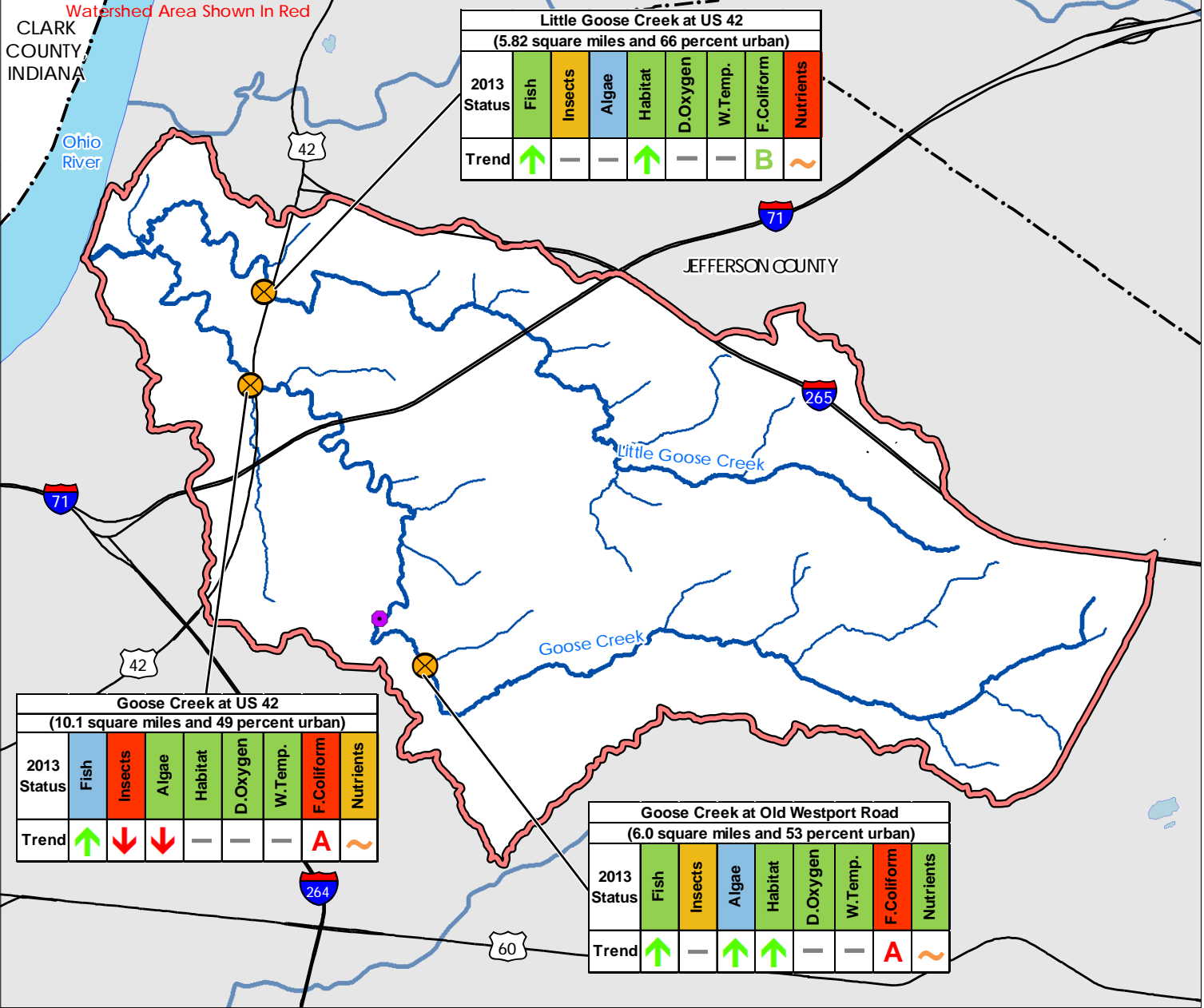
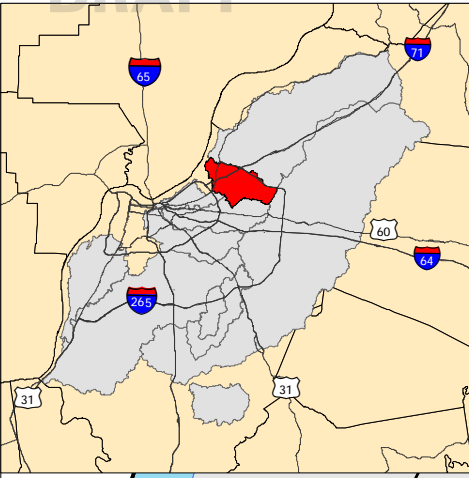


The land use upstream of the Little Goose Creek site is 66 percent urban and in Goose Creek it is about 50 percent urban. Little Goose Creek, however, has almost twice the impervious area of Goose Creek. Differences in land use and management practices, like the use of lawn fertilizers, within these watersheds likely account for some of the observed differences.

More recent wet weather event sampling data confirms the historical data that trace metals are not a large issue of concern in these LTMN streams.

Dissolved oxygen criteria were met 100 percent of the time at the Little Goose Creek site. Conditions were in the “good” range at both Goose Creek sites as well. Water temperature criteria (no more than 31.7°C (89.1°F)) were met 100 percent of the time at all three sites. Periodic hot days and low stream flows are common in the summer and occasionally can cause an exceedance of these criteria, but that is not the case in these sites.

GOOSE CREEK WATERSHED WATER QUALITY STATUS AND TRENDS



Little Goose Creek at US 42
(5.82 square miles and 66 percent urban)

| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
|-------------|------|---------|-------|---------|----------|---------|-------------|-----------|
| Trend | ↑ | — | — | ↑ | — | — | B | ~ |

Goose Creek at US 42
(10.1 square miles and 49 percent urban)

| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
|-------------|------|---------|-------|---------|----------|---------|-------------|-----------|
| Trend | ↑ | ↓ | ↓ | — | — | — | A | ~ |

Goose Creek at Old Westport Road
(6.0 square miles and 53 percent urban)

| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
|-------------|------|---------|-------|---------|----------|---------|-------------|-----------|
| Trend | ↑ | — | ↑ | ↑ | — | — | A | ~ |

| | | | | | |
|--|---|---|---|--|--------------------|
| | Legend ⓧ Monitoring Site ● Sewage Treatment Plant (Operated by MSD) ● Sewage Treatment Plant (Operated by Other Agency) | — Stream — Road - - - County Boundary — Watershed Boundary Lake | TREND ↑ Improving ↓ Declining ~ Varies — No Change ND No Data | STATUS Excellent Good Fair Poor / Very Poor A Long Term Median Above the Criteria B Long Term Median Below the Criteria | RATINGS KEY |
| | | | | | |

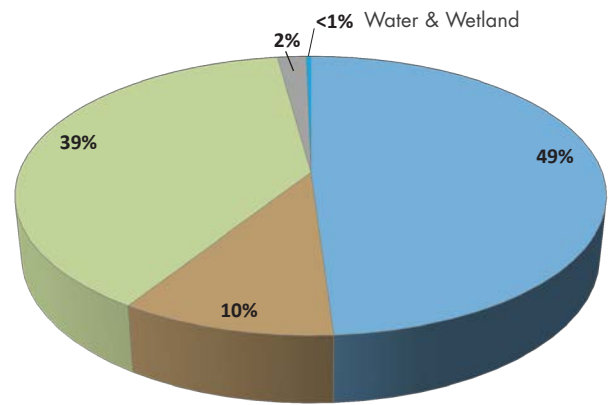
Background and Land Use

There are 19 square miles of land in the Goose Creek Watershed. The land use associated with each monitoring site, like the entire watershed, is a mix of urban, forest and some agriculture. MSD monitors three stream sites in the watershed: Goose Creek at Old Westport Road, Goose Creek at US 42 and Little Goose Creek at US 42.

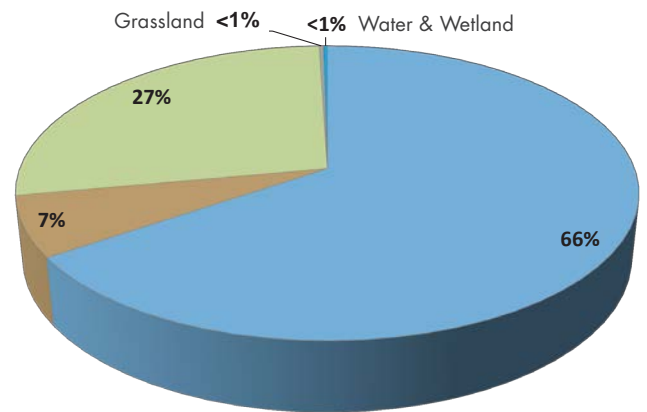
The areas draining to the two sites in Goose Creek have very similar land uses. There are 6.0 square miles draining to Goose Creek at Old Westport Road, with almost 10 percent impervious surfaces, such as roads, rooftops and driveways. There are 10.1 square miles of land draining to Goose Creek at US 42, with almost 11 percent impervious surfaces. Approximately half of the land is used for urban and suburban purposes, approximately 40 percent is forested and 10 percent is agriculture.

There are 5.82 square miles of land draining to Little Goose Creek at US 42, with 18 percent impervious surfaces. With 66 percent of the land area used for urban and suburban development, there is less agriculture and forest in this tributary to Goose Creek. This watershed is the most developed of the three Goose Creek sites.

Land Use Upstream of Goose Creek at US 42



Land Use Upstream of Little Goose Creek at US 42



- Urban & Suburban
- Barren
- Forest
- Agriculture
- Water & Wetland
- Grassland

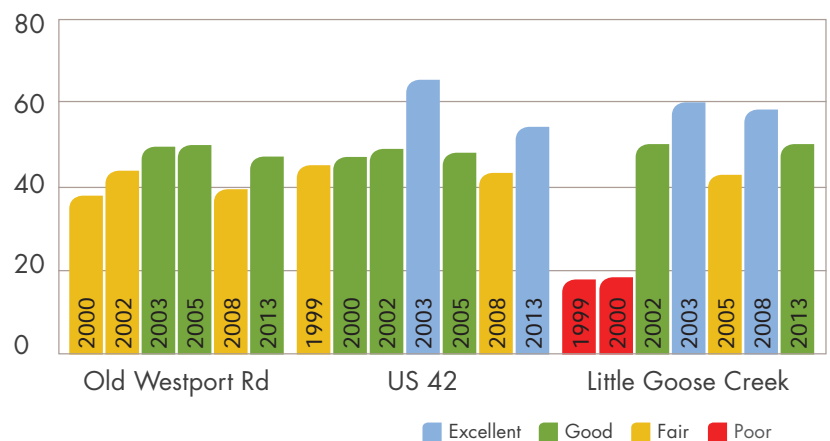


Goose Creek, north of Old Westport Road

Monitoring Findings

MSD monitored fish communities in the Goose Creek watershed since 1999. The fish communities generally have improved at all three sites since then. The fish communities at the Old Westport Road site have improved from “fair” in 2000 to “good” in 2013. Conditions at the US 42 site have improved from “fair” in 1999 to “excellent” in 2013. The fish communities in Little Goose Creek have improved most dramatically from “very poor” prior to 2000 to “excellent” in 2008 and “good” in 2013.

Condition of the Fish Communities in the Goose Creek Watershed



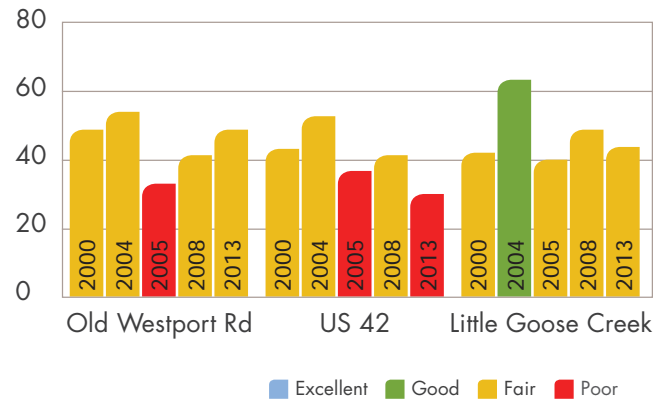
MSD monitored aquatic insect communities at the three sites since 2000. The aquatic insect communities generally were classified as “poor” or “fair” at all three sites, except in 2004, when Little Goose Creek was classified as “good”. Overall, the aquatic insect communities in Goose Creek appear to have declined some between 2004 and 2013, especially in Goose Creek at US 42.

MSD has assessed stream habitat quality when fish and aquatic insects were sampled since 2005. At all three sites, stream habitat was classified as “good” since 2008 and shows signs of improving slightly over time. Sediment deposition and unstable banks were identified in these streams as a limitation of the habitat quality and Old Westport Road is lacking somewhat in rocky riffles that are used as habitat by aquatic organisms.

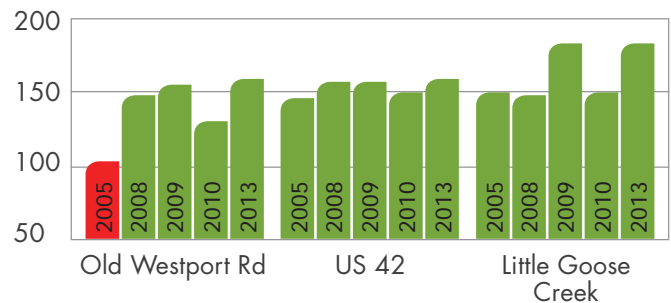
MSD has monitored benthic algal communities, largely diatoms, at the three sites since 2001. Using a Diatom Bioassessment Index (DBI), the upstream Old Westport Road site was rated “good” through 2011 and was “excellent” in 2013. The downstream US 42 site was rated variably “fair” to “excellent” throughout and was “good” in 2013. The Little Goose Creek site was generally “excellent” throughout and in 2013, but twice it dipped into “fair” condition in 2005 and 2011.

Since 2000, MSD has monitored fecal coliform

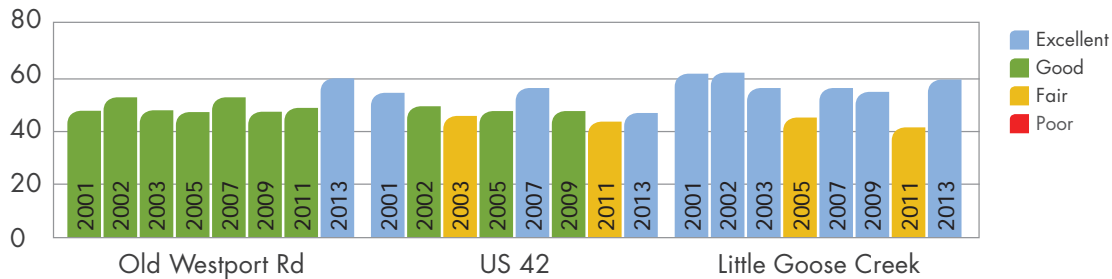
Condition of Aquatic Insect Communities in the Goose Creek Watershed



Condition of Stream Habitat Communities in the Goose Creek Watershed



Condition of Algal Communities in the Goose Creek Watershed



The Bancroft Subdivision treatment facility is the only plant remaining in the Goose Creek Watershed. It is scheduled for elimination in 2015.

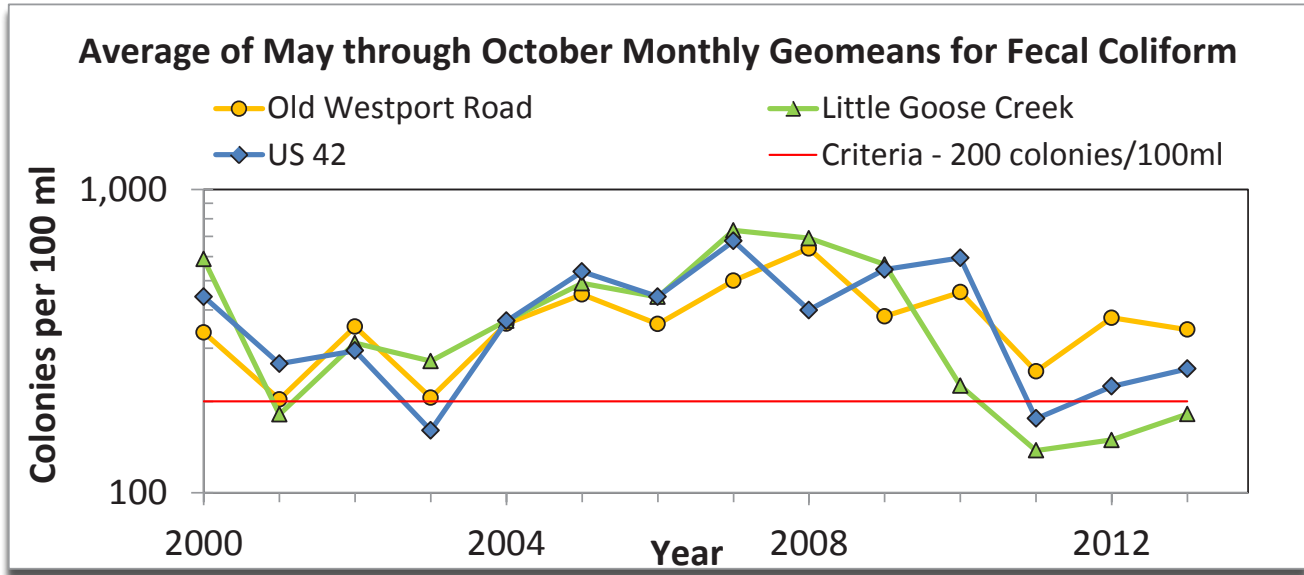
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bacteria 3 to 5 times a month during the recreational season (April-October). *E. coli* bacteria were collected similarly but only since 2011. The monthly geometric means (geomeans) of bacteria concentrations were calculated and compared to the recreational contact standard for each type.

For fecal coliform bacteria, people should not swim in streams if the readings are higher than 200 colonies/100ml during the recreational season, which runs from May 1st through October 31st each year. The period of record median of the monthly geomeans for Little Goose Creek site was below the recreational standard of 200 colonies/100ml, whereas, the period of record medians for

the two Goose Creek sites were above the standard. Individual monthly geomeans were variably above and below the standard (not shown), with no apparent trend over the period of record. There was a tendency, however, for higher monthly geomeans earlier in the recreational season than later in the season for some years, which could be related to lower stream flows later in the season. Also, the average annual values for 2004 through 2010 are considerably higher than most other years.

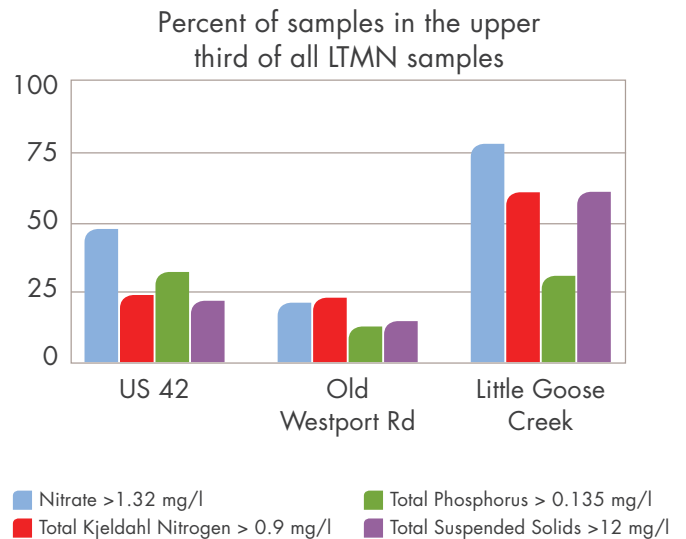
For the 3 years of data collection of *E. coli* bacteria (not shown), most all of the monthly geomeans at the three sites were above the recreational standard of 130 colonies/100ml.



The Kentucky standard for fecal coliform for recreational contact (swimming) in streams between May 1st and October 31st is 200 colonies per 100ml.

MSD monitored the concentrations of nutrients (nitrogen and phosphorus) and total suspended solids periodically from 2000 to 2005 and, more consistently, on a quarterly basis since 2005 at the three sites. The breakpoint concentration between the upper third and lower two thirds of all samples at all 27 MSD LTMN sites collected since 2005 were calculated for each of these constituents. The percent of samples above these breakpoints for each of the three sites is indicative of how they compare to each other and to other LTMN streams in the Metro area.

The Little Goose Creek site had significantly higher values than the other two sites for nitrate, total Kjeldahl nitrogen, and total suspended solids, and nitrate is relatively high much of the time at the site, with almost 80 percent of the nitrate samples in the upper third of all LTMN samples. Total phosphorus is relatively low at the three sites. Total suspended solids are relatively low at the two Goose Creek sites.



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MSD monitored concentrations of trace metals in streams periodically from 2000 to 2005 and on a quarterly basis since 2005. For those metals with criteria, total metal concentrations in stream samples were compared to the acute Aquatic Life Criteria (ALC) for each metal. The acute ALC for total concentrations of cadmium, lead, mercury and zinc were not exceeded in any samples at either of the two sites. The ALCs, however, were exceeded for copper in one sample at Old Westport Road.

MSD and the US Geological Survey continuously monitor streamflow, dissolved oxygen, and water temperature at the three sites in the Goose Creek watershed. Fish and aquatic insects need dissolved oxygen to breathe, and amounts greater than four or five parts per million are what is deemed necessary. Water temperatures in excess of 31.7°C (89°F) are very stressful on the aquatic communities both by increasing metabolism and respiration, and by lowering the capacity of water to actually hold dissolved oxygen. In general, extended periods of low stream flows also can cause stress on aquatic communities.

US GEOLOGICAL SURVEY - GAGING STATIONS

| USGS GAGE NUMBER | STREAM NAME AND LOCATION OF FLOW GAGE | YEAR STARTED |
|------------------|---------------------------------------|--------------|
| 03292474 | Goose Creek at Old Westport Road | 1996 |
| 03292475 | Goose Creek at US 42 | 1999 |
| 03292480 | Little Goose Creek at US 42 | 1998 |

Dissolved oxygen criteria were met 100 percent of the time at the Little Goose Creek site for the last six years. Dissolved oxygen conditions were above five parts per million and in the “good” range at both Goose Creek sites as well. Occasional excursions of low dissolved oxygen likely were a result of very low stream flows on very warm days or some other

transient factor.

Water temperature criteria were met 100 percent of the time each year over the last six years at all three sites. Periodic hot days and low stream flows are common in the summer and occasionally cause an exceedance of the criteria, but that is not the case in these sites.

DISSOLVED OXYGEN

| SITE | PERCENT OF THE TIME DISSOLVED OXYGEN CRITERIA WERE MET EACH YEAR | | | | | |
|--------------------|--|--------|--------|--------|--------|--------|
| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Old Westport Road | 99.6% | 96.7% | 98.8% | 93.5% | 98.2% | 98.3% |
| US 42 | 100.0% | 100.0% | 100.0% | 98.6% | 99.7% | 99.4% |
| Little Goose Creek | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Muddy Fork of Beargrass Creek Watershed

The Muddy Fork of Beargrass Creek is one of the three streams that join to form the larger Beargrass Creek watershed. The Muddy Fork flows west from Windy Hills toward the Ohio River, then southwest along Interstate 71 before joining with the South Fork to become Beargrass Creek near Mellwood and Story Avenues. Historically, major segments of Muddy Fork have been straightened along Interstate 71 and along Mockingbird Valley Road.

Watershed Assessment

The fish communities at the Muddy Fork at Mockingbird Valley Road site were highly variable from year to year, but conditions were “good” in 2013. The aquatic insect communities were consistently classified as in “poor” and “very poor” condition. Algal communities were rated “excellent” through 2007 and then declined to “fair” condition in 2011 and 2013. Stream habitat on Muddy Fork was consistently “poor” and associated with straightening of the channel, lack of trees and other protective vegetation along the stream banks, eroding banks, and a largely silt stream bottom. These issues have contributed to sediment accumulating in the stream, not ideal habitat for aquatic organisms.

For fecal coliform bacteria, the period of record median (the middle value) of the monthly geomeans for the Muddy Fork site was above the recreational standard of 200 colonies/100ml. Individual monthly geomeans were variable but usually above the standard, with no apparent trend over the period of record. For the three years of data collection of *E. coli* bacteria, most all of the monthly geomeans at the site were above the recreational standard of 130 colonies/100ml.

Nutrient and total suspended solids levels in this largely forested urban residential watershed are in the lower concentration groupings compared to other LTMN sites. More recent wet weather event sampling data confirms the historical LTMN metals data that trace metals are not an issue of concern in this stream.

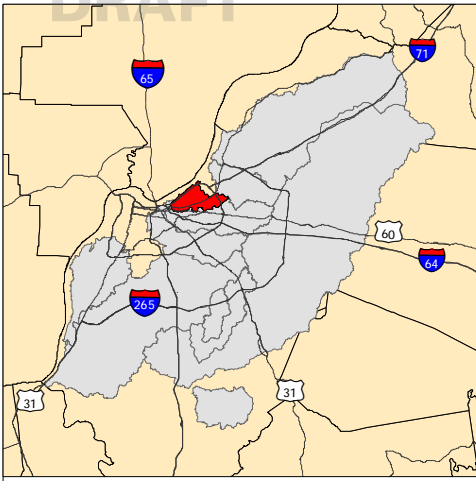
Dissolved oxygen conditions were “good” (criteria met more than 93.5 percent of the time) at the Muddy Fork sites over the last six years. Water temperature criteria (no more than 31.7°C (89.1°F)) at the Muddy Fork site were met 100 percent of the time over the last six years, except for occasional excursions in 2010 and 2012. Periodic hot days and low stream flows are common in the summer and occasionally can cause an exceedance of these criteria.



The Mellwood Avenue Pumping Station near Muddy Fork at Mockingbird Valley Road eliminated an overflow from the existing sewer system.

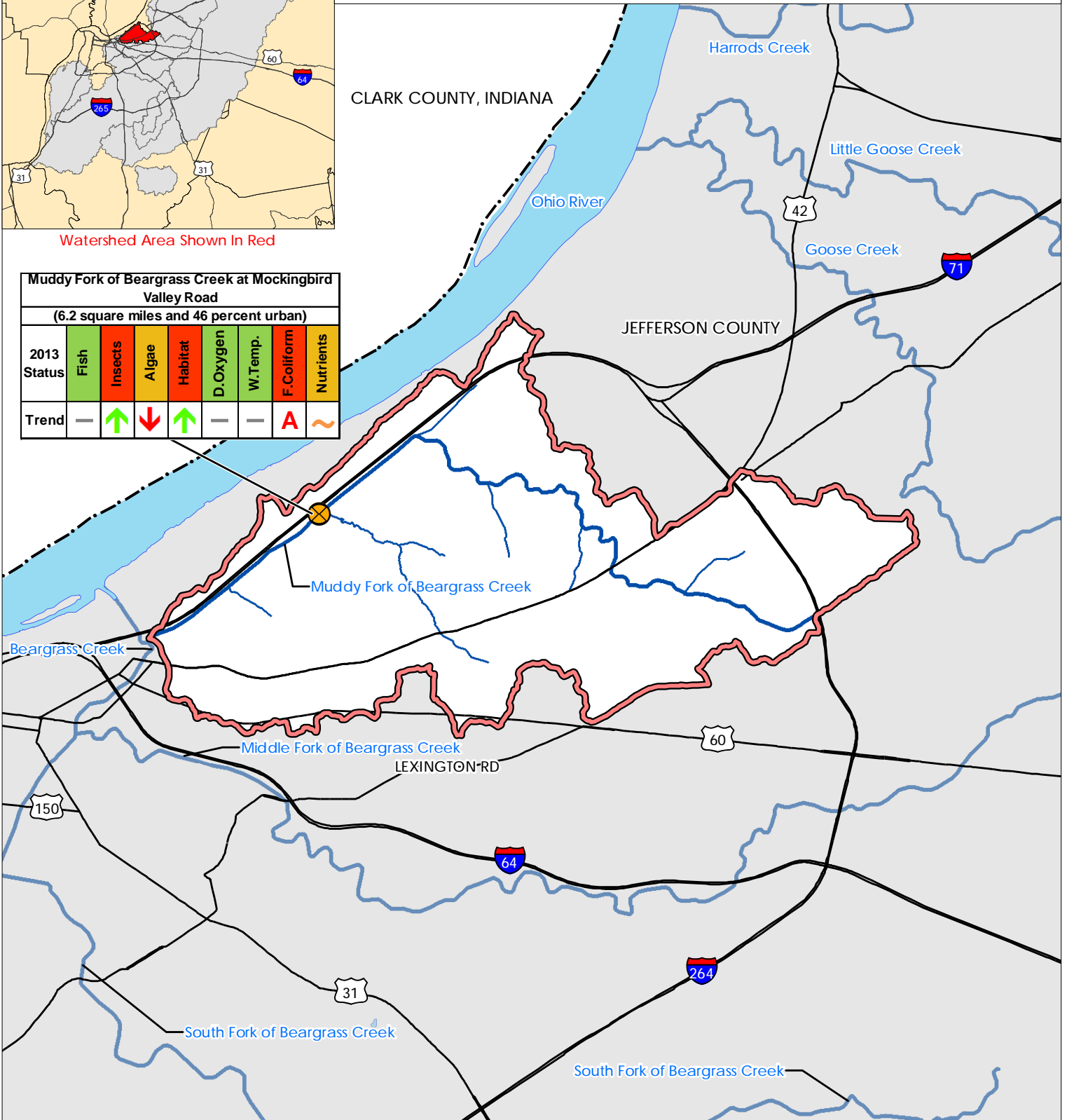
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MUDDY FORK OF BEARGRASS CREEK WATERSHED WATER QUALITY STATUS AND TRENDS



Watershed Area Shown In Red

| Muddy Fork of Beargrass Creek at Mockingbird Valley Road (6.2 square miles and 46 percent urban) | | | | | | | | |
|---|------|---------|-------|---------|-----------|----------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D. Oxygen | W. Temp. | F. Coliform | Nutrients |
| Trend | — | ↑ | ↓ | ↑ | — | — | A | ~ |



| | | | | | |
|--|---|---|---|--|--------------------|
| | Legend Monitoring Site Sewage Treatment Plant (Operated by MSD) Sewage Treatment Plant (Operated by Other Agency) | Stream Road County Boundary Watershed Boundary Lake | TREND Improving Declining Varies No Change ND No Data | STATUS Excellent Good Fair Poor / Very Poor Long Term Median Above the Criteria Long Term Median Below the Criteria | RATINGS KEY |
|--|---|---|---|--|--------------------|

Background and Land Use

There are about 9 square miles of land draining the entire Muddy Fork Watershed and 6.2 square miles of land draining to the Muddy Fork at Mockingbird Valley Road site. The land use draining to the monitoring site, like the entire Muddy Fork watershed, is a mix of forest and urban and suburban uses. Fifty-two percent of the watershed is classified as forest. However, this area of Louisville is densely developed and many of the areas classified as forested are actually tree-covered developed areas. There is a small area of agricultural land in the very upper part of the watershed. Impervious surfaces such as roads, rooftops and driveways cover about 9 percent of this watershed.

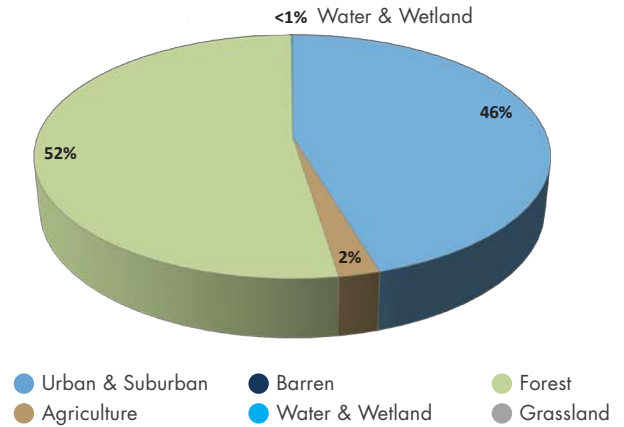
Monitoring Findings

MSD monitored the fish communities in the Muddy Fork since 2002. The fish communities at the Muddy Fork at Mockingbird Valley Road site were highly variable from year to year, but conditions were “good” in 2013.

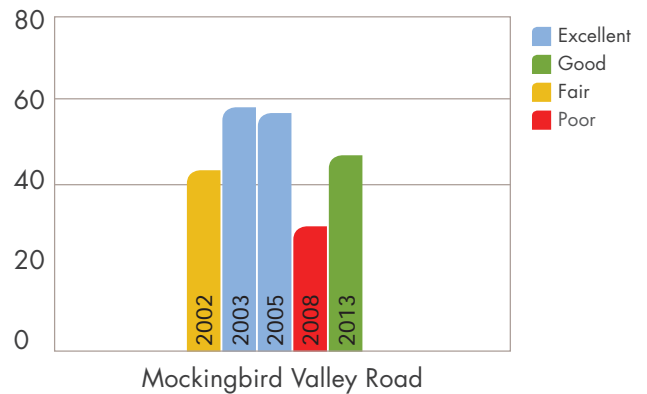
MSD monitored aquatic insect communities at the Muddy Fork site since 2004. The aquatic insect communities were consistently classified as “poor” and “very poor” at the Mockingbird Valley Road site on Muddy Fork.

MSD has assessed stream habitat when fish and aquatic insects were sampled since 2005. Habitat on Muddy Fork was consistently “poor” and associated with straightening of the channel, lack of trees and other protective vegetation along the stream banks, and eroding banks. These issues have contributed to silt and sediment accumulating in the stream, which covers habitats used by aquatic insects and fish.

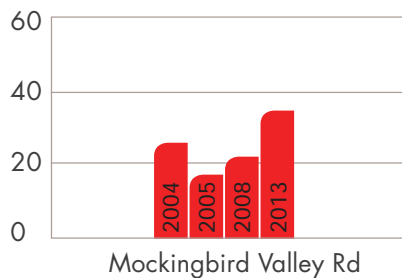
Land Use Upstream of Muddy Fork of Beargrass Creek at Mockingbird Valley Road



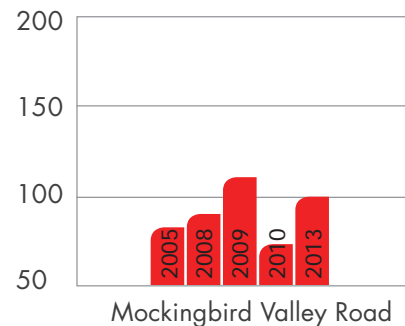
Condition of Fish Communities in the Muddy Fork of Beargrass Creek Watershed



Condition of Aquatic Insect Communities in the Muddy Fork of Beargrass Creek Watershed



Condition of Stream Habitat Communities Muddy Fork of Beargrass Creek Watershed



Since 2000, MSD has monitored fecal coliform bacteria 3 to 5 times a month during the recreational season (April-October). *E. coli* bacteria were collected similarly but only since 2011. The monthly geometric means (geomeans) of bacteria concentrations were calculated and compared to the recreational contact standard for each type.

For fecal coliform bacteria, people should not swim in streams if the readings are higher than 200 colonies/100ml during the recreational season, which runs from May 1st through October 31st each year. The period of record median of the monthly geomeans for the Muddy Fork site was above the recreational standard of 200 colonies/100ml. Individual monthly geomeans were variable but usually above the standard (not shown), with no apparent trend

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over the period of record. There was a tendency, however, for higher monthly geomeans earlier in the recreational season than later in the season for some years, which could be related to lower stream flows later in the season. For the three years of data collection of *E. coli* bacteria (not shown), most all of the monthly geomeans at the site were above the recreational standard of 130 colonies/100ml.

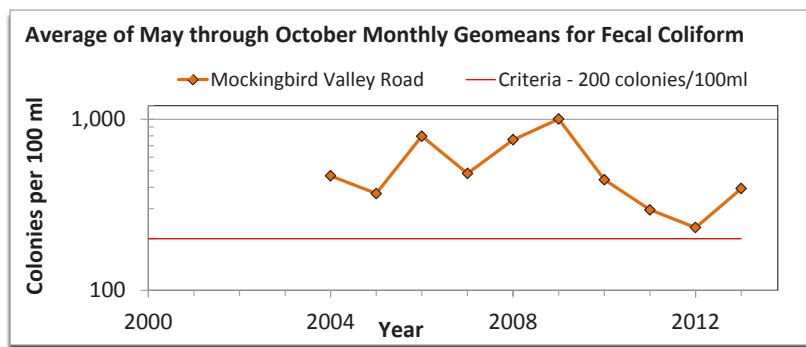
MSD has monitored benthic algal communities, largely diatoms, in the Muddy Fork watershed since 2002. Using a Diatom Bioassessment Index (DBI), the Muddy Fork site was rated “excellent” through 2007 and then declined to “fair” condition in 2011 and 2013. The site showed significant decline in the condition of the algal communities over the period of study.

MSD monitored the concentrations of nutrients (nitrogen and phosphorus) in streams and total suspended solids periodically from 2000 to 2005 and on a quarterly basis since 2005 at the Muddy Fork site. The percent of samples taken at these sites which fall into the upper third of all LTMN samples were calculated as a comparison to other streams in the area. Nutrient and total suspended solids levels in this largely forested urban residential watershed are generally in the low concentration grouping compared to the other LTMN sites.

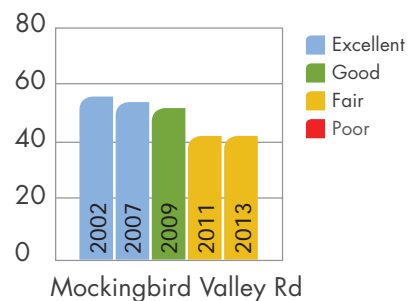
MSD monitored concentrations of trace metals in streams periodically from 2000 to 2005 and on a quarterly basis since 2005. For those metals with criteria, total metal concentrations in stream samples were compared to the acute Aquatic Life Criteria (ALC) for each metal. The ALCs for total concentrations of mercury was not exceeded in any of the samples. The ALCs were exceeded for cadmium in 9 samples, copper in 11 samples, for lead in 11 samples, and zinc in 2 samples.

MSD and the US Geological Survey continuously monitor streamflow, dissolved oxygen, and water temperature on the Muddy Fork of Beargrass Creek at Mockingbird Valley Road (USGS gage 03293530) since 2002. Fish and aquatic insects need dissolved oxygen to breathe, and amounts greater than four parts per million (as an instantaneous standard) or five parts per million (as a mean daily standard) are what is deemed necessary. Water temperatures in excess of 31.7°C (89°F) are very stressful on the aquatic communities both by increasing metabolism and respiration, and by lowering the capacity of water to actually hold dissolved oxygen. In general, extended periods of low stream flows also can cause stress on aquatic communities.

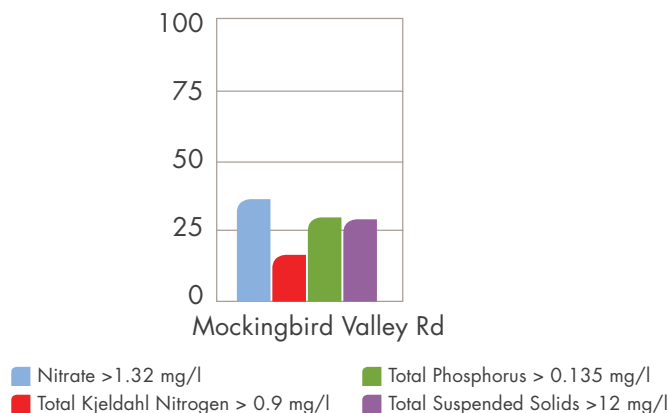
Dissolved oxygen conditions were “good” (criteria met more than 93.5 percent of the time) at the Muddy Fork sites over the last six years. Water temperature criteria at the Muddy Fork site were met 100 percent of the time over the last six years, except for occasional excursions in 2010 and 2012. Periodic hot days and low stream flows are common in the summer and occasionally can cause an exceedance of these criteria.



Condition of Algal Communities in the Muddy Fork of Beargrass Creek Watershed



Percent of samples in the upper third of all LTMN samples



Middle Fork of Beargrass Creek Watershed

The Middle Fork of Beargrass Creek is one of the three streams that join to form the larger Beargrass Creek watershed. The small streams that eventually form the Middle Fork of Beargrass Creek originate in Middletown and Douglass Hills, and flow west across Saint Matthews before joining the South Fork of Beargrass Creek near Irish Hill. The South Fork then joins with the Muddy Fork to become Beargrass Creek near the intersection of Interstates 71 and 64. Prominent features of this watershed include Cherokee Park, Seneca Park and Cave Hill Cemetery. A portion of this part of Louisville is currently served by combined sewers.

Watershed Assessment

The health of the aquatic communities at the three Middle Fork sites was variable over time and between sites. Since 1999, the fish communities showed significant improvement from “poor” to “good” at the furthest upstream Browns Lane site and from “poor” to “fair” at the mid-watershed Old Cannons Lane. Fish communities were consistently “poor” at the Lexington Road site. The aquatic insect communities at all three sites generally were classified as “poor” or “fair” and generally the same or declining. The stream habitat conditions were generally “good” at the three sites since 2005 and generally improving at the two upstream sites. The algal community at the upstream Browns Lane site was rated in “fair” condition in 2013, the Old Cannons Lane site was in “good” condition, and the downstream Lexington Road site was rated “excellent” in 2013. Browns Lane showed some decline in the condition of the algal community over time.

Some of the highest bacterial concentrations are found in the Beargrass Creek sites, especially in the lower parts of the watersheds. For fecal coliform bacteria, the period of record medians (the middle values) of the monthly geomeans for all three sites were above the recreational standard of 200 colonies/100ml. Individual monthly geomeans were variable but usually above the standard, with no apparent trend over time. For the three years of data of *E. coli* bacteria, most of the monthly geomeans at the sites were above the recreational standard of 130 colonies/100ml.

The Lexington Road site had the highest number of samples in the upper third for total Kjeldahl nitrogen, total suspended solids, and phosphorus, but lower nitrate numbers than all other Middle Fork sites. Total phosphorus, total Kjeldahl nitrogen, and total suspended solids all increased from upstream (Browns Lane) to downstream (Lexington Road), whereas, nitrate decreased from upstream to downstream. Nutrient and total suspended solids levels in these sites generally are average or in the lower grouping compared to other LTMN sites.

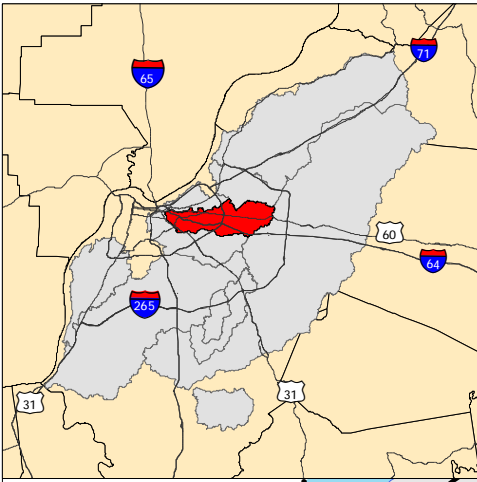
More recent wet weather event sampling data confirms the historical data that trace metals are not a large issue of concern in these LTMN streams.

Dissolved oxygen conditions were “good” and water temperature criteria were met 100 percent of the time at the Old Cannons Lane site, except for occasional excursions in 2010 and 2012. Dissolved oxygen conditions were “poor to fair” and water temperature criteria (no more than 31.7°C (89.1°F)) were met 97.2 percent of the time or more at the Lexington Road site, with occasional excursions most years. Periodic hot days and low stream flows can cause an exceedance of the dissolved oxygen or temperature criteria. The presence of the many parks, which provide natural areas to absorb runoff from developed areas as well as tree cover, probably help buffer this watershed to some degree from the otherwise significant urban influences (urban area above 70 percent).



Big Rock in Cherokee Park along the Middle Fork of Beargrass Creek after two inches of rain

MIDDLE FORK OF BEARGRASS CREEK WATERSHED WATER QUALITY STATUS AND TRENDS

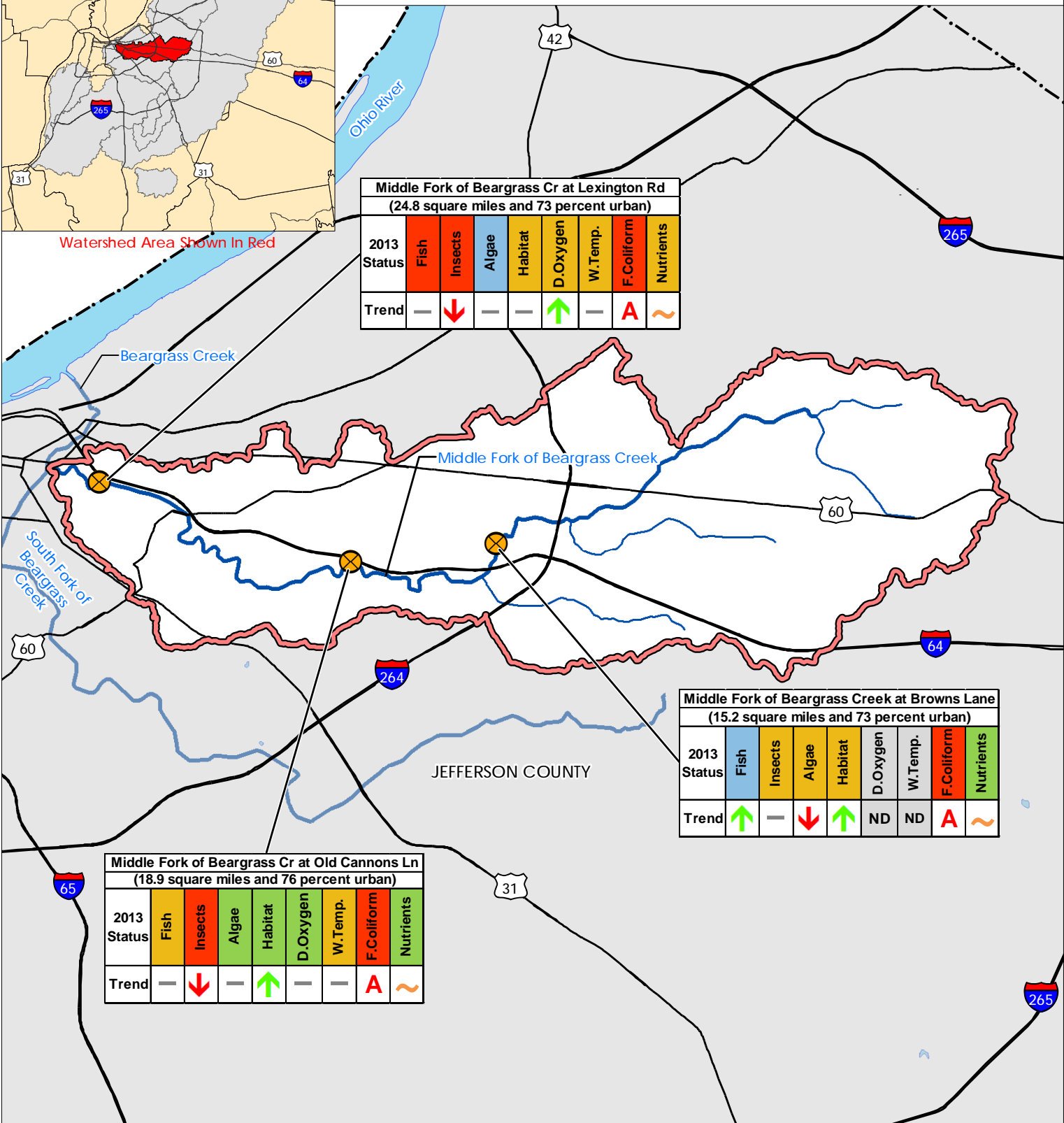


Watershed Area Shown In Red

| Middle Fork of Beargrass Cr at Lexington Rd (24.8 square miles and 73 percent urban) | | | | | | | | |
|---|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | — | ↓ | — | — | ↑ | — | A | ~ |

| Middle Fork of Beargrass Creek at Browns Lane (15.2 square miles and 73 percent urban) | | | | | | | | |
|---|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | ↑ | — | ↓ | ↑ | ND | ND | A | ~ |

| Middle Fork of Beargrass Cr at Old Cannons Ln (18.9 square miles and 76 percent urban) | | | | | | | | |
|---|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | — | ↓ | — | ↑ | — | — | A | ~ |



JEFFERSON COUNTY



Legend

- Monitoring Site
- Sewage Treatment Plant (Operated by MSD)
- Sewage Treatment Plant (Operated by Other Agency)
- Stream
- Road
- County Boundary
- Watershed Boundary
- Lake

TREND

- Improving
- Declining
- Varies
- No Change
- ND No Data

STATUS

- Excellent
- Good
- Fair
- Poor / Very Poor
- Long Term Median Above the Criteria
- Long Term Median Below the Criteria

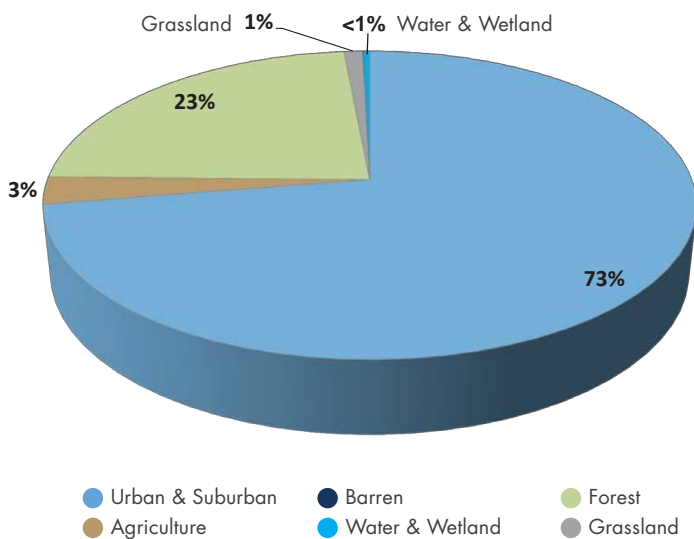
RATINGS KEY

Background and Land Use

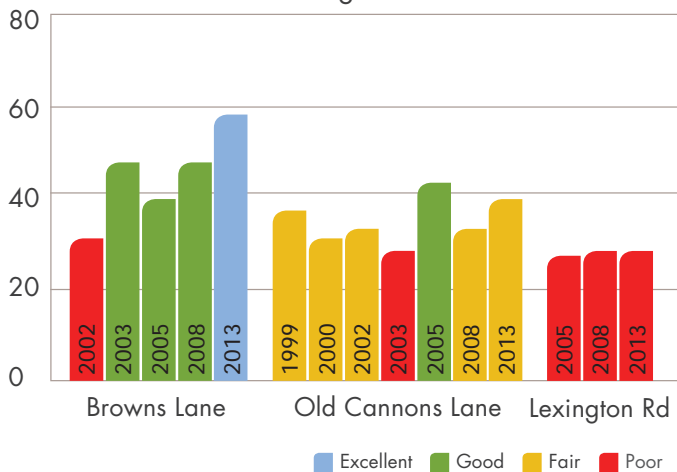
There are just over 25 square miles of land in the Middle Fork of Beargrass Creek Watershed. MSD monitors three stream sites in the watershed: at Old Cannons Lane, at Browns Lane and at Lexington Road. There are 15.2 square miles of land draining to the Browns Lane site; 18.9 square miles to the Old Cannons Lane site and 24.8 square miles to the Lexington Road site.

The land use associated with each monitoring site, like the entire watershed, is mostly developed for urban and suburban uses. Portions of the watershed classified as forest include Cherokee Park and Seneca Park. However, this area of Louisville is densely developed, and some of the areas classified as forested in the western part of the watershed are actually tree-covered developed areas. There is a small area of agricultural land in the middle part of the watershed. Impervious surfaces such as roads, rooftops and driveways cover about 23 percent of this watershed.

Land Use Upstream of Middle Fork of Beargrass Creek at Lexington Road



Condition of the Fish Communities in the Middle Fork of Beargrass Creek Watersheds



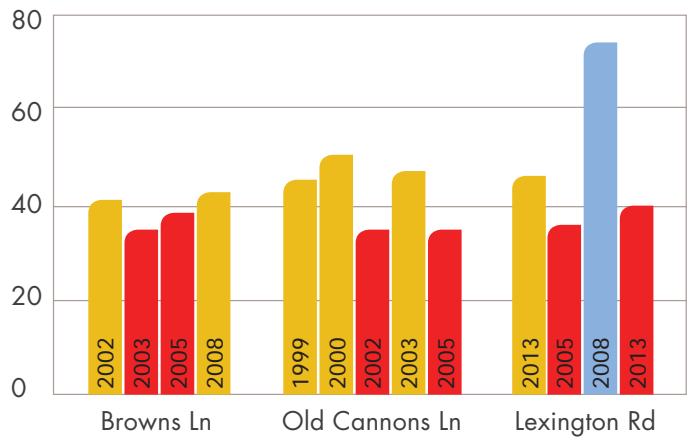
Monitoring Findings

MSD monitored the fish communities in the Middle Fork watershed since 1999 and in the Muddy Fork since 2002. The fish communities at the Browns Lane site improved from “fair” in 2002 to “excellent” in 2013. Since 1999, fish communities at Old Cannons Lane were variable but generally “fair”. The fish communities were “poor” at the most downstream Lexington Road site since 2005.

MSD monitored aquatic insect communities at the Old Cannons Lane site since 2000 and at the other three sites since 2004. The aquatic insect communities at the Browns Lane, Old Cannons Lane, and Lexington Road sites have been variably “poor” to “fair” except for an “excellent” in 2008 at Lexington Road.

MSD has assessed stream habitat when fish and aquatic insects were sampled since 2005. The aquatic habitat at Browns Lane was “poor” in 2005 and variably improving to “fair” in 2013, generally “good” at Old Cannons Lane, and declining from “good” in 2005 to “fair” in 2013 at the Lexington Road site. Similar to many urban streams, the habitat assessment noted a lack of trees and other protective vegetation along stream banks, and unstable stream beds or stream banks.

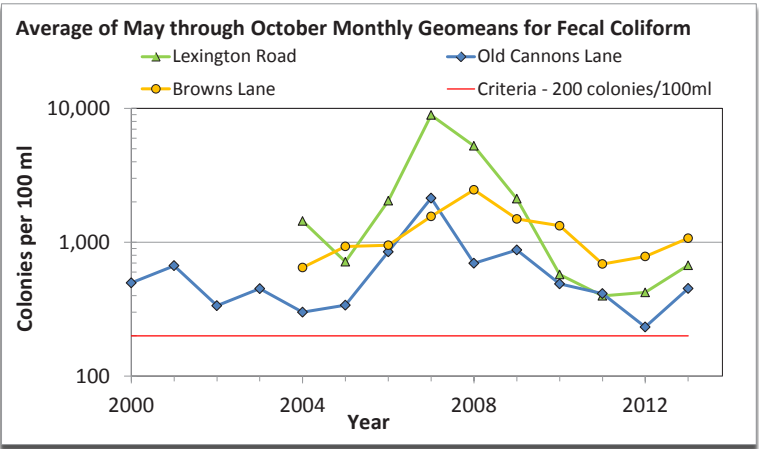
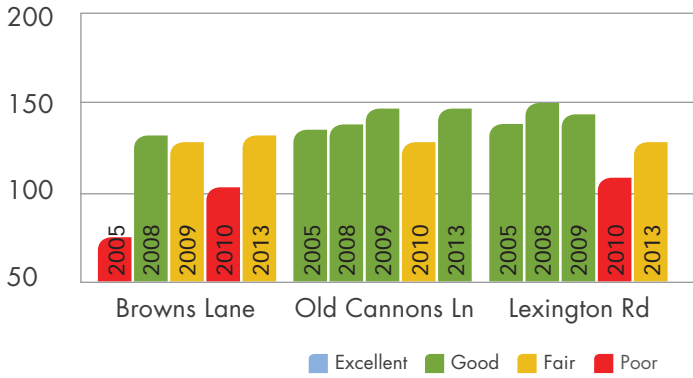
Condition of the Aquatic Insect Communities in the Middle Fork of Beargrass Creek Watersheds



Since 2000, MSD has monitored fecal coliform bacteria 3 to 5 times a month during the recreational season (April-October). *E. coli* bacteria were collected similarly but only since 2011. The monthly geometric means (geomeans) of bacteria concentrations were calculated and compared to the recreational contact standard for each type.

For fecal coliform bacteria, people should not swim in streams if the readings are higher than 200 colonies/100ml during the recreational season, which runs from May 1st through October 31st each year. The period of record medians of the monthly geomeans for all three sites were above the recreational standard of 200 colonies/100ml. Individual monthly geomeans were variable but usually above the standard (not

Condition of Stream Habitat Communities in the Middle Fork of Beargrass Creek Watershed

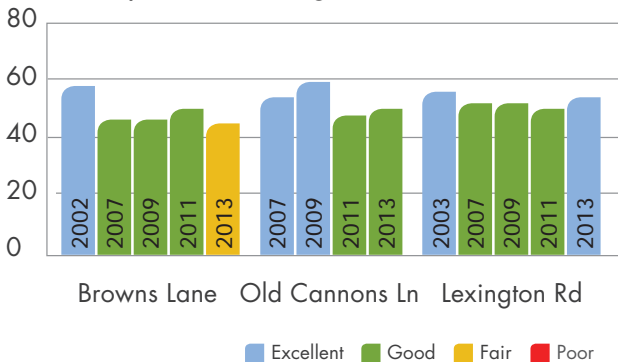


shown), with no apparent trend over the period of record. There was a tendency, however, for higher monthly geomeans earlier in the recreational season than later in the season for some years, which could be related to lower stream flows later in the season. For the three years of data collection of *E. coli* bacteria (not shown), most all of the monthly geomeans at the sites were above the recreational standard of 130 colonies/100ml.

MSD has monitored benthic algal communities, largely diatoms, in the Middle Fork watershed since 2002. Using a Diatom Bioassessment Index (DBI), the upstream Browns Lane site was rated “excellent” in 2002 and then declined to “fair” condition in 2013. The Old Cannons Lane site was rated “excellent” in 2007 and 2009 but then declined to “good” condition in 2011 and 2013. The downstream Lexington Road site was rated “excellent” in 2003, declined to “good” condition in 2007 to 2011, and was “excellent” again in 2013. Two of the sites showed some decline in the condition of their algal communities over the period of study.

MSD monitored the concentrations of nutrients (nitrogen and phosphorus) in streams and total suspended solids periodically from 2000 to 2005 and on a quarterly basis since 2005 at the three sites in the Middle Fork of Beargrass Creek watershed. The percent of samples taken at these sites which fall into the upper third of all samples were calculated as a comparison to other streams in the watershed and throughout the area.

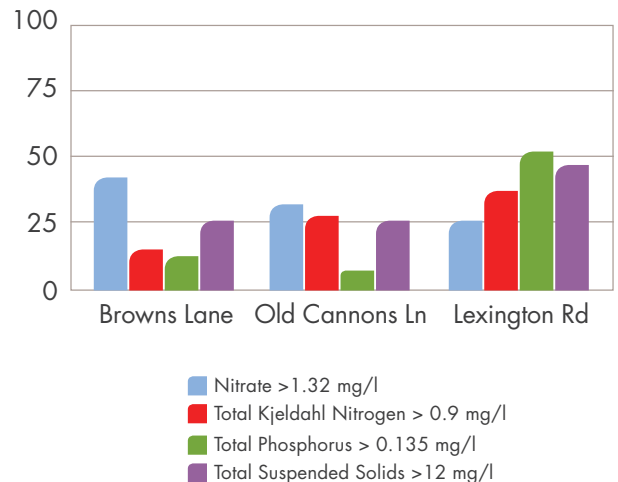
Condition of Algal Communities in the Middle and Muddy Fork of Beargrass Creek Watershed



The Lexington Road site had the greatest number of total suspended solids, total Kjeldahl nitrogen, and total phosphorus samples in the upper third of all LTMN samples and the lowest number of nitrate samples compared to the other sites. The Browns Lane site had the highest number of nitrate samples in the upper third. Total phosphorus was significantly lower at both the Browns Lane and Old Cannons Lane sites than the downstream Lexington Road site. Nutrient and total suspended solids levels in these sites are average or in the lower grouping compared to other LTMN sites.

MSD monitored concentrations of trace metals in streams periodically from 2000 to 2005 and on a quarterly basis since 2005. For those metals with criteria, total metal concentrations in stream samples were compared to the acute Aquatic Life Criteria (ALC) for each metal. The ALCs for total concentrations of mercury was not exceeded in any of the samples. The ALCs were exceeded for cadmium in 9 samples, copper in 11 samples, for lead in 11 samples, and zinc in 2 samples.

Percent of samples in the upper third of all LTMN samples





A student spends the afternoon at Big Rock in Cherokee Park along the Middle Fork of Beargrass Creek

MSD and the US Geological Survey continuously monitor streamflow, dissolved oxygen, and water temperature on the Middle Fork of Beargrass Creek at Old Cannons Lane (USGS gage 03293000) and at Lexington Road (USGS gage 03293500). Stream flow has been monitored at Old Cannons Lane since 1944 and at Lexington Road since 2003.

Fish and aquatic insects need dissolved oxygen to breathe, and amounts greater than four parts per million (as an instantaneous standard) or five parts per million (as a mean daily standard) are what is deemed necessary. Water temperatures in excess of 31.7°C (89°F) are very stressful on the aquatic communities both by increasing metabolism and respiration, and by lowering the capacity of water to actually hold dissolved oxygen. In general, extended periods of low stream flows also can cause stress on aquatic communities.

Dissolved oxygen conditions were “good” (criteria met more than 93.5 percent of the time) at the Old Cannons Lane site over the last six years. Occasional excursions of low dissolved oxygen likely were a result of very low stream flows on very warm days or some other transient factor. Dissolved oxygen conditions were “poor to fair” (72 to 87.7 percent) at Lexington Road, a site with significant combined sewer inflows upstream.

Water temperature criteria at the Old Cannons Lane site were met 100 percent of the time over the last six years, except for occasional excursions in 2012. Water temperature criteria at the Lexington Road site were met at least 97.2 percent of the time over the last six years, with occasional excursions most years. Periodic hot days and low stream flows are common in the summer and occasionally cause an exceedance of the criteria.

The Middle Fork of Beargrass Creek is one of the most diverse watersheds in Jefferson County. The upper areas are primarily suburban, with residential neighborhoods and large shopping centers. Combined sewers carrying both stormwater and sanitary only waste serve the lower area. The watershed contains two significant public parks, Cherokee and Seneca, along with Cave Hill cemetery, the largest cemetery in the city.



Beargrass Creek

South Fork of Beargrass Creek Watershed

The South Fork of Beargrass Creek is one of the three streams that join to form the larger Beargrass Creek Watershed. The small streams that eventually form the South Fork of Beargrass Creek originate in Jeffersonton and Hurstbourne Acres. The South Fork of Beargrass Creek flows west across Buechel and Audubon Park before joining the Middle Fork of Beargrass Creek near Irish Hill. The South Fork then joins with the Muddy Fork to become Beargrass Creek near the intersection of Interstates 71 and 64. Streams in this watershed were straightened and several miles have been enclosed in concrete channels in the past to reduce flooding.



Watershed Assessment

The health of the aquatic communities in the three South Fork sites was variable over time and between sites. The fish communities at the Trevilian Way and Brownsboro Road sites were rated “fair” in 2013 and were “very poor” at the Schiller Avenue Ramp. Only the Brownsboro Road site has shown improvement in the fish community over time. The aquatic insect communities at the three sites were “poor” in 2013 but improving some over time. Algal community conditions at the Brownsboro Road site were rated “good” in 2013 but declining over time, perhaps a result of heavy tree cover. Algal conditions at the Schiller Avenue Ramp site were “fair” in 2013 and generally declining. Algal conditions at the upstream Trevilian Way site were “excellent” in 2013 and unchanged.

Stream habitat conditions were “poor” in 2013 for the two upstream sites and “good” at the Brownsboro Road site. Stream habitat at Trevilian Way and Schiller Avenue Ramp was affected by many of the issues that affect urban streams: altered stream channels, concrete lined or unstable banks, silt and sediment accumulation, and lack of shallow rocky riffles and slow deep pools. These habitat issues also affect the Brownsboro Road site, but less severely in that the stream bed there has a substantial rocky substrate, not concrete or sediment laden.

For fecal coliform bacteria, the period of record medians (the middle values) of the monthly geomeans for the three sites were above the recreational standard of 200 colonies/100ml. Individual monthly geomeans were variably above and below the standard, with no apparent trend over the period of record. For the three years of data collection of *E. coli* bacteria, most of the monthly geomeans

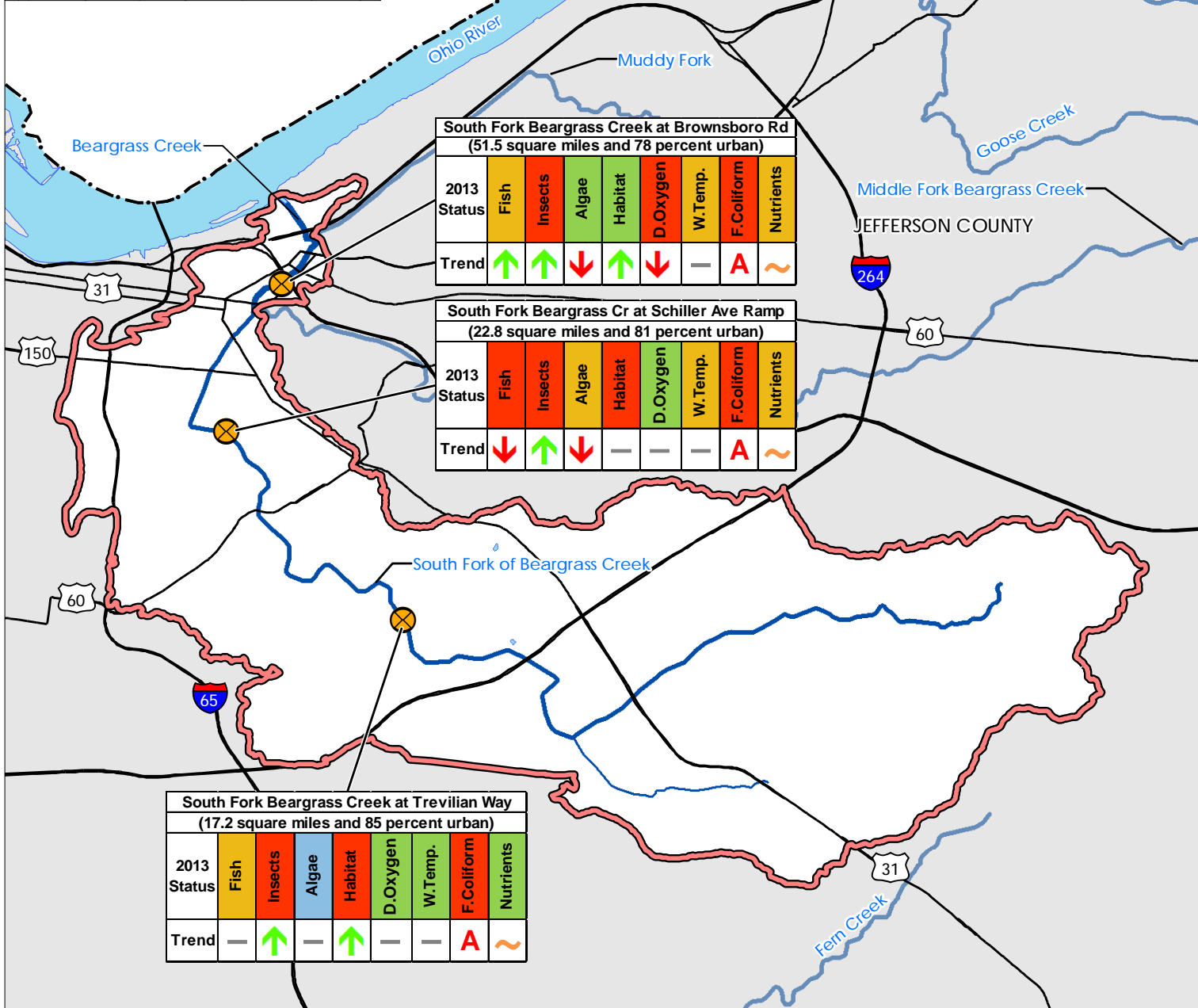
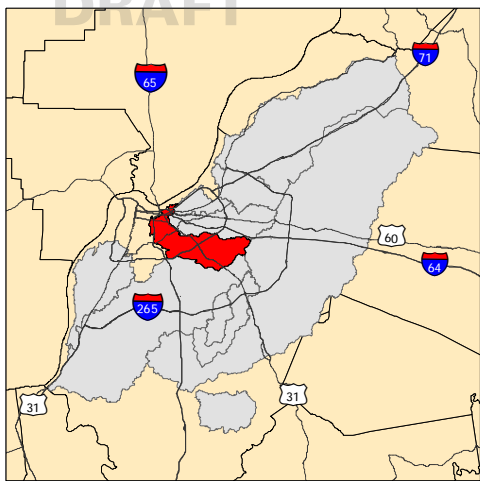
at the three sites were above the recreational standard of 130 colonies/100ml. These and other Beargrass Creek watershed sites receive sewer overflows during rainfall events and have some of the highest bacterial concentrations in the LTMN.

Generally the number of nutrient and total suspended solids samples were average or relatively low at all sites in the South Fork watershed compared to other LTMN sites. The results indicate that both nitrate and total phosphorus increased from upstream to downstream in the South Fork. This could be due to sewer inflows, tributaries, or surface runoff from suburban and urban areas between these sites.

More recent wet weather event sampling data confirms the historical data findings that trace metals are not a large issue of concern in these LTMN streams. Despite having the largest portion of the exceedances observed in all LTMN sites (41 samples out of over 1,200 LTMN samples), exceedances were still relatively infrequent and not considered to be a large concern.

Dissolved oxygen conditions were “good” at the Trevilian Way and Schiller Avenue Ramp sites, but conditions were “poor to fair” at Brownsboro Road, a site with significant sewer inflows upstream. Water temperature criteria (no more than 31.7°C (89.1°F)) at all three sites were met 100 percent of the time most years over the last six years, except for occasional excursions in 2010 and 2012. Periodic hot days and low stream flows are common in the summer and occasionally cause an exceedance of both the dissolved oxygen and temperature criteria.

SOUTH FORK OF BEARGRASS CREEK WATERSHED WATER QUALITY STATUS AND TRENDS



Legend

- Monitoring Site
- Sewage Treatment Plant (Operated by MSD)
- Sewage Treatment Plant (Operated by Other Agency)
- Stream
- Road
- County Boundary
- Watershed Boundary
- Lake

TREND

- Improving
- Declining
- Varies
- No Change
- ND No Data

STATUS

- Excellent
- Good
- Fair
- Poor / Very Poor
- Long Term Median Above the Criteria
- Long Term Median Below the Criteria

RATINGS KEY

Background and Land Use

There are about 25 square miles of land in the entire South Fork of Beargrass Creek Watershed. MSD has been monitoring water quality in the South Fork of Beargrass Creek at the Trevilian Way site since 1999, at Schiller Avenue since 2000, and at Brownsboro Road since 2004.

In the upper part of the watershed, there are 17.2 square miles of land draining to the Trevilian Way site. At the lower end, 22.8 square miles of land are draining to the Schiller Avenue site and 51.5 square miles of land are draining to the Brownsboro Road site.

The land use associated with each monitoring site, like the entire watershed, is mostly developed for urban and suburban uses. Impervious areas, including roadways, rooftops and driveways cover 32 percent of the land draining to the Trevilian Way monitoring site. At the Brownsboro Road monitoring site, impervious surfaces cover 28 percent of the land area. A modest percentage of the land is forested and a very small amount of land is agricultural in the uppermost part of the watershed.

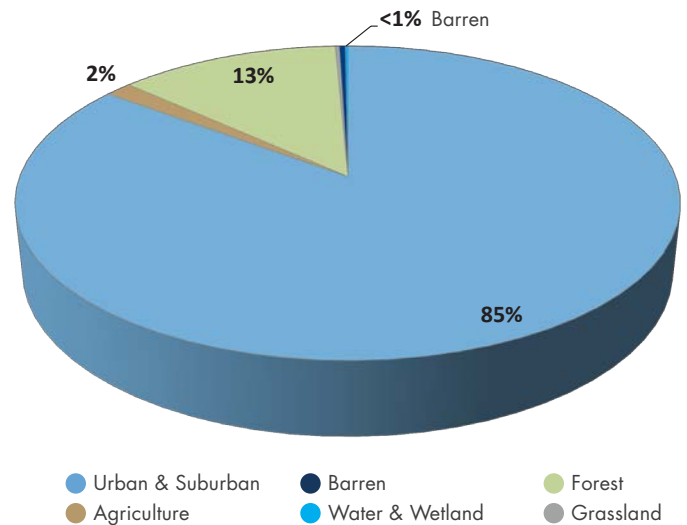
Monitoring Findings

MSD has monitored fish communities in the South Fork of Beargrass Creek watershed since 1999. At Trevilian Way, the most upstream site, the fish communities variably were “poor to good” but have been “fair” since 2008. The Schiller Avenue Ramp site was “very poor” or “poor” throughout the sampling period, which is not surprising since the channel is concrete lined at that point. The Brownsboro Road site furthest downstream was sampled only since 2005 and was rated “very poor” until 2013, when the fish community improved to “fair”.

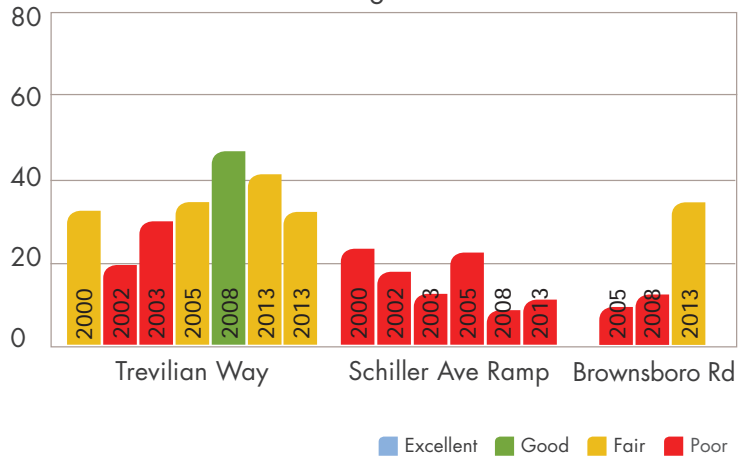
MSD monitored aquatic insect communities in the South Fork of Beargrass Creek watershed since 2000. The aquatic insect communities were found to be in “very poor” or “poor” condition throughout, except in 2004, when the Trevilian Way site was classified as “fair”. The numerical indices at the three sites, however, actually show a slight improvement over time.

MSD has assessed stream habitat quality when fish and aquatic insects were sampled since 2005. Stream habitat conditions at the Trevilian Way and Schiller Avenue Ramp sites generally were “poor”. At Trevilian Way, the stream has been channelized and has accumulations of silt and sediment, which cover habitat used by fish and aquatic insects. At the Schiller Avenue Ramp, the South Fork is a concrete lined channel lacking any likeness to a natural stream. In both of these sites, the stream lacks the variety of habitats typically found in good quality streams, including shallow rocky riffles and slow deep pools. These issues also affect the Brownsboro Road site, but stream habitat conditions at that site actually have improved from “poor” to “good” over time due to an abundance of tree cover and a cobble stream bed.

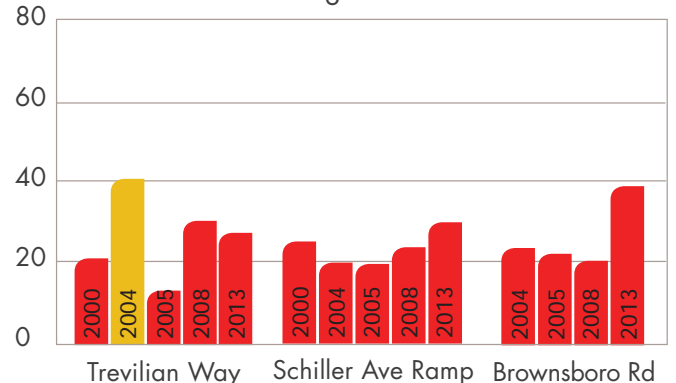
Land Use Upstream of South Fork of Beargrass Creek at Trevilian Way



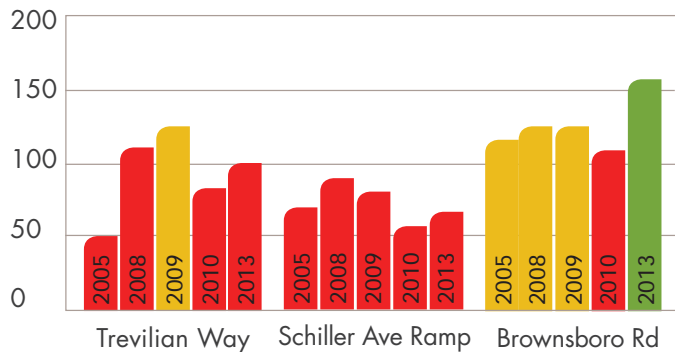
Condition of the Fish Communities in the South Fork of Beargrass Creek Watershed



Condition of Aquatic Insect Communities in the South Fork of Beargrass Creek Watershed



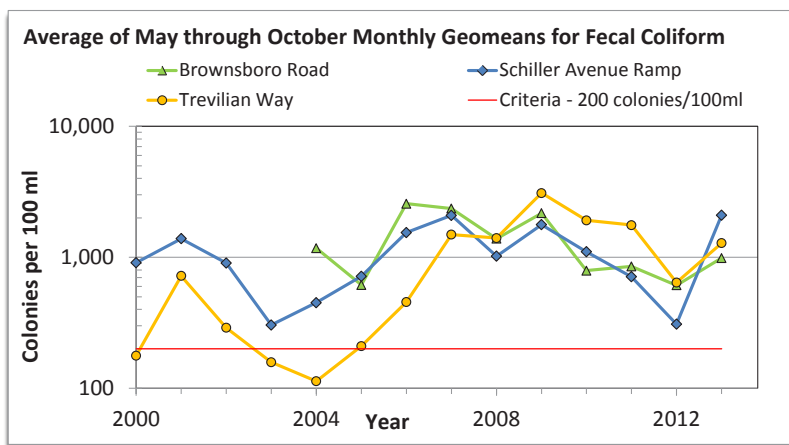
Condition of Stream Habitat in the South Fork of Beargrass Creek Watershed



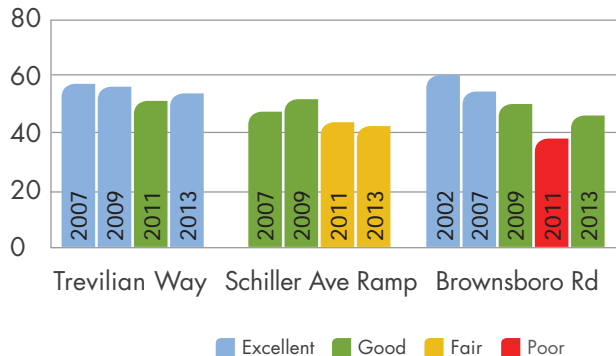
MSD has monitored benthic algal communities, largely diatoms, at the downstream Brownsboro Road site since 2002. Using a Diatom Bioassessment Index (DBI), the site was rated “excellent” in 2002 and 2007 but declined to a “poor” condition in 2011 and back up to a “good” condition in 2013. Conditions at the Schiller Avenue Ramp site declined from a “good” condition in 2007 and 2009 to a “fair” condition in 2011 and 2013. Conditions of the algal communities at the upstream Trevilian Way site generally were “excellent”.

Since 2000, MSD has monitored fecal coliform bacteria 3 to 5 times a month during the recreational season (April-October). *E. coli* bacteria were monitored similarly but only since 2011. The monthly geometric means (geomeans) of bacteria concentrations were calculated and compared to the recreational contact standard for each type.

For fecal coliform bacteria, people should not swim in streams if the readings are higher than 200 colonies/100ml during the recreational season, which runs from May 1st through October 31st each year. The period of record medians (the middle values) of the monthly geomeans for all three sites were above the recreational standard of 200 colonies/100ml. Individual monthly geomeans were variably above and below the standard (not shown), with no apparent trend over the period of record.



Condition of Algal Communities in the South Fork of Beargrass Creek Watershed



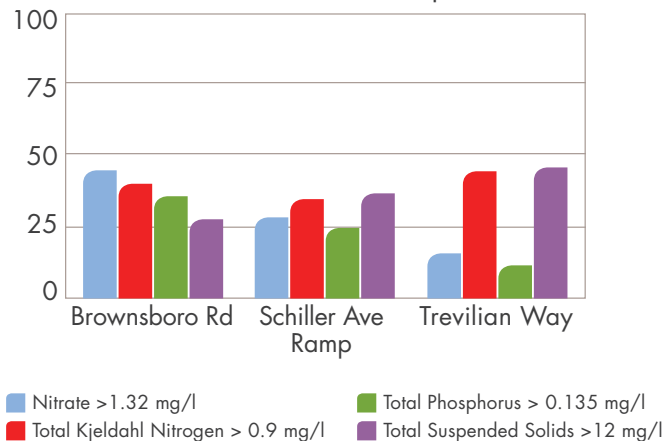
There was a tendency, however, for higher monthly geomeans earlier in the recreational season than later in the season for some years, which could be related to lower stream flows later in the season.

For the three years of data collection of *E. coli* bacteria (not shown), most of the monthly geomeans at the three sites were above the recreational standard of 130 colonies/100ml.

MSD monitored the concentrations of nutrients (nitrogen and phosphorus) in streams and total suspended solids periodically from 2000 to 2005 and on a quarterly basis since 2005 at three sites in the South Fork of Beargrass Creek watershed. The percent of samples taken at these sites which fall into the upper third of all samples were calculated as a comparison to other streams in the watershed and throughout the area.

Generally all nutrient parameters were average or relatively low at all sites in the South Fork watershed compared to other Long Term Monitoring Network (LTMN) sites. The site on South Fork at Trevilian had the greatest number of total suspended solids and total Kjeldahl nitrogen samples in the upper third of all samples, but had relatively low nitrate and total phosphorus values. The site at Brownsboro Road had higher nitrate and total phosphorus than the other two sites in the watershed.

Percent of samples in the upper third of all LTMN samples



DRAFT

MSD monitored concentrations of trace metals in streams periodically from 2000 to 2005 and on a quarterly basis since 2005. For those metals with criteria, total metal concentrations in stream samples were compared to the acute Aquatic Life Criteria (ALC) for each metal. The acute ALC for total concentrations were exceeded for cadmium in 11 samples, for copper in 20 samples, for lead in nine samples, for mercury in three samples and for zinc in one sample.

MSD and the US Geological Survey continuously monitor streamflow, dissolved oxygen, and water temperature at two sites in the South Fork of Beargrass Creek watershed. Fish and aquatic insects need dissolved oxygen to breathe, and amounts greater than four parts per million (as an instantaneous standard) or five parts per million (as a mean daily standard) are what is deemed necessary. Water temperatures in excess of 31.7 °C (89.1 °F) are very stressful on the aquatic communities both by increasing metabolism and respiration, and by lowering the capacity of water to actually hold dissolved oxygen. In general, extended periods of low stream flows also can cause stress on aquatic communities.

Dissolved oxygen conditions were “good” (criteria met more than 90 percent of the time) at the Trevilian and Schiller Avenue Ramp sites for the last six years. Occasional

MSD plans to construct a wet weather storage basin in 2015 near Logan and Breckinridge Streets.

excursions of low dissolved oxygen likely were a result of very low stream flows on very warm days or some other transient factor. Dissolved oxygen conditions were “poor to fair” (72 to 87.7 percent) at the Brownsboro Road, a site with significant combined sewer inflows upstream.

Water temperature criteria at all three sites were met 100 percent of the time most years over the last six years, except for occasional excursions in 2010 and 2012. Periodic hot days and low stream flows are common in the summer and occasionally cause an exceedance of the criteria.

US GEOLOGICAL SURVEY - GAGING STATIONS

| USGS GAGE NUMBER | STREAM NAME AND LOCATION OF FLOW GAGE | YEAR STARTED |
|------------------|--|--------------|
| 03292500 | South Fork of Beargrass Creek at Trevilian Way | 1939 |
| 03292550 | South Fork of Beargrass Creek at Winter Avenue | 1998 |



A group of students paddles by MSD’s Beargrass Creek Flood Pumping Station on a tour of the stream.



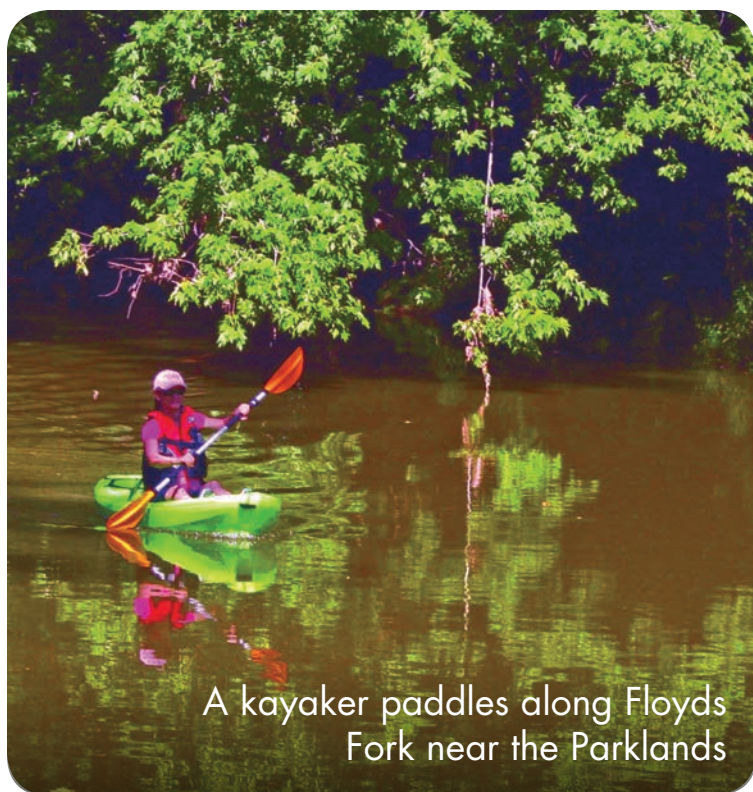
Beargrass Creek

Floyds Fork Watershed

The small streams that form Floyds Fork originate in Oldham, Shelby, and Henry Counties. Floyds Fork flows south through Oldham, eastern Jefferson, and northern Bullitt Counties where it drains into the Salt River near Shepherdsville.

Watershed Assessment

Conditions of the fish communities in 2013 at the five sites in the Floyds Fork watershed ranged from “fair” at the two Chenoweth Run sites to “good” at the Ash Avenue site to “excellent” at the two downstream Floyds Fork sites. All sites showed significant improvement over time. The aquatic insect communities at all five sites were “fair” in 2013. Only Chenoweth Run at Ruckriegel Parkway and Floyds Fork at Ash Avenue have shown improvement in the insect communities over time. Conditions of the algal communities were “fair” at the Bardstown Road and Gellhaus Lane sites and “good” at the other three sites in 2013. Conditions of the algal communities have been improving since 2011 at all but Bardstown Road. Stream habitat conditions generally were “good” at all three Floyds Fork sites and at the Gellhaus Lane site. Chenoweth Run at Ruckriegel Parkway had a “fair” rating in 2013, but habitat appears to be improving at both Chenoweth Run sites.



A kayaker paddles along Floyds Fork near the Parklands

For fecal coliform bacteria, the period of record medians (the middle values) of the monthly geomeans at all three Floyds Fork sites and the Chenoweth Run at Gellhaus Lane site were below the recreational standard of 200 colonies/100ml, while the value was above the standard for the Ruckriegel Parkway site. Individual monthly geomeans were variably above and below the standard, with no apparent trend. For three years of data on *E. coli* bacteria, most of the monthly geomeans at the 5 sites were above the recreational standard of 130 colonies/100ml.

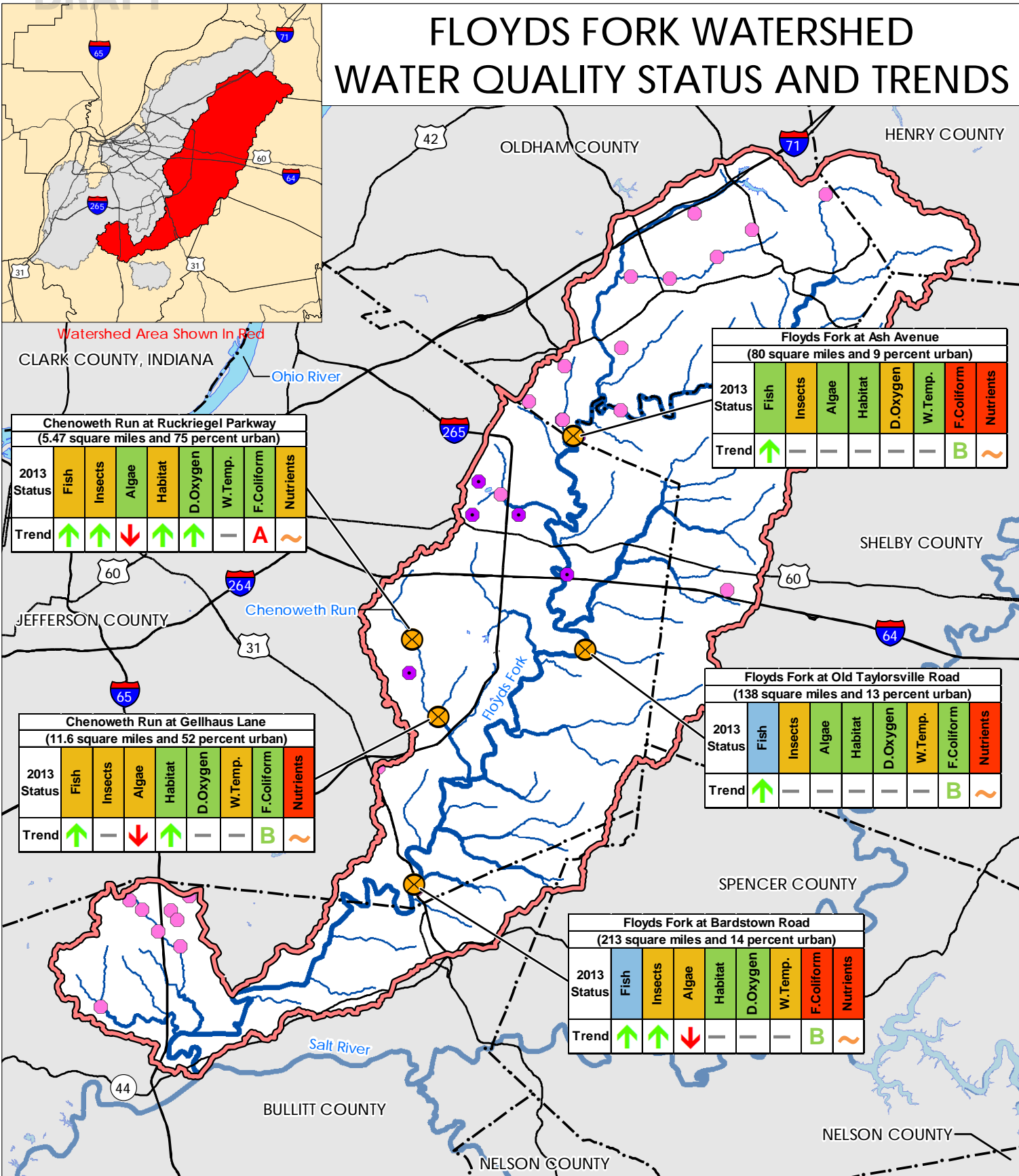
The five sites had some of the highest percentages of nutrient measurements in the top third of all 27 LTMN samples. Total suspended solids were not much of an issue in Chenoweth Run but were higher at all three sites on Floyds Fork. Nitrate, total Kjeldahl nitrogen, and total phosphorus were highest in the Chenoweth Run at Gellhaus Lane, a site that receives treated wastewater.

Removal of the wastewater inflows to Chenoweth Run in late 2015 should lead to much improved nutrient conditions, but as flows also will be reduced, only time will tell how the aquatic communities will respond. Continued water quality monitoring to document the changes is all that more important in this watershed.

The acute Aquatic Life Criteria was exceeded for cadmium in one sample at Gellhaus Lane and for copper in two samples (at Ruckriegel Parkway and at Old Taylorsville Road). The criteria for lead, nickel, and zinc were not exceeded in any samples. More recent wet weather event sampling data confirms the historical data suggesting that trace metals are not an issue of concern in these LTMN streams.

Dissolved oxygen conditions were in the “good” range in both Chenoweth Run sites and the two downstream Floyds Fork sites, but conditions in the Ash Avenue site were in the “fair” range for two of the three years of record. It is not clear if the low dissolved oxygen readings were a result of very low stream flows or some other factor like fouling of the probe. Water temperature criteria (no more than 31.7°C (89.1°F)) were met 100 percent of the time at the Ruckriegel site and at least 97 percent of the time at the other four sites. Periodic hot days and low stream flows are common in the summer and occasionally cause an exceedance of the water temperature or dissolved oxygen criteria.

FLOYDS FORK WATERSHED WATER QUALITY STATUS AND TRENDS



Chenoweth Run at Ruckriegel Parkway
(5.47 square miles and 75 percent urban)

| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Coliform | Nutrients |
|-------------|------|---------|-------|---------|----------|---------|------------|-----------|
| Trend | ↑ | ↑ | ↓ | ↑ | ↑ | — | A | ~ |

Chenoweth Run at Gellhaus Lane
(11.6 square miles and 52 percent urban)

| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Coliform | Nutrients |
|-------------|------|---------|-------|---------|----------|---------|------------|-----------|
| Trend | ↑ | — | ↓ | ↑ | — | — | B | ~ |

Floyds Fork at Ash Avenue
(80 square miles and 9 percent urban)

| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Coliform | Nutrients |
|-------------|------|---------|-------|---------|----------|---------|------------|-----------|
| Trend | ↑ | — | — | — | — | — | B | ~ |

Floyds Fork at Old Taylorsville Road
(138 square miles and 13 percent urban)

| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Coliform | Nutrients |
|-------------|------|---------|-------|---------|----------|---------|------------|-----------|
| Trend | ↑ | — | — | — | — | — | B | ~ |

Floyds Fork at Bardstown Road
(213 square miles and 14 percent urban)

| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Coliform | Nutrients |
|-------------|------|---------|-------|---------|----------|---------|------------|-----------|
| Trend | ↑ | ↑ | ↓ | — | — | — | B | ~ |

| | | | | | |
|--|---|---|---|--|--------------------|
| | Legend ⓧ Monitoring Site ● Sewage Treatment Plant (Operated by MSD) ● Sewage Treatment Plant (Operated by Other Agency) | — Stream — Road - - - County Boundary — Watershed Boundary Lake | TREND ↑ Improving ↓ Declining ~ Varies — No Change ND No Data | STATUS Excellent Good Fair Poor / Very Poor A Long Term Median Above the Criteria B Long Term Median Below the Criteria | RATINGS KEY |
| | | | | | |

Background and Land Use

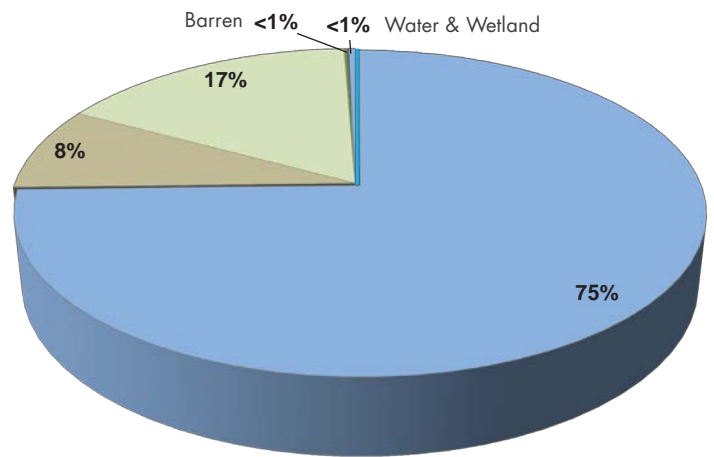
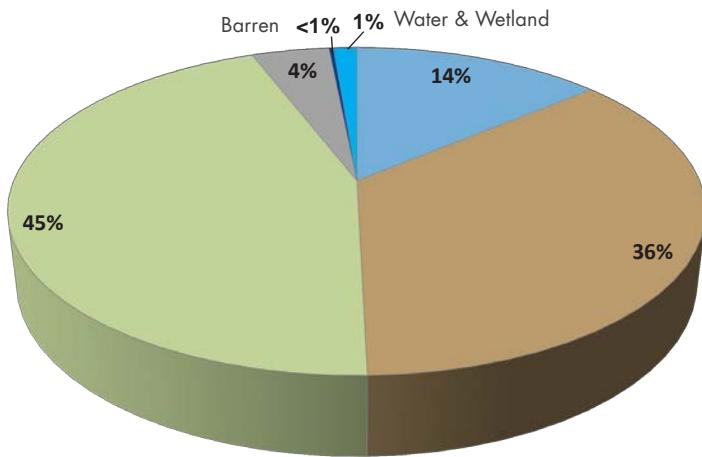
The Floyds Fork Water Quality Treatment Center was constructed by MSD to eliminate less efficient small package plants and septic systems from the most populated areas of the watershed. The Jeffersontown Wastewater Treatment Plant currently discharges treated effluent into Chenoweth Run, but the piping system to redirect these discharges to the Cedar Creek Wastewater Treatment Plant currently is under construction. A premier park system, The Parklands of Floyds Fork, is being developed along Floyds Fork (website at: <http://www.theparklands.org/>). Extensive tracts of land have been preserved and the system of five parks is providing a variety of opportunities for recreation and enjoyment of the stream and natural areas.

Currently, MSD monitors water quality and streamflow at five stream sites in the Floyds Fork watershed -- three sites on Floyds Fork and two on Chenoweth Run, a tributary

that enters Floyds Fork from the west and upstream of the Bardstown Road site. There are 80, 138, and 213 square miles of land draining to Floyds Fork at the Ash Avenue, Old Taylorsville Road, and Bardstown Road sites, respectively. The land use for the three sites on Floyds Fork is mostly forest and agricultural. There also is a modest amount of land developed and developing for urban and suburban uses, mostly in the portions of the watersheds nearer to Louisville. Impervious area, including roadways, rooftops and driveways, is less than 4 percent in Floyds Fork. There are 5.5 and 11.6 square miles of land draining to Chenoweth Run at the Ruckriegel Parkway and Gellhaus Lane sites, respectively. Chenoweth Run drains land in Jeffersontown that is mostly urban and suburban. In contrast to Floyds Fork, the area draining to Chenoweth Run at Ruckriegel Parkway is over 33 percent impervious (75 percent urban and suburban), and the area draining to Gellhaus Lane is 21 percent impervious.

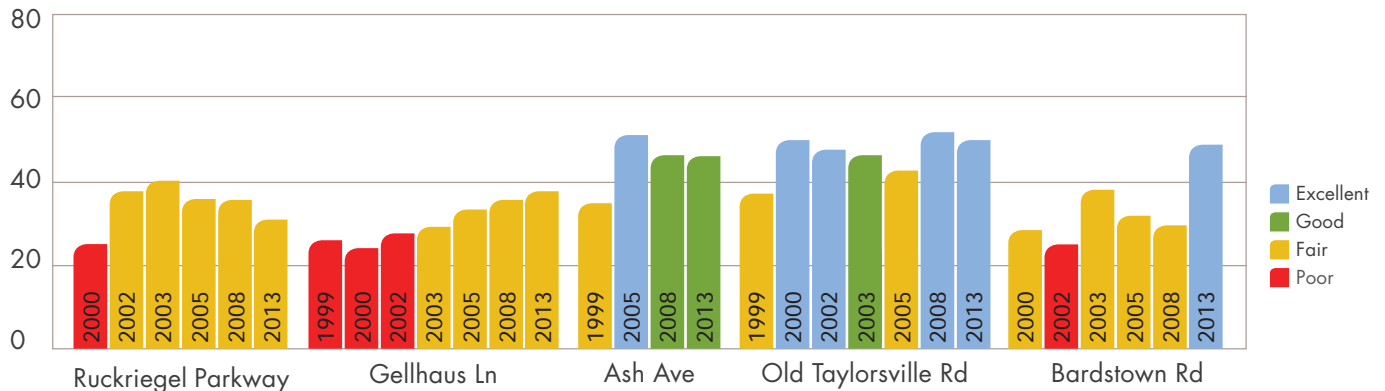
Land Use Upstream of Floyds Fork at Bardstown Road

Land Use Upstream of Chenoweth Run at Ruckriegel Parkway



- Urban & Suburban
- Barren
- Forest
- Agriculture
- Water & Wetland
- Grassland

Condition of the Fish Communities in the Floyds Fork Watershed



Monitoring Findings

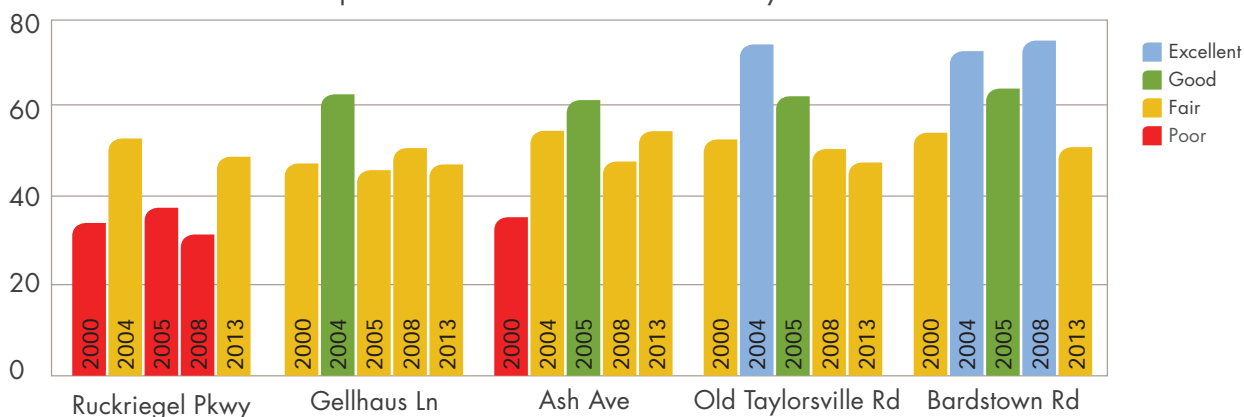
MSD has monitored the fish communities in the Floyds Fork watershed since 1999. The Ash Avenue site has improved from “fair” in 1999 to “excellent” and “good” since 2005. The Old Taylorsville Road site has improved from “fair” in 1999 to “excellent” in 2008 and 2013. The Bardstown Road site has improved from “fair” in 2000 to “excellent” in 2013.

The fish communities in Chenoweth Run at the Ruckriegel Parkway site are generally in “fair” condition, but the numerical indices have declined some since 2003. The Gellhaus Lane site has steadily improved from “poor” in 1999 to “fair” in 2013.

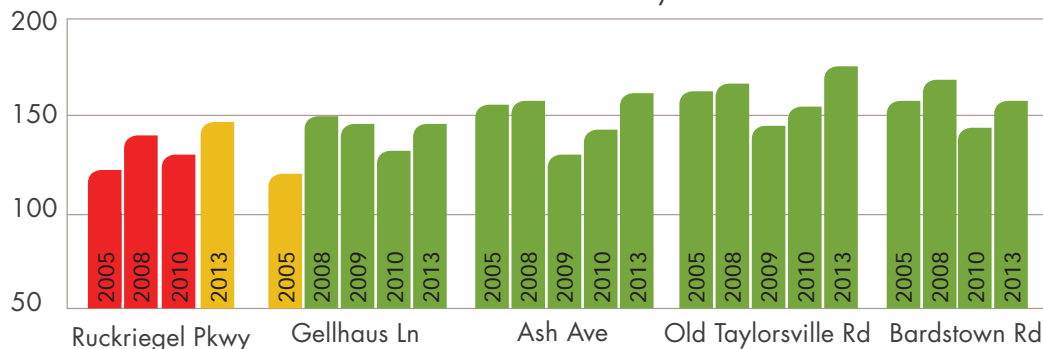
MSD has monitored aquatic insect communities at 5 sites in the Floyds Fork watershed since 2000. All sites were classified as “poor” or “fair” that year and all are “fair” in 2013. At Ash Avenue, the aquatic insect communities had improved to “good” in 2005. At Old Taylorsville Road, the aquatic insect communities had improved to “excellent” in 2004. At Bardstown Road, the aquatic insect communities improved to “excellent” in 2004 and 2008. The aquatic insect communities at all 3 Floyds Fork sites have declined to “fair” in 2013.

Early on, the aquatic insect communities in Chenoweth Run at Ruckriegel Parkway had a “poor” rating and improved to “fair” in 2004 and 2013. Aquatic insect communities at Gellhaus Lane were “fair” and improved to “good” in 2008 but declined to “fair” since.

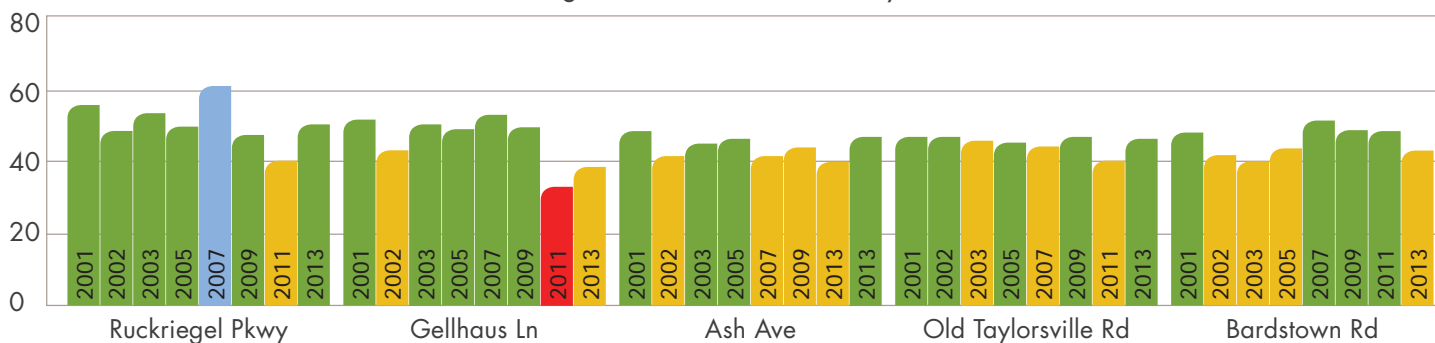
Condition of Aquatic Insect Communities in the Floyds Fork Watershed



Condition of Stream Habitat in the Floyds Fork Watershed



Condition of Algal Communities in the Floyds Fork Watershed



DRAFT

MSD assessed stream habitat in Floyds Fork since 2000. At the three Floyds Fork sites, stream habitat was “good” over that period. In Chenoweth Run at Gellhaus Lane, habitat also was generally “good”. In Chenoweth Run at Ruckriegel Parkway, habitat was classified as “poor” in 2005 to 2010 but improved to “fair” in 2013. Sediment deposition, unstable banks and a general lack of trees and other protective bank vegetation were identified at Ruckriegel Parkway as limitations of habitat quality.

MSD has monitored benthic algal communities, largely diatoms, at 5 sites in the Floyds Fork watershed since 2001. All sites, classified using a Diatom Bioassessment Index (DBI), were rated “good” that year and all are “fair” or “good” in 2013. All 3 Floyds Fork sites have been variably “good” to “fair” since 2001.

The Chenoweth Run at Ruckriegel Parkway site had an “excellent” rating in 2007 and a “fair” rating in 2011, otherwise it has had “good” ratings. Early on conditions at Gellhaus Lane were generally “good” except in 2002 and then declined to “poor” and “fair” in 2011 and 2013, respectively.

MSD and USGS continuously monitor dissolved oxygen, water temperature, and streamflow at all 5 stream sites in the watershed. Fish and aquatic insects need dissolved oxygen to breathe, and amounts greater than five parts per million are what is deemed necessary. Water temperatures in excess of 31.7°C (89.1°F) also stress the aquatic communities both by increasing metabolism and respiration, and by lowering the capacity of water to actually hold dissolved oxygen.

More than half of the daily data was available for 2004 through 2006 at Ash Avenue, for all years between 2002 and 2008 at Old Taylorsville Road, and for 2003, 2007 and 2008 at Bardstown Road, indicating good and improving data quality. The percent of days when the average amount of dissolved oxygen in the water was above five parts per million increased from “poor” in 2004 to “fair” in 2005 and 2006 at Ash Avenue. Downstream at Old Taylorsville Road, the percent of days when dissolved oxygen conditions were above five parts per million improved steadily from “fair” to “good” between 2002 and 2008. The percent of days when the average amount of dissolved oxygen in water was above five parts per million was consistently “good” for 2003, 2007 and 2008 in Floyds Fork at Bardstown Road.

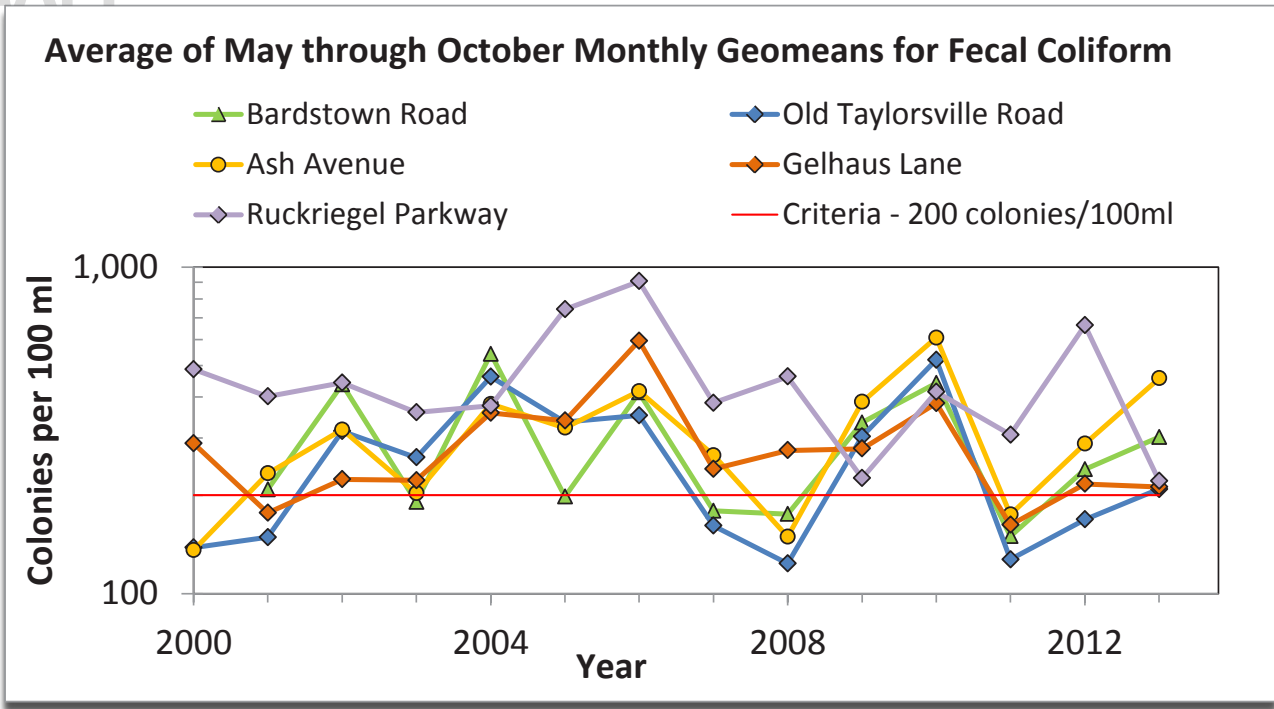
The Parklands at Floyds Fork has several spots for recreational activities like canoeing, kayaking & bike trails near the stream

In Chenoweth Run at Ruckriegel Parkway, more than half of the daily data was available for all years between 2002 and 2008, except 2003 and 2004. At Gellhaus Lane, more than half of the daily data was available between 2003 and 2008, except 2004 and 2006, indicating good data quality. At Ruckriegel Parkway, the percent of days when the average amount of dissolved oxygen in the water was above five parts per million declined from “good” in 2002 to “poor” in 2005, but improved to “good” by 2008. At Gellhaus Lane, the percent of days when dissolved oxygen conditions were above five parts per million was consistently “good” between 2003 and 2008.

MSD and the USGS monitor flow at all five sites in the Floyds Fork watershed. In September 2005, stream flows were below normal at the three sites on Floyds Fork when fish and aquatic insect samples were collected. In August 2005, stream flows in Floyds Fork were average. In Chenoweth Run, stream flows were average in September 2005, when fish and aquatic insect samples were collected. In August, stream flows in Chenoweth Run also were above average. In 2008, conditions throughout the watershed were drier, with below normal stream flows for two to three months prior to the sampling event in October throughout the watershed. In general, low stream flows can cause stress on fish and aquatic insects.

From 2000 to 2013, MSD monitored fecal coliform bacteria 3 to 5 times a month during the recreational season (April-October) at all five sites in the Floyds Fork watershed. *E coli* bacteria, a method more specific to bacteria that live in the guts of warm-blooded animals, were collected similarly only since 2011. The monthly geomeans of bacteria concentrations in stream waters were calculated for both bacterial types and compared to the recreational contact standard for each.

For the 14 years of data collection on fecal coliform bacteria (2000-2013), the medians of the monthly geomeans at all 3 of the Floyds Fork sites and the Chenoweth Run at Gellhaus Lane site were below the recreational standard of 200 colonies/100ml, whereas, the 14 year median for Chenoweth Run at Ruckriegel Parkway was above the standard. For fecal coliform bacteria, people should not swim in streams if the readings are higher than 200 colonies/100ml during the recreational season, which runs from May 1st through October 31st each year. Individual monthly geomeans were variably above and below the standard (not shown), with no apparent trend over the 14 year period. There was a tendency, however, for higher monthly geomeans earlier in the recreational season than later in the season for some years, which could be related to lower stream flows later in the season. For the 3 years of data collection of *E coli* bacteria (not shown), most all of the monthly geomeans for *E coli* at the 5 sites were above the recreational standard of 130 colonies/100ml.

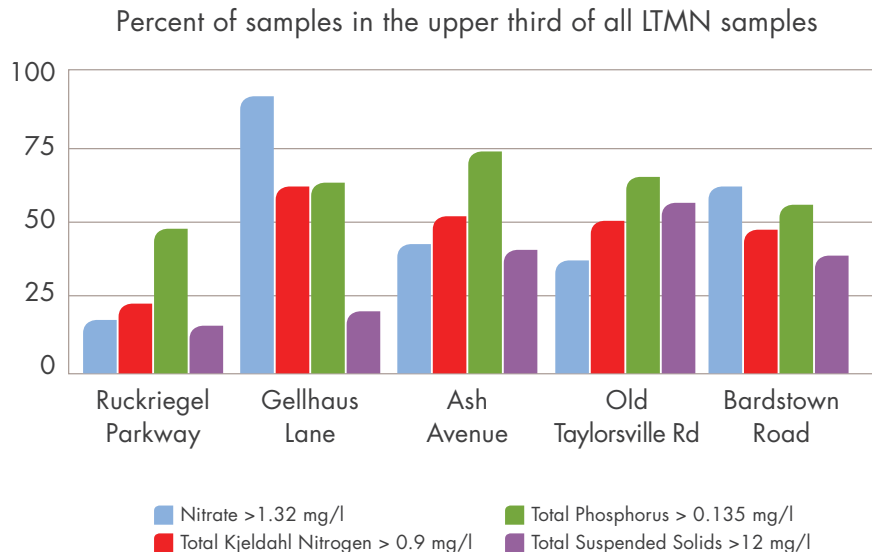


MSD monitored the concentrations of nutrients (nitrogen and phosphorus) and total suspended solids in streams periodically from 2000 to 2005 and, more consistently on a quarterly basis since 2005 at all five sites in the Floyds Fork watershed. The breakpoint concentration between the upper third and lower two thirds of all samples at all 27 MSD sites collected since 2005 were calculated for each of these constituents. The percent of samples above these breakpoints (shown next to the constituent on the graph) for each of the 5 sites is indicative of how they relate to other streams in the Metro area.

Components of total nitrogen (nitrate and total Kjeldahl nitrogen) were highest at the Chenoweth Run at Gellhaus Lane site, which receives waste water inflows. Total

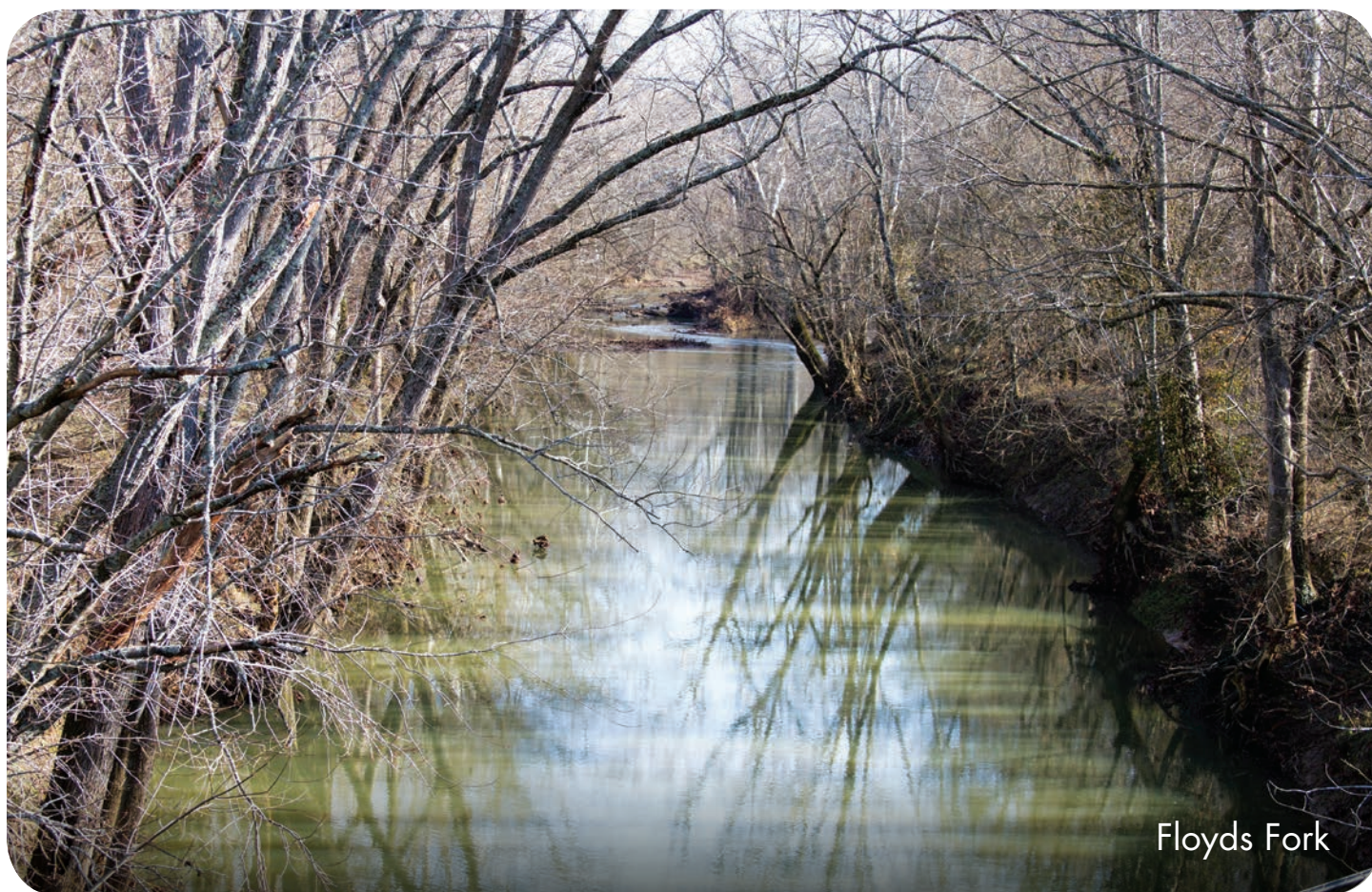
phosphorus was highest at the Floyds Fork at Bardstown Road site. Total suspended solids were not much of an issue in Chenoweth Run and were highest in the Old Taylorsville Road site on Floyds Fork.

MSD monitored concentrations of trace metals in streams periodically from 2000 to 2005 and on a quarterly basis since 2005 at all five sites in the Floyds Fork watershed. About 200 samples were collected for trace elements at the 5 sites. For those metals with criteria, total metal concentrations in stream samples were compared to the acute Aquatic Life Criteria (ALC) for each metal. The acute ALC for total concentrations of lead and zinc were not exceeded in any samples at any of the 5 sites. Criteria were exceeded for cadmium and mercury in one sample each and for copper in 2 samples.



USGS MONITORS FLOW AT FIVE SITES IN THE FLOYDS FORK WATERSHED

| USGS GAGE NUMBER | STREAM NAME AND LOCATION OF FLOW GAGE | YEAR STARTED |
|------------------|---------------------------------------|--------------|
| 03297900 | Floyds Fork at Ash Avenue | 1991 |
| 03298000 | Floyds Fork at Old Taylorsville Road | 1944 |
| 03298200 | Floyds Fork at Bardstown Road | 2001 |
| 03298135 | Chenoweth Run at Ruckriegel Parkway | 1999 |
| 03298150 | Chenoweth Run at Gellhaus Lane | 1996 |



MSD will eliminate the Jeffersontown Wastewater Treatment Plant in 2015



Chenoweth Run near Ruckriegel Parkway

Cedar Creeks/Pennsylvania Run Watersheds

The small streams that eventually form Cedar Creek in Jefferson County originate in the Fern Creek area and flow south. Cedar Creek empties into Floyds Fork in Bullitt County east of Shepherdsville. The Cedar Creek Wastewater Treatment Center discharges treated wastewater into Cedar Creek. This facility was constructed in 1995 and was expanded to have the capacity to treat 7.5 million gallons per day of wastewater in 2003. The small streams that eventually form the other Cedar Creek in Bullitt County originate in the Cedar Grove area. It flows north and empties into the Salt River east of Shepherdsville. Pennsylvania Run originates in the Highview area and flows south through the 46 acre McNeely Lake and empties into Cedar Creek east of Zoneton.

Watershed Assessment

The health of the aquatic communities in the three watersheds was variable over time and between sites. The fish, insect, and algal communities and stream habitat at Cedar Creek in Bullitt County, one of the least urban watersheds in the LTMN, were all in “good to excellent” health in 2013 and generally improving over time. The Thixton Lane and Pennsylvania Run sites are 37 and 39 percent urban, respectively, mid-range for LTMN sites. The fish and insect communities and stream habitat in Pennsylvania Run were in “fair” condition in 2013 and the algal community was in “good” status in 2013, but all four communities generally were improving over time. The fish communities and stream habitat in Thixton Lane site were in “good” condition in 2013 and the insect and algal communities were in “poor” and “fair” status, respectively, but generally staying the same over time.

Stream reaches at the two Cedar Creek sites have stable banks, and the stream beds were only slightly degraded by some silt and sediment deposition. At the Pennsylvania Run site, the stream banks have some stability problems and the stream lacks shallow, rocky riffles. None of the three stream channels appear to have been straightened or otherwise altered.

For fecal coliform bacteria, the period of record medians (the middle values) of the monthly geomeans for both Cedar Creek sites were below the recreational standard of 200 colonies/100ml, whereas, the period of record median for Pennsylvania Run was above the standard. Individual monthly geomeans were variably above and below the standard, with no apparent trend over the period of record. For the 3 years of data of *E coli* bacteria, most of the monthly geomeans at the three sites were above the recreational standard of 130 colonies/100ml.

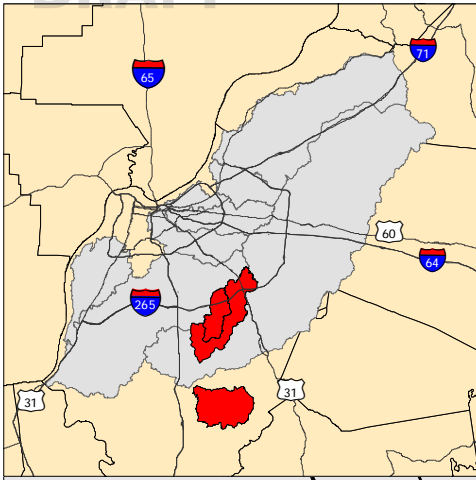
It is unclear why the Pennsylvania Run site had so many more samples in the upper third for total phosphorus (89 percent, one of the highest of LTMN sites) compared to the neighboring Thixton Lane site (8 percent) with similar land use. Both total phosphorus and total suspended solids were of little concern at the Thixton Lane site even though this site receives treated wastewater. Both sites had high percentages of samples in the upper third for nitrate and total Kjeldahl nitrogen; in fact, the Thixton Lane is the highest of LTMN sites for nitrate.

The Cedar Creek site in Bullitt County had relatively low numbers of samples in the upper third for all nutrients and total suspended solids. Compared to other LTMN sites, the Bullitt County watershed has a higher percentage of forested land and very little urban and suburban land use. For these particular parameters, the forest character provides a buffer for surface runoff and fewer sources for excess nutrients to enter the stream.

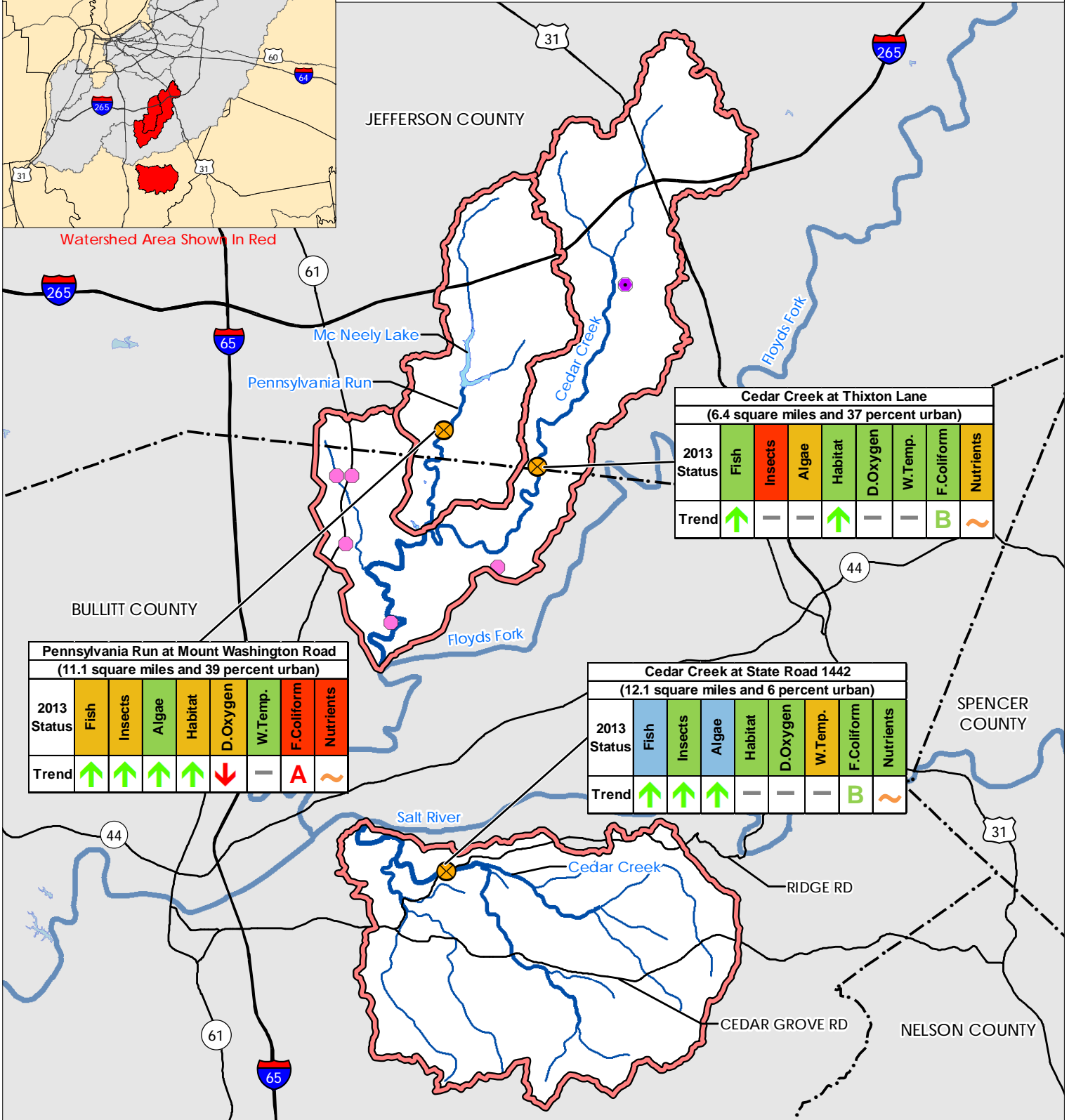
More recent wet weather event sampling data confirms the historical data that trace metals are not a large issue of concern in the LTMN streams.

Dissolved oxygen conditions at the Thixton Lane and Bullitt County sites reflect ‘good’ conditions for the last six years, whereas, conditions at the Pennsylvania Run site reflect “poor to good” conditions and “fair” more recently. Water temperature criteria (no more than 31.7°C (89.1°F)) were met 100 percent of the time at the two Cedar Creek sites, with excursions above the criteria at the Bullitt County site only in 2007 and 2012. Periodic hot days and low stream flows occasionally cause exceedances of both criteria; more frequent exceedances of dissolved oxygen at the Pennsylvania Run site likely also reflect some other transient factor(s).

CEDAR CREEK AND PENNSYLVANIA RUN WATERSHEDS WATER QUALITY STATUS AND TRENDS



Watershed Area Shown In Red



| Pennsylvania Run at Mount Washington Road (11.1 square miles and 39 percent urban) | | | | | | | | |
|---|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | ↑ | ↑ | ↑ | ↑ | ↓ | — | A | ~ |

| Cedar Creek at Thixton Lane (6.4 square miles and 37 percent urban) | | | | | | | | |
|--|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | ↑ | — | — | ↑ | — | — | B | ~ |

| Cedar Creek at State Road 1442 (12.1 square miles and 6 percent urban) | | | | | | | | |
|---|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | ↑ | ↑ | ↑ | — | — | — | B | ~ |

| | | | | | |
|--|---|---|---|--|--------------------|
| | Legend Monitoring Site Sewage Treatment Plant (Operated by MSD) Sewage Treatment Plant (Operated by Other Agency) | Stream Road County Boundary Watershed Boundary Lake | TREND Improving Declining Varies No Change ND No Data | STATUS Excellent Good Fair Poor / Very Poor A Long Term Median Above the Criteria B Long Term Median Below the Criteria | RATINGS KEY |
|--|---|---|---|--|--------------------|

DRAFT

Background and Land Use

There are 11.1 and 6.4 square miles of land draining to the Cedar Creek at Thixton Road and Pennsylvania Run sites, respectively. The land includes urban, agriculture and forested areas. Small areas are classified as grassland. About 10 and 9 percent, respectively, of these watersheds is covered by impervious surfaces such as roads, rooftops and driveways.

The small streams that eventually form the other Cedar Creek originate in the Cedar Grove area of Bullitt County. Cedar Creek flows north and empties into the Salt River east of Shepherdsville. This site is located outside of the urban influences of Louisville and provides a basis for comparison of water quality conditions in a less urbanized watershed to the more urbanized sites in the Louisville Metro area.

There are 12.1 square miles of land draining to the Cedar Creek in Bullitt County site. This land is mostly forested, with significant amounts of agriculture and grasslands. A relatively small percentage of the land has been developed for urban and suburban uses. Impervious area covers only 0.2 percent of this watershed.

MSD has been monitoring water quality and stream flow in Cedar Creek at Thixton Road and Pennsylvania Run sites since 1999 and at Cedar Creek at State Highway 1442 (Bullitt County) since 2002.

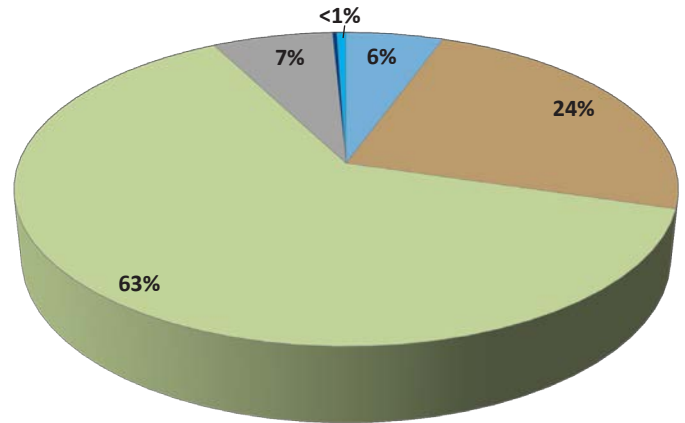
Monitoring Findings

MSD monitored fish communities at the Thixton Lane and Pennsylvania Run at Mount Washington Road sites since 1999 and at the State Road 1442 site in Bullitt County since 2002. Fish community results were variably “fair/poor” to “excellent” at the Thixton Lane and Pennsylvania Run sites and were “good” and “fair” in 2013, respectively. The fish communities in State Road 1442 were classified as “good” to “excellent” and appear to have steadily improved since 2002.

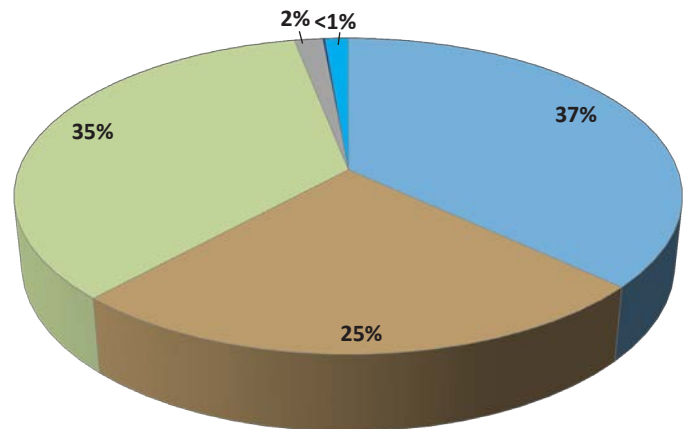
MSD has monitored aquatic insect communities at the Thixton Lane and Pennsylvania Run at Mount Washington Road sites since 2000. The aquatic insect communities have been variably “fair” to “poor”, and currently are in “poor” and “fair” condition, respectively. The aquatic insect communities in Cedar Creek at State Road 1442 were classified as “fair” in 2004 and improved to “good” currently.

MSD has assessed stream habitat since 2005 at all three sites when fish and aquatic insects were sampled. Except for 2008, habitat quality at the two Cedar Creek sites generally were “good”, meaning that both streams provide good habitat for fish and aquatic insect communities. These streams have stable banks and the stream beds were only slightly degraded by some silt and sediment deposition. The stream channels do not appear to have been straightened or otherwise altered.

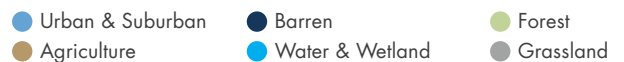
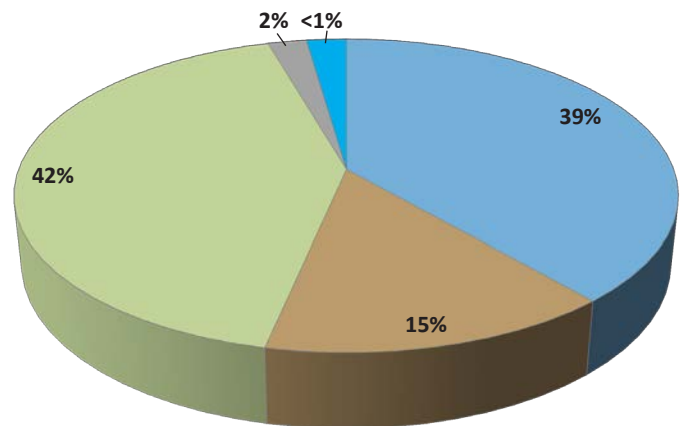
Land Use Upstream of Cedar Creek at State Highway 1442 (Bullitt County)



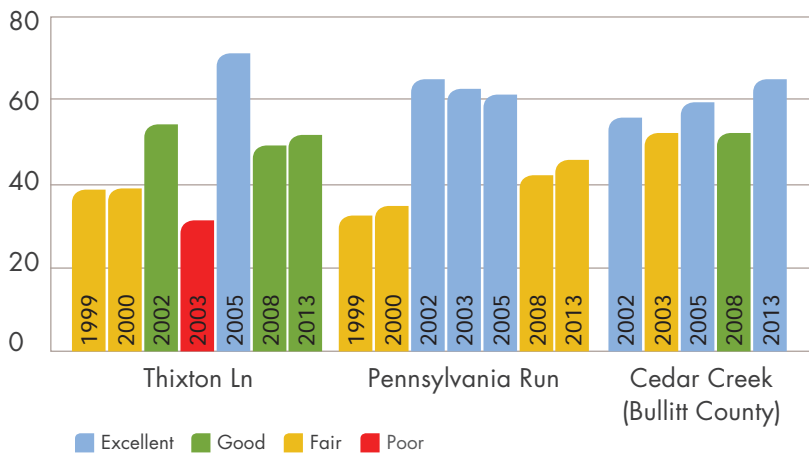
Land Use Upstream of Cedar Creek at Thixton Lane



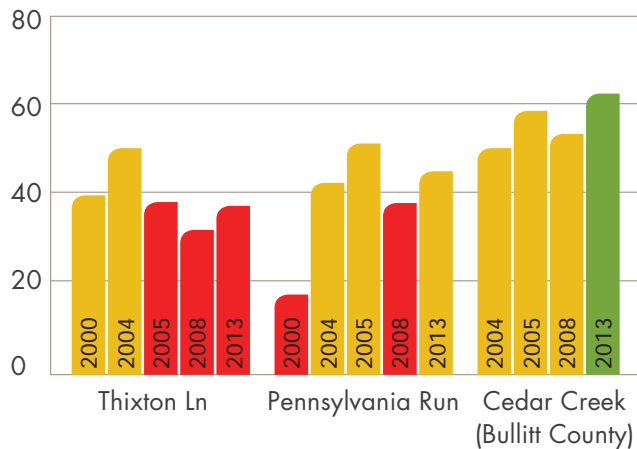
Land Use Upstream of Pennsylvania Run at Mount Washington Road



Condition of the Fish Communities in the Cedar Creek and Pennsylvania Run Watersheds



Condition of the Aquatic Insect Communities in the Cedar Creek and Pennsylvania Run Watersheds



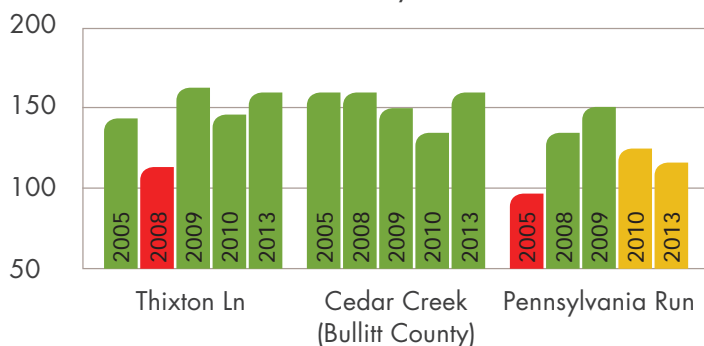
At the Pennsylvania Run site, habitat quality was variably “poor” to “good” and has declined since 2009 to “fair” currently. The stream banks have some stability problems and the stream lacks shallow, rocky riffles that provide good habitat for aquatic insects and fish. The stream channel does not appear to have been straightened or otherwise altered.

MSD has monitored benthic algal communities, largely diatoms, in the Thixton Lane and Pennsylvania Run sites since 2001, and at Cedar Creek (Bullitt County) since 2002. Using a Diatom Bioassessment Index (DBI), the sites were rated “fair” to “excellent” with “fair” conditions at Thixton Lane in 2011-13. Algal community conditions have steadily improved in the Bullitt County and Pennsylvania Run sites over time and are “excellent” and “good” in 2013, respectively.

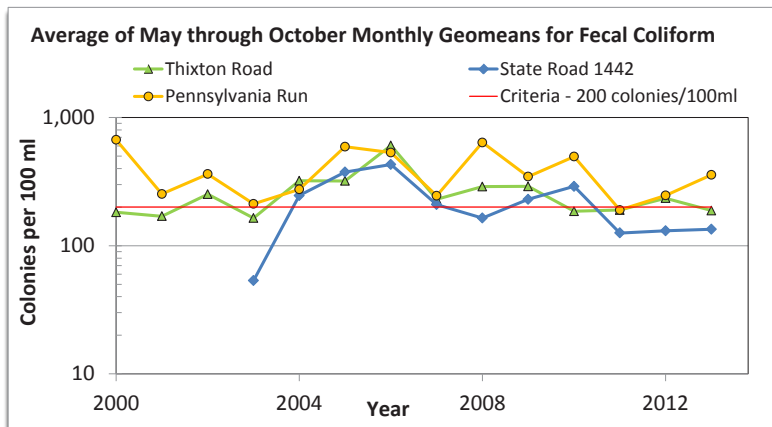
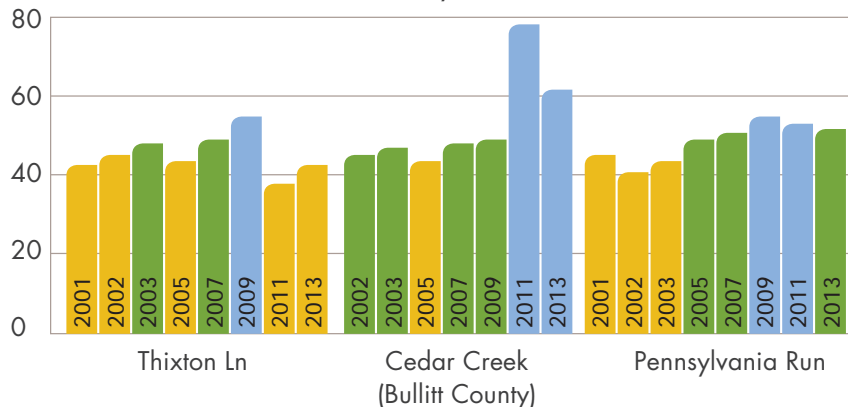
Since 2000, MSD has monitored fecal coliform bacteria 3 to 5 times a month during the recreational season (April-October). *E. coli* bacteria were collected similarly but only since 2011. The monthly geomeans of bacteria concentrations were calculated and compared to the recreational contact standard for each type.

For fecal coliform bacteria, people should not swim in streams if the readings are higher than 200 colonies/100ml during the recreational season, which runs from May 1st through October 31st each year. The period of record medians of the monthly geomeans for both Cedar Creek sites were below the recreational standard of 200 colonies/100ml, whereas, the period of record median for Pennsylvania Run was above the standard. Individual monthly geomeans were variably above and below the standard (not shown), with no apparent trend over the period of record. There was a tendency, however, for higher monthly geomeans earlier in the recreational season than later in the season for some years, which could be related to lower stream flows later in the season.

Condition of the Stream Habitat in the Cedar Creek and Pennsylvania Run Watersheds



Condition of Algal Communities in the Cedar Creek and Pennsylvania Run Watersheds



DRAFT

For the 3 years of data collection of *E. coli* bacteria (not shown), most all of the monthly geomeans at the three sites were above the recreational standard of 130 colonies/100ml.

MSD monitored the concentrations of nutrients (nitrogen and phosphorus) in streams and total suspended solids periodically from 2000 to 2005 and on a quarterly basis since 2005 at the three sites. The percent of samples taken at these sites which fall into the upper third of all samples were calculated as a comparison to other streams in the watershed and throughout the area.

The Thixton Lane site had the highest percentage of samples for nitrate in the upper third of all sites in the county while the Pennsylvania Run site had the fourth highest. The Pennsylvania Run site also had the second highest phosphorus number compared to all other sites in the county. About half of the TKN samples were in the upper third and TSS numbers were relatively low for the two sites, but neither are a major concern compared to nitrate and phosphorus. These results are expected for Thixton Lane as it receives significant wastewater inflows, but for Pennsylvania Run (along with bacteria results) also suggests the influence of wastewater inputs. Due to its relatively undeveloped condition, the Cedar Creek site in Bullitt County had some of the lowest numbers of samples in the upper third of all samples for all nutrients and total suspended solids.

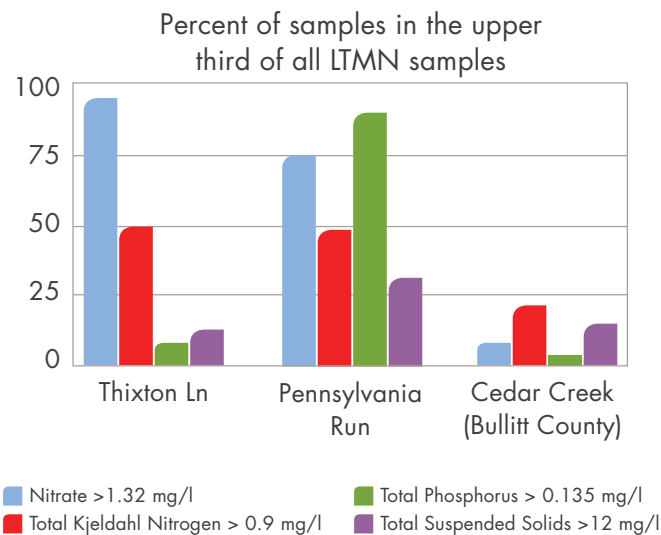
MSD monitored concentrations of trace metals in streams periodically from 2000 to 2005 and on a quarterly basis since 2005. For those metals with criteria, total metal concentrations in stream samples were compared to the acute Aquatic Life Criteria (ALC) for each metal. The acute ALC for total concentrations of cadmium, copper, lead, mercury and zinc were not exceeded in any samples at any of the three sites.

MSD and the US Geological Survey continuously monitor streamflow, dissolved oxygen, and water temperature at all three sites. Streamflow has been monitored on Cedar Creek at Thixton Road (USGS gage number 03298250) since 1999, on Cedar Creek in Bullitt County (USGS gage number 03297800) since 2002, and on Pennsylvania Run (USGS gage number 03298300) since 1998.

Fish and aquatic insects need dissolved oxygen to breathe, and amounts greater than four or five parts per million are what is deemed necessary. Water temperatures in excess of 31.7°C (89.1°F) are very stressful on the aquatic communities both by increasing metabolism and respiration, and by lowering the capacity of water to actually hold dissolved oxygen. In general, extended periods of low stream flows also can cause stress on aquatic communities.

Dissolved oxygen criteria at the Thixton Road site were met 99.1 to 100 percent of the time and the Bullitt County site were met 91.7 to 100 percent; both reflecting ‘good’ conditions for the last six years. Occasional excursions of low dissolved oxygen likely were a result of very low stream flows on very warm days or some other transient factor. Dissolved oxygen criteria at the Pennsylvania Run site were met 66.7 to 94.3 percent of the time for the last six years, reflecting ‘poor to good’ conditions and “fair” more recently. These more frequent excursions of low dissolved oxygen likely were both a result of very low stream flows on very warm days and likely some other transient factor(s).

Water temperature criteria were met 100 percent of the time at the Cedar Creek at Thixton Road and Pennsylvania Run sites. Water temperature criteria were met 98.9 to 100 percent of the time at the Bullitt County site, with excursions above the criteria only in 2007 and 2012. Periodic hot days and low stream flows are common in the summer and occasionally cause an exceedance of the criteria.



MSD constructed the Cedar Creek Wastewater Treatment Plant in 1995 in order to eliminate several small neighborhood package plants. The facility was expanded in 2003 and can now treat 7.5 million gallons of wastewater per day.



Cedar Creek near Thixton Lane

Pond Creek Watershed

The Pond Creek watershed drains about 126 square miles in southern and southwestern Louisville Metro area. Approximately 89 square miles are located in Jefferson County and 37 square miles are in Bullitt County. The Louisville International Airport and its associated large industrial complex, and Jefferson Memorial Forest are prominent features in this watershed.

Watershed Assessment

The health of the aquatic communities in the five sites was variable over time and between sites. The fish communities were most improved at the Northern Ditch and Brier Creek sites, both in “excellent” condition in 2013. The fish communities were “poor” or “very poor” at the Fern Creek, Manslick Road, Pendleton Road sites, but conditions have improved over time at the two upstream sites but declined at the Pendleton Road site. The aquatic insect communities at the five sites were rated “poor” to “fair” in 2013. Conditions have not improved any at the Fern Creek site, but have improved at the other four sites. The algal community in the Fern Creek site was in “excellent” condition in 2013, having improved over time. The Northern Ditch, Manslick Road, and Pendleton Road sites were rated “poor” in 2013 and generally were the same or declining over time. Conditions of the algal communities in Brier Creek were “good” in 2013 but have generally declined over time.

Habitat quality has improved from “poor” to “fair” at the Fern Creek site and from “poor” to “good” at the Northern Ditch site. Good stream bed habitat is limited at the Fern Creek site by bedrock, but both growth of stream bank vegetation and development of a rocky substrate at the Northern Ditch site have improved habitat considerably. Habitat quality was “poor” in 2013 and has declined over time at both Pond Creek sites. Both of these sites have been channelized and have unstable, sediment laden stream beds and a general lack of rocky riffles, which provide important habitat for fish and aquatic insects. In Brier Creek, habitat quality improved from “poor” in 2005 to “good” in 2009, but has declined to “fair” since then. The stream in this location generally has unstable banks as well as shifting sediment deposits in the stream bed. This site has a very small drainage area and is affected by longer periods of low to zero stream flow.

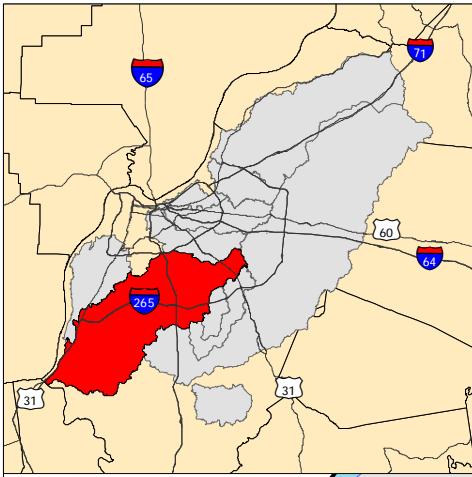
For fecal coliform bacteria, the period of record medians (the middle values) of the monthly geomeans for the Brier Creek, Northern Ditch, and Pendleton Road sites were below the recreational standard of 200 colonies/100ml, whereas, the period of record medians for the Fern Creek and Manslick Road sites were above the standard. Individual monthly geomeans were variably above and below the standard, with no apparent trend over time. There was a tendency, however, for higher monthly geomeans earlier in the recreational season than later in the season for some years, which could be related to lower stream flows later in the season. For the three years of data of *E. coli* bacteria, most of the monthly geomeans at four of the sites were above the recreational standard of 130 colonies/100ml. Many of the Brier Creek monthly medians for *E. coli* were below the standard.

All sites except Fern Creek had very low numbers of nitrate samples in the upper third of all LTMN samples. Northern Ditch and Brier Creek sites had very low numbers for all nutrients and total suspended solids. Compared to all LTMN sites, Brier Creek had the lowest number of samples in the upper third of all samples for total Kjeldahl nitrogen and total phosphorus. The Northern Ditch site had the lowest number of samples in the upper third for total suspended solids (9 percent) compared to other LTMN sites, whereas, Pond Creek at Manslick Road had by far the highest number of samples in the upper third for total suspended solids (94 percent). Both Pond Creek sites had extremely low numbers of samples in the upper third for nitrate, with the lowest and second lowest numbers among all sites.

More recent wet weather event sampling data confirms the low occurrence of trace metals in the historical data. This strongly suggests that trace metals are not an issue of concern in these LTMN streams.

Dissolved oxygen conditions were in the “good” range in all but the Brier Creek site, which was in “fair” condition more recently. Water temperature criteria (no more than 31.7°C (89.1°F)) were met 100 percent of the time at the Brier Creek and Fern Creek sites; were in a “fair” range (between 91.7 and 99.7 percent) at the other three sites. Brier Creek and Fern Creek have very small drainage areas and are affected by longer periods of low to zero stream flow. Periodic hot days and low stream flows are common in the summer and occasionally can cause an exceedance of these criteria. Riparian tree cover can help minimize these excursions.

POND CREEK WATERSHED WATER QUALITY STATUS AND TRENDS



Watershed Area Shown in Red

| Fern Creek at Old Bardstown Road (3.5 square miles and 60 percent urban) | | | | | | | | |
|---|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | ↑ | — | ↑ | ↑ | — | — | A | ~ |

| Pond Creek at Manslick Road (64 square miles and 58 percent urban) | | | | | | | | |
|---|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | ↑ | ↑ | — | ↓ | — | — | A | ~ |

| Northern Ditch at Preston Highway (11.1 square miles and 62 percent urban) | | | | | | | | |
|---|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | ↑ | ↑ | ↓ | ↑ | — | — | B | ~ |

| Brier Creek at Bear Camp Road (4.13 square miles and 1 percent urban) | | | | | | | | |
|--|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | ↑ | ↑ | ↓ | — | — | — | B | ~ |

| Pond Creek at Pendleton Road (80.3 square miles and 60 percent urban) | | | | | | | | |
|--|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | ↓ | ↑ | ↓ | ↓ | — | — | B | ~ |

Legend

- Monitoring Site
- Sewage Treatment Plant (Operated by MSD)
- Sewage Treatment Plant (Operated by Other Agency)
- Stream
- Road
- County Boundary
- Watershed Boundary
- Lake

TREND

- Improving
- Declining
- Varies
- No Change
- No Data

STATUS

- Excellent
- Good
- Fair
- Poor / Very Poor
- Long Term Median Above the Criteria
- Long Term Median Below the Criteria

RATINGS KEY

DRAFT

Background and Land Use

Small streams, which flow west out of the Jeffersontown and Fern Creek areas, join to form Fern Creek; and then becomes Northern Ditch downstream near Shepherdsville Road. Just to the south, small streams flow west out of Okolona and form Southern Ditch near Interstate-65. Southern joins Northern Ditch and forms Pond Creek near New Cut Road, where it flows west into the Salt River near West Point, Kentucky. Brier Creek is a small tributary draining into Pond Creek just south of Pendleton Road.

The relatively flat portion of the Pond Creek watershed was once a shallow lake, which gradually filled with silt and debris to form a flat plain with standing water and dense swamp vegetation. Parts of this area were known as the “wet woods” in the past.

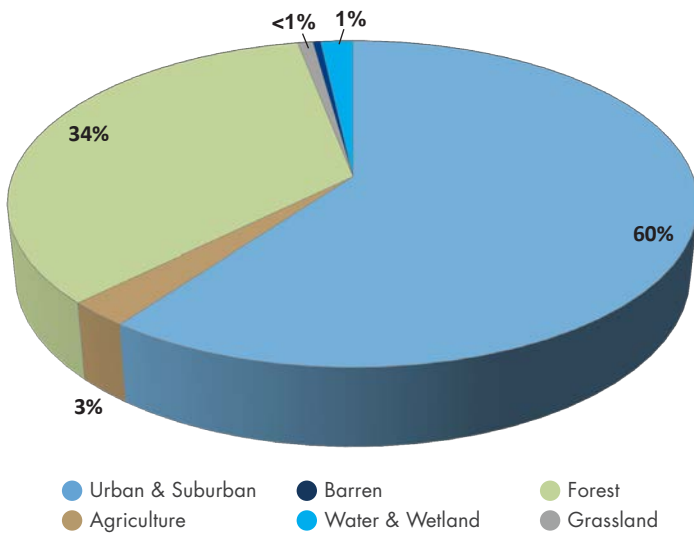
Starting in the 1850’s, a system of man-made ditches was developed to reduce flooding and to increase the amount of land suitable for development, which continued to expand before and after World War II. Many of the streams in the Pond Creek watershed have been extensively channelized, and large flat areas are now drained by Northern Ditch and Southern Ditch.

MSD has been monitoring water quality and stream flow in this watershed since 1999 at five locations. The sites are listed here from upstream to downstream: Fern Creek at Old Bardstown Road, Northern Ditch at Preston Highway, Pond Creek at Manslick Road, Pond Creek at Pendleton Road, and Brier Creek at Bear Camp Road. The amount of land draining to each site in square miles is 3.50, 11.1, 64.0, 80.3, and 4.13, respectively.

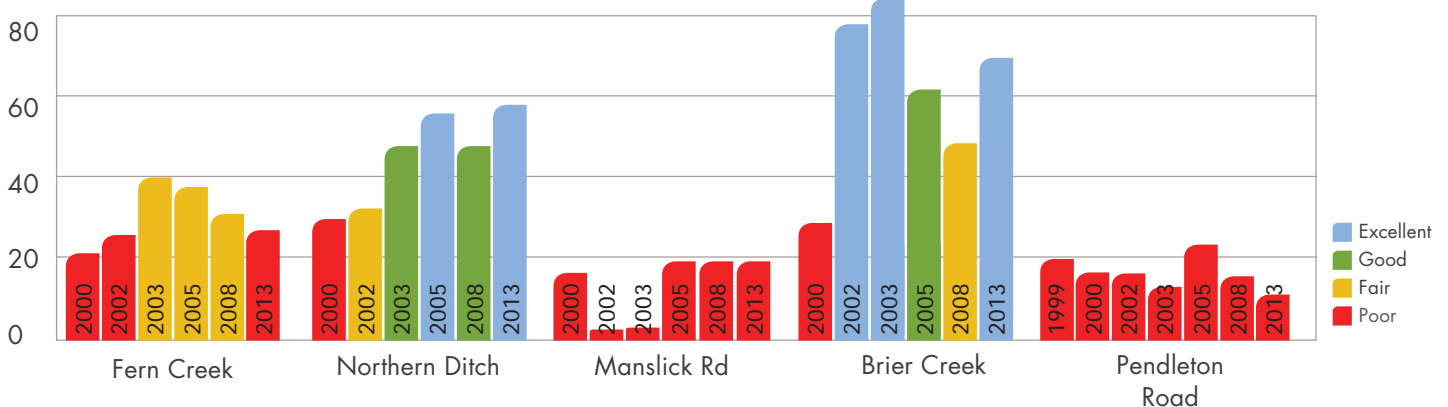
The first four sites are similar in land use to Pond Creek at Pendleton Road, with 60 percent or more of the land in urban and suburban uses. The amount of impervious surfaces such as roads, rooftops and driveways, ranges from 16 percent to 24 percent. Forest ranges from 28 to 34 percent and agriculture ranges from 2 to 7 percent.

The land draining to Brier Creek is quite different from the other four sites. This small stream drains steep wooded areas southwest of Jefferson Memorial Forest. The watershed is largely undeveloped with 83 percent forest and 14 percent agriculture.

Land Use Upstream of Pond Creek at Pendleton Road



Condition of the Fish Communities in the Pond Creek Watershed



Monitoring Findings

MSD has monitored fish communities in the Pond Creek watershed since 1999. During this time, fish communities improved at the Northern Ditch site from “fair” to “excellent” in 2013. The fish communities vary widely in Brier Creek from “poor” to “excellent” but were “good” to “excellent” most years. The fish communities are consistently “poor” or “very poor” at the Manslick Road and Pendleton Road sites and “poor” to “fair” at the Fern Creek site.

MSD has monitored the aquatic insect communities in the Pond Creek watershed since 2000. The aquatic insect communities at the Northern Ditch site improved from “poor” to “fair” in 2013. At the Fern Creek site, conditions improved from “poor” in 2000 to “good” in 2004 and back to “poor” in 2008 and 2013. Conditions in Pond Creek at Pendleton Road and Manslick Road were variably “poor” to “fair”. In Brier Creek, conditions improved from “poor” in 2000 to “good” in 2004 but have been “fair” since 2005.

MSD has assessed stream habitat quality when fish and aquatic insects were sampled since 2005. Habitat quality has improved from “poor” to “fair” at the Fern Creek site and from “poor” to “good” at the Northern Ditch site. Good stream bed habitat is limited at the Fern Creek site by bedrock, but both growth of stream bank vegetation and development of a rocky substrate at the Northern Ditch site have improved habitat considerably.

Habitat quality was “good” at the Manslick Road site in 2008 but has declined to “poor” since then. Habitat quality was consistently “poor” at the Pendleton Road site and declining. Both of these sites have been channelized and have unstable, sediment laden stream beds and a general lack of rocky riffles. These features provide important habitat for fish and aquatic insects.

In Brier Creek, habitat quality improved from “poor” in 2005 to “good” in 2009, but has declined to “fair” since then. Habitat in this location generally lacks trees and other large vegetation along the banks, resulting in unstable banks as well as shifting sediment deposits in the stream bed. This site has a very small drainage area, and is affected by longer periods of low to zero stream flow.

MSD has monitored benthic algal communities, largely diatoms, in the Pond Creek watershed since 2001. Using a Diatom Bioassessment Index (DBI), the rating in the Fern Creek site improved from “good” to “fair” prior to 2005 to “excellent” or “good” condition since then. The Northern Ditch site improved from “fair” prior to 2005, to “excellent” in 2007, but then declined to a “poor” condition by 2013. Conditions of the algal communities were variably “fair” or “good” at the Manslick Road and Pendleton Road sites before 2007, both improved to “excellent” and then declined

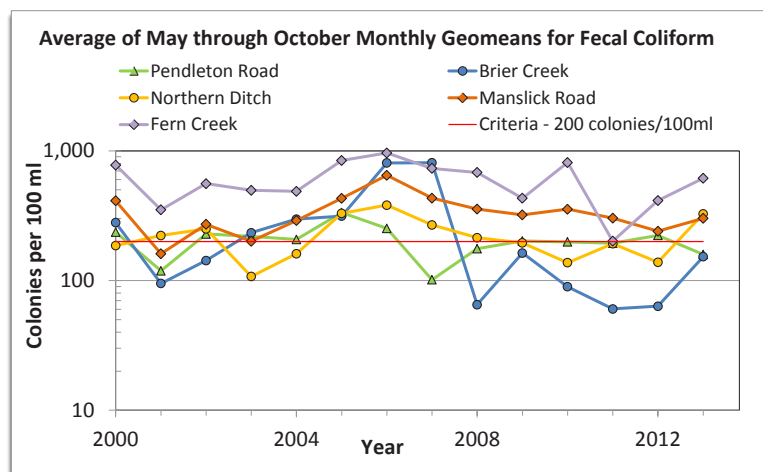
to “poor” by 2013. Using a different rating for the smaller headwater site on Brier Creek, conditions of the algal communities were “excellent” in 2001 and 2002, and were variably “poor” to “good” since then.

Since 2000, MSD has monitored fecal coliform bacteria 3 to 5 times a month during the recreational season (April-October). *E. coli* bacteria were collected similarly but only since 2011. The monthly geometric means (geomeans) of bacteria concentrations were calculated and compared to the recreational contact standard for each type.

For fecal coliform bacteria, people should not swim in streams if the readings are higher than 200 colonies/100ml during the recreational season, which runs from May 1st through October 31st each year. The period of record medians (the middle value) of the monthly geomeans for the Brier Creek, Northern Ditch, and Pendleton Road sites were below the recreational standard of 200 colonies/100ml, whereas, the period of record medians for the Fern Creek and Manslick Road were above the standard. Individual monthly geomeans were variably above and below the standard (not shown), with no apparent trend over the period of record. There was a tendency, however, for higher monthly geomeans earlier in the recreational season than later in the season for some years, which could be related to lower stream flows later in the season.

For the three years of data collection of *E. coli* bacteria (not shown), most of the monthly geomeans at four of the sites were above the recreational standard of 130 colonies/100ml. Many of the Brier Creek monthly medians for *E. coli* were below the standard.

MSD monitored the concentrations of nutrients (nitrogen and phosphorus) in streams and total suspended solids periodically from 2000 to 2005 and on a quarterly basis since 2005 at five sites in the Pond Creek watershed. The percent of samples taken at these sites which fall into the upper third of all samples collected in the Long Term Monitoring Network (LTMN) sites were calculated as a comparison to other streams in the watershed and the Metro area.



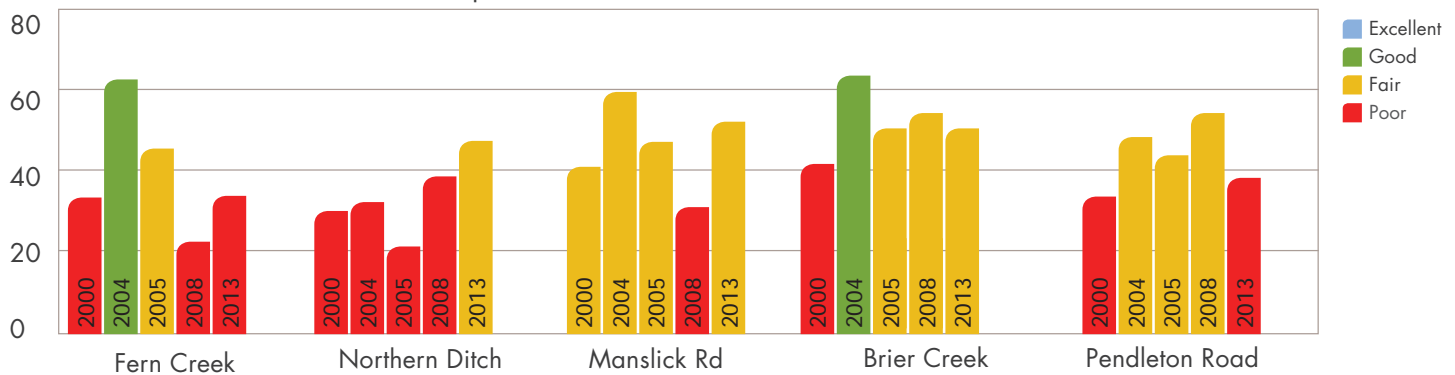
All sites except Fern Creek had very low numbers of nitrate samples in the upper third of all samples. Northern Ditch and Brier Creek sites had very low numbers for all nutrients and total suspended solids. Compared to all sites across the county, Brier Creek had the lowest number of samples in the upper third of all samples for total Kjeldahl nitrogen and total phosphorus. The Northern Ditch site had the lowest number of samples in the upper third for total suspended solids compared to all other sites in the county. Both Pond Creek sites had extremely low numbers of samples in the upper third for nitrate, with the lowest and second lowest numbers among all sites.

MSD monitored concentrations of trace metals in streams periodically from 2000 to 2005 and on a quarterly basis since 2005. For those metals with criteria, total metal concentrations in stream samples were compared to the acute Aquatic Life Criteria (ALC)

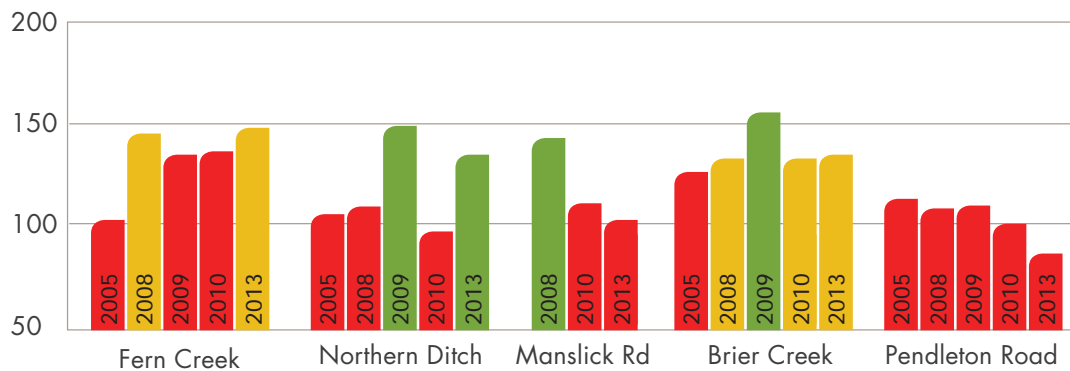
for each metal. The acute ALC for total concentrations of cadmium, mercury and lead were not exceeded in any samples at any of the five sites. The ALCs, however, were exceeded for copper in one sample, and for zinc in one sample.

MSD and the US Geological Survey continuously monitor streamflow, dissolved oxygen, and water temperature at the five sites in the Pond Creek watershed. Fish and aquatic insects need dissolved oxygen to breathe, and amounts greater than four parts per million (as an instantaneous standard) or five parts per million (as a mean daily standard) are what is deemed necessary. Water temperatures in excess of 31.7°C (89.1°F) are very stressful on aquatic communities both by increasing metabolism and respiration, and by lowering the capacity of water to actually hold dissolved oxygen. In general, extended periods of low stream flows also can cause stress on aquatic communities.

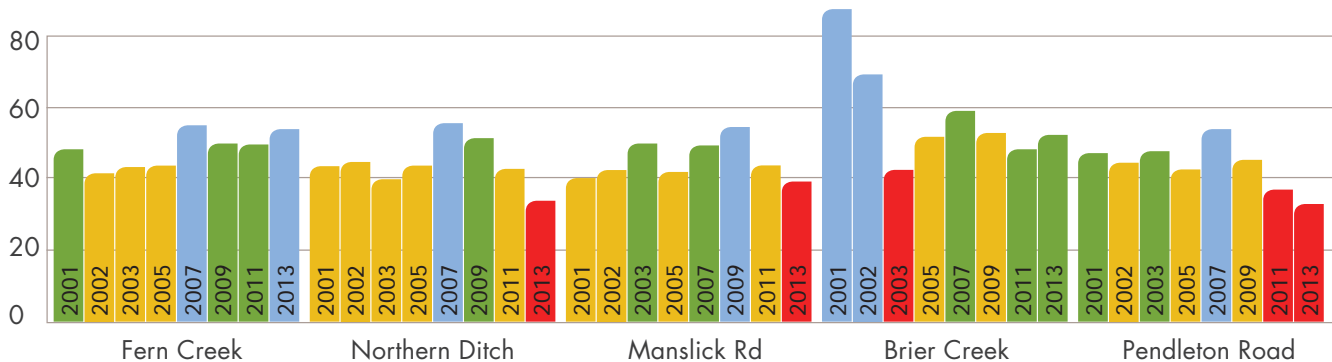
Condition of the Aquatic Insect Communities in the Pond Creek Watershed



Condition of the Stream Habitat in the Pond Creek Watershed



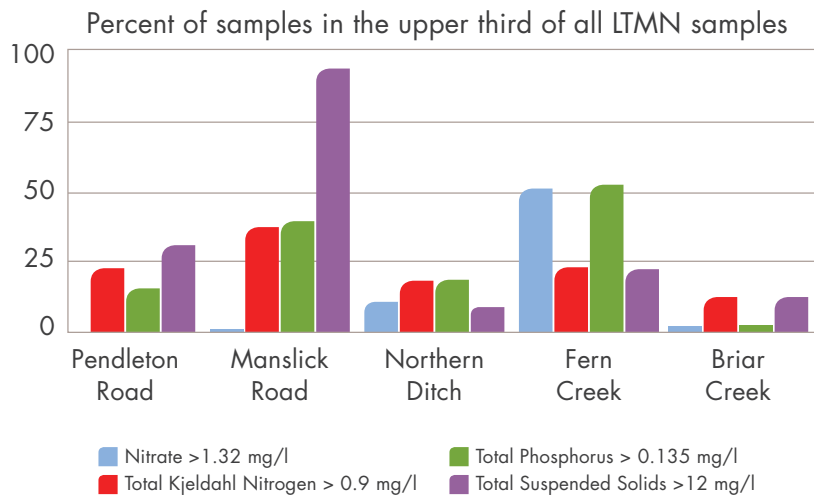
Condition of the Algal Communities in the Pond Creek Watershed



DRAFT

The percent of days when the average amount of dissolved oxygen in the water was above five parts per million was in the “good” range in the Fern Creek, Northern Ditch, and Pond Creek at Manslick Road sites. In both Brier Creek and Pond Creek at Pendleton Road, the dissolved oxygen conditions were in the “fair” range most years. It is not clear if the low dissolved oxygen readings were a result of very low stream flows or some other factor.

Water temperature criteria were met 100 percent of the time over the last six years at the Brier Creek and Fern Creek sites and at least 92 percent of the time each year with ratings of “fair” to “good” at both Pond Creek sites. Criteria at the Northern Ditch site were rated “fair” to “good” except for a “poor” rating in 2010. Periodic hot days and low stream flows are common in the summer and occasionally can cause an exceedance of the criteria. Riparian tree cover can help minimize these excursions.



Northern Ditch

Northern Ditch is an example of a stream that has been severely altered as a result of urban development. As the city was developed, the stream was re-routed and straightened in order to convey stormwater out of the area more quickly and to reduce flooding. Trees and vegetation along the stream were removed as part of the construction effort, and while the project did improve drainage in the area, the health of the stream suffered. However, since the MSD Long Term Monitoring Network program was initiated, the biological monitoring results have indicated a general increase in stream health.

Stream quality based on the conditions of the fish communities are assessed using the Kentucky Index of Biotic Integrity (KIBI). It uses multiple indicators of the types and numbers of fish (known as metrics) and combines them to come up with an overall score for the section of stream where fish are collected. The KIBI results are presented in a narrative rating (excellent, good, fair, poor, or very poor), which corresponds to a range of KIBI scores. For more information on the factors used to determine the KIBI, please refer to the Biological Assessment section on page 10.

As the chart on page 59 shows, the fish KIBI score for Northern Ditch has trended upward since the first assessment in 2000, when conditions were “Poor”, to where it currently is in “Excellent” condition.

Similar to fish assessments, aquatic insect communities also are assessed using the Kentucky Macroinvertebrate Bioassessment Index (MBI), also based on multiple factors (metrics) of the types and numbers of insects. The MBI results are presented in a narrative rating (excellent, good, fair, poor, or very poor), which

corresponds to a range of MBI scores. For more information on the factors used to determine the MBI, please refer to the Biological Assessment section on page 10. The second chart also shows a general upward trend for the MBI at Northern Ditch. While not as dramatic as the KIBI score, the current MBI score now falls in the “Fair” range.

Over the years, the stream has evolved within its existing straightened channel to form small meanders and riffle/run/pool complexes. Woody vegetation is developing along the once treeless, steep sides of the channel. The trees are providing shade, which decreases water temperatures in the stream, and the habitat is more varied both allowing colonization of less tolerant fish and insects. These factors, along with improved storm water and pollution management, have most likely played an integral role in improving the overall integrity of Northern Ditch.



Creek chub is a species of minnow that can grow to 10 inches and is tolerant to a wide variety of water conditions.

The diet of the colorful longear sunfish generally includes aquatic insects and small fish.

Mill Creek Watershed

The Mill Creek watershed drains about 34 square miles in western Louisville, near the Ohio River. The northern part of the watershed includes streams that drain to the Mill Creek Cutoff, which flows directly into the Ohio River near Shively. The southern part of the watershed flows south through Pleasure Ridge Park and then into the Ohio River near Watson Lane. Many of the streams in this watershed have been straightened or channelized in the past to reduce flooding.

Watershed Assessment

Fish community conditions at the Mill Creek Cutoff site have improved from “poor” to “fair” since 2000. At Orell Road, fish communities were variably “poor” or “fair” early on, but have steadily declined to “poor” since 2000. The aquatic insect communities varied from “very poor” to “poor” at the Mill Creek Cutoff site. At Orell Road, aquatic insect communities were classified in “fair” condition throughout the sampling period.

Stream habitat at both sites was in “poor” condition in 2013 and appears to be declining over time at the Orell Road site. These sites are located in straight man-made channels that lack rocky riffles and tree lined banks. These features provide important habitat for fish and aquatic insects. The less than optimal stream habitat and the natural effects of low stream flow may have stressed aquatic communities at the two sites. The man-made channels that lack rocky riffles and tree lined banks actually could favor algal growth. Both sites were rated

variably “fair” to “excellent” over time and in a “good” condition in 2013.

For fecal coliform bacteria, the period of record medians (the middle values) of the monthly geomeans for both sites were below the recreational standard of 200 colonies/100ml. Individual monthly geomeans were variably above and below the standard, with no apparent trend over the period of record. For the three years of data of *E. coli* bacteria, most of the monthly geomeans at the two sites were above the recreational standard of 130 colonies/100ml.

Both sites had very low numbers of nitrate in the upper third of all samples compared to other LTMN sites. The values for total Kjeldahl nitrogen, total phosphorus, and total suspended solids were similar between the two sites and about average for LTMN sites.

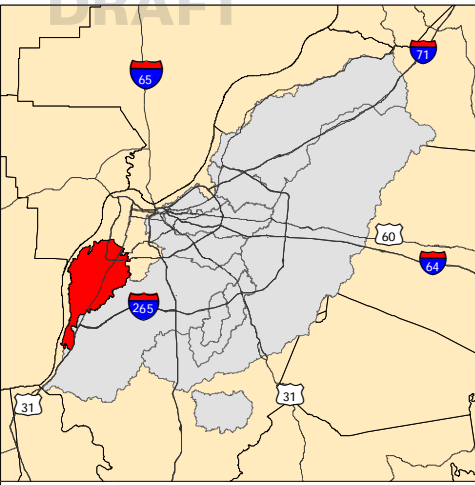
More recent wet weather event sampling data confirms the historical data at these sites that trace metals are not a large issue of concern in these LTMN streams.

Dissolved oxygen criteria improved from ‘fair’ condition in 2007 and 2008 to “good” condition at the Orell Road site and water temperature criteria (no more than 31.7°C (89.1°F)) were met 100 percent of the time. The Mill Creek Cutoff site had no data. Periodic hot days and low stream flows are common in the summer and occasionally can cause an exceedance of these criteria, but that is not usually the case at this site.



Derek R. Guthrie Water Quality Treatment Center

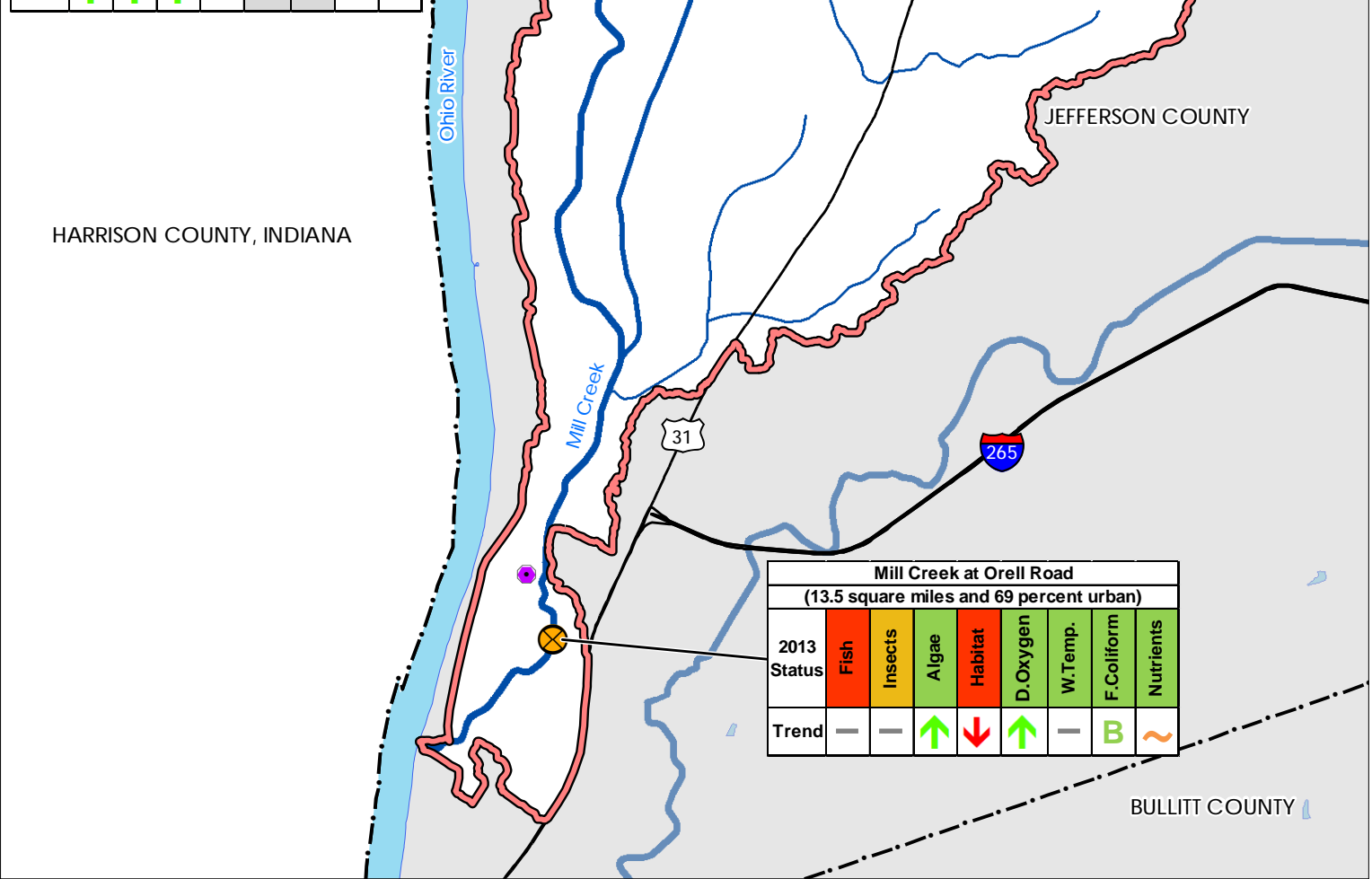
MILL CREEK WATERSHED WATER QUALITY STATUS AND TRENDS



Watershed Area Shown In Red

FLOYD COUNTY, INDIANA

| Mill Creek Cutoff at Old Cane Run Road (24.4 square miles and 86 percent urban) | | | | | | | | |
|--|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | ↑ | ↑ | ↑ | — | ND | ND | B | ~ |



HARRISON COUNTY, INDIANA

JEFFERSON COUNTY

BULLITT COUNTY

| Mill Creek at Orell Road (13.5 square miles and 69 percent urban) | | | | | | | | |
|--|------|---------|-------|---------|----------|---------|-------------|-----------|
| 2013 Status | Fish | Insects | Algae | Habitat | D.Oxygen | W.Temp. | F.Colliform | Nutrients |
| Trend | — | — | ↑ | ↓ | ↑ | — | B | ~ |



Legend

- Monitoring Site
- Sewage Treatment Plant (Operated by MSD)
- Sewage Treatment Plant (Operated by Other Agency)
- Stream
- Road
- County Boundary
- Watershed Boundary
- Boundary
- Lake

TREND

- Improving
- Declining
- Varies
- No Change
- ND No Data

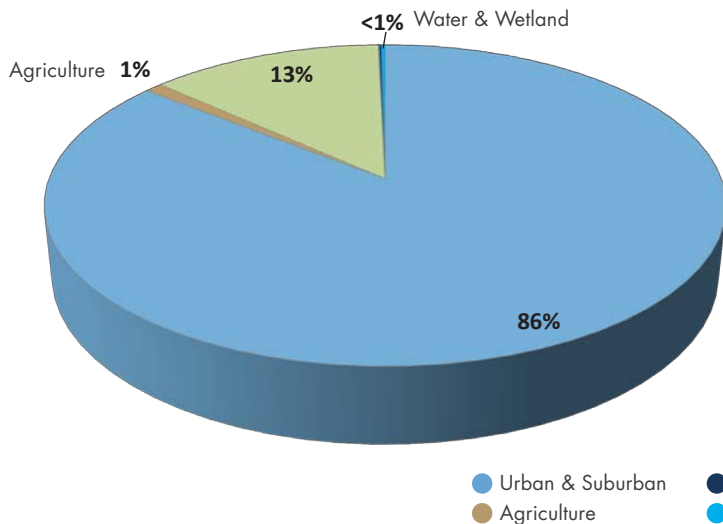
STATUS

- Excellent
- Good
- Fair
- Poor / Very Poor

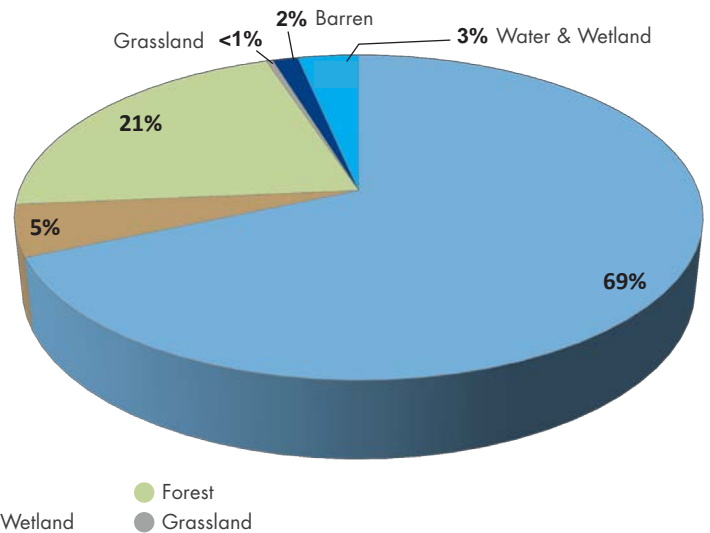
RATINGS KEY

- Long Term Median Above the Criteria
- Long Term Median Below the Criteria

Land Use Upstream of Mill Creek Cutoff at Cane Run Road



Land Use Upstream of Mill Creek at Orell Road



● Urban & Suburban ● Barren ● Forest
● Agriculture ● Water & Wetland ● Grassland

Background and Land Use

MSD has been monitoring water quality at two sites in this watershed since 1999; on Mill Creek Cutoff at Old Cane Run Road and on Mill Creek at Orell Road. There are 24.4 square miles of land draining to the Mill Creek Cutoff site and 13.5 square miles of land draining to the Orell Road site. Both of these watersheds are highly urbanized, with some forest and very little agriculture. Approximately 38 and 21 percent of the land draining to the Mill Creek Cutoff and Orell Road sites, respectively, is covered by impervious surfaces such as roads, rooftops and driveways.

Monitoring Findings

MSD has monitored fish communities at the two sites since 1999. During this time, ratings have improved from “poor” to “fair” at the Mill Creek Cutoff site. At Orell Road, fish communities were variably “poor” or “fair” early on, but have steadily declined to “poor” since 2000.

MSD has monitored aquatic insect communities at the two sites since 2000. The aquatic insect communities improved slightly from “very poor” to “poor” at the Mill Creek Cutoff site. At Orell Road, aquatic insect communities were classified in “fair” condition throughout the sampling period.

MSD has assessed stream habitat quality when fish and aquatic insects were sampled since 2005. Except for 2008, habitat quality at the Mill Creek Cutoff site was “poor”. This site is located in a straight man-made channel that lacks rocky riffles and tree lined banks that provide habitat for fish and aquatic insects.

Habitat quality at the Orell Road site was “fair” prior to 2008 and declined to a “poor” condition since 2009. Mill Creek at this site also consists of a man-made channel, so it lacks a mix of rocky riffles and deep, slow pools. These features provide important habitat for fish and aquatic insects. The site also has sediment deposition that is affecting stream habitat quality.

MSD has monitored benthic algal communities, largely diatoms, at the two sites in the Mill Creek watershed since 2001. Using a Diatom Bioassessment Index (DBI), both sites were rated variably “fair” to “excellent” and both are in a “good” condition in 2013.

Since 2000, MSD has monitored fecal coliform bacteria 3 to 5 times a month during the recreational season (April-October). *E. coli* bacteria were collected similarly but only since 2011. The monthly geometric means (geomeans) of bacteria concentrations were calculated and compared to the recreational contact standard for each type.

For fecal coliform bacteria, people should not swim in streams if the readings are higher than 200 colonies/100ml during the recreational season, which runs from May 1st through October 31st each year. The period of record medians (the middle values) of the monthly geomeans for both sites were below the recreational standard of 200 colonies/100ml. Individual monthly geomeans were variably above and below the standard (not shown), with no apparent trend over the period of record. There was a tendency, however, for higher monthly geomeans earlier in the recreational season than later in the season for some years, which could be related to lower stream flows later in the season.

For the three years of data collection of *E. coli* bacteria (not shown), most of the monthly geomeans at the two sites were above the recreational standard of 130 colonies/100ml. MSD monitored the concentrations of nutrients (nitrogen and phosphorus) in streams and total suspended solids periodically from 2000 to 2005 and on a quarterly basis since 2005 at two sites in the Mill Creek watershed. The percent of samples taken at these sites which fall into the upper third of all samples were calculated as a comparison to other streams in the watershed and throughout the area.

Both sites had very low numbers of nitrate in the upper third of all samples compared to other sites in the county. The values for total Kjeldahl nitrogen, total phosphorus, and total suspended solids were similar between the two sites, with all parameters slightly higher at the Mill Creek Cutoff site compared to the Orell Road site.

DRAFT

MSD monitored concentrations of trace metals in streams periodically from 2000 to 2005 and on a quarterly basis since 2005. For those metals with criteria, total metal concentrations in stream samples were compared to the acute Aquatic Life Criteria (ALC) for each metal. The ALCs for total concentrations of mercury was not exceeded in any of the samples. The ALCs were exceeded for cadmium in 10 samples, copper in 10 samples, for lead in one sample, and zinc in one sample.

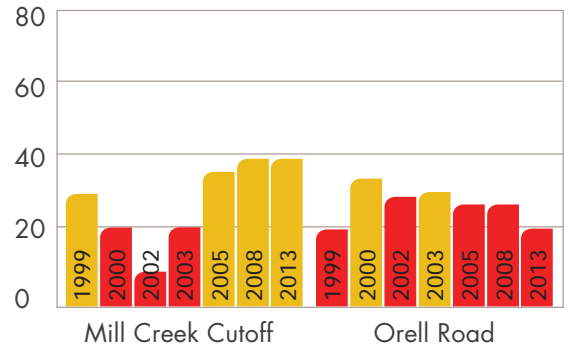
MSD and the US Geological Survey continuously monitor streamflow, dissolved oxygen, and water temperature on Mill Creek at Orell Road. Streamflow has been monitored at the Orell Road site (USGS gage number 03294570) since 1999 and at the Mill Creek Cutoff site (USGS gage number 03294550) since 1988.

Fish and aquatic insects need dissolved oxygen to breathe, and amounts greater than four parts per million (as an instantaneous standard) or five parts per million (as a mean daily standard) are what is deemed necessary. Water temperatures in excess of 31.7°C (89.1°F) are very stressful on the aquatic communities both by increasing metabolism and respiration, and by lowering the capacity of water to actually hold dissolved oxygen. In general, extended periods of low stream flows also can cause stress on aquatic communities.

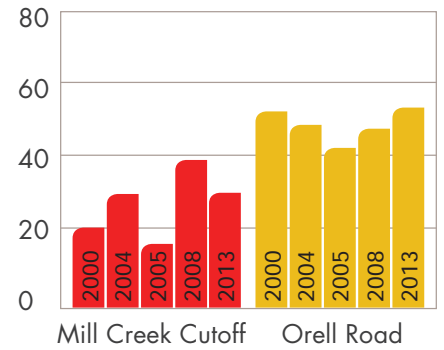
Dissolved oxygen criteria improved from 'fair' condition in 2007 and 2008 to "good" condition at the Orell Road site since then. Occasional excursions of low dissolved oxygen likely were a result of very low stream flows on very warm days or some other transient factor.

Water temperature criteria were met 100 percent of the time since 2006 at the Orell Road site. Periodic hot days and low stream flows are common in the summer and occasionally can cause an exceedance of the criteria, but that was not the case at this site.

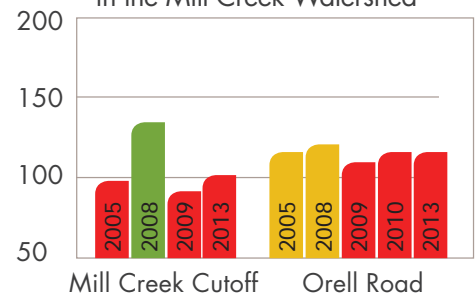
Condition of the Fish Communities in the Mill Creek Watershed



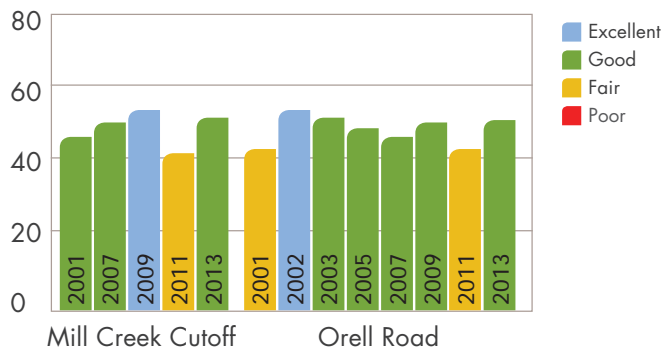
Condition of the Aquatic Insect Communities in the Mill Creek Watershed



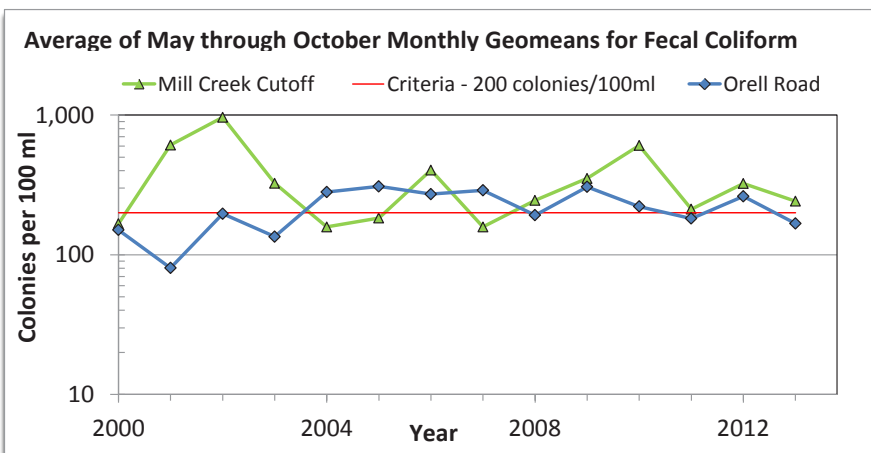
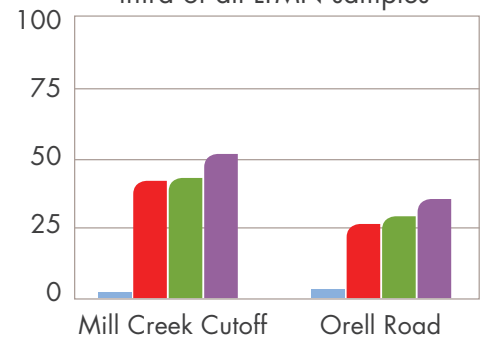
Condition of the Stream Habitat in the Mill Creek Watershed



Condition of the Algal Communities in the Mill Creek Watershed



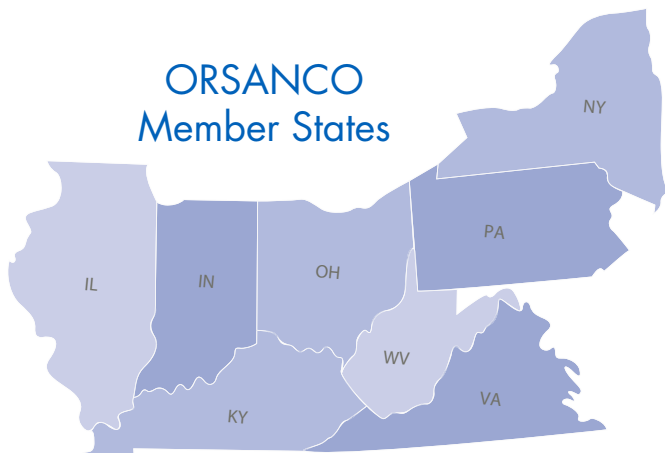
Percent of samples in the upper third of all LTMN samples



Ohio River Watershed

The Ohio River is one of the nation's great natural resources. The river not only provides drinking water for over five million people, but serves as a warm water habitat for aquatic life, provides numerous recreational opportunities, is used as a major transportation route, and is a source of water for the manufacturing and power industries. The Ohio River begins in Pittsburgh, Pennsylvania at the confluence of the Allegheny and Monongahela Rivers and flows southwesterly for 981 miles, joining the Mississippi River near Cairo, Illinois. For the stretch of river near Louisville, it forms the state boundaries between Indiana to the north and Kentucky to the south.

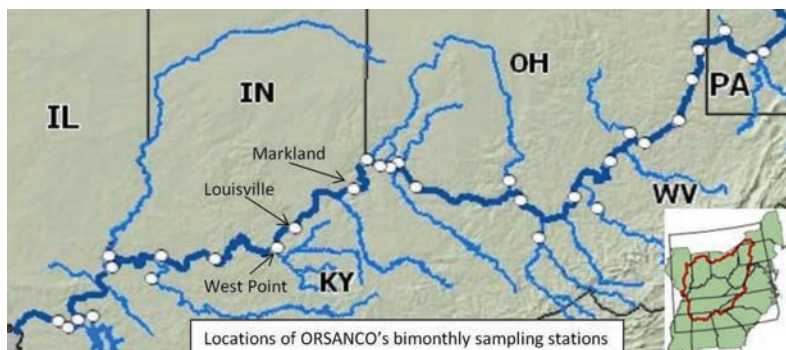
The Ohio River Valley Water Sanitation Commission (ORSANCO) is an interstate agency charged with abating existing pollution in the Ohio River basin and preventing future degradation of its waters. ORSANCO was created in 1948 with the signing of the Ohio River Valley Water Sanitation Compact among the bordering states. <http://www.orsanco.org/>



ORSANCO's Bimonthly Monitoring Program, in existence since 1975, is comprised of 31 monitoring sites; 17 locations on the main stem of the Ohio River and 14 points near the mouth of major tributaries. The Bimonthly Sampling Program currently collects six samples per year, every other month, down from a monthly frequency that ended in 1992.



A young volunteer collects trash during the annual Ohio River Sweep



Every two years, ORSANCO completes an assessment of conditions of Ohio River water quality and the ability to which the river supports each of its four designated uses; warm water aquatic life, public water supply, contact recreation, and fish consumption. ORSANCO’s 2012 assessment (their 305b Report) indicates that, for the reach of the Ohio River in the vicinity of Louisville, both the aquatic life and public water supply uses are being met. As indicated by concentrations of bacteria in their river surveys, the use of the Ohio River for contact recreation is impaired and a plan for remediation is in progress. The entire 981 miles of the Ohio River is designated as impaired for the fish consumption use, caused by PCBs and dioxin.

<http://www.orsanco.org/images/stories/files/publications/305b/docs/2012/2012ohioriver305breport.pdf>

ORSANCO has analyzed the trends in various water quality measures at Ohio River sampling sites from 1990 to 2007. At the three Ohio River sites near Louisville (see figure), concentrations of nitrogen compounds, total suspended solids, iron, and zinc in the river are declining or staying the same. Concentrations of total phosphorus and chloride, however, are increasing over time.

TRENDS IN CONCENTRATIONS AT THREE OHIO RIVER SITES NEAR LOUISVILLE FROM 1990 TO 2007

| OHIO RIVER SITE | AMMONIA-NITROGEN | NITRATE NITROGEN | TOTAL PHOSPHORUS | TOTAL SUSPENDED SOLIDS | IRON | ZINC | CHLORIDE |
|-----------------|------------------|------------------|------------------|------------------------|------|------|----------|
| Markland | – | DEC | INC | DEC | DEC | DEC | INC |
| Louisville | dec | – | INC | – | – | DEC | – |
| West Point | – | – | INC | – | DEC | DEC | INC |

Key: INC = significantly strong increasing trend, DEC = significantly strong decreasing trend, dec = less significant decreasing trend, and – = no trend found

<http://www.orsanco.org/images/stories/files/publications/trendsreport/2008trendsanalysis.pdf>

The overall fish community health in the Ohio River has been improving, but the entire 981 miles of the river is designated as “impaired” for the consumption of fish, caused by PCBs and dioxin.

ORSANCO also has conducted fish surveys to evaluate the Ohio River since 1957. Various measures of the condition of the fish communities have increased over time indicating an improvement in the overall fish community health. For example, the percentage of pollution tolerant fish species in the Ohio River has declined since 1957 and the fish surveys indicate increasing numbers of pollution intolerant and native species. The McAlpine Lock and Dam pool survey, the portion of the river above and in the Louisville Metro area, indicates that the fish community is in good health.

<http://www.orsanco.org/images/stories/files/publications/biological/usingfishtoevaluate.pdf>

Summary and Conclusions

The Louisville and Jefferson County Metropolitan Sewer District (MSD) in cooperation with the United States Geological Survey (USGS) operates a Long-Term Monitoring Network (LTMN) to collect physical, chemical and biological data about streams in the Metro Area. MSD collects the water quality and biological data and USGS collects stream flow. This Synthesis Report is focused on the conditions of fish, aquatic insects, benthic algae, stream habitat, bacteria, nutrients (nitrogen and phosphorus compounds), total suspended solids, stream flow, dissolved oxygen, and water temperature of the streams in our community, and whether or not measures of these components are improving. The data collected at the 27 LTMN sites since 1999 helps us make decisions about where to focus our attention and tells us how we're doing in our mission to improve water quality in the region. This report augments a previous MSD report: "State of the Streams, 2011 Water Quality Synthesis Report" (available in the library section at <http://msdprojectwin.org>).

The health of aquatic communities in streams of the Metro Area can be compromised by one or more factors that commonly affect urban and suburban streams. Significant and rapid runoff from impervious areas often leads to stream bank erosion due to increases in the percentage of rainfall that becomes runoff (more frequent flushing). More rapid runoff can also cause scouring of stream beds and deposition of sediment that covers habitat needed by fish and other aquatic organisms. Channel modifications such as straightening and shoring up the bank with concrete or large stones leads to limited amounts of rock riffle habitat and insufficient protective tree cover along the banks, both of which are needed for healthy aquatic communities. Occasional periods of very low flow, high temperatures, or low dissolved oxygen infrequently contribute to lower than desired observed health of aquatic communities.

In addition to the typical urban effects, a major impact on stream quality in the older urban areas of Louisville is related to the presence of combined sewer systems that release sewage and stormwater during larger rainfall events. The lower parts of the South and Middle Forks of Beargrass Creek are affected by combined sewer overflows, and their aquatic communities are usually rated as in "poor to very poor" condition. Very high concentrations of bacteria also were observed in these watersheds. These are being mitigated by extensive projects to eliminate or reduce the frequency and volume of overflows.

The aquatic communities in watersheds with impervious area greater than 20 percent have shown variable responses to the effects of development depending, in part, on the presence of healthy stream habitat. Parts of the Beargrass Creek (Muddy, Middle, and South Forks) watershed have poor habitat and generally poor to very poor conditions of their aquatic communities. Some watersheds, like Pond Creek and Mill Creek, have considerable amounts of man-made channels without the healthy mix of rocky riffles and tree covered banks. As a result, the aquatic communities generally are in "poor to fair" condition and they are declining at some sites. Northern Ditch is an exception in that the conditions of the aquatic communities are showing significant improvement, perhaps in part, due to channel stabilization projects.

Streams that run on bedrock, like Cedar Creek, Fern Creek, and Pennsylvania Run, to some extent lack the variety of in-stream habitat types such as deep pools and rocky riffles that provide good habitat for fish and aquatic insect communities. As a result, their aquatic communities are in "poor to good" condition but for other reasons they are still showing improvement.

The predominance of forested and agricultural land in less developed watersheds, like Harrods Creek, Floyds Fork, Brier Creek, and Cedar Creek (Bullitt County), helps slow down and absorb runoff during rain events. As such, healthier stream habitat conditions in these systems were found to be supporting healthier aquatic communities, even in Floyds Fork despite it having some of the highest nutrient levels in the county.

Measures of aquatic community health in 2013 indicate that for fish, algae, and stream habitat, over half of the sites were in "good to excellent" condition, whereas, for aquatic insects most sites were in "poor to fair" status. The cooler than normal stream temperatures during 2013 sampling likely resulted in lower than normal observed aquatic insect health. Trends in fish, aquatic insect, and stream habitat health indicate that over half of the sites were improving. The algal communities at most sites had no trend or were declining.

The "fair to poor" habitat conditions of about half of the streams can be attributed to historic stream channelization and straightening along with the loss of rock riffles, bends, vegetative bank protection, and the now less stable banks and narrow to nonexistent riparian corridors. Some consideration for using well-planned stream restoration techniques and riparian tree plantings might greatly improve conditions for fish and insects in streams with poorer habitat conditions.

Data in 2013 for fecal coliform bacteria indicate that 17 of the LTMN sites had an average monthly geometric mean (geomean) higher than the recreational contact criteria of 240 colonies per 100ml. For the period of record from 2000 to 2013, the median of all monthly fecal coliform geomeans indicates that 14 sites were above the criteria and 13 sites were below the criteria. The lower parts of the South and Middle Forks of Beargrass Creek had the highest concentrations of bacteria. These impacts are being mitigated by extensive projects to eliminate or reduce the frequency and volume of sewer system overflows during larger rainfall events.

Dissolved oxygen data in 2013 indicate that 19 sites were in “good” status, four were “fair”, and only one site was in “poor” status (South Fork of Beargrass Creek at Brownsboro Road). Trends in the historical data (2007-2012) indicate that dissolved oxygen conditions at two sites were declining (Pennsylvania Run and the Brownsboro Road site), 18 sites had no trend, and at four sites conditions were improving. Water temperature conditions in 2013 indicate that half of the sites met the criteria (not greater than 31.7°C (89.1°F)) 100 percent of the time and half met the criteria at least 90 percent of the time. There were no measurable trends in water temperature data. Periodic hot days and low stream flows occasionally can cause an exceedance of dissolved oxygen or temperature criteria. The presence of significant tree cover at many sites and potential for groundwater influence at some sites probably helps buffer these measurements to some degree from otherwise significant urban influences.

The levels of nutrients (nitrate, total Kjeldahl nitrogen, and total phosphorus) and total suspended solids in each site were compared to all samples at 27 LTMN sites collected since 2005. Using a natural break in the data, seven to eight sites had the highest number of samples in the upper third of all LTMN samples for these nutrients. Those sites are mainly east or south of the city (Floyds Fork, Chenoweth Run, Cedar Creek, Pennsylvania Run, Fern Creek, and Little Goose Creek) and have more agricultural or suburban land use types, generally with higher use of fertilizers on crops and lawns. The 12 or 13 sites that had the lowest number of samples in the upper third of all LTMN samples for nutrients are mainly north (Harrods Creek and Goose Creek) or southwest of the city (Pond Creek, Mill Creek, and Cedar Creek-Bullitt). Six to seven sites were mid-range and largely urban.

The picture of total suspended solids is a little different. Pond Creek at Manslick Road is very dominant with 94 percent of its samples in the upper third of all LTMN total suspended solids samples. It is suspected that the banks and sediment-laden stream bed in this channelized system are highly erodible and that even small rises in flow can lead to higher suspended solids. Sites on Little Goose Creek, Mill Creek, and Floyds Fork follow next, but were well behind in percent of samples in the upper third of all LTMN samples. Otherwise, the rest of the sites do not seem to have much of a problem with suspended solids.

The relatively few exceedances of Aquatic Life Criteria in the historical data would indicate that trace metals are not a large

issue of concern in the LTMN streams. More recent sampling of wet weather events confirms the low frequency of exceedance and that it is not simply a bias due to the lower sampling frequency of storm runoff typical of a quarterly sampling network like the LTMN.

The highest average chloride concentration (77 mg/l) was in Chenoweth Run at Ruckreigel Parkway, which has the second highest percent impervious area (33 percent) of the 27 LTMN sites. The highest maximum chloride concentration (788 mg/l) was in Mill Creek Cutoff at Old Cane Run Road, which has the highest percent impervious area (38 percent) of the 27 LTMN sites. The higher chloride concentrations are likely derived from use of deicing salt in the winter at the more urban sites and from wastewater inflows at some sites.

Of more than 1,230 total samples collected for each trace metal at LTMN sites since 1999, no metal had more than 4 percent exceedences. In summary, 73 percent of the metal exceedences were in the Beargrass Creek watershed (40 percent in the South Fork, 23 percent in the Middle Fork, and 10 percent in the Muddy Fork) and 22 percent were in the Mill Creek watershed. Otherwise, the other exceedences were singular occurrences at six other sites.

Of the 1,427 LTMN samples for biochemical oxygen demand (BOD) and 911 samples for chemical oxygen demand (COD) detections were below 10 mg/l in 95 and 50 percent of the samples, respectively. The highest concentrations of BOD, about 5 to 10 mg/l on average, were found in the three sites on the South Fork of Beargrass Creek, and these were two to four times on average more than any other sites. The South Fork BODs likely were derived from sewer overflows. BOD and COD at each site were not correlated. The higher concentrations of COD were found at sites that likely had higher concentrations of dissolved and particulate organic carbon, which is derived from the natural decay of organic materials like leaves and other organic detritus or from dissolved iron (ferrous) compounds in poorly oxygenated ground water inflows or both. In fact, the highest COD (maximum of 238 mg/l and an average of 21 mg/l) was found in Cedar Creek, Bullitt County, which is a largely forested and undeveloped watershed.

The analysis of the historical LTMN data suggests that, in about half of the streams, bacteria continues to be an issue, and that “fair” to “poor” habitat quality significantly affected the observed health of fish and aquatic insect communities. The natural effects of drought conditions likely contributed to lower aquatic health status in some streams in some years as well. The effects of lower dissolved oxygen and higher temperature conditions are much more subtle and probably limited to a few sites for short periods. For example, below normal stream flows prior to and during the 2005 and 2008 sampling events likely affected observed health in aquatic insect and fish communities, affecting the aquatic insects more than fish. The cooler than normal stream temperatures during sampling likely affected the observed health of the aquatic insect communities in 2013. One of the values of a long-term network like the LTMN is the ability to identify these naturally induced fluctuations in water quality as well.

DRAFT State of the Streams

Summary of the Status and Trends in Stream Water Quality from 1999 to 2013 for the MSD Long Term Monitoring Network

| MSD Site Name | Percent of Watershed that is Urban | Percent of Watershed that is Impervious | Drainage Area (square miles) | Average Streamflow 1999-2013 (cubic feet per second per square mile) | Fish Status (2013) | Fish KIBI Trend (oldest to 2013) | Aquatic Insect Status (2013) | Aquatic Insect MBI Trend (oldest to 2013) | Algal Status (2013) | Algal DBI Trend (oldest to 2013) | Stream Habitat Status (2013) | Stream Habitat Trend (2005 to 2013) |
|--|------------------------------------|---|------------------------------|--|--------------------|----------------------------------|------------------------------|---|---------------------|----------------------------------|------------------------------|-------------------------------------|
| Harrods Creek at Covered Bridge Road | 9 | 1 | 70.3 | 1.88 | Good | -2% | Fair | -37% | Excellent | 8% | Good | 6% |
| Wolf Pen Branch at 8111 Wolf Pen Branch Road | 24 | 7 | 2.08 | No gage | Fair | -41% | Poor | -25% | Fair | -2% | Good | 24% |
| Goose Creek at Old Westport Road | 53 | 11 | 6.00 | 1.66 | Good | 23% | Fair | -1% | Excellent | 24% | Good | 39% |
| Goose Creek at US 42 | 49 | 10 | 10.1 | 1.45 | Excellent | 18% | Poor | -33% | Good | -15% | Good | 8% |
| Little Goose Creek at US 42 | 66 | 18 | 5.82 | 2.19 | Good | 77% | Fair | 3% | Excellent | -3% | Good | 21% |
| Muddy Fork of Beargrass Creek at Mockingbird Valley Road | 46 | 9 | 6.20 | 1.59 | Good | 9% | Poor | 36% | Fair | -27% | Poor | 22% |
| Middle Fork of Beargrass Creek at Browns Lane | 73 | 24 | 15.2 | No gage | Excellent | 61% | Fair | 5% | Fair | -24% | Fair | 49% |
| Middle Fork of Beargrass Creek at Old Cannons Lane | 76 | 24 | 18.9 | 1.61 | Fair | 8% | Poor | -26% | Good | -9% | Good | 9% |
| Middle Fork of Beargrass Creek at Lexington Road | 73 | 22 | 24.8 | 1.53 | Poor | 4% | Poor | -13% | Excellent | -3% | Fair | -7% |
| South Fork Beargrass Creek at Trevilian Way | 85 | 32 | 17.2 | 1.62 | Fair | 0% | Poor | 25% | Excellent | -5% | Poor | 53% |
| South Fork Beargrass Creek at Schiller Avenue Ramp | 81 | 30 | 22.8 | 1.59 | Very Poor | -77% | Poor | 22% | Fair | -11% | Poor | -4% |
| South Fork Beargrass Creek at Brownsboro Road | 78 | 28 | 51.5 | 1.56 | Fair | 137% | Poor | 59% | Good | -25% | Good | 31% |
| Floyds Fork at Ash Avenue | 9 | 1 | 80.0 | 1.70 | Good | 24% | Fair | 38% | Good | -4% | Good | 3% |
| Floyds Fork at Old Taylorsville Road | 13 | 3 | 138 | 1.66 | Excellent | 28% | Fair | -8% | Good | -1% | Good | 7% |
| Floyds Fork at Bardstown Road | 14 | 4 | 213 | 1.65 | Excellent | 58% | Fair | -5% | Fair | -10% | Good | -1% |
| Chenoweth Run at Ruckriegel Parkway | 75 | 33 | 5.47 | 1.99 | Fair | 18% | Fair | 32% | Good | -10% | Fair | 16% |
| Chenoweth Run at Gellhaus Lane | 52 | 21 | 11.6 | 2.34 | Fair | 39% | Fair | -4% | Fair | -25% | Good | 18% |
| Cedar Creek at Thixton Lane | 37 | 10 | 6.40 | 3.40 | Good | 28% | Poor | -6% | Fair | 2% | Good | 12% |
| Pennsylvania Run at Mount Washington Road | 39 | 9 | 11.1 | 0.95 | Fair | 27% | Fair | 74% | Good | 13% | Fair | 16% |
| Cedar Creek at State Road 1442 Bullitt County | 6 | 0.2 | 12.1 | 1.66 | Excellent | 17% | Good | 22% | Excellent | 29% | Good | 0% |
| Fern Creek at Old Bardstown Road | 60 | 17 | 3.50 | 2.00 | Poor | 19% | Poor | 1% | Excellent | 12% | Fair | 34% |
| Northern Ditch at Preston Highway | 62 | 17 | 11.1 | 1.80 | Excellent | 62% | Fair | 49% | Poor | -23% | Good | 23% |
| Pond Creek at Manslick Road | 58 | 25 | 64.0 | 1.57 | Poor | 53% | Fair | 25% | Poor | -3% | Poor | -34% |
| Pond Creek at Pendleton Road | 60 | 21 | 80.3 | 1.74 | Very Poor | -55% | Poor | 11% | Poor | -34% | Poor | -28% |
| Brier Creek at Bear Camp Road | 1 | 0.05 | 4.13 | 1.39 | Excellent | 68% | Fair | 18% | Good | -60% | Fair | 7% |
| Mill Creek Cutoff at Old Cane Run Road | 86 | 38 | 24.4 | 0.65 | Fair | 32% | Poor | 36% | Good | 10% | Poor | 5% |
| Mill Creek at Orell Road | 69 | 21 | 13.5 | 1.70 | Poor | 0% | Fair | 1% | Good | 15% | Poor | -13% |

| Fecal Coliform in colonies/100ml | | Percent of Time Dissolved Oxygen Criteria Met (2012) | | Percent of Time Water Temperature Criteria Met (2012) | Water Temperature Trend (2007 to 2012) | Ranking Based on the Percent of Samples in the Upper Third of All Sites (red shading is in the highest percent, green is in the lowest percent, and yellow is in between) | | | | Short Name | MSD Site Number |
|----------------------------------|---|--|----------------------|---|--|---|------------------------------------|-------------------------------|----------------------------------|-------------------------|-----------------|
| Average Monthly Geomean (2013) | Median of All Monthly Geomeans (oldest to 2013) | 5 mg/l Daily Criteria | Trend (2007 to 2012) | | | Nitrate > 1.32 mg/l | Total Kjeldahl Nitrogen > 0.9 mg/l | Total Phosphorus > 0.135 mg/l | Total Suspended Solids > 12 mg/l | | |
| 152 | 131 | 100% | 12% | 98.6% | -1% | 8% | 23% | 9% | 24% | Harrods Creek | EHCHC001 |
| 478 | 281 | No Data | No Data | No Data | No Data | 26% | 21% | 3% | 27% | Wolf Pen Branch | EHCWP001 |
| 345 | 280 | 98% | -1% | 100.0% | 0% | 22% | 24% | 13% | 15% | Old Westport Road | EGCGC001 |
| 256 | 278 | 99% | -1% | 100.0% | 0% | 48% | 24% | 33% | 22% | US 42 | EGCGC002 |
| 182 | 240 | 100% | 0% | 100.0% | 0% | 79% | 62% | 31% | 62% | Little Goose Creek | EGCLG001 |
| 393 | 376 | 98% | -2% | 100.0% | 0% | 37% | 17% | 30% | 29% | Mockingbird Valley Road | EMUMU001 |
| 1073 | 921 | No Data | No Data | No Data | No Data | 43% | 15% | 13% | 27% | Browns Lane | EMIMI009 |
| 451 | 374 | 99% | -1% | 99.7% | 0% | 33% | 29% | 7% | 26% | Old Cannons Lane | EMIMI002 |
| 672 | 912 | 83% | 14% | 98.6% | -1% | 24% | 38% | 53% | 48% | Lexington Road | EMIMI010 |
| 1284 | 434 | 93% | 3% | 100.0% | 0% | 16% | 44% | 12% | 46% | Trevilian Way | ESFSF001 |
| 2094 | 633 | 95% | -5% | 99.7% | 0% | 28% | 35% | 25% | 37% | Schiller Avenue Ramp | ESFSF002 |
| 986 | 846 | 62% | -29% | 99.7% | 0% | 45% | 40% | 36% | 28% | Brownsboro Road | ESFSF006 |
| 456 | 203 | 90% | -6% | 100.0% | 2% | 43% | 52% | 74% | 41% | Ash Avenue | EFFFF001 |
| 209 | 169 | 100% | 5% | 97.8% | -2% | 60% | 50% | 65% | 57% | Old Taylorsville Rd | EFFFF003 |
| 301 | 200 | 98% | -1% | 99.7% | 1% | 62% | 48% | 56% | 39% | Bardstown Road | EFFFF002 |
| 221 | 334 | 99% | 23% | 100.0% | 0% | 17% | 23% | 48% | 16% | Ruckriegel Parkway | EFFCR002 |
| 212 | 219 | 100% | 1% | 97.2% | -2% | 92% | 62% | 91% | 20% | Gellhaus Lane | EFFCR001 |
| 188 | 219 | 100% | 1% | 100.0% | 0% | 94% | 49% | 8% | 13% | Thixton Lane | ECCCC001 |
| 357 | 305 | 80% | -17% | 100.0% | 0% | 74% | 48% | 89% | 31% | Mt. Washington Road | EPRPR001 |
| 134 | 146 | 92% | -4% | 98.9% | -1% | 9% | 21% | 4% | 15% | State Road 1442 | ECBCB001 |
| 615 | 462 | 100% | 7% | 100.0% | 0% | 52% | 23% | 53% | 23% | Fern Creek | EPCFC001 |
| 326 | 173 | 97% | -4% | 91.7% | -9% | 11% | 18% | 19% | 9% | Northern Ditch | EPCND001 |
| 302 | 271 | 93% | -2% | 92.9% | -4% | 1% | 37% | 40% | 94% | Manslick Road | EPCPC001 |
| 159 | 154 | 91% | -6% | 99.7% | 0% | 0% | 23% | 16% | 31% | Pendleton Road | EPCPC002 |
| 153 | 131 | 82% | 8% | 100.0% | 0% | 2% | 13% | 3% | 13% | Brier Creek | EPCBC001 |
| 242 | 186 | No Data | No Data | No Data | No Data | 2% | 41% | 42% | 51% | Mill Creek Cutoff | EMCMX001 |
| 167 | 151 | 99% | 13% | 100.0% | 0% | 3% | 25% | 29% | 35% | Orell Road | EMCMC001 |

Important Terms

Aquatic Insects: Aquatic insects, also known as benthic macroinvertebrates, are small animals (bugs) that can be seen with the naked eye, live on the bottom of streams and lakes, and don't have a backbone. They are often the immature aquatic forms of insects that live on land as adults, and they are an important food source for fish and other aquatic organisms.

Benthic Algae: The small green plant-like organisms that live on the rocks and other materials on the bottoms of streams are called benthic algae. Benthic algae have limited mobility, growing in areas suitable for their survival for weeks to months. They are particularly responsive to stream nutrient concentrations, sunlight, and the effects of sedimentation. Many algae types (especially diatoms, green algae, and blue-green algae) are an important food source for many fish and aquatic insects.

Biological Indices: Various methods used in this report to assess water quality by applying measures (metrics) of biological communities to derive a narrative rating of "good", "fair", or "poor" condition of the aquatic communities in a stream. A number of metrics are used, including the total number and diversity of species, tolerance to pollution, and other assessments. This report used data on the fish, aquatic insect, algae, and stream habitat communities to rate each stream.

Dissolved oxygen: Dissolved oxygen is the oxygen that is freely available in water, and that is vital to fish and other aquatic life and for the prevention of odors. Dissolved oxygen levels are considered an important indicator of a water body's ability to support desirable aquatic life. Dissolved oxygen levels fluctuate seasonally and over a 24-hour period. They also vary with water temperature and altitude (elevation). Water at the same temperature holds less oxygen at higher altitudes and cold water holds more oxygen than warm water.

Erosion: Erosion is when soil, silt, sand, rock and other particles are removed from unprotected land surfaces or stream banks usually by flowing water (runoff and stream flow) and are deposited downstream as sediment (mud, silt, sand, and gravel). Sediment becomes problematic when it covers rocks and other stream habitat needed by fish and other aquatic life.

Floodplain: A floodplain, or flood plain, is the flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood, but which do not experience a strong current.

Geomeans: the geometric mean (geomean) is a way of averaging a set of numbers by using the product of their values, as opposed to the arithmetic mean, which uses their sum. The geometric mean is defined as the n th root of the product of n numbers. It is used in this report to compute a value of multiple samples of bacteria for comparison with a standard value or criteria.

Impervious Surface: An impervious surface is any surface that is covered by materials that block the infiltration of water into the ground or soil. Impervious surfaces include roads, sidewalks, driveways, parking lots, and rooftops. Compacted soils (including some lawns) can also behave like impervious surfaces.

Indicator Bacteria: Bacteria and viruses that live in the water and on the bottom of streams are both natural and beneficial conditions in healthy streams. Bacteria and viruses in wastewater inflows and runoff from urban surfaces can lead to less healthy conditions, especially if they contain untreated animal or human waste. There are two types of bacteria that are used to indicate whether streams are clean or polluted, getting better or worse. Fecal coliform bacteria are one type more generally indicative of the presence of some kind of fecal material. The other type, *E. coli* bacteria, is more indicative of the presence of fecal material from the gut of warm blooded animals, including humans. Both types have established criteria mainly related to body contact recreation by humans.

Nutrients: The primary nutrients in streams are nitrogen and phosphorus compounds carried in runoff and other inflows. They are important for the growth and health of aquatic organisms. In excess, however, they can lead to nuisance growths of algae and low dissolved oxygen. Nitrate nitrogen is largely in a dissolved form, derived from fertilizers and wastewaters. The other compounds are both in dissolved and particulate forms. Total Kjeldahl is a measure of both ammonia and organic nitrogen carried with sediment runoff and wastewater inflows. Total phosphorus is particularly important for algal growth and also is delivered to the stream with sediment runoff and wastewater inflows.

Riffle: A riffle is a short, steeper, relatively shallow and coarse-bedded length of stream over which the stream flows at a faster velocity and higher turbulence than in a pooled reach of a stream. Riffles are usually caused by an increase in a stream bed's slope or an obstruction (rocks, logs, etc.) in the flow. Riffles typically increase dissolved oxygen and provide high quality aquatic habitat.

*Partnering with the community
for clean and safe waterways*

Riparian zone or area: A riparian zone is the area of land at and near the stream interface. Riparian zones, when well vegetated, have a significant role in stream bank stabilization, soil conservation, filtration of chemicals and sediment in runoff, and in providing shade and food (organic material).

Runoff: Runoff is the portion of rain, snow melt, or irrigation water that arrives in streams, rivers, lakes, ponds, drains or sewers.

Stream Flow: Stream flow is the volume of water flowing past a point in a fixed unit of time. Stream flow is often expressed in cubic feet per second (ft³/ sec).

Stream habitat: Stream habitat is the underwater environment that is used as a living space by fish, aquatic insects, other plants and animals. Vegetation near the channel also is important for quality habitat. Streams that have a variety of habitats, with shallow and deep areas, fast and slow water, and places with rocks, gravel, woody debris, tree covered banks, and shade are characteristics of good habitats.

Total Suspended Solids: Total suspended solids in streams are indicative of the amount of sediment washing off watershed surfaces and from erosion of stream banks. Sediment carried in higher flows, when deposited downstream, can reduce the quality of aquatic habitat and negatively affect aquatic communities.

Trace Metals: Various metals carried in trace amounts in runoff and other inflows. They are both in dissolved and particulate forms and in higher concentrations can affect the health of aquatic organisms. Criteria exist for the more important metals.

Watershed: The area of land where all the water drains to a particular stream or location along a stream. The boundary of a watershed is formed by the highest elevations surrounding the stream. A rain drop of water falling outside the watershed boundary will drain to another watershed. Small watersheds join together to form larger watersheds. A major river, such as the Ohio River, will encompass many smaller watersheds.



Three of the more common diatom species that were collected from algae tiles in 2013 at sites with “excellent” ratings.

67,668 catch basins...

...billions of leaves!

On rainy days, rainwater—and anything else that is on the streets—flows into the storm drains, also known as catch basins. If they are clogged with leaves and debris, water can quickly flood the street. This localized flooding can result in hazardous conditions.

We salute the 98 powerful people in MSD Drainage and Flood Protection, who collectively work around the clock seven days a week—every day of the year. They do their best to keep our community safe from flooding.

You can see that, with 67,668 basins, we could use your help. Just a few minutes of your time can help prevent street flooding in your neighborhood. Rake leaves and debris away from the basins, and dispose of such debris properly. If basins are still clogged, **contact MSD Customer Relations— at 502-587-0603**—to receive assistance.

Together, we can achieve clean, safe waterways
for a healthy and vibrant community.



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**...more than the distance
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- Dental floss
- Diapers
- Fats, oils and grease
- Feminine-hygiene products
- Hair
- Medications
- Paper towels
- Wipes

We salute the 125 powerful people in MSD Wastewater Treatment, who collectively work 24/7/365.

They do their best to help us achieve clean, safe waterways for a healthy and vibrant community.



*Providing Exceptional Wastewater, Drainage
and Flood Protection Services for Our Community*

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