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December 30, 2016

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Subject: Annual Report
July 1, 2015 through June 30, 2016
Civil Action No. 3:08-cv-00608-CRS
DOJ Case No. 90-5-1-1-08254

Attention Director and Chiefs:

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, 2015, through June 30, 2016.

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
MSD Chief Engineer

cc: James A. Parrott
Paula Purifoy
File

Louisville and Jefferson County Wet Weather Consent Decree Annual Report



Reporting Period:

July 1, 2015 through June 30, 2016

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 30, 2016

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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 eleventh Annual Report submitted in accordance with Paragraph 30 of the Amended Consent Decree. This report covers the time period from July 1, 2015, through June 30, 2016, and references data presented in Quarterly Reports 40 through 43. 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 that are expected as a result of MSD's projects and activities during the reporting period are also contained in this section. These include both unauthorized discharge points and the discharges from MSD's Combined Sewer Overflow (CSO) locations, as identified in the Morris Forman Water Quality Treatment Center (WQTC) Kentucky Pollutant Discharge Elimination System (KPDES) permit.

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, as well as the anticipated projects and activities scheduled to be performed during the next reporting period (July 1, 2016, through June 30, 2017) 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, and the anticipated activities that are scheduled to be performed during the next reporting period 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, as well as the anticipated projects and activities that are scheduled to be performed during the next reporting period 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, and the anticipated activities that are scheduled to be performed during the next reporting period for continued compliance with the Amended Consent Decree.

Section 6: Capacity Management Operations and Maintenance Report – The program activities performed during the reporting period, and activities planned for the next reporting period are included in this section for continued compliance with the Amended Consent Decree.

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SECTION 1: PROJECT WIN PERFORMANCE OVERVIEW

This section presents an overview of IOAP progress during the reporting period as well as performance measures related to permit compliance, discharges, and other related data.

1.1. COMBINED SEWER OVERFLOW REDUCTION AND SANITARY SEWER OVERFLOW ABATEMENT ACTIVITIES

The following sections outline the activities performed during the reporting period to reduce or control Combined Sewer Overflow (CSOs) and eliminate Sanitary Sewer Overflows (SSOs).

1.1.1 COMBINED SEWER OVERFLOW REDUCTION AND CONTROL ACTIVITIES

MSD completed three IOAP projects during the reporting period that reduced or eliminated permitted CSOs, as detailed in Table 1.1.

Table 1.1. FY16 Combined Sewer Overflow Reduction and Control Activities

PROJECT	CERTIFIED COMPLETION DATE	LEVEL OF CONTROL (TYPICAL YEAR)
CSO093 Structural Modifications / Green Infrastructure	December 23, 2015	0
CSO140 Sewer Separation	December 23, 2015	0
CSO160 Sewer Separation	December 23, 2015	0

The Annual Average Overflow Volume (AAOV), derived from the InfoWorks CSO hydraulic model, includes the modeled AAOV for the permitted CSOs and is included as Appendix B. The observed CSO data for the reporting period for each monitored overflow has been tabulated, along with rainfall information from the nearest rain gauge, to facilitate review of the overflows that occurred, and is included as Appendix C.

Refer to Section 4.3 for comprehensive project certification listing. Refer to Section 4.5 for information regarding system monitoring and performance.

1.1.2 SANITARY SEWER OVERFLOW ELIMINATION ACTIVITIES

MSD completed seven IOAP projects during the reporting period that abated SSOs, as detailed in Table 1.2.

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.

Refer to Section 4.2 for comprehensive project certification listing. Refer to Section 4.5 for information regarding system monitoring and performance. Refer to Appendix D for a listing of discharges.

Table 1.2. FY16 Sanitary Sewer Overflow Elimination Activities

PROJECT	CERTIFIED COMPLETION DATE	ASSOCIATED SSOS
Charleswood Interceptor Extension	August 5, 2015	25477, 25479, 25480, MSD0130-PS
Prospect #2 Harrods Creek Pump Station and Force Main	November 13, 2015	22436, 40870, 40871, 40872, 40879, 40880, 42675, 42680, 65623, 65633, 65635, 89646, 89791, MSD0123-PS, MSD0183-PS, MSD0192-PS, MSD0193-PS, MSD0816-PS, MSD1044-PS, MSD1063-PS
Lea Ann Way System Improvements	December 4, 2015	29933, 29948, 31073, 31074, 57874, MSD1010-PS, MSD1200-PS
Prospect #1 WQTC Elimination	December 15, 2015	22436, 40870, 40871, 40872, 40879, 40880, 42675, 42680, 65623, 65633, 65635, 89646, 89791, MSD0123-PS, MSD0183-PS, MSD0186-PS, MSD0192-PS, MSD0193-PS, MSD1044-PS, MSD1063-PS
Jeffersontown WQTC Elimination	December 23, 2015	28173, 28391, 28392, 28395, 28551, 31733, 64505, IS028-SI, MSD0255
Fairmount Road Pump Station Offline Storage Basin	March 30, 2016	97363, 97365, 116106
Goose Creek PS Phase 1 - Devondale Wet Weather Storage	April 15, 2016	21628-W, 43472, 46891, 62418, 62420, 91629, 91630, 105936, 117721, MSD1024-PS, MSD0040-PS

1.2. PERFORMANCE MEASURES

MSD has developed performance measures to monitor the operation of the collections system and WQTCs, with the goal of reducing sewer overflows and improving surface water quality. The data reported in this document is the best, most up-to-date data available as of the document date. There may be changes to historic data as the data is reviewed for quality and accuracy and updated on a continuous basis by MSD administrative and field staff.

1.2.1 SYSTEMWIDE PERFORMANCE

1.2.1.1. 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. Twenty new rain gauges have been installed by MSD during the reporting period, bringing the total network to 36 rain gauges, as shown in Figure 1.1. Five rain gauges are located within Indiana, four within adjacent Kentucky counties and the remaining 27 are within Jefferson County. MSD plans to install an additional rain gauge during the next reporting period.

Figure 1.1. MSD Rain Gauge Network

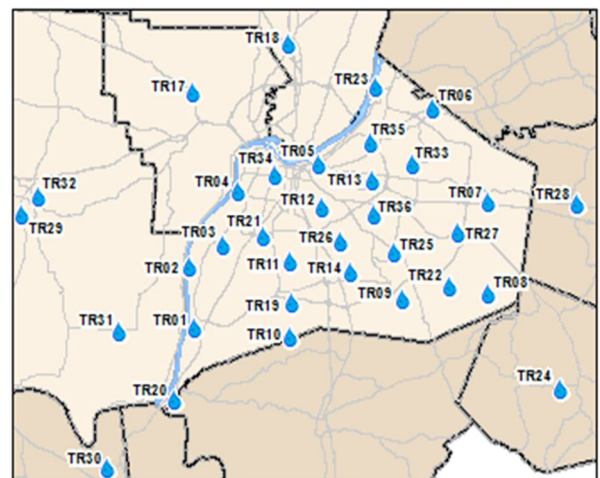


Figure 1.2 shows the Jefferson County average daily rainfall amounts by month for the reporting period, based on the monthly average of all MSD rain gauges, compared with the average since FY08. Figure 1.3 presents the same data as an average monthly rainfall amount by month and fiscal year. These figures show that the FY16 year was the wettest since FY12 with higher than average daily rainfall during the months of November, December and February, and significantly higher rainfall during the month of July. The discharge data reflects this occurrence.

Figure 1.2. Daily Average Rainfall by Month

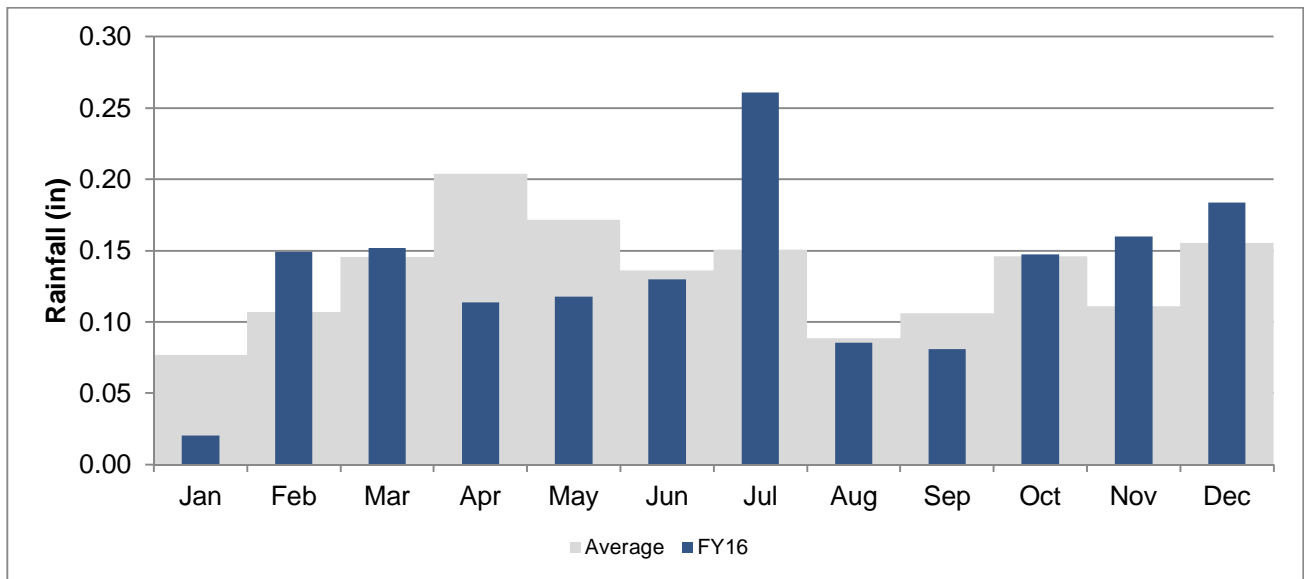
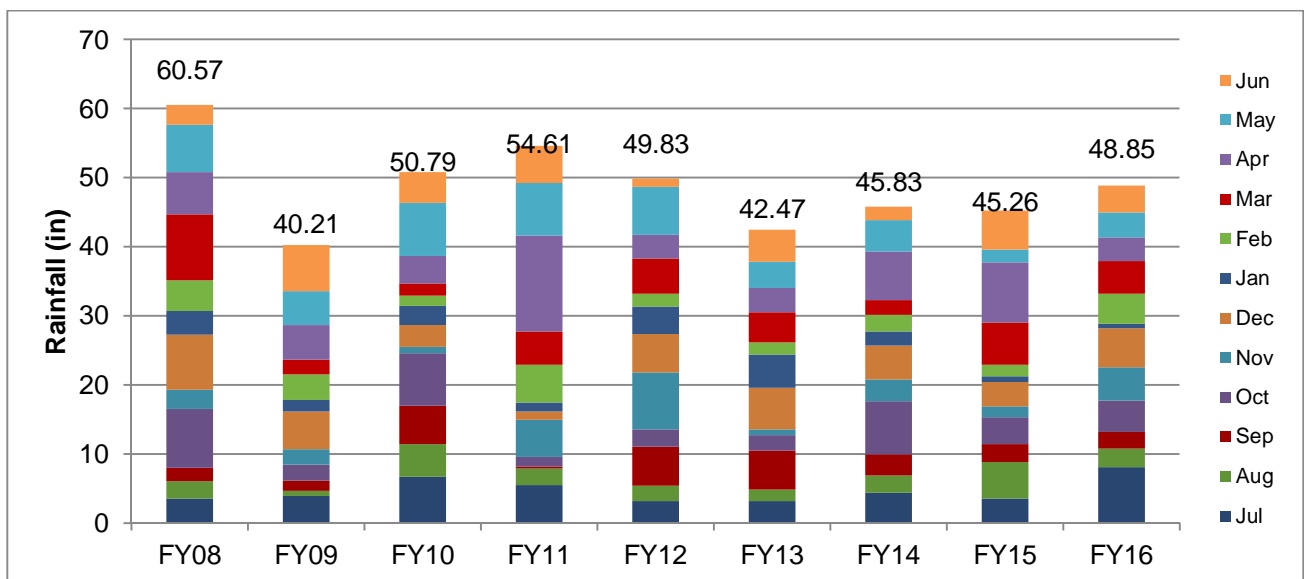


Figure 1.3. Monthly Average Rainfall by Fiscal Year



1.2.1.2. DISCHARGES

MSD enters and maintains information related to discharges and overflows that are observed by MSD staff in the Hansen Information Management System (Hansen) utilizing procedures reviewed and improved through efforts associated with components of the Sewer Overflow Response Protocol (SORP), as required under the Amended Consent Decree. These discharges are categorized using the following categories:

- Asset Type
 - Water Quality Treatment Center (WQTC)
 - Combined Sewer Overflow (CSO)
 - Collections System Assets associated with a Sanitary Sewer Overflow (SSO)
 - Pump Stations –sanitary, flood and viaduct pump stations
 - Access Points – manholes, valves and inlets
 - Mains – sanitary and combined system mains
 - Service Connections – customer service lines
- Weather – Dry or wet
- Result – Waters of the United States (WUS), Exterior (i.e., to the ground), or Interior (i.e., inside a building)
- Problem – The issue that caused the discharge, including the following groups:
 - Bypass / Upset at a WQTC or Blending at Jeffersontown WQTC as defined by permit
 - Capacity – Lack of Capacity or Pumped Overflow during wet weather
 - Maintenance & Operations Issue – Electrical Problem at MSD, Grease Blockage, Mechanical Failure, Obstruction (Not Grease or Roots), Power Outage, Pumped due to USACE Manual Requirements, Roots, Structural Issue, or Utility Damage

Unauthorized discharges to the Waters of the United States (WUS) have been reported to the Kentucky Department of Environment Protection (KDEP) and the Environmental Protection Agency (EPA) through automated emails and telephone calls. MSD reports unauthorized discharges and bypass events to KDEP and EPA as part of the monthly wastewater treatment plant discharge monitoring reports (DMRs) as well as the Consent Decree Quarterly Reports. Overflows to the ground or backups into buildings are reported in the Consent Decree Annual Report. All overflow reporting documentation is stored in MSD's asset management system, Hansen

Appendix D includes information related to MSD's observed unauthorized discharges and overflows for the reporting period. Discharges at permitted CSO locations that are observed by telemetry only are recorded with MSD's flow monitoring data and included in Appendix C.

Table 1.3 details the observed discharges by weather and result since FY08. Despite an average year for rainfall with periods of higher than average daily rainfall, wet weather discharges to WUS and to the interior were much lower than average. Dry weather discharges were also lower than average.

Table 1.3. Observed Discharges by Weather and Result - All Assets

FY	UNAUTHORIZED DISCHARGE - WATERS OF US		OVERFLOW TO INTERIOR		OVERFLOW TO EXTERIOR (GROUND)	
	DRY WEATHER	WET WEATHER	DRY WEATHER	WET WEATHER	DRY WEATHER	WET WEATHER
FY08	42	552	122	692	42	21
FY09	64	129	154	147	61	9
FY10	47	394	151	706	48	21
FY11	44	789	171	609	62	28
FY12	43	494	141	106	48	20
FY13	27	296	127	38	37	5
FY14	38	416	127	130	26	7
FY15	38	422	763	305	82	24
FY16	32	335	86	83	39	17

1.2.2 WATER QUALITY TREATMENT CENTER PERFORMANCE

The following sections summarize performance and compliance measures and trends at the water quality treatment centers (WQTCs) for the reporting period, including overflows attributed to the WQTC asset, bypasses, and effluent parameter exceedances.

1.2.2.1. OVERFLOWS TO THE EXTERIOR

Table 1.4 and Figure 1.4 detail the observed discharges by weather since FY08 at all WQTCs from manholes within the fence at the WQTCs. The decreasing trend in number of discharges can in part be attributed to reduction in number of operational WQTCs, discussed further in Section 1.2.2.5.4. Table 1.5 and Figure 1.5 show discharges by problem.

1.2.2.2. BYPASSES

Project WIN Quarterly Report 18 included a memorandum, included as Appendix K in that report, which described the analysis of 44 bypass events that occurred between July 1, 2008 and December 31, 2009. This analysis delineated bypasses into the four categories, including Capacity, External Power Failures, Equipment Failure (Mechanical, Electrical, or Structural), and Human Error. An assessment of bypasses is performed in each subsequent quarterly report to determine the root cause of each bypass, the failure category, corrective actions to be taken, possible programmatic solutions, and a corrective action completion date. Refer to quarterly reports for the reporting period for detailed analysis of bypasses.

Table 1.6 and Figure 1.6 show the WQTC bypass events by weather since FY08. Table 1.7 and Figure 1.7 show the WQTC bypass events by cause since FY09.

Table 1.4. Observed Overflows to the Exterior by Weather – All WQTCs

FY	OVERFLOW TO EXTERIOR (GROUND)	
	WET WEATHER	DRY WEATHER
FY08	3	12
FY09	0	9
FY10	3	9
FY11	3	17
FY12	5	13
FY13	1	21
FY14	2	10
FY15	2	7
FY16	1	6

Figure 1.4. Trend of Observed Overflows to the Exterior by Weather – All WQTCs

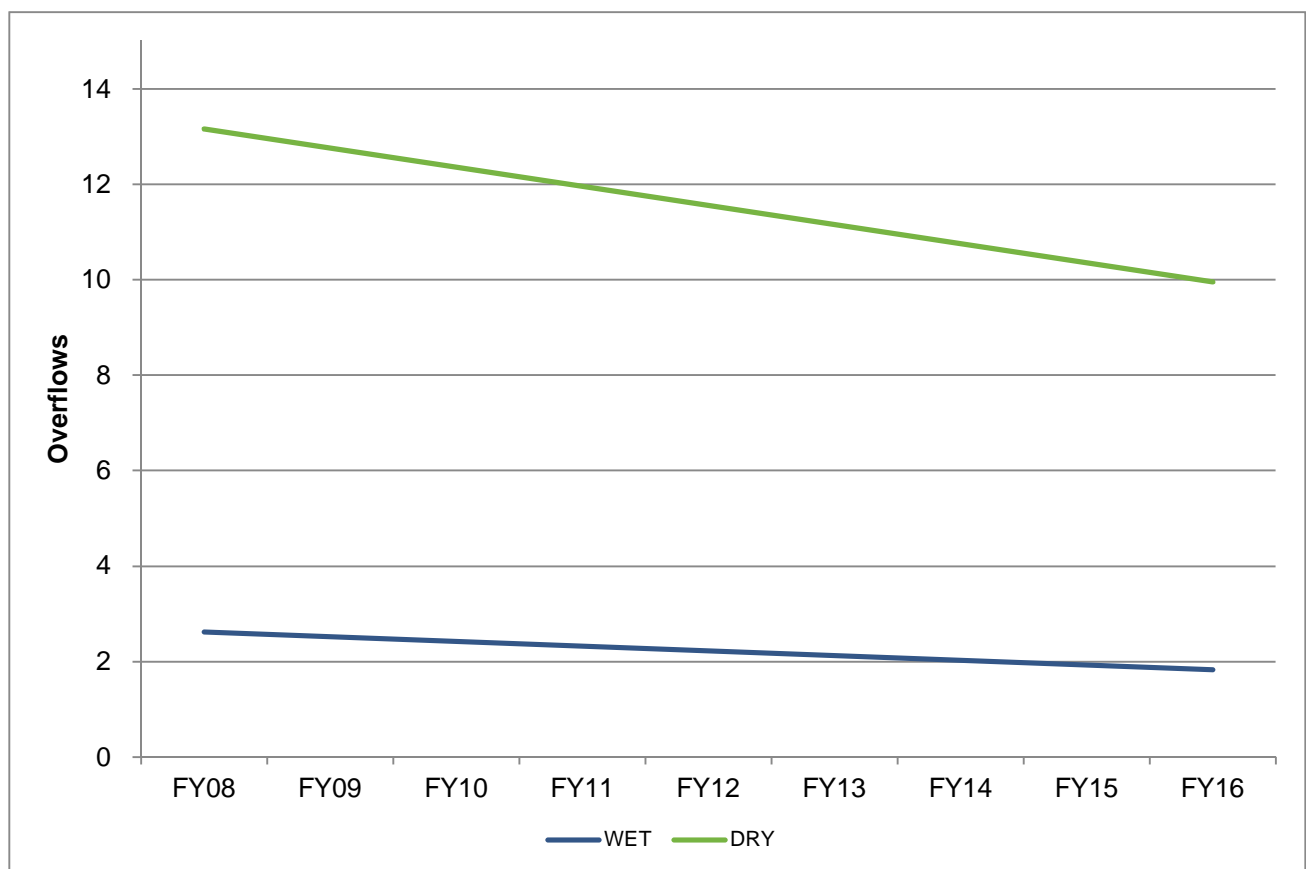


Table 1.5. Observed Overflows to the Exterior by Problem – All WQTCs

FY	ELECTRICAL PROBLEMS AT MSD	LACK OF SYSTEM CAPACITY	MECHANICAL FAILURE	OBSTRUCTION -NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	STRUCTURAL FAILURE
FY08	0	2	11	0	0	2
FY09	0	0	9	0	0	0
FY10	0	1	8	0	1	2
FY11	0	1	11	1	0	7
FY12	2	2	9	1	0	4
FY13	3	1	6	1	0	11
FY14	1	1	5	2	0	3
FY15	1	0	3	0	0	5
FY16	0	0	6	0	0	1

Figure 1.5. Trend of Observed Overflows to the Exterior by Problem – All WQTCs

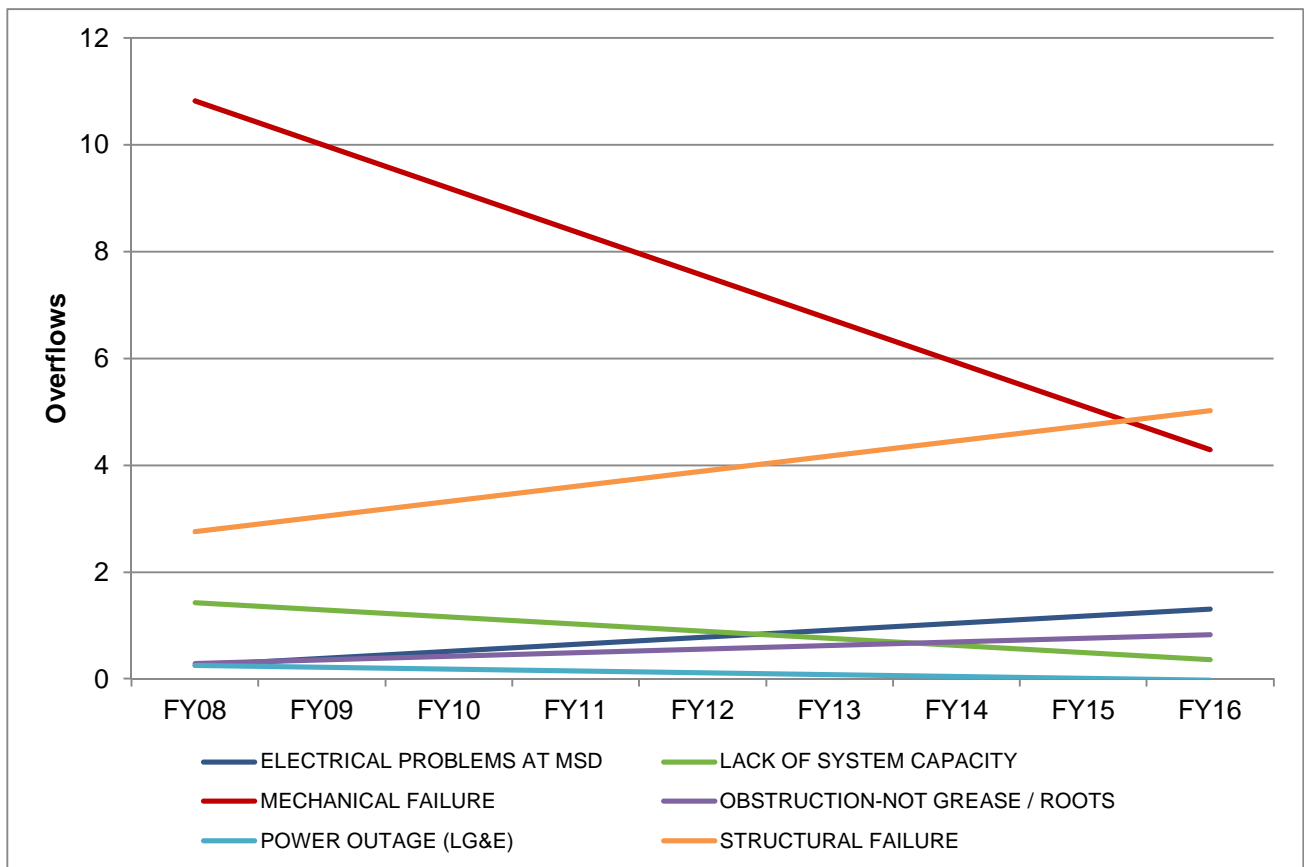


Table 1.6. Bypass Events by Weather – All WQTCs

FY	WET WEATHER	DRY WEATHER
FY08	19	9
FY09	11	21
FY10	20	13
FY11	29	3
FY12	12	8
FY13	17	8
FY14	19	8
FY15	10	0
FY16	8	4

Figure 1.6. Trend of Bypass Events by Weather – All WQTCs

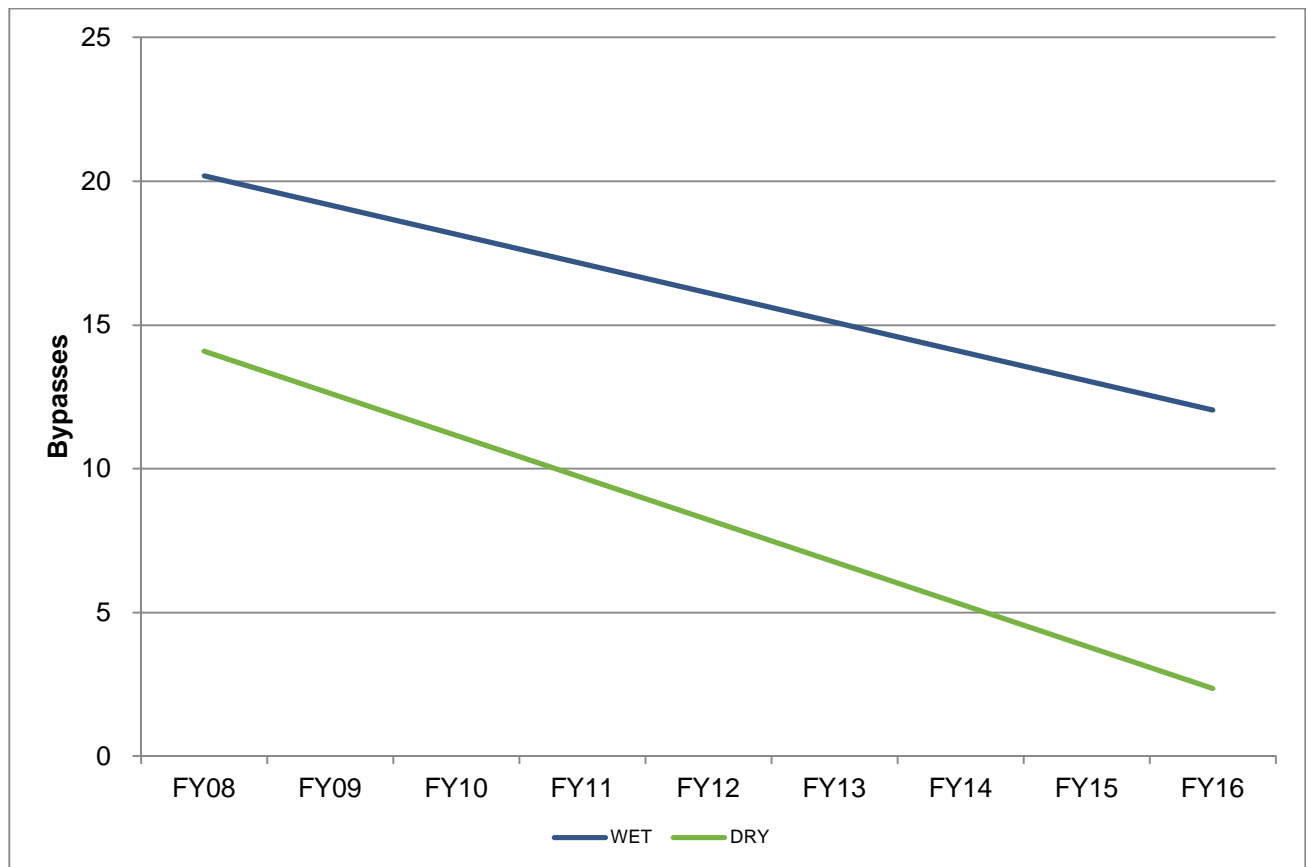
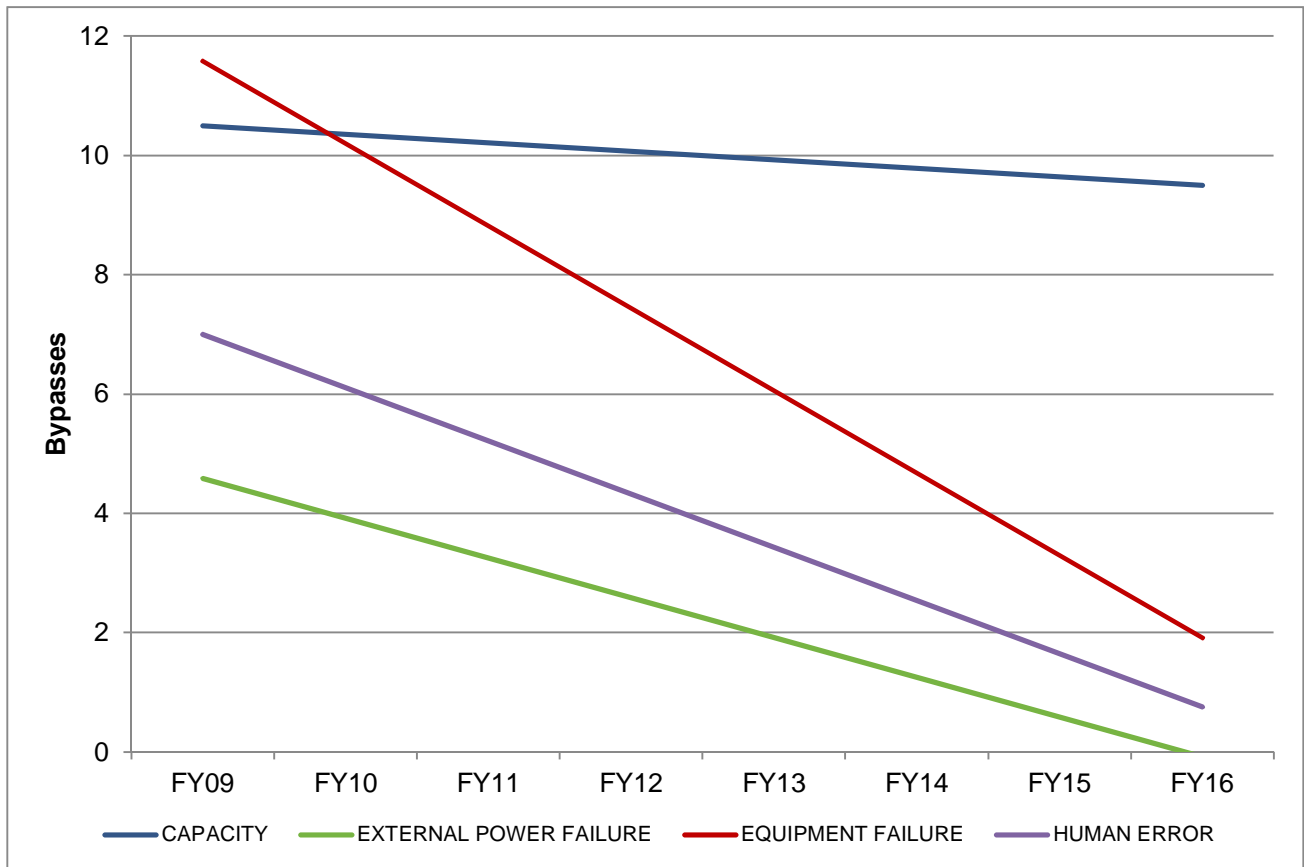


Table 1.7. Bypass Events by Cause – All WQTCs

FY	CAPACITY		EXTERNAL POWER FAILURE		EQUIPMENT FAILURE		HUMAN ERROR	
	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%
FY09	4	13%	6	19%	12	38%	10	31%
FY10	13	39%	2	6%	10	30%	8	24%
FY11	18	56%	5	16%	8	25%	1	3%
FY12	8	40%	5	25%	6	30%	1	5%
FY13	11	44%	0	0%	9	36%	5	20%
FY14	15	56%	0	0%	7	26%	5	19%
FY15	7	70%	1	10%	2	20%	0	0%
FY16	7	58%	1	8%	1	8%	3	25%

Figure 1.7. Trend of Bypass Events by Cause – All WQTCs



1.2.2.3. EXCEEDANCES

MSD's policy is to operate WQTCs in full compliance with the permitted effluent water quality standards. However, circumstances sometimes arise that may cause wastewater WQTCs 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 based on the number of effluent parameter exceedances during the calendar year:

- Silver – Five or fewer exceedances per year
- Gold – Zero exceedances per year
- Platinum – Zero exceedances per year for five years

Based on past operating history, MSD has established the target for all treatment centers of receiving at least the NACWA Silver Award. This goal is discussed in further detail under Sections 1.2.2.4.3, 1.2.2.5.4, and 1.2.2.6.3 related to exceedances at Morris Forman WQTC, the remaining regional WQTCs, and the non-regional WQTCs, respectively.

1.2.2.4. MORRIS FORMAN WATER QUALITY TREATMENT CENTER

Originally constructed in 1958, Morris Forman WQTC is MSD's largest, oldest WQTC. The following sections provide details related to this largest WQTC.

1.2.2.4.1. OVERFLOWS TO THE EXTERIOR

There were no overflows from manholes within the fence at the WQTC during the reporting period, as shown in Table 1.8 and Table 1.9.

Table 1.8. Observed Overflows to the Exterior by Weather – Morris Forman WQTC

FY	OVERFLOW TO EXTERIOR (GROUND)	
	WET WEATHER	DRY WEATHER
FY08	0	0
FY09	0	0
FY10	0	2
FY11	0	0
FY12	1	1
FY13	0	0
FY14	0	0
FY15	0	0
FY16	0	0

Table 1.9. Observed Overflows to the Exterior by Problem – Morris Forman WQTC

FY	ELECTRICAL PROBLEMS AT MSD	LACK OF SYSTEM CAPACITY	MECHANICAL FAILURE	OBSTRUCTION -NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	STRUCTURAL FAILURE
FY08	0	0	0	0	0	0
FY09	0	0	0	0	0	0
FY10	0	0	2	0	0	0
FY11	0	0	0	0	0	0
FY12	0	0	1	0	0	1
FY13	0	0	0	0	0	0
FY14	0	0	0	0	0	0
FY15	0	0	0	0	0	0
FY16	0	0	0	0	0	0

1.2.2.4.2. BYPASSES

A single dry weather bypass occurred during the reporting period, as shown in Table 1.10 and Table 1.11. The bypass, due to a valving issue, was corrected within the hour and resulted in an estimated 300 gallon discharge.

Table 1.10. Bypass Events by Weather – Morris Forman WQTC

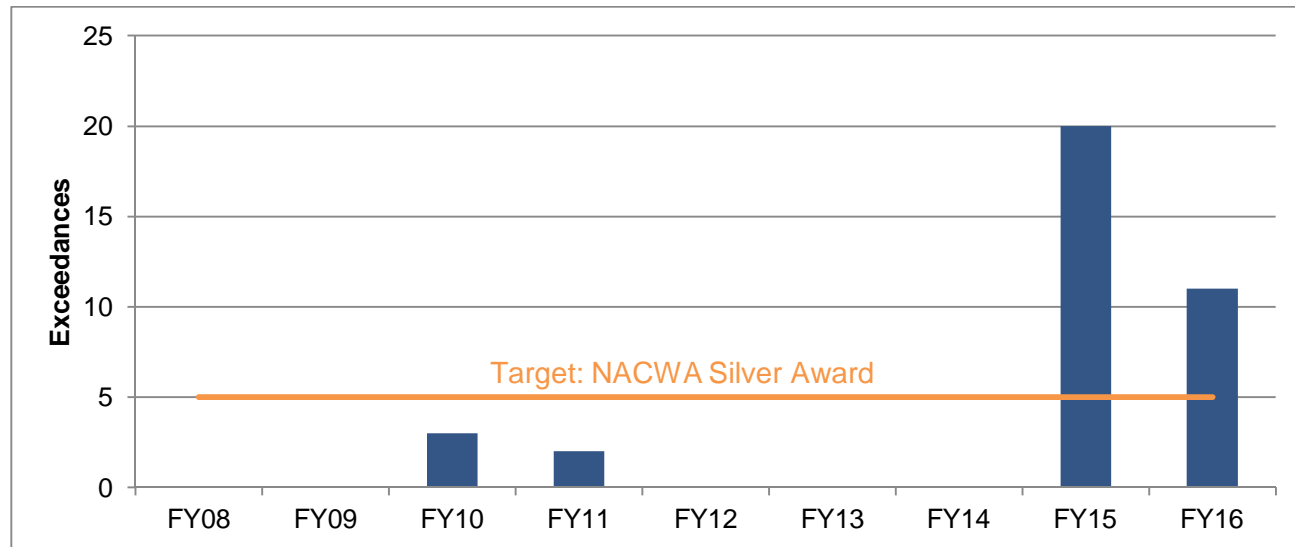
FY	WET WEATHER	DRY WEATHER
FY08	0	0
FY09	0	0
FY10	0	0
FY11	1	0
FY12	1	2
FY13	0	2
FY14	0	0
FY15	1	0
FY16	0	1

Table 1.11. Bypass Events by Cause – Morris Forman WQTC

FY	CAPACITY	EXTERNAL POWER FAILURE	EQUIPMENT FAILURE	HUMAN ERROR
FY09	0	0	0	0
FY10	0	0	0	0
FY11	0	0	1	0
FY12	2	0	1	0
FY13	0	0	2	0
FY14	0	0	0	0
FY15	0	0	1	0
FY16	0	0	0	1

1.2.2.4.3. EXCEEDANCES

As shown in Figure 1.8, a total number of 11 exceedances occurred at Morris Forman WQTC in FY16, due to a combination of equipment failures related to the flooding that occurred April 8, 2015 as well as capacity issues related to both snowmelt and rainfall.

Figure 1.8. Exceedances by Fiscal Year – Morris Forman WQTC


1.2.2.5. REGIONAL WATER QUALITY TREATMENT CENTERS

In December 2015, MSD successfully eliminated Jeffersontown WQTC, bringing the regional WQTC count to four. The following sections provide details related to the regional WQTCs.

1.2.2.5.1. OVERFLOWS TO THE EXTERIOR

Observed overflows from manholes within the fence at the WQTC during the reporting period are shown in Table 1.12 and Table 1.13.

Table 1.12. Observed Overflows to the Exterior by Weather – Regional WQTCs

FY	OVERFLOW TO EXTERIOR (GROUND)	
	WET WEATHER	DRY WEATHER
FY08	2	7
FY09	0	7
FY10	2	4
FY11	1	8
FY12	4	9
FY13	1	14
FY14	2	6
FY15	1	3
FY16	1	6

Table 1.13. Observed Overflows to the Exterior by Problem – Regional WQTCs

FY	ELECTRICAL PROBLEMS AT MSD	LACK OF SYSTEM CAPACITY	MECHANICAL FAILURE	OBSTRUCTION -NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	STRUCTURAL FAILURE
FY08	0	2	7	0	0	0
FY09	0	0	7	0	0	0
FY10	0	1	4	0	1	0
FY11	0	1	4	0	4	0
FY12	2	2	7	0	2	2
FY13	1	1	6	1	6	1
FY14	1	1	5	1	0	1
FY15	1	0	3	0	0	1
FY16	0	0	6	0	1	0

1.2.2.5.2. BYPASSES

Table 1.14 details the results of the current reporting period. Table 1.15 and Figure 1.9 summarize bypass events by weather since FY08, and Table 1.16 and Figure 1.10 summarize bypasses by cause since FY09. Refer to quarterly reports for the reporting period for details of the bypasses which occurred at regional WQTCs. Note that blending events at Jeffersontown WQTC are excluded from this section and summarized in Section 1.2.2.5.3.

Table 1.14. FY16 Bypass Events by WQTC – Regional WQTCs

WQTC	KPDES PERMIT NUMBER	DRY WEATHER	WET WEATHER
Cedar Creek	KY0098540	0	1
Derek R. Guthrie	KY0078956	0	0
Floyds Fork	KY0102784	0	0
Hite Creek	KY0022420	1	2
Jeffersontown	KY0025194	0	0

Table 1.15. Bypass Events by Weather – Regional WQTCs

FY	WET WEATHER	DRY WEATHER
FY08	4	6
FY09	10	5
FY10	6	8
FY11	2	7
FY12	4	3
FY13	1	7
FY14	0	2
FY15	0	1
FY16	1	3

Figure 1.9. Trend of Bypass Events by Weather – Regional WQTCs

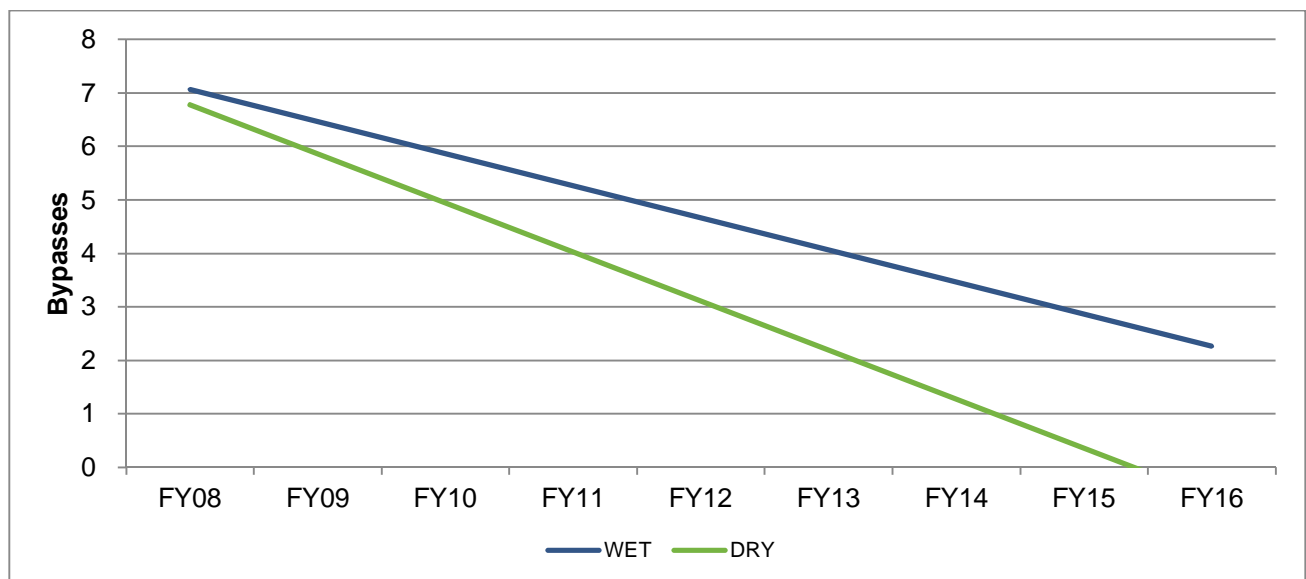
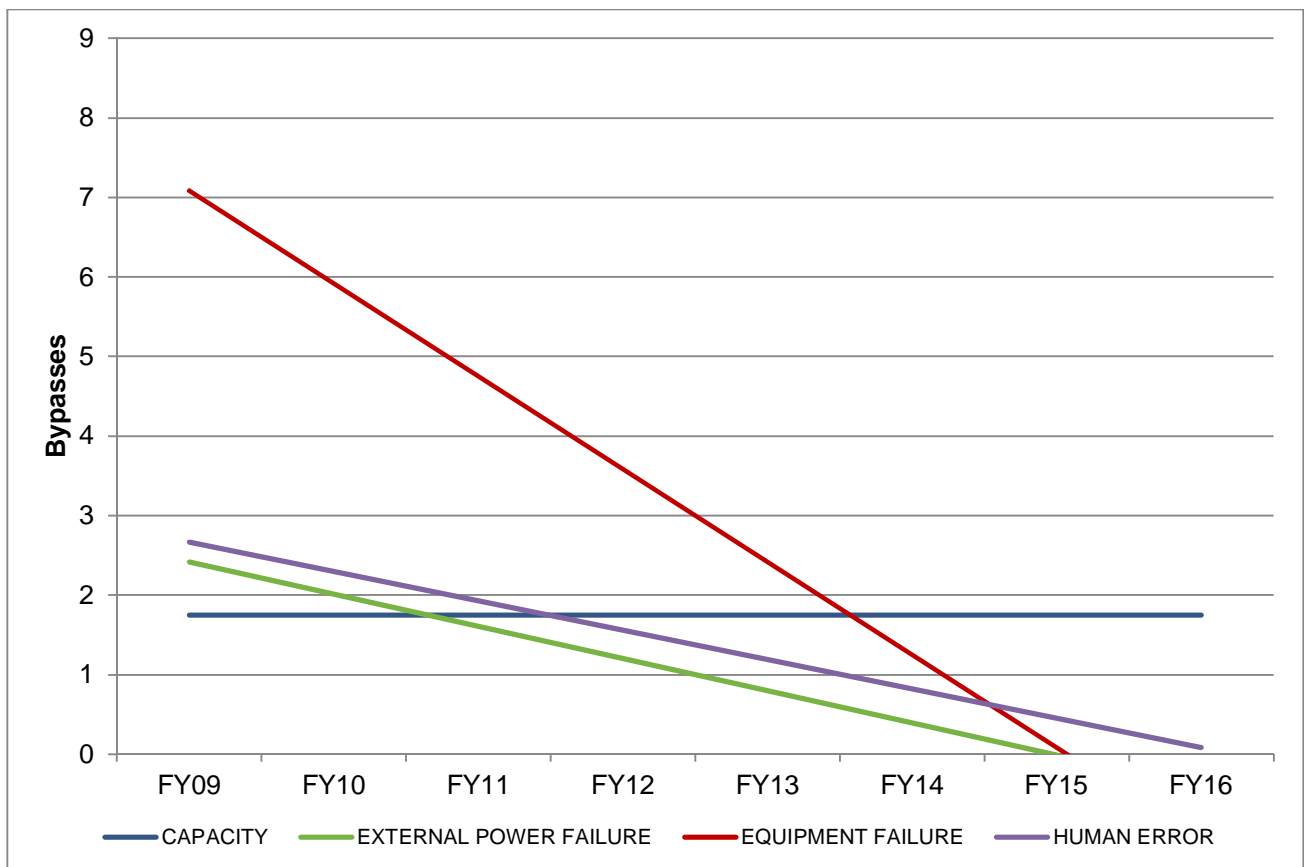


Table 1.16. Bypass Events by Cause – Regional WQTCs

FY	CAPACITY	EXTERNAL POWER FAILURE	EQUIPMENT FAILURE	HUMAN ERROR
FY09	1	2	8	4
FY10	3	2	5	4
FY11	1	3	5	0
FY12	1	1	4	0
FY13	4	0	2	0
FY14	1	0	0	1
FY15	1	0	0	0
FY16	2	0	0	2

Figure 1.10. Trend of Bypass Events by Cause – Regional WQTCs


1.2.2.5.3. BLENDING AT JEFFERSONTOWN WATER QUALITY TREATMENT CENTER

MSD has been documenting the blended flow at the Jeffersontown WQTC since February 2008. The FY09 Jeffersontown WQTC Process Control Program describes the implementation of wet weather standard operating procedures (SOPs) which includes 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 completed prior to July 31, 2009.

Nine blending events occurred at the Jeffersontown WQTC during the reporting period as detailed in Table 1.17 and previously reported in the quarterly reports. The total blended amount from the events, reported and documented on the Project WIN webpage, was 38,603,318 gallons. The blending events were analyzed and compared to the wet weather protocols included in the SOPs regarding the flow rate when blending will occur. Figure 1.11 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.

MSD conducted 21 inspection routes for the Jeffersontown siphon during the reporting period as detailed in Table 1.18. Figure 1.12 and Figure 1.13 show levels at the siphon for the reporting period in three month intervals for clarity. Two overflows were identified at manhole 28173 upstream of the Jeffersontown siphon, though levels in the siphon did not exceed the overflow elevation during the reporting period. The spike in elevation on December 23, 2015, is due to the Jeffersontown WQTC being taken offline and equipment being removed.

The Jeffersontown WQTC is now off-line. This will be the final annual report to include discussion of data at the siphon upstream of the headworks at the Jeffersontown WQTC.

Table 1.17. FY16 Blending Events – Jeffersontown WQTC

EVENT NUMBER	DATE	VOLUME (GAL)
1	July 3, 2015	359,280
2	July 10, 2015	564,375
3	July 12, 2015	3,425,126
4	July 13, 2015	3,870,550
5	July 18, 2015	107,109
6	September 29, 2015	382,797
7	October 27, 2015	2,514,321
8	November 18, 2015	1,940,645
9	December 1, 2015	407,810

Table 1.18. FY16 Inspection Route Events – Jeffersontown Siphon

EVENT NUMBER	DATE
1	July 10, 2015
2	July 12, 2015
3	July 18, 2015
4	July 30, 2015
5	August 6, 2015
6	August 19, 2015
7	October 27, 2015
8	November 18, 2015
9	December 22, 2015
10	December 23, 2015
11	December 29, 2015
12	February 3, 2016
13	February 24, 2016
14	March 10, 2016
15	March 27, 2016
16	April 27, 2016
17	May 2, 2016
18	May 12, 2016
19	May 20, 2016
20	June 14, 2016
21	June 23, 2016

Figure 1.12. Jeffersontown Siphon Level – July 1, 2015-September 30, 2015

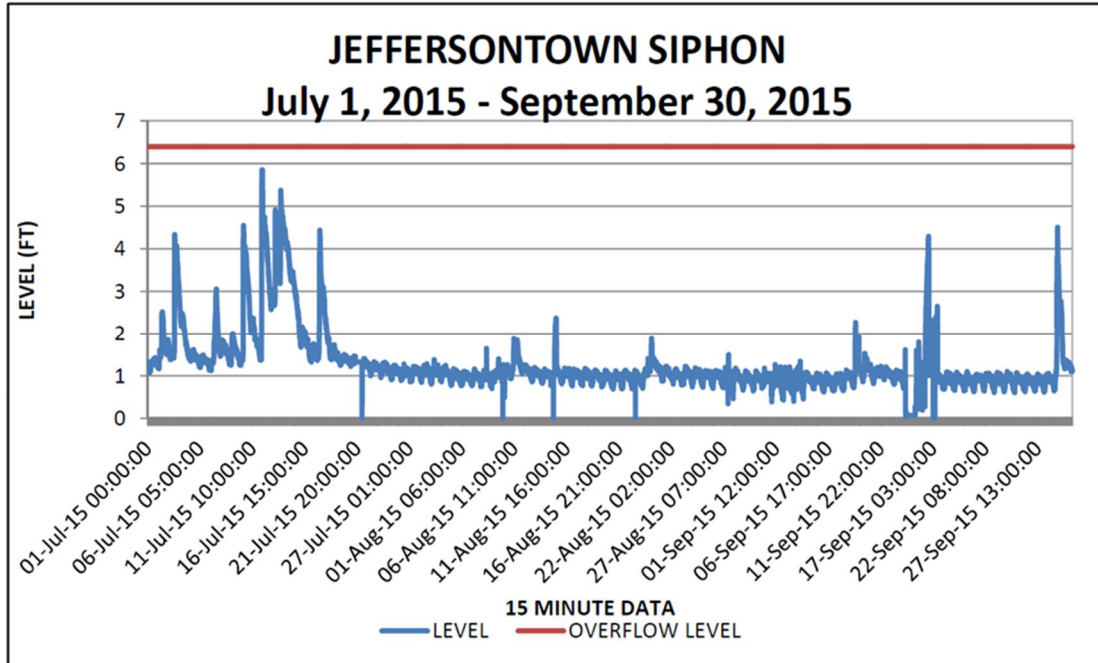
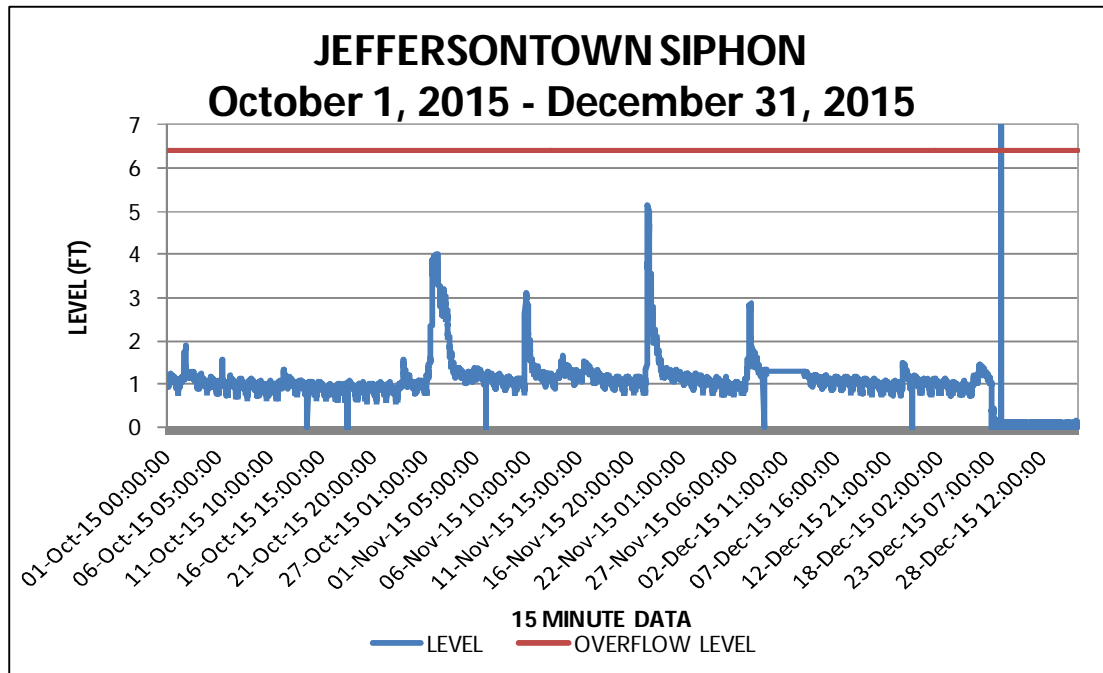


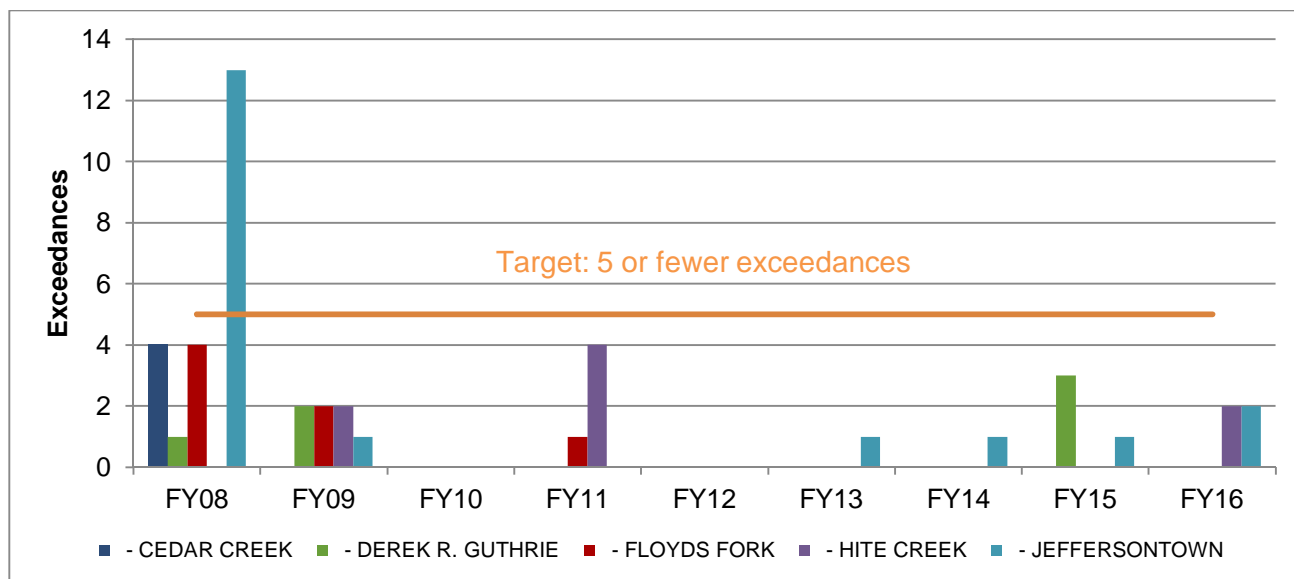
Figure 1.13. Jeffersontown Siphon Level – October 1, 2015-December 31, 2015



1.2.2.5.4. EXCEEDANCES

As shown in Figure 1.14, all five regional WQTCs have achieved the NACWA Silver Award goal since FY09. Both Cedar Creek WQTC and Floyds Fork WQTC meet the qualifications for the NACWA Platinum Award, and Derek R. Guthrie WQTC meets the qualifications for the NACWA Gold Award. Three WQTCs were in compliance 100% of reporting months. Jeffersontown WQTC has been taken offline as of this report, as detailed in Section 4.4.1.2.

Figure 1.14. Exceedances by Fiscal Year – Regional WQTCs



1.2.2.6. NON-REGIONAL WQTCs

Since 1985, MSD has acquired and/or eliminated more than 300 privately owned non-regional WQTCs (“package plants”). 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 had been in operation over 35 years and typically have much poorer records of compliance compared to MSD’s regional WQTCs. Therefore, MSD worked aggressively to eliminate the non-regional WQTCs. During the reporting period, MSD eliminated the remaining ten non-regional treatment centers detailed in Table 1.19.

Table 1.19. Non-Regional WQTCs Eliminated in FY16

WQTC	ELIMINATION DATE	RECEIVING WQTC
Timberlake WQTC	July 7, 2015	Hite Creek WQTC
Hunting Creek South WQTC	July 22, 2015	Hite Creek WQTC
Hunting Creek North WQTC	August 31, 2015	Hite Creek WQTC
Shadow Wood WQTC	September 1, 2015	Hite Creek WQTC
Ken Carla WQTC	September 2, 2015	Hite Creek WQTC
Berrytown WQTC	November 24, 2015	Floyds Fork WQTC
Middletown Industrial WQTC	December 30, 2015	Floyds Fork WQTC
Starview WQTC	March 29, 2016	Floyds Fork WQTC
Bancroft WQTC	March 31, 2016	Morris Forman WQTC
McNeely Lake WQTC	May 27, 2016	Derek R. Guthrie WQTC

1.2.2.6.1. OVERFLOWS TO THE EXTERIOR

There were no overflows from manholes within the fence at the WQTCs during the reporting period, as shown in Table 1.20 and Table 1.21.

Table 1.20. Observed Overflows to the Exterior by Weather – Non-Regional WQTCs

FY	OVERFLOW TO EXTERIOR (GROUND)	
	WET WEATHER	DRY WEATHER
FY08	1	5
FY09	0	2
FY10	1	3
FY11	2	9
FY12	0	3
FY13	0	7
FY14	0	4
FY15	1	4
FY16	0	0

Table 1.21. Observed Overflows to the Exterior by Problem – Non-Regional WQTCs

FY	ELECTRICAL PROBLEMS AT MSD	LACK OF SYSTEM CAPACITY	MECHANICAL FAILURE	OBSTRUCTION -NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	STRUCTURAL FAILURE
FY08	0	4	0	0	2	0
FY09	0	2	0	0	0	0
FY10	0	2	0	1	1	0
FY11	0	7	1	0	3	0
FY12	0	1	1	0	1	0
FY13	2	0	0	0	5	2
FY14	0	0	1	0	3	0
FY15	0	0	0	0	5	0
FY16	0	0	0	0	0	0

1.2.2.6.2. BYPASSES

All bypasses at the non-regional WQTCs during the reporting period are shown by WQTC in Table 1.22. Table 1.23 and Figure 1.15 summarize bypass events by weather since FY08, and Table 1.24 and Figure 1.16 summarize bypasses by cause since FY09. Refer to quarterly reports for the reporting period for details of the bypasses which occurred at regional WQTCs.

Table 1.22. FY16 Bypass Events at Non-Regional WQTCs

WQTC	KPDES PERMIT NUMBER	DRY WEATHER	WET WEATHER
Bancroft	KY0039021	0	0
Berrytown	KY0036501	0	2
Hunting Creek North	KY0029106	0	1
Hunting Creek South	KY0029114	0	0
Ken Carla	KY0022497	0	0
McNeely Lake	KY0029416	1	1
Shadow Wood	KY0031810	0	0
Starview	KY0031712	1	1
Timberlake	KY0043087	0	0

Table 1.23. Bypass Events by Weather – Non-Regional WQTCs

FY	WET WEATHER	DRY WEATHER
FY08	13	5
FY09	6	11
FY10	12	7
FY11	21	1
FY12	8	2
FY13	10	5
FY14	17	8
FY15	8	0
FY16	5	2

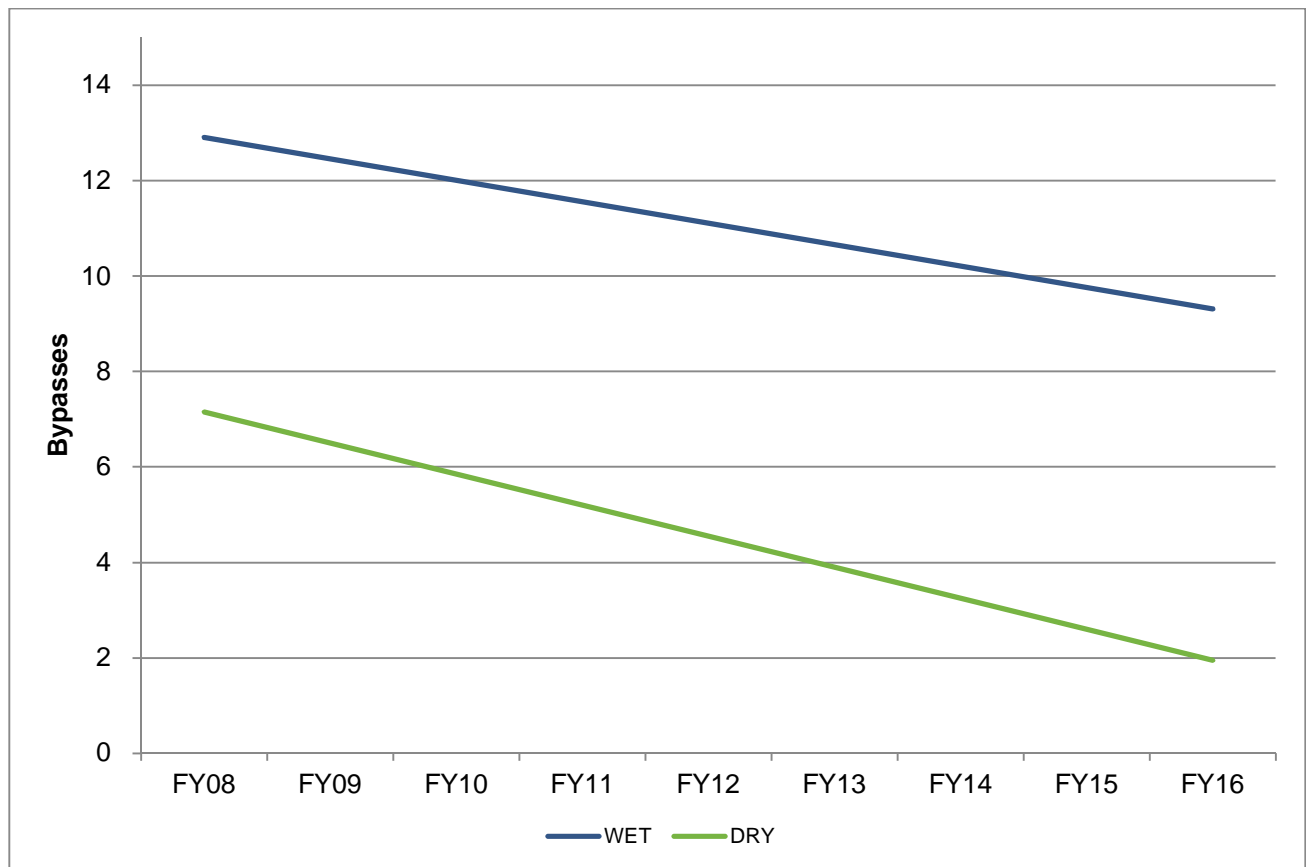
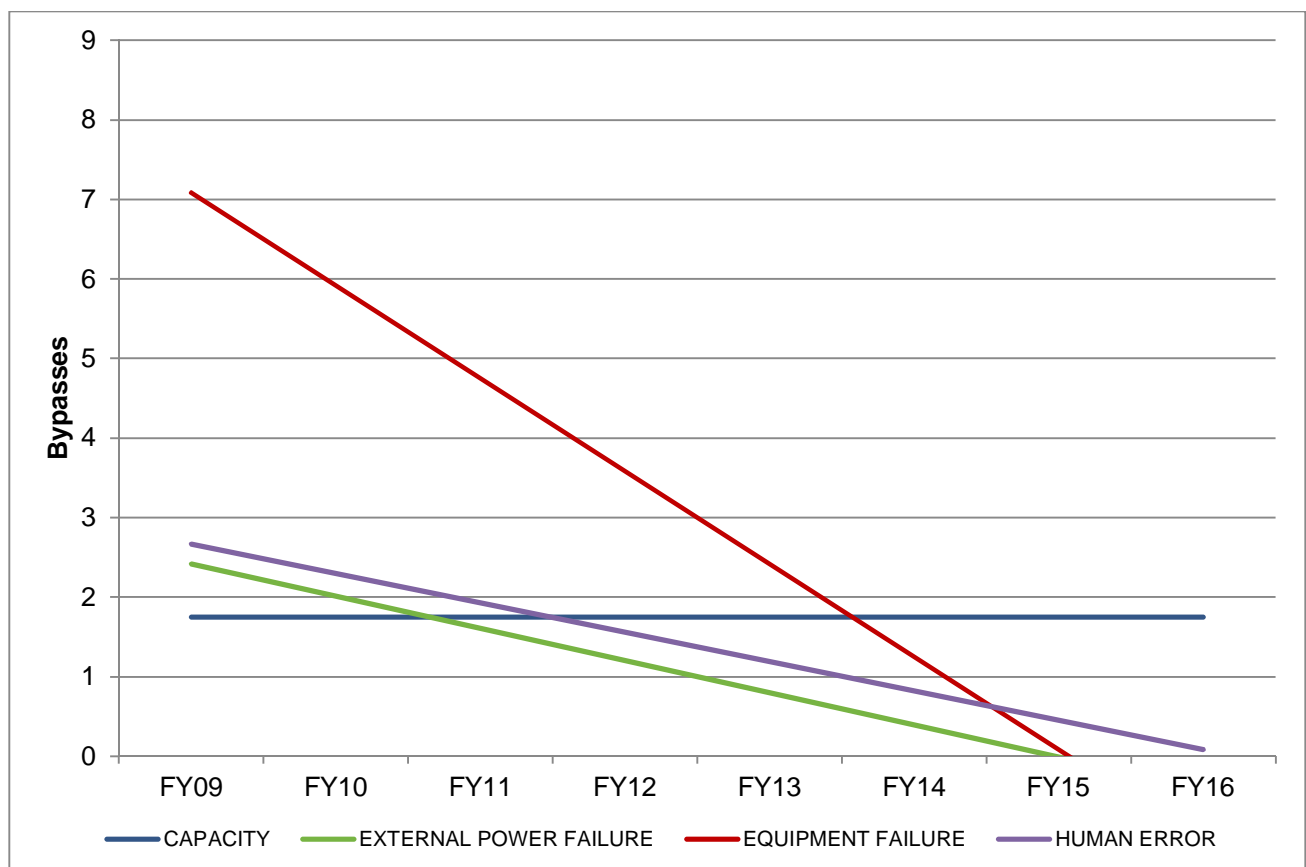
Figure 1.15. Trend of Bypass Events by Weather – Non-Regional WQTCs


Table 1.24. Bypass Events by Cause – Non-Regional WQTCs

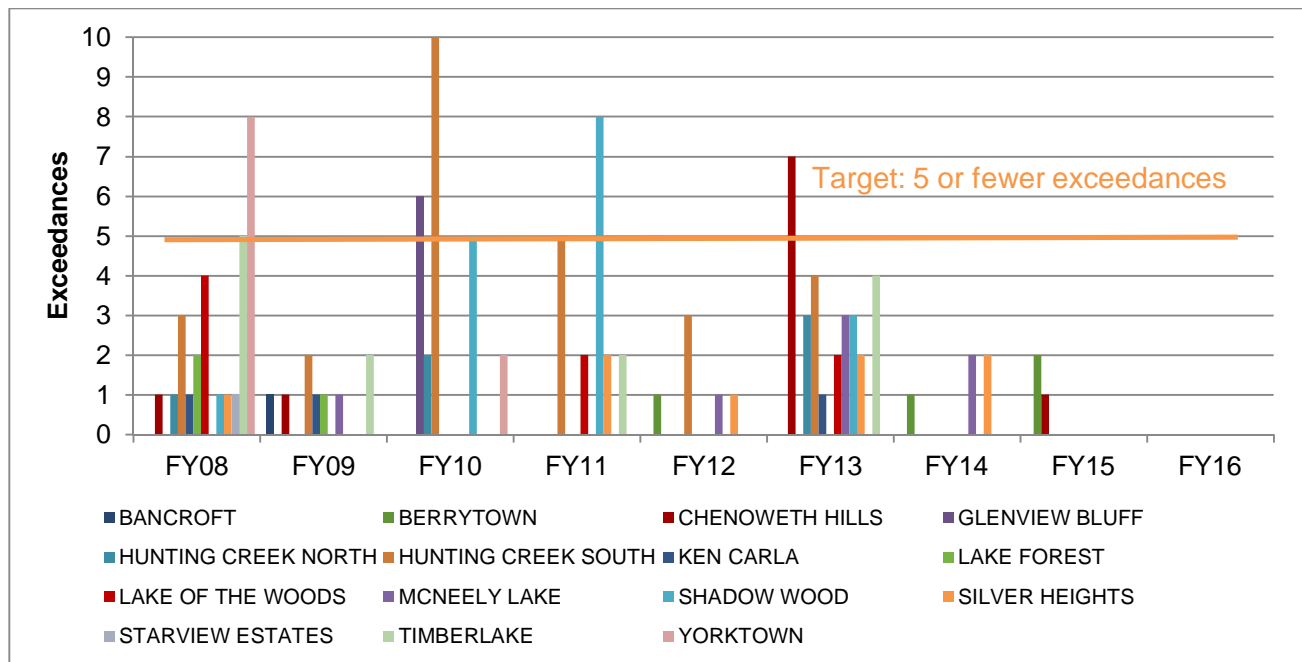
FY	CAPACITY	EXTERNAL POWER FAILURE	EQUIPMENT FAILURE	HUMAN ERROR
FY09	0	2	0	0
FY10	0	2	0	1
FY11	0	7	1	0
FY12	0	1	1	0
FY13	2	0	0	0
FY14	0	0	1	0
FY15	0	0	0	0
FY16	0	0	0	0

Figure 1.16. Trend of Bypass Events by Cause – Non-Regional WQTCs


1.2.2.6.3. EXCEEDANCES

As shown in Figure 1.17, starting in FY14, non-regional treatment center compliance met or exceeded the goal of 95% compliance, with FY16 showing in compliance 100% of the time. Continued work on the Comprehensive Performance Evaluation and Composite Correction Plan CPE/CCE activities such as additional training and SOP review contributed to the positive trending in non-regional treatment center compliance.

Figure 1.17. Exceedances by Fiscal Year – Non-Regional WQTCs



1.2.2.6.4. PROSPECT WATER QUALITY TREATMENT CENTERS PHOSPHORUS MONITORING

As part of the Amended Consent Decree, MSD has agreed to submit phosphorus monitoring data, including the calculations of monthly averages, with the quarterly reports. The Prospect WQTCs were under the 1 mg/l limit per the Amended Consent Decree requirement. During the first quarter of FY16, flow from all five Prospect WQTCs was diverted to the Harrods Creek Pump Station. This will be the last annual report to refer to phosphorus monitoring per the Amended Consent Decree as these WQTCs were removed from service. Refer to the quarterly reports for the reporting period for monthly phosphorus monitoring details.

1.2.3 COMBINED SEWER OVERFLOW PERFORMANCE

1.2.3.1. AUTHORIZED DISCHARGES – WET WEATHER CSOS

At the end of the reporting period, MSD maintained 101 CSOs in operation. The modeled AAOV for the permitted CSOs is included as Appendix B. The observed CSO data for the reporting period for each monitored overflow has been tabulated, along with rainfall information from the nearest rain gauge, to

facilitate review of the overflows that occurred, and is included as Appendix C. Refer to Section 4.5 for information regarding system monitoring and performance as CSO reduction projects are completed.

1.2.3.2. UNAUTHORIZED DISCHARGES – DRY WEATHER CSOS

MSD has implemented the Nine Minimum Controls (NMC) programs and provided resources to reduce dry weather CSOs as part of the CSO Long Term Control Plan (LTCP). During the reporting period, there were five observed dry weather overflows from a permitted CSO location as detailed in Table 1.25. The dry weather CSOs were analyzed by location and problem to identify issues that can be corrected. The three dry weather CSOs at CSO113 were due to obstructions that have since been addressed. An examination of maintenance history at CSO113 will be conducted during FY17 as discussed in Section 2.6. Table 1.26 shows that dry weather overflows continue to decrease significantly both in number and volume. At this time, the 101 CSOs are functioning properly.

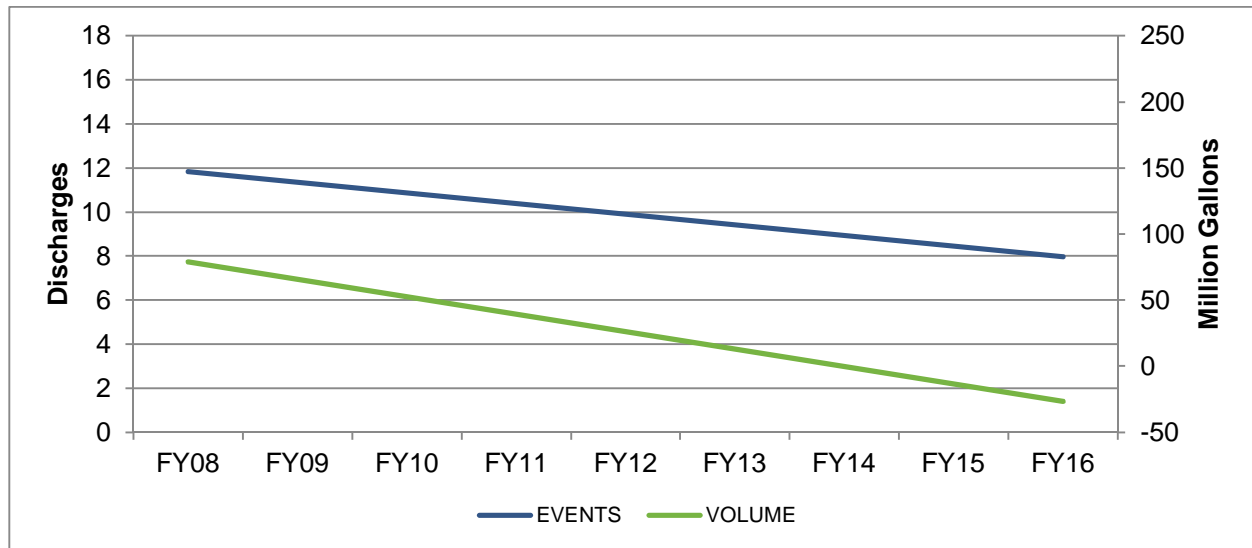
Table 1.25. FY16 Dry Weather CSOs

CSO	DATE	PROBLEM	DESCRIPTION	VOLUME (GAL)
CSO113	September 14, 2015	Obstruction – Not Grease / Roots	Obstruction in main sewer	450
CSO125	October 16, 2015	Utility Damaged MSD Asset	Twelve-inch water main break	188,884
CSO113	November 2, 2015	Obstruction – Not Grease / Roots	Unknown obstruction in low flow line	9
CSO113	November 23, 2015	Obstruction – Not Grease / Roots	Heavy leaves (built up at reducer)	82
CSO097	March 29, 2016	Obstruction – Not Grease / Roots	Flow diverted at Nightingale Pump Station to Beargrass Interceptor for cleaning/ structural repair of 48" main	76,000

Table 1.26. Dry Weather CSOs by Fiscal Year

FY	EVENTS	VOLUME (GAL)
FY08	11	197,303,690
FY09	3	488,254
FY10	16	13,321,419
FY11	13	5,225,399
FY12	15	5,108,532
FY13	8	100,162
FY14	13	13,807,294
FY15	5	57,455
FY16	5	265,425

Figure 1.18. Trend of Dry Weather CSOs by Fiscal Year



1.2.3.3. CSO FLOW MONITORING QUALITY IMPROVEMENT

During the July 2016 – September 2016 reporting period, MSD identified a potential for inaccurate volume reporting at some CSOs. This was identified by comparing measured overflow volumes against modeled overflow volumes for similar storms. It was determined that several CSO flow monitors are affected by backwater levels from the receiving streams causing a discrepancy actual overflow volume, along with other potential variables at some locations. MSD notified EPA and KDEP of data discrepancies on September 29, 2016.

An effort is currently underway to review and revise reporting procedures at 33 CSO locations where potentially significant discrepancies were noted between modeling and monitoring. This initial effort will be completed by the end of FY17, and the remaining CSOs will be reviewed thereafter. Until the review is complete, CSO flow monitoring data will continue to be included as an appendix to each quarterly report, will be listed as “Draft”, and will include the statement “CSO data monitoring procedures are currently being revised”. MSD will provide status updates in the quarterly reports on progress to evaluate data accuracy, revise monitoring data records, update monitoring procedures, and implement recommendations. CSO flow monitoring data reported quarterly will include updated volumes based on completion of the review and update of the reporting standards for each CSO. Any revised volumes for previous reporting periods up to and including FY16 will be included as an appendix to the FY17 Consent Decree Annual Report.

1.2.4 COLLECTIONS SYSTEM OVERFLOW PERFORMANCE

At the end of the reporting period, MSD maintained 3,308 miles of sanitary and combined sewer mains in operation, including associated pump stations, manholes and other access points, and service lines.

1.2.4.1. UNAUTHORIZED DISCHARGES TO WATERS OF US – WET WEATHER SSOS

Table 1.27 and Figure 1.19 detail unauthorized discharges to WUS from the collections system by cause. Table 1.28 and Figure 1.20 detail unauthorized discharges to WUS from the collections system by asset.

Table 1.27. Wet Weather SSOs by Fiscal Year and Cause – Unauthorized Discharges to Waters of US

FY	ELECTRICAL PROBLEMS AT MSD	GREASE BLOCKAGE	LACK OF SYSTEM CAPACITY	MECHANICAL FAILURE	OBSTRUCTION- NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	PUMPED DUE TO COE MANUAL	PUMPED OVERFLOW	ROOTS	STRUCTURAL FAILURE
FY08	2	2	369	3	0	3	0	136	3	1
FY09	4	1	53	1	0	20	0	26	1	0
FY10	4	0	289	0	0	8	0	55	0	0
FY11	3	0	623	1	2	5	5	99	2	2
FY12	2	1	425	5	0	1	0	30	0	1
FY13	1	0	250	2	0	1	0	5	3	1
FY14	0	0	359	3	5	2	0	10	1	2
FY15	3	1	374	2	1	1	0	7	3	2
FY16	1	0	309	0	0	0	0	3	0	5

Figure 1.19. Trend of Non-Capacity Related Wet Weather SSOs by Fiscal Year and Cause – Unauthorized Discharges to Waters of US

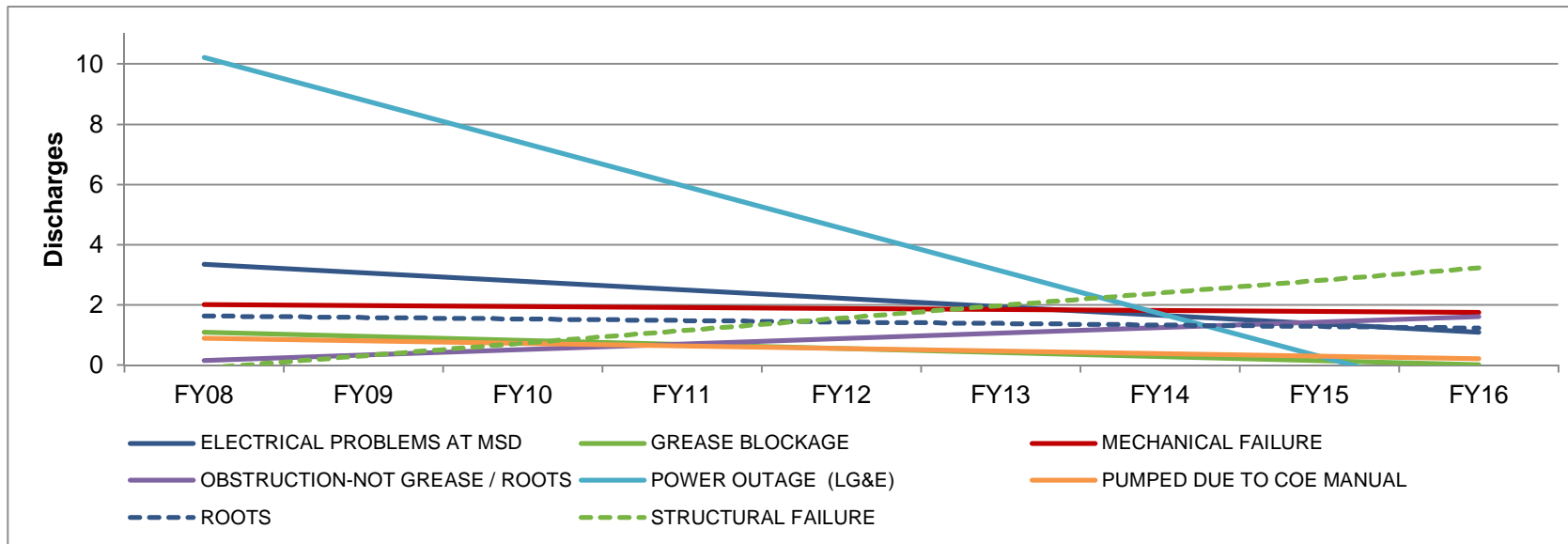
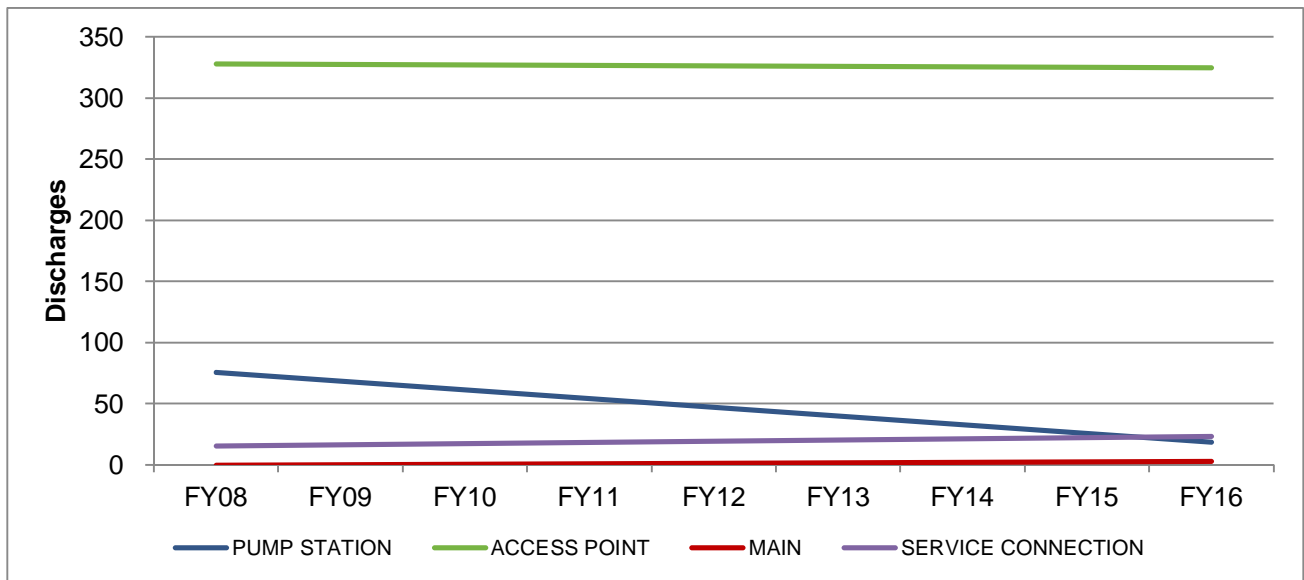


Table 1.28. Wet Weather SSOs by Fiscal Year and Asset – Unauthorized Discharges to Waters of US

FY	PUMP STATION	ACCESS POINT	MAIN	SERVICE CONNECTION
FY08	109	402	1	9
FY09	21	84	0	1
FY10	53	277	0	26
FY11	89	614	2	37
FY12	44	398	1	22
FY13	19	226	1	17
FY14	34	321	1	26
FY15	43	330	2	19
FY16	12	286	5	15

Figure 1.20. Trend of Wet Weather SSOs by Fiscal Year and Asset – Unauthorized Discharges to Waters of US



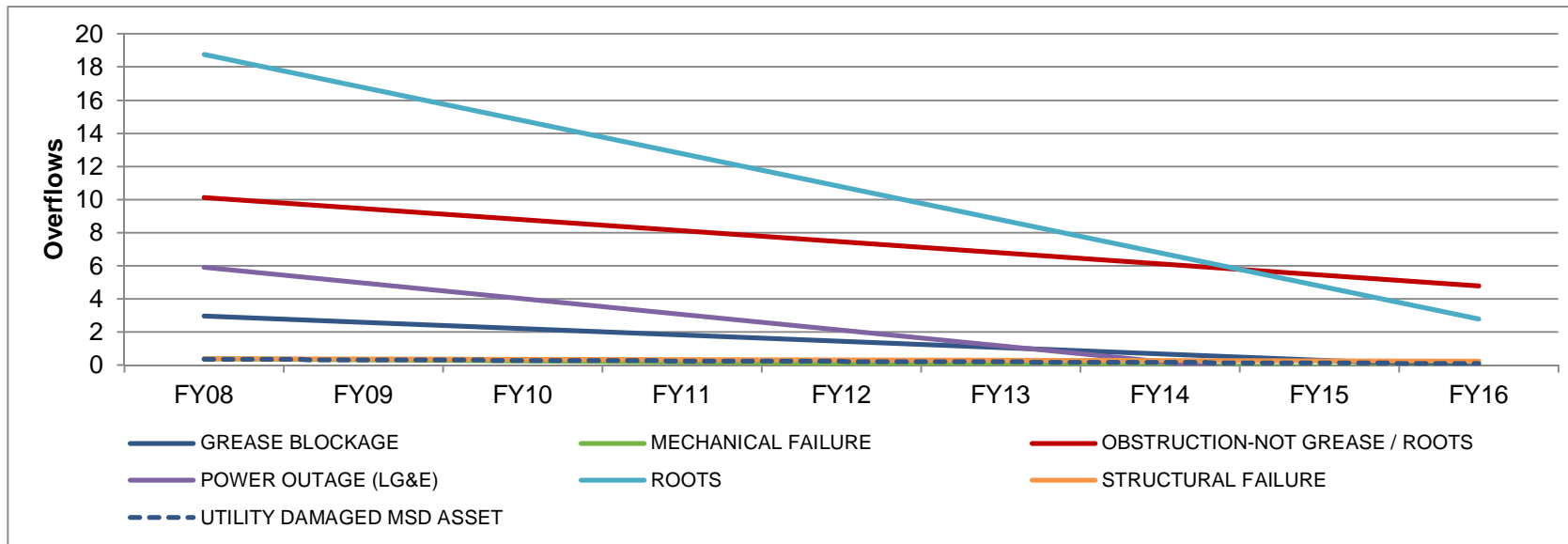
1.2.4.2. WET WEATHER OVERFLOWS TO THE INTERIOR

Table 1.29 and Figure 1.21 detail wet weather overflows to the interior from the collections system by cause.

Table 1.29. Wet Weather Overflows to the Interior by Fiscal Year and Cause

FY	GREASE BLOCKAGE	LACK OF SYSTEM CAPACITY	MECHANICAL FAILURE	OBSTRUCTION- NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	ROOTS	STRUCTURAL FAILURE	UTILITY DAMAGED MSD ASSET
FY08	2	650	1	5	0	33	0	1
FY09	6	94	0	17	19	10	1	0
FY10	1	678	0	12	0	15	0	0
FY11	1	592	0	7	0	9	0	0
FY12	0	102	0	1	0	2	1	0
FY13	1	31	0	5	0	1	0	0
FY14	1	118	0	3	0	6	1	1
FY15	1	271	0	17	0	16	0	0
FY16	0	78	0	0	0	5	0	0

Figure 1.21. Trend of Non-Capacity Related Wet Weather Overflows to the Interior by Fiscal Year and Cause



1.2.4.3. WET WEATHER OVERFLOWS TO THE EXTERIOR

Table 1.30 and Figure 1.22 detail wet weather overflows to the exterior from the collections system by cause. Table 1.31 and Figure 1.23 detail wet weather overflows to the exterior from the collections system by asset.

1.2.4.4. WET WEATHER HAULING EVENTS

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 which may cause sewer line surcharging, basement back-ups, and sanitary sewer overflows (SSOs). MSD staff only hauls from these locations as necessary. Hauling efforts are summarized in Table 1.32 and Figure 1.24 by month and in Table 1.33 and Figure 1.25 by asset.

Table 1.30. Wet Weather Overflows to the Exterior by Fiscal Year and Cause

FY	LACK OF SYSTEM CAPACITY	MECHANICAL FAILURE	OBSTRUCTION-NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	PUMPED DUE TO COE MANUAL	ROOTS	STRUCTURAL FAILURE	UTILITY DAMAGED MSD ASSET
FY08	12	1	0	0	0	4	0	1
FY09	0	0	3	3	0	1	2	0
FY10	13	0	2	0	0	2	0	0
FY11	24	0	1	0	0	0	0	0
FY12	8	1	2	3	0	0	1	0
FY13	3	0	1	0	0	0	0	0
FY14	2	0	0	0	1	1	1	0
FY15	19	1	1	0	1	0	0	0
FY16	13	0	0	0	0	2	0	0

Figure 1.22. Trend of Non-Capacity Related Wet Weather Overflows to the Exterior by Fiscal Year and Cause

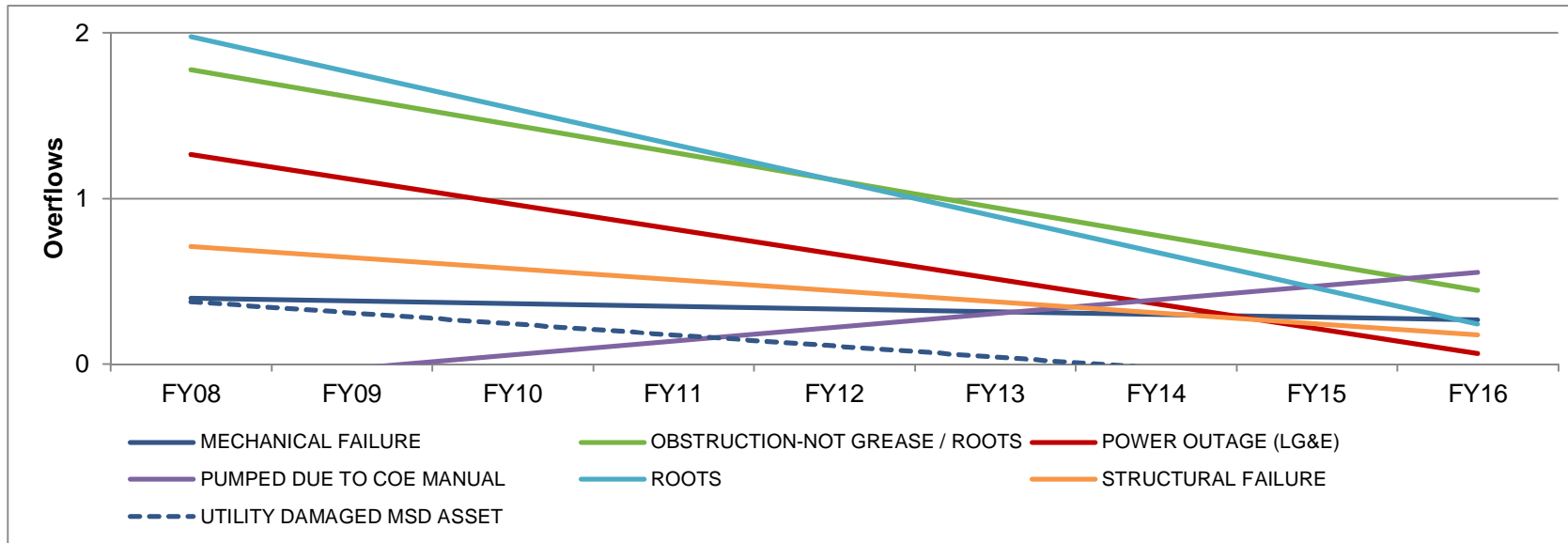


Table 1.31. Wet Weather Overflows to the Exterior by Fiscal Year and Asset

FY	PUMP STATION	ACCESS POINT	MAIN	SERVICE CONNECTION
FY08	2	14	1	1
FY09	3	2	1	3
FY10	1	12	1	4
FY11	0	23	0	2
FY12	1	9	2	3
FY13	0	3	1	0
FY14	0	3	0	2
FY15	1	9	3	9
FY16	1	5	2	7

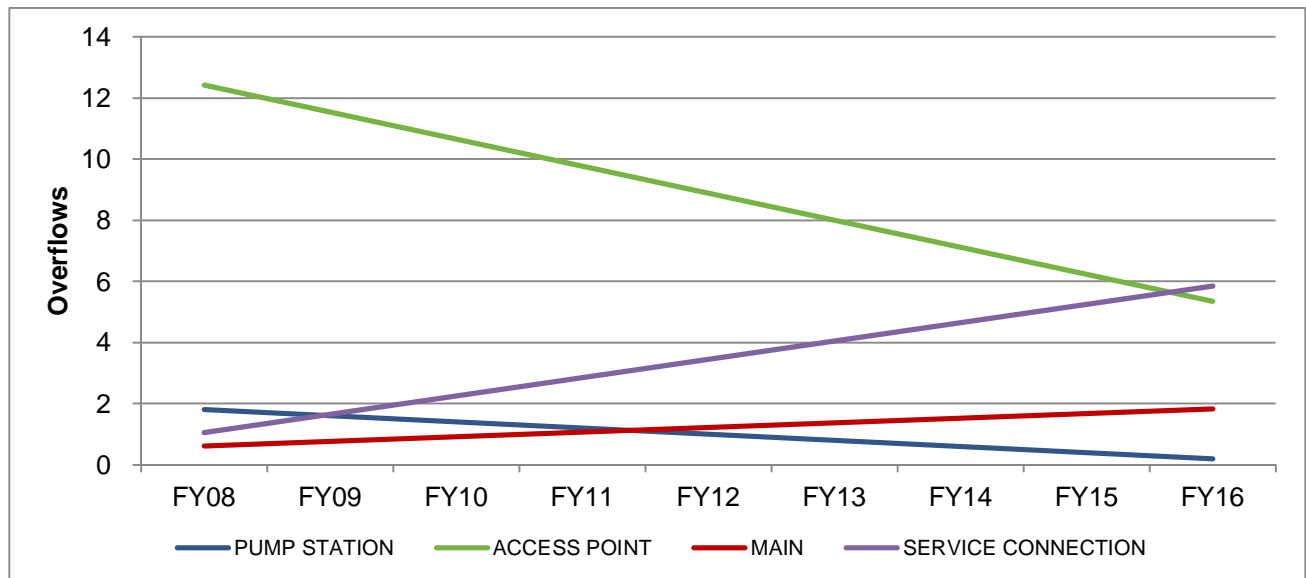
Figure 1.23. Trend of Wet Weather Overflows to the Exterior by Fiscal Year and Asset


Table 1.32. Hauled Volumes by Fiscal Year and Month

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
FY08	164,300	857,950	4,016,003	1,752,920	1,049,000	19,000	22,200	0	13,900	1,168,150	41,500	1,470,550
FY09	1,330,701	785,280	34,300	634,500	572,400	337,400	62,000	24,500	1,834,650	10,000	13,600	550,800
FY10	897,800	451,400	100,050	178,650	2,245,750	162,900	1,367,140	1,794,300	426,300	1,581,951	13,900	452,851
FY11	111,500	1,034,200	868,650	2,541,850	1,524,001	660,401	199,501	112,501	571,750	63,622	944,900	76,400
FY12	196,700	12,500	267,101	162,800	604,402	62,700	72,600	146,500	261,800	3,500	938,050	738,701
FY13	444,500	0	753,600	58,400	235,500	178,101	33,000	0	77,501	39,300	0	568,701
FY14	90,400	125,000	22,600	556,711	167,302	0	287,603	15,500	320,502	366,101	165,300	167,600
FY15	0	9,500	509,400	250,300	3,000	58,101	41,001	66,500	133,200	58,501	5,000	194,000
FY16	3,500	115,500	24,700	4,004	2	0	130,900	3,651	76,000	42,500	95,000	176,102

Figure 1.24. Hauled Volumes by Fiscal Year and Month

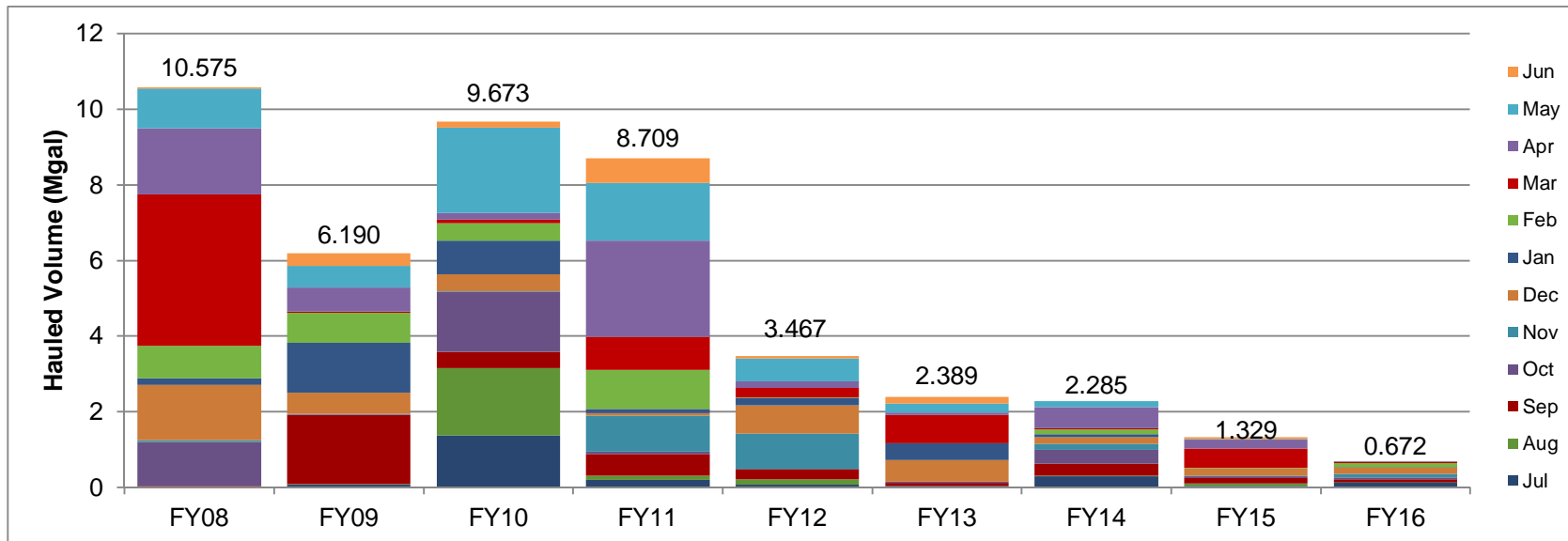
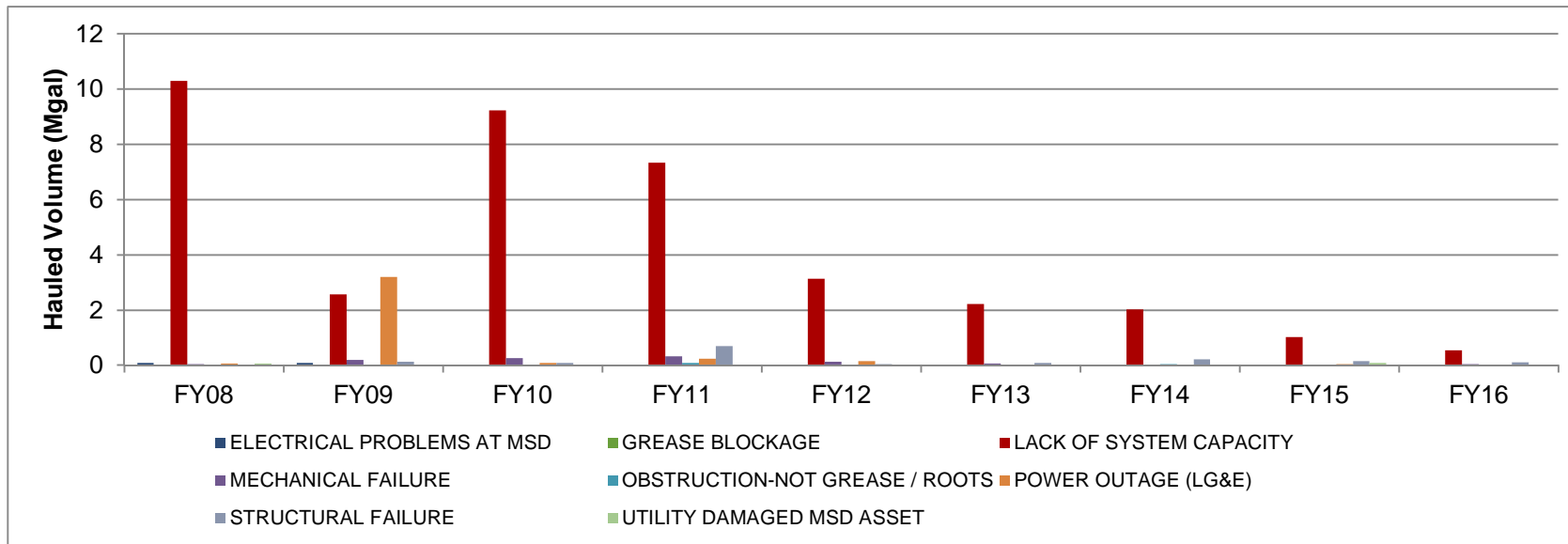


Table 1.33. Hauled Volumes by Fiscal Year and Problem

FY	ELECTRICAL PROBLEMS AT MSD	GREASE BLOCKAGE	LACK OF SYSTEM CAPACITY	MECHANICAL FAILURE	OBSTRUCTION-NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	STRUCTURAL FAILURE	UTILITY DAMAGED MSD ASSET
FY08	86,000	0	10,289,273	50,000	0	71,700	67,000	86,000
FY09	92,100	0	2,569,480	198,200	1,000	3,195,551	0	92,100
FY10	150	0	9,221,257	260,850	8,300	90,135	7,000	150
FY11	22,422	8,000	7,339,452	334,800	75,000	227,400	0	22,422
FY12	1,700	0	3,138,254	138,100	7,100	150,000	0	1,700
FY13	0	0	2,225,103	51,900	14,000	7,000	0	0
FY14	0	0	2,011,919	12,200	44,000	7,800	0	0
FY15	12,500	0	1,019,102	10,000	0	42,801	90,000	12,500
FY16	1	0	534,308	38,000	0	0	0	1

Figure 1.25. Hauled Volumes by Fiscal Year and Problem



1.2.4.5. UNAUTHORIZED DISCHARGES TO WATERS OF US – DRY WEATHER SSOS

Table 1.34 and Figure 1.26 detail unauthorized discharges to WUS from the collections system by cause. Table 1.35 and Figure 1.27 detail unauthorized discharges to WUS from the collections system by asset.

1.2.4.6. DRY WEATHER OVERFLOWS TO THE INTERIOR

Table 1.36 and Figure 1.28 detail dry weather overflows to the interior by cause.

1.2.4.7. DRY WEATHER OVERFLOWS TO THE EXTERIOR

Table 1.37 and Figure 1.29 detail dry weather overflows to the exterior by cause. Table 1.38 and Figure 1.30 detail dry weather overflows to the exterior by asset.

Table 1.34. Dry Weather SSOs by Fiscal Year and Cause – Unauthorized Discharges to Waters of US

FY	ELECTRICAL PROBLEMS AT MSD	GREASE BLOCKAGE	MECHANICAL FAILURE	OBSTRUCTION-NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	PUMPED DUE TO COE MANUAL	ROOTS	STRUCTURAL FAILURE	UTILITY DAMAGED MSD ASSET
FY08	0	0	4	2	0	3	7	3	2
FY09	2	4	5	4	11	0	3	11	0
FY10	1	1	3	5	1	0	3	2	2
FY11	1	1	5	4	0	1	3	12	0
FY12	1	0	2	8	0	0	2	7	0
FY13	0	1	2	2	0	0	2	2	0
FY14	0	4	1	1	0	0	4	6	1
FY15	0	6	3	5	1	0	3	8	7
FY16	1	2	2	1	0	0	1	16	0

Figure 1.26. Trend of Dry Weather SSOs by Fiscal Year and Cause – Unauthorized Discharges to Waters of US

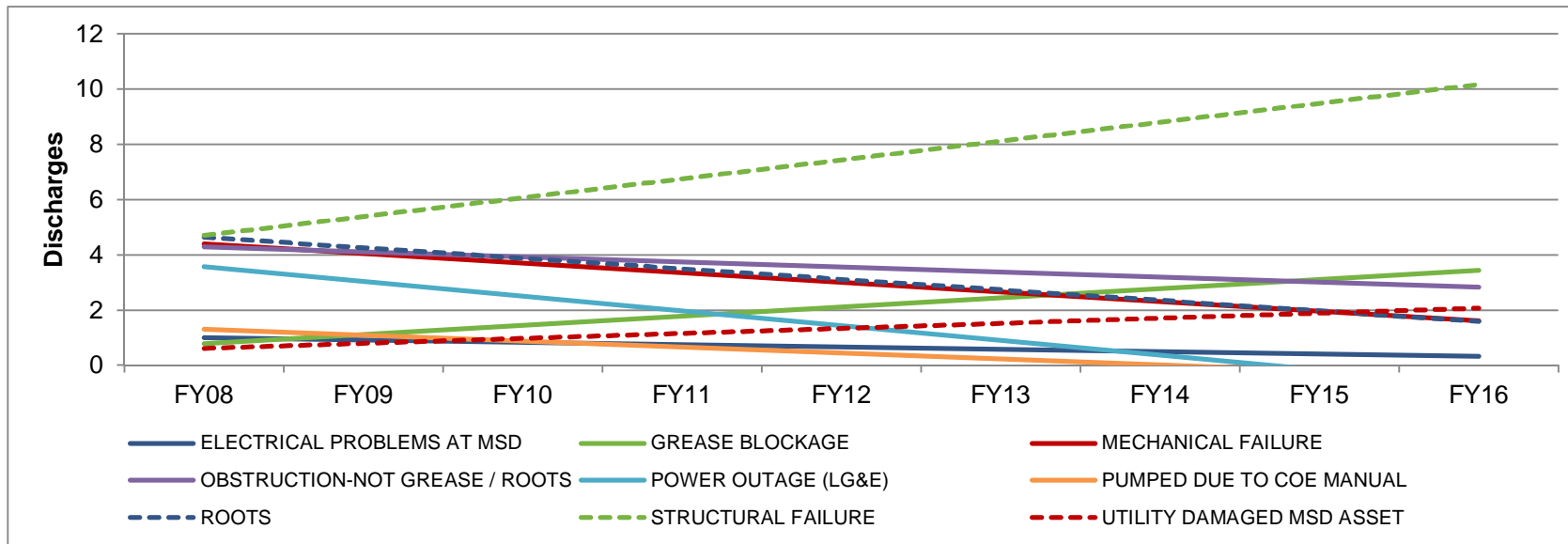


Table 1.35. Dry Weather SSOs by Fiscal Year and Asset – Unauthorized Discharges to Waters of US

FY	PUMP STATION	ACCESS POINT	MAIN	SERVICE CONNECTION
FY08	8	9	5	0
FY09	13	16	9	2
FY10	2	12	2	2
FY11	4	11	12	0
FY12	2	14	3	1
FY13	0	6	3	0
FY14	1	7	7	2
FY15	7	15	9	2
FY16	4	2	16	1

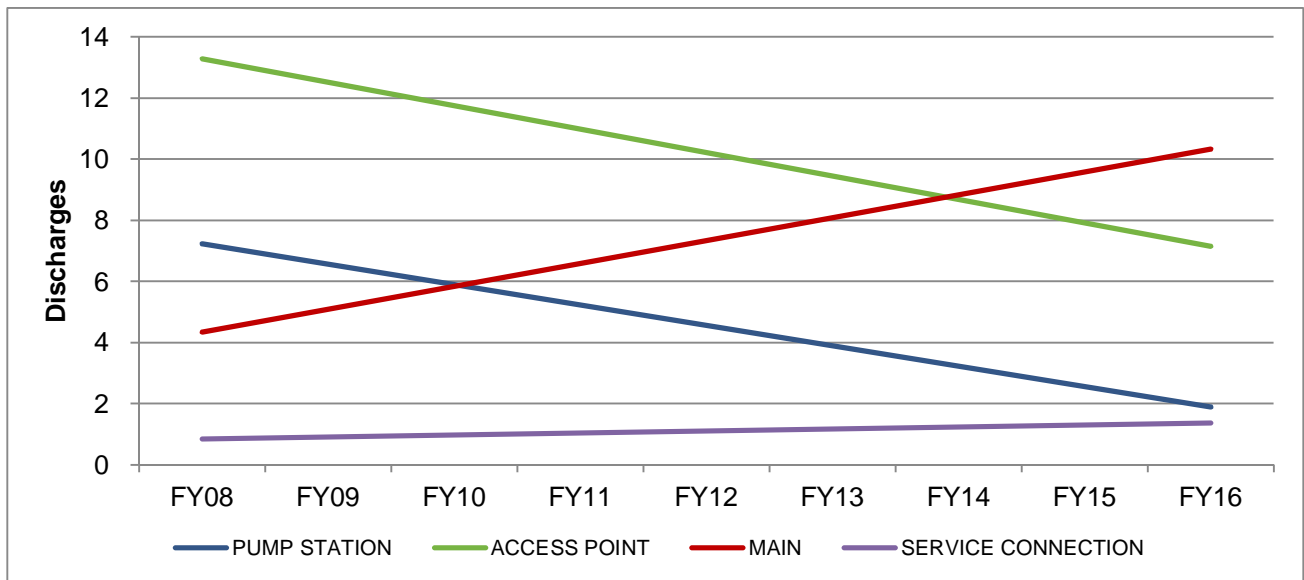
Figure 1.27. Trend of Dry Weather SSOs by Fiscal Year and Asset – Unauthorized Discharges to Waters of US


Table 1.36. Dry Weather Overflows to the Interior by Fiscal Year and Cause

FY	GREASE BLOCKAGE	MECHANICAL FAILURE	OBSTRUCTION- NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	ROOTS	STRUCTURAL FAILURE	UTILITY DAMAGED MSD ASSET
FY08	7	1	38	0	71	3	2
FY09	8	0	74	14	55	1	2
FY10	9	1	72	0	61	1	7
FY11	16	0	80	0	70	3	2
FY12	19	0	66	0	48	8	0
FY13	21	0	46	0	55	1	4
FY14	18	0	46	0	49	5	9
FY15	36	1	359	0	361	5	1
FY16	22	1	20	0	43	0	0

Figure 1.28. Trend of Dry Weather Overflows to the Interior by Fiscal Year and Cause

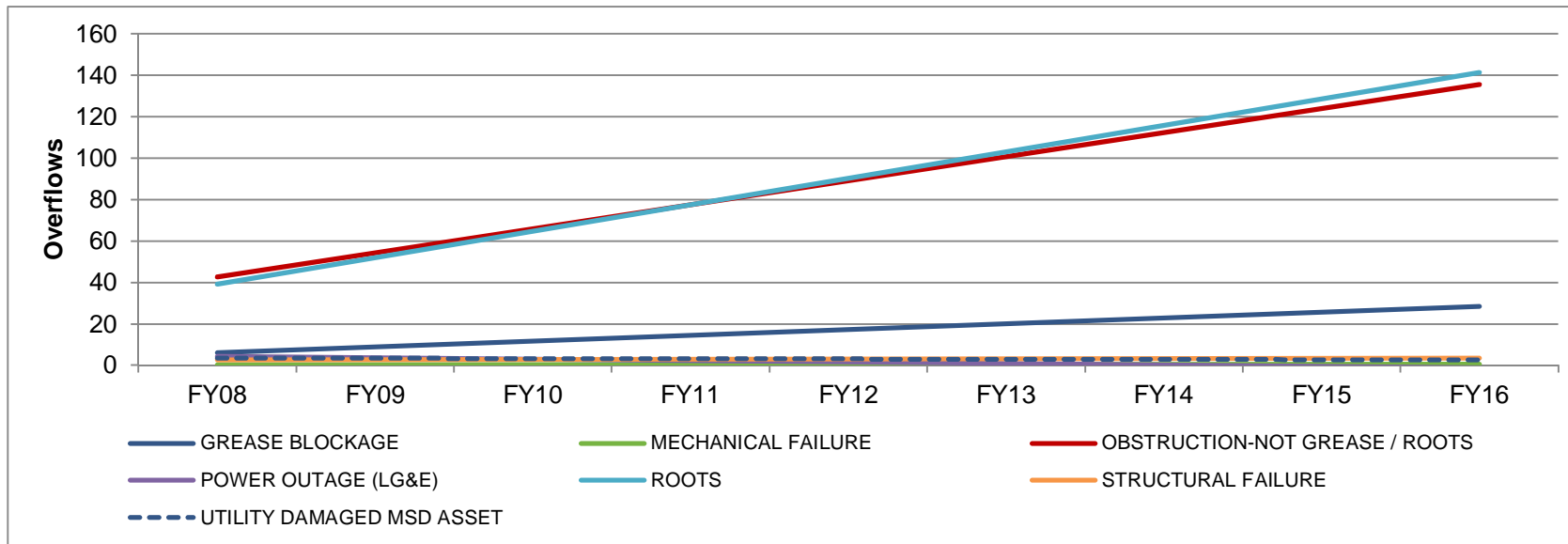


Table 1.37. Dry Weather Overflows to the Exterior by Fiscal Year and Cause

FY	ELECTRICAL PROBLEMS AT MSD	GREASE BLOCKAGE	MECHANICAL FAILURE	OBSTRUCTION- NOT GREASE / ROOTS	POWER OUTAGE (LG&E)	ROOTS	STRUCTURAL FAILURE	UTILITY DAMAGED MSD ASSET
FY08	0	4	8	8	0	6	4	0
FY09	4	4	10	9	16	2	7	0
FY10	2	0	11	14	1	4	4	3
FY11	2	4	8	11	1	9	10	0
FY12	1	7	2	10	0	8	5	2
FY13	0	0	2	5	0	1	8	0
FY14	0	5	1	5	0	0	4	1
FY15	1	4	2	35	0	22	7	3
FY16	0	5	4	11	0	7	4	2

Figure 1.29. Trend of Dry Weather Overflows to the Exterior by Fiscal Year and Cause

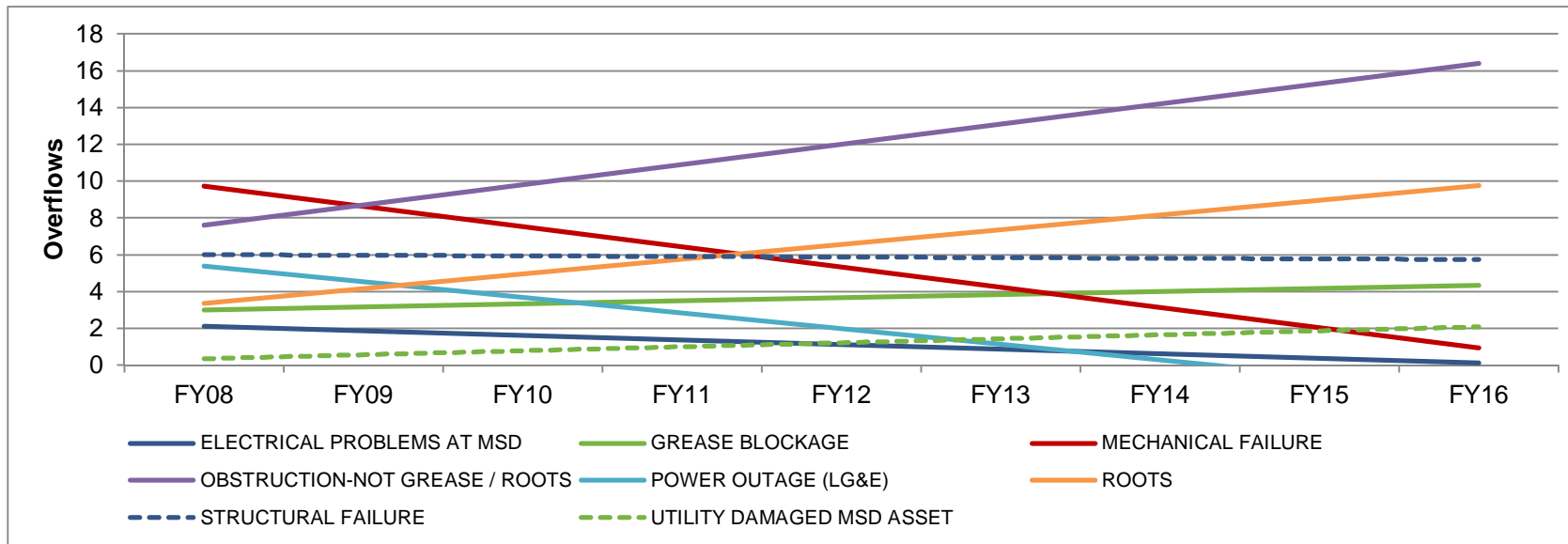
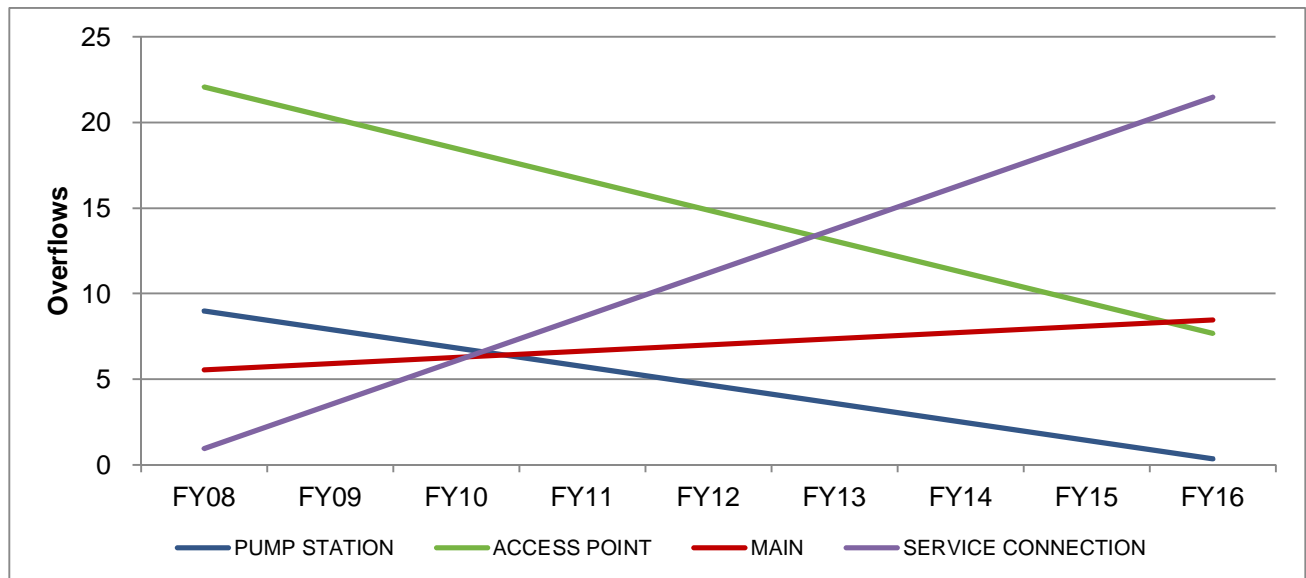


Table 1.38. Dry Weather Overflows to the Exterior by Fiscal Year and Asset

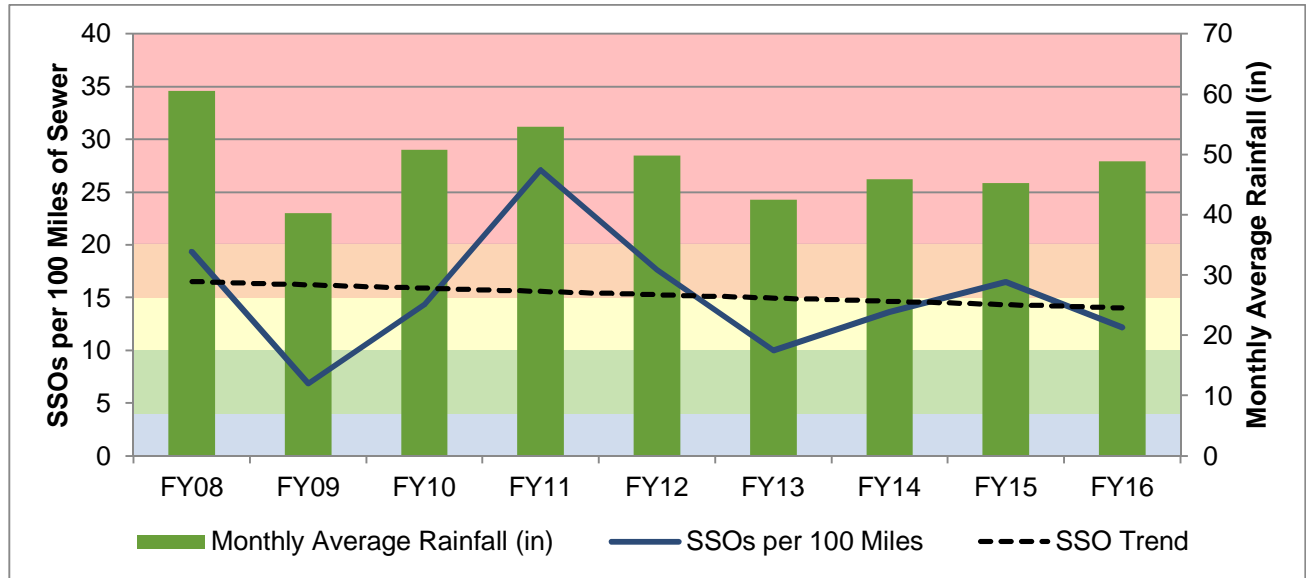
FY	PUMP STATION	ACCESS POINT	MAIN	SERVICE CONNECTION
FY08	3	16	3	8
FY09	18	18	10	6
FY10	5	25	6	3
FY11	8	25	7	5
FY12	2	19	6	8
FY13	0	6	7	3
FY14	0	7	4	5
FY15	5	7	12	50
FY16	1	11	8	13

Figure 1.30. Trend of Dry Weather Overflows to the Exterior by Fiscal Year and Asset


1.2.4.8. 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 FY16, 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 of overflows per 100 miles of sewer. Although overflow occurrences are significantly influenced by rainfall, 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.

Figure 1.31. SSOs per 100 Miles of Sewer



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 the Environmental Protection Agency (EPA) and to Kentucky Department of Environment Protection (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 NMC program implementation are outlined below.

2.2. NMC 1: PROPER OPERATION AND MAINTENANCE PROGRAMS

FY16 Program

Program Implementation

- Inspected and cleaned 22,803 Catch Basins within the Combined Sewer System (CSS).
- Continued to inspect, maintain and properly operate the CSS pump stations and the Morris Forman Water Quality Treatment Center (WQTC).
- Performed 5,162 weekly inspections on Combined Sewer Overflows (CSOs), 1,113 creek inspections, 600 siphon inspections, and initiated 630 work orders for debris removal and/or repairs as determined to be necessary to allow proper system operation.
- Flushed 885 sewer line segments in the CSS, including 79,555 feet (15.1 miles) of sewer lines ranging in size from 6 inches to 54 inches. Vactored 18 sewer line segments, amounting to 0.7 miles. Performed formula-based PACP Television (TV) inspection on 398,458 feet (75.5 miles) of sewer lines, as part of the Gravity Line Preventive Maintenance (GLPM) program in the CSS.
- Chemically treated 394,271 feet (74.6 miles) of sanitary sewer for roots.
- Achieved the program goals listed in Table 2.1.

Table 2.1. NMC 1 Program Goals

GOAL	ATTAINMENT
95% of CSOs inspected weekly.	100% Attainment - 98 CSOs inspected weekly
95% of flap gates inspected weekly.	100% Attainment – 28 flap gates on CSOs inspected weekly.
95% of siphons inspected monthly.	100% Attainment - 10 siphons inspected weekly and 7 additional siphons were 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% Attainment - 622 of 624 DEBRIS work orders and 5 of 6 CSOREP work orders created.
95% of the catch basins within the CSS cleaned every 15 months.	100% Attainment - Currently performed on a 14-month cycle.

Annual Training

- Conducted CSO Field Training classes on October 27, 2015, and April 12, 2016, with 12 total participants.

Annual Asset Review and Documentation

- Continued several projects to create improved access to selected CSO sites to facilitate cleaning activities.
- Continued 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.

Continuing Sanitary Sewer Assessment

- Provided details on the CSSA activities in Appendix E.

FY17 ProgramProgram Implementation

- Continue cleaning and inspection programs.
- Continue reporting on the following program goals:
 - 95% of CSOs inspected weekly.
 - 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 the MSD Operations Division CSO/NMC staff and Morris Forman WQTC personnel.

Asset Review and Documentation

- Continue implementation of field verification efforts 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.
- Assess operation of CSO113 to determine strategies to eliminate dry weather overflows.

Continuing Sanitary Sewer Assessment

- Evaluate sewers requiring additional and/or immediate maintenance or cleaning based upon CSS inspection results from FY16.
- Define and complete inspection of critical areas and large diameter sewers in FY17.
- Continue to enhance the Blockage Abatement Program (BAP).
- Continue implementation of the National Association of Sewer Services Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) for internal crews.

2.3. NMC 2: MAXIMIZATION OF STORAGE IN THE COLLECTIONS SYSTEM

FY16 Program

Real Time Control (RTC) Optimization

- Continued operation of Phase 1 and 2 of the Real Time Control (RTC) system. During the reporting period, over 1,630 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 Figure 2.1 for a detailed report.
- Updated standard operating procedures (SOPs) for the Phase 1 and 2 facilities to reflect current operations and to incorporate adjustments for future RTC facilities.
- 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 quarterly reports for the reporting period.
- Continued utilization of “RTC active storage” to standardize the calculation of the volume of flow stored during wet weather events by RTC facilities.
- Continued Csoft maintenance and service agreement contract with RTC consultant.
- Continued the integration of the InfoWorks Integrated Catchment Model (ICM) hydraulic model, ICM Exchange and Csoft. Revised the trimmed hydraulic model for use with the RTC system, implemented revisions to improve trimmed model stability, developed new validation modules for deployment with Csoft 4 to improve system availability, and updated the controller programming. Completed mapping of Csoft to the hydraulic model.
- Worked with the RTC consultant under RTC Phase 3 Integration 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 performed, 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.

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Figure 2.1. Wet Weather Storage in the Morris Forman Sewer System via the RTC System



Louisville/Jefferson County
Metropolitan Sewer District



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

Period	
From :	01/07/2015
To :	06/30/2016

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 (46.5)		
				TRFD (in)	TRFD (in)	Rain Gauge										
2015-043	7/1/15 14:25	7/4/15 9:25	67:00:00	1.76	2.81	TR14	33.50	14.60	8.80	9.00	2.30	7.20	0.80	76.20	No	Very large, back to back storm cells (1-year return period for 10-minute to 2-hour events) homogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization.
2015-044	7/7/15 11:40	7/8/15 21:15	33:35:00	0.95	1.14	TR04	20.70	3.25	3.80	5.25	1.00	6.80	0.55	41.35	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.
2015-045	7/9/15 5:45	7/9/15 23:25	17:40:00	0.23	0.36	TR05	8.60	1.80	0.95	2.75	0.90	4.00	0.20	19.20	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.
2015-046	7/10/15 10:25	7/12/15 1:45	39:20:00	0.62	0.95	TR14	14.50	3.20	3.25	4.15	0.75	4.90	1.20	31.95	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.
2015-047-048	7/12/15 6:30	7/17/15 5:00	118:30:00	3.12	5.77	TR13	22.70	14.60	13.83	14.50	2.00	6.30	5.10	79.03	Yes	Very large and back to back storm cells (up to 10-year return period for 15-min to 2-hour rainfall events) homogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. SWSG were switched to manual mode during the event.
20145-049	7/17/15 22:50	7/19/15 11:35	36:45:00	1.25	1.75	TR05	20.60	8.45	4.10	6.64	0.55	4.60	2.65	47.59	Yes	Very large storm cells (up to 1-year return period for 2-hour rainfall events)homogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization. SWSG was manually operated. The RTC system was unavailable for a long period due to communication breakdown at Ashland and Executive Inn causing an invalid control mode (partial results in those two sites).
2015-054	8/4/15 19:30	8/5/15 9:10	13:40:00	0.45	0.92	TR14	12.04	4.61	4.30	3.45	0.15	4.46	0.35	29.35	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.
2015-055	8/5/15 15:20	8/7/15 9:35	42:15:00	1.02	1.55	TR11	18.80	6.25	5.55	8.15	0.85	5.90	2.10	47.60	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.
2015-056	8/10/15 12:55	8/11/15 6:00	17:05:00	0.16	0.32	TR11	2.40	0.00	0.75	1.75	0.05	2.80	0.25	8.00	No	Small storm cells homogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization.
2015-059	8/19/15 8:05	8/21/15 20:30	60:25:00	0.51	0.91	TR04	1.05	0.50	1.40	3.00	0.10	4.35	1.10	11.50	No	Small, back to back storm cells heterogeneously distributed over the service area. SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization.
2015-066	9/9/15 4:20	9/11/15 18:45	62:25:00	0.54	1.00	TR14	4.69	2.23	0.54	2.74	0.20	5.16	0.00	15.56	No	Small, back to back storm cells heterogeneously distributed over the service area. SWOR2 was in normal operating mode after completion of repairs and upgrades
2015-069	9/29/15 4:25	9/30/15 15:00	34:35:00	0.85	1.61	TR11	4.90	1.70	2.15	2.40	0.85	3.30	0.10	15.40	No	Large storm cells homogeneously distributed over the service area with dewatering of storage sites between cells. SWSG was operated manually (One gate of SWSG site failed).
2015-070	10/2/15 14:30	10/3/15 17:50	27:20:00	0.48	0.64	TR12	2.15	2.95	0.60	3.00	0.25	3.95	0.10	13.00	No	Moderate storm cells homogeneously distributed over the service area. SWOR2 inflatable dam did not inflate properly during this event (storage occurred nonetheless due to backflow from SWOR1). SWSG was operated manually (One gate of SWSG site failed).
2015-071	10/9/15 9:35	10/9/15 21:25	11:50:00	0.15	0.46	TR11	1.20	3.20	0.25	0.35	0.10	0.90	0.00	6.00	No	Small storm cells homogeneously distributed over the service area. SWSG was operated manually (The stem nuts of the G2 and G3 gates failed (stripped)).
2015-072	10/12/15 17:35	10/13/15 3:05	9:30:00	0.32	0.52	TR11	3.40	3.85	1.10	2.60	0.40	2.40	0.00	13.75	No	Moderate storm cells homogeneously distributed over the service area. SWSG was operated manually (The stem nuts of the G2 and G3 gates failed (stripped)).
2015-073	10/24/15 11:05	10/25/15 7:20	20:15:00	0.34	0.59	TR11	2.35	4.50	1.35	0.85	0.35	2.65	0.10	12.15	No	Moderate storm cells homogeneously distributed over the service area. SWSG was operated manually (The stem nuts of the G2 and G3 gates failed (stripped)).
2015-074	10/26/15 19:20	10/29/15 16:05	68:45:00	2.16	3.57	TR04	14.70	5.80	7.70	3.50	0.80	4.85	2.00	39.35	No	Large storm cells homogeneously distributed over the service area. SWOR2 inflatable dam did not inflate properly during this event (storage occurred nonetheless due to backflow from SWOR1)
2015-075	10/31/15 21:25	11/3/15 7:00	57:35:00	0.15	0.22	TR11	1.40	2.10	0.30	1.20	0.05	2.20	0.05	7.30	No	Small storm cells homogeneously distributed over the service area.
2015-076	11/6/15 1:45	11/7/15 2:55	25:10:00	0.88	1.13	TR04	13.95	6.75	4.90	3.50	0.65	4.65	2.30	36.70	No	Large storm cells homogeneously distributed over the service area. SWOR2 inflatable dam did not inflate properly during this event (storage occurred nonetheless due to backflow from SWOR1)

Figure 2.1. Wet Weather Storage in the Morris Forman Sewer System via the RTC System

Louisville/Jefferson County
Metropolitan Sewer District

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



Period	
From :	01/07/2015
To :	06/30/2016

Event Number	Wet Weather Event			Rainfall			CSO Saved Volume (MG)								High River Levels	Comments
	Start Date	End Date	Duration	Average* TRFD (in)	Max** TRFD (in)	Rain Gauge	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 (46.5)		
2015-077	11/9/15 11:50	11/10/15 11:30	23:40:00	0.48	0.64	TR04	14.25	3.70	1.95	3.40	0.50	4.50	0.15	28.45	No	Moderate storm cells homogeneously distributed over the service area. SWOR2 inflatable dam did not inflate properly during this event (storage occurred nonetheless due to backflow from SWOR1).
2015-078	11/11/15 22:15	11/14/15 9:30	59:15:00	0.31	0.44	TR12	13.80	6.00	2.30	3.55	0.75	4.80	0.70	31.90	No	Moderate storm cells homogeneously distributed over the service area.
2015-080/081	11/18/15 6:35	11/23/15 9:05	122:30:00	1.60	1.83	TR14	14.45	8.60	7.05	3.50	0.80	4.75	4.40	43.55	No	Large storm cells homogeneously distributed over the service area.
2015-082/083	11/27/15 19:15	12/3/15 23:20	148:05:00	1.56	1.03	TR14/TR04	26.20	11.40	4.30	7.55	1.25	5.25	1.08	57.03	No	Large and back to back storm cells homogeneously distributed over the service area with dewatering of storage sites between cells.
2015-084	12/14/15 3:20	12/14/15 16:15	12:55:00	0.31	0.39	TR11	7.85	2.95	0.95	1.35	0.40	3.85	0.10	17.45	No	Moderate storm cells homogeneously distributed over the service area.
2015-085	12/21/15 4:55	12/22/15 23:10	42:15:00	0.69	0.95	TR13	14.50	6.15	3.25	4.40	0.80	7.25	1.35	37.70	No	Moderate storm cells homogeneously distributed over the service area.
2015-086/087	12/23/15 4:45	12/26/15 6:15	73:30:00	1.18	1.31	TR04	18.70	7.60	6.70	8.50	0.90	6.20	2.60	51.20	No	Very large and back to back storm cells homogeneously distributed over the service area (1-year return period for peak average intensities between 30 min and 1 hour). During this event, SWOR2 was put in manual control with its gates in the open position and minimal available storage utilization (storage occurred nonetheless due to very large and back to back storm cells homogeneously distributed over the service area (2-year return period for peak average intensity over 6 hours)).
2015-088	12/26/15 9:00	12/30/15 17:00	104:00:00	2.66	3.50	TR04	44.25	16.50	16.25	10.80	1.70	7.70	4.40	101.60	Yes	SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization (storage occurred nonetheless due to backflow from SWOR1).
2016-002	1/9/16 17:00	1/10/16 9:05	16:05:00	0.13	0.23	TR05	4.15	0.00	0.00	1.30	0.00	1.20	0.00	6.65	No	Small storm cell homogeneously distributed over the service area with dewatering of storage sites between cells. SWOR2, SWSG and Brady Lake were manually operated.
2016-010	2/2/16 13:15	2/4/16 18:40	53:25:00	1.19	2.25	TR12	18.75	8.50	4.80	3.50	0.70	4.20	2.70	43.15	No	Large storm cells heterogeneously distributed over the service area. SWSG was manually operated. SWOR2 site was put also in manual mode during this event due to a defective actuator component.
2016-012	2/8/16 3:20	2/8/16 23:05	19:45:00	0.10	0.15	TR04	4.85	0.00	0.00	0.50	0.00	0.95	0.00	6.30	No	Small storm cells homogeneously distributed over the service area. SWOR2 and SWSG were manually operated.
2016-014	2/21/16 2:25	2/22/16 8:00	29:35:00	0.71	1.27	TR12	14.65	2.00	2.25	3.50	1.10	4.85	0.60	28.95	No	Moderate storm cells heterogeneously distributed over the service area. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1).
2016-015	2/23/16 20:35	2/27/16 17:05	92:30:00	1.72	2.44	TR12	18.00	5.95	11.35	3.50	1.00	4.85	2.50	47.15	Yes	Large storm cells heterogeneously distributed over the service area. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1).
2016-017	3/1/16 8:20	3/2/16 11:05	26:45:00	0.39	0.64	TR04	14.30	2.45	1.60	3.50	0.65	4.70	0.40	27.60	No	Moderate storm cells homogeneously distributed over the service area. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1).
2016-019	3/9/16 14:40	3/11/16 21:50	55:10:00	1.15	1.69	TR12	19.20	4.70	4.05	4.35	0.75	6.25	0.70	40.00	No	Back to back storm cells homogeneously distributed over the service area with dewatering of storage sites between cells. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1).
2016-020	3/12/16 10:50	3/14/16 11:15	48:25:00	0.79	1.30	TR12	14.60	4.10	4.10	6.20	0.60	8.25^	1.70	31.30	No	Large and back to back storm cells homogeneously distributed over the service area with dewatering of storage sites between cells. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1).
2016-024	3/24/16 17:45	3/25/16 9:50	16:05:00	0.38	0.57	TR12	15.35	4.85	2.30	3.50	0.50	4.6^	1.00	27.50	No	Moderate storm cells homogeneously distributed over the service area. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1).
2016-025	3/27/16 20:55	3/29/16 13:35	40:40:00	0.62	0.84	TR12	13.50	5.50	2.95	4.45	0.60	5.15^	2.70	29.70	No	Large storm cells homogeneously distributed over the service area. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1).
2016-026	3/31/16 1:10	4/1/16 10:45	33:35:00	1.07	1.53	TR04	20.70	3.20	3.70	6.00	0.90	7.90	1.20	43.60	No	Back to back storm cells homogeneously distributed over the service area with dewatering of storage sites between cells. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1). The SWSG Gate 2 experienced damage on April 1st.
2016-029	4/11/16 12:00	4/12/16 5:45	17:45:00	0.73	0.98	TR04	2.60	2.30	1.40	3.50	0.95	4.70	0.70	16.15	No	Moderate storm cells homogeneously distributed over the service area. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1). The SWSG has a restricted storage capacity due to the damage on Gate 2.
2016-030	4/21/16 14:55	4/22/16 23:20	32:25:00	0.37	0.72	TR11	3.10	3.84	0.55	4.20	0.20	4.35	0.15	16.39	No	Back to back storm cells heterogeneously distributed over the service area with dewatering of storage sites between cells. SWSG was manually operated. The SWSG has a restricted storage capacity due to the damage on Gate 2.

Figure 2.1. Wet Weather Storage in the Morris Forman Sewer System via the RTC System



Louisville/Jefferson County
Metropolitan Sewer District

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



Period	
From :	01/07/2015
To :	06/30/2016

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 (46.5)			
				TRFD (in)	TRFD (in)	Rain Gauge											
2016-031	4/26/16 16:00	4/28/16 8:45	40:45:00	1.05	1.44	TR05	5.40	4.40	2.30	8.50	1.00	6.90	1.50	30.00	No	Large and back to back storm cells homogeneously distributed over the service area . SWSG were manually operated and it has a restricted storage capacity due to the damage on Gate 2. SWOR2 operating mode change from normal to manual during this event.	
2016-032	4/30/16 8:55	5/2/16 17:00	56:05:00	0.81	1.42	TR12	5.05	5.15	3.80	7.00	1.10	9.60	2.45	34.15	No	Back to back storm cells heterogeneously distributed over the service area . SWOR2 and SWSG were manually operated . Storage occurred at SWOR2 due to backflow from SWOR1. The SWOR2 inflatable dam was activated. The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-033	5/4/16 11:25	5/5/16 14:05	26:40:00	0.21	0.31	TR11	1.80	0.65	0.30	1.70	0.10	2.80	0.20	7.55	No	Moderate storm cells homogeneously distributed over the service area. SWOR2 and SWSG were manually operated. Storage occurred at SWOR2 due to backflow from SWOR1. The SWOR2 inflatable dam was activated. The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-034	5/7/16 17:05	5/8/16 16:55	23:50:00	0.46	0.81	TR13	5.70	0.75	0.45	3.75	0.15	5.45	0.65	16.90	No	Back to back storm cells homogeneously distributed over the service area. SWOR2 and SWSG were manually operated. Storage occurred at SWOR2 due to backflow from SWOR1. Tthe SWOR2 inflatable dam was activated. The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-035-036	5/10/16 8:40	5/13/16 4:05	67:25:00	1.49^	1.78^	TR04"	10.40	5.55	6.00	9.75	1.25	13.75	1.70	48.40	No	Large and back to back storm cells homogeneously distributed over the service area. SWOR2 and SWSG were manually operated. Storage occurred at SWOR2 due to backflow from SWOR1 and the SWOR2 inflatable dam was activated. The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-038	5/17/16 0:55	5/18/16 9:45	32:50:00	0.71^	1^	TR14"	4.30	1.60	1.05	4.85	0.75	7.70	0.20	20.45	No	Back to back storm cells. SWOR2 and SWSG were manually operated. Storage occurred at SWOR2 due to backflow from SWOR1 and the SWOR2 inflatable dam was activated. The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-039	5/20/16 13:00	5/21/16 21:35	32:35:00	0.95^	1.33^	TR14"	5.80	8.20	3.20	3.50	0.60	4.95	1.90	28.15	No	Large storm cells. SWOR2 and SWSG were manually operated. Storage occurred at SWOR2 due to backflow from SWOR1 and the SWOR2 inflatable dam was activated. The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-041	5/26/16 14:05	5/27/16 0:25	10:20:00	0.34^	0.49^	TR04"	4.05	2.65	1.50	3.50	1.15	4.80	0.20	17.85	No	Moderate storm cells . SWOR2 and SWSG were manually operated. Storage occurred at SWOR2 due to backflow from SWOR1 and the SWOR2 inflatable dam was activated. The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-044	6/2/16 2:25	6/3/16 13:05	34:40:00	0.41	0.94	TR14	6.30	4.80	2.40	3.50	0.45	6.00	1.00	24.45	No	Moderate storm cells heterogeneously distributed over the service area. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1). The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-045	6/4/16 11:50	6/5/16 3:00	15:10:00	0.21	0.46	TR05	3.15	1.40	0.65	3.45	0.25	4.75	0.30	13.95	No	Moderate storm cells heterogeneously distributed over the service area. SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1). The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-046	6/12/16 18:30	6/13/16 7:50	13:20:00	0.45	0.75	TR14	3.30	1.90	0.95	3.70	0.35	4.80	0.25	15.25	No	Moderate storm cells homogeneously distributed over the service area .SWOR2 and SWSG were manually operated (storage occurred at SWOR2 nonetheless due to backflow from SWOR1). The SWSG has a restricted storage capacity due to the damage on Gate	
2016-047-048	6/14/16 15:05	6/16/16 9:15	42:10:00	1.37	2.83	TR13	11.90	9.15	3.90	5.05	0.35	5.90	1.30	37.55	No	Large and back to back storm cells homogeneously distributed over the service area. SWSG was manually operated. The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-049	6/22/16 8:55	6/22/16 19:35	10:40:00	0.21	0.76	TR13	0.60	2.20	0.15	1.65	0.10	3.45	0.15	8.30	No	Small storm cells heterogeneously distributed over the service area . SWSG was manually operated. The SWSG has a restricted storage capacity due to the damage on Gate 2.	
2016-050	6/23/16 16:30	6/27/16 0:40	80:10:00	1.65	2.22	TR11	16.20	14.00	6.95	3.90	0.95	4.75	3.05	49.80	No	Large storm cells homogeneously distributed over the service area. SWSG was manually operated. The SWSG has a restricted storage capacity due to the damage on Gate 2. SWOR2 site was partially manually operated. SWOR2 inflatable dam was partially activated.	
TOTAL				40.93			605.33	263.03	181.02	233.63	35.90	255.22	62.93	1637.05			

* 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

^ Volume estimation made with water level sensor MDS-L7-LVL only (instead of an average between water level sensor MDS-L7-LVL and MDS-L8-LVL - MDS-L8-LVL was out of range)

* Restricted capacity since April 1 due to damage on Gate 2 at SWSG (7.7 MG total = 5.5 MG (storage volume before RTC) + 2.2 MG (Storage volume for RTC))

" Data unavailable in Csoft due corrupted data - data source: <http://msdloky.org/aboutmsd/rainfall.cfm>

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- Worked with the RTC consultant under the RTC Phase 4 Integration to develop updated SOPs for the Nightingale Pump Station (NPS), Southwestern Outfall Relief 1 (SWOR1), and Southwestern Pump Station (SWPS) sites to incorporate modifications to operations stemming from upgrades or the addition of new facilities and to develop preliminary SOPs for the Bells Lane Wet Weather Treatment Facility and the Logan Street and Breckenridge Street CSO Basin. The revised/new SOPs for these sites will be 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.
- Continued to implement recommendations for improvements designed to optimize the utilization and performance of the existing RTC system. Additional improvements to programming at the Ashland, Brady Lake, and Executive Inn facilities were completed which improve utilization and reliability of the sites.
- Returned SWOR2 to automatic control in September 2015. Performed diagnostics of the upgraded site's performance, developed programming upgrades and replaced failed hardware to improve utilization and reactivate the Accusonic flow meter.
- Performed inspections of inflatable dams and gates at Sneads Branch, Main Diversion Structure and SWOR2.
- Integrated new rain gauges deployed by MSD into the RTC system to improve flow prediction and weather forecasting capabilities.

Storage Optimization

- Continued to monitor the performance of the CSO108 Dam Modification, a bending weir installed at CSO108. Analysis of this flow data and hydraulic modeling efforts showed that the inlet to the solids and floatables (S&F) control needed to be raised. This was completed on July 23, 2016. Modeling showed that additional storm water flow will need to be captured upstream in the CSO 108 sewershed to be directed to green infrastructure or a separate storm sewer system to reduce overflows to the prescribed level of control.
- Completed improvements to the gate actuators at the site under SWOR2 Modifications. Improvements include replacing the hydraulic gate actuators with electric actuators mounted at grade level. Construction was completed August 2015.
- Continued to monitor and review the performance of the RTC sites and systems, developing recommendations for improvements, and implementing these recommendations as needed to optimize the utilization and performance of the existing RTC system. Improvements to programming and management at the Ashland, Brady Lake, Executive Inn, Sneads Branch and SWOR2 facilities were performed.

FY17 Program**RTC Optimization**

- Continue to work with the RTC consultant under the RTC Phase 3 Integration to review, revise and implement wet weather SOP changes. On-line and off-line testing of Csoft 4 and integrated InfoWorks hydraulic model will occur. Once testing is successfully complete, full integration in an automated mode under Csoft 4 will begin. The Operations Division will continue to implement operational set point control changes for individual components and then incorporate programming into the overall RTC system.
- Integrate new rain gauges deployed by MSD into the RTC system to improve flow prediction and weather forecasting capabilities.
- Continue to work with the RTC consultant to implement the hardware, software and set-point changes as applicable to each existing RTC.
- Finalize SOPs for the NPS, SWOR1, and SWPS sites to incorporate modifications to operations stemming from upgrades or the addition of new facilities. The revised SOPs for these sites will be implemented incrementally as related construction is completed and the facilities are placed in service, beginning 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.
- Finalize SOPs for the Bells Lane Wet Weather Treatment Facility and the Logan Street and Breckenridge Street CSO Basin. As construction is completed and the facilities are placed in service, the SOPs will be 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.

Storage Optimization

- Continue planning opportunities for bending weirs at other CSO outfalls to reduce overflow frequency. Construction of a spring-loaded bending weir at CSO023 will take place in FY17. The proposed bending weir at CSO178 is in design. CSO190 is currently under evaluation to determine the maximum elevation for a bending weir at this location. Continue to plan and design for bending weir installation at strategic outfalls.
- Continue to evaluate opportunities to raise dams and maximize storage to reduce overflow volumes and frequencies. CSO023, and Central Relief Drain CSOs - CSO029, CSO036, CSO193, CSO195, CSO196, CSO198, CSO199, CSO201 and CSO202 have completed designs and are expected to be installed in FY17. Central Relief Drain CSOs - CSO178, CSO181 and CSO197 are expected to begin design during FY17.
- Complete SWOR1 repairs. The gates and actuators for the Southwest Outfall sluice gate chamber are scheduled for delivery in December 2016, with installation scheduled for early 2017.

2.4. NMC 3: REVIEW AND MODIFICATION OF PRETREATMENT REQUIREMENTS

FY16 Program

- Completed annual NMC #3 Trunk Sewer Water Quality Data Collection.
- Completed review and evaluation of non-domestic dischargers (NDDs) of concern and trunkline sewer data contributory to CSOs to determine if they discharge a disproportionate share of pollutants of concern (POCs) to the CSS.
- Finalized POCs, NDDs and trunkline sewer data (contributory to CSOs) for FY16 Dry Weather Sampling Result Report.
- Drafted report to document the findings and recommendations resulting from FY16 sampling efforts.
- Continued to send wet weather alerts to NDDs 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 78 measurable rain events, 30 events with only trace rainfall. MSD sent email notices to NDDs 179 times prior to a precipitation event. There are currently six NDDs that voluntarily implement controls during wet weather by alternating their cleaning schedule and/or by storing wastewater during a rain event.
- 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 six fiscal years was quantified with the data from the wet weather logs submitted by NDDs. The typical results of pollutants kept out of the CSS when all NDDs participate are presented in Table 2.2. The industrial flow and mass of pollutants kept out of the CSS in the last six fiscal years was quantified based on the actual rain events when NDDs detained their flow or otherwise reduced their discharge as shown in Table 2.3.
- 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 23 wastewater discharge permits to users discharging to or immediately upstream of the CSS. The total number of 35 Unusual Discharge Requests went to Morris Forman WQTC in FY 16. That includes 22 that were in the CSS and 13 that were located in separate sewer system (SSS) but end up at Morris Forman WQTC. To avoid the risk of overflow, Unusual Discharge Requests were authorized for discharge into the collections system when overflows were not occurring and wet weather was not anticipated.
- Conducted NMC #3 site inspections at NDD facilities as part of the permit renewal process. During this FY16 reporting period, MSD conducted four of these inspections.
- Conducted NMC #3 site inspections at 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. During this reporting period, MSD conducted 14 of these inspections. 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.

- Continued to include hold and release requirements in permits for all new industrial users in the combined sewer system and for existing industrial customers that expand production in the combined sewer system. The volume and duration of each hold and release requirement were determined through use of MSD's hydraulic model. MSD applied this requirement to two permits in the FY16 reporting period.
- Continued to seek out green infrastructure opportunities at NDDs discharging to the CSS.
- Prepared an evaluation of hospital wastewater to document best management practices to reduce waste loadings over the past decade.

Table 2.2 Typical Pollutants Kept Out of the CSS per Rain Event ¹

FISCAL YEAR	NUMBER OF NDDs PARTICIPATING	VOLUME (GAL)	BOD (LBS)	TSS (LBS)
FY11	9	139,000	4,310	2,490
FY12	9	110,000	3,910	1,690
FY13	8 ²	170,000	5,430	3,370
FY14	7 ²	170,000	5,500	4,060
FY15	7 ²	235,000	6,830	5,770
FY16	6 ²	239,000	7,190	6,220

¹ When all NDDs participate.

² Reduction due to NDD operational cessation: Solae (FY13); Kent Feed (FY14); Canadian Harvest (FY16).

Table 2.3 Total Quantity Pollutants Kept Out of the CSS

FISCAL YEAR	NUMBER OF WET WEATHER DAYS	VOLUME (GAL)	BOD (L)BS	TSS (LBS)
FY11	130	7,909,000	265,000	160,000
FY12	68	3,524,000	109,000	51,000
FY13	72	9,143,000	290,000	213,000
FY14	46	5,721,000	181,000	147,000
FY15	58	14,838,000	448,000	385,000
FY16	78	14,747,000	453,000	396,000

FY17 Program

- Complete FY17 NMC #3 Trunk Sewer Water Quality Data Collection effort.
- Compare FY17 trunk sewer data against prior trunk sewer data to determine if changes in pollutants warrant review of contributory NDDs. Determine POCs, NDDs (based on historical data), and trunkline sewer (contributory to CSOs) for FY18. Review NDDs (based on historical data) to identify those that may be removed from the program, as well as any that may need to be added. Prepare a file report to document the findings and recommendations resulting from FY17 NMC #3 trunk sewer collection data.

- Continue to send wet weather alerts to NDDs 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 NMC #3 program participation at each annual site inspection for Industrial Users who are currently in the NMC #3 program.
- Track performance measures to monitor the effectiveness of the implementation of NMC #3 within the Pretreatment Program.
- Review all new industrial users and existing industrial users with increased discharges in the combined sewer system to determine if hold and release requirements need to be added into their permits.
- Document which NDDs have ceased operation and quantify the impact/reduction on CSS operation.
- Document which permitted industries have hold and release permit requirements.
- Document which permitted industries use green infrastructure to trade off for their hold and release program.
- Review the impact of improvements made to the combined sewer system infrastructure. Consider updated flows from the most recent calibrated hydraulic model. Some changes may result in changes to the ongoing NMC #3 program. Document the changes and impacts in a memo to the file.
- Conduct MSD staff training on implementation of the NMC 3 program.

2.5. NMC 4: MAXIMIZATION OF FLOW AT THE MORRIS FORMAN WATER QUALITY TREATMENT CENTER

FY16 Program

Determined the proposed Capacity Calculator (developed to reflect results of secondary clarifier stress testing) and the algorithm developed to calculate flow under Sluice Gate 1 (SG-1) at the Main Diversion Structure into the RTC system should be on-hold until after the Morris Forman WQTC Headworks project and the Bells Lane Wet Weather Treatment Facility are in operation. Modifications will likely be made in early FY18, when the flow control system is automated.

Continued development of Effective Utility Management (EUM) performance measures for treatment parameters. Five measures related to treatment effectiveness were developed, targets were established, and tracking has begun on each measure. Those measures are:

1. Degree of success in achieving target wastewater treatment effectiveness rate.
2. Degree to which near compliance misses are minimized.
3. Meet national and other applicable objectives for residuals quantity and quality.
4. Extent to which supplemental local goals are addressed.
5. Achievement of beneficial biosolids usage targets.

The following provides an update on projects underway during the reporting period:

- Bells Lane Wet Weather Treatment Facility – The project has been under construction during this period and is 73% complete. The Consent Decree deadline is December 31, 2016. The final completion date is currently scheduled for June 29, 2017 due to a construction-related change order. Since December 2015, MSD has coordinated with EPA and KDOW on the status of this project, including delay causes and strategies for expediting the schedule. A letter will be submitted to EPA requesting a minor modification to the project to extend the Consent Decree deadline to June 30, 2017 due to the construction delays caused by weather and permitting issues with CSX Railroad. MSD and Hall Contracting are having biweekly coordination meetings to do whatever possible to have the project substantially operational by June 29, 2017.
- Morris Forman WQTC Headworks – The project began construction in FY16. The barscreens, grit removal equipment and other miscellaneous equipment are currently being replaced in both the East and West Headworks. 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.
- Electrical High-Yard Modification – This project replaces the existing electrical High Yard improving electrical distribution for Morris Forman WQTC. The project is currently under construction.
- Final Effluent Pump Station (FEPS) Generator – This project supplies temporary electrical power for one of the FEPS pumps during a power failure. The project began construction in FY16. The new generator has been delivered to the site.
- Oxygen Generation – This project provides a new oxygen generation system for the Morris Forman WQTC. Project has been under construction during this period.
- Wet Cake Pump – This project provides a backup to the dewatered biosolids cake screw conveyor. The project remained under construction during this period.
- Condenser Upgrades – This project upgrades the condenser units in the sludge drying process. Project began construction during this period.
- Centrifuge Backdrive Controls – This project helps to improve reliability of the centrifuges. The project began construction in FY16.

FY17 Program

- Track and report performance on each of the five EUM measures.
- The following describes plans for work on Projects in FY17:

- Bells Lane Wet Weather Treatment Facility – The project is scheduled to be substantially operational during this period.
- Morris Forman WQTC Headworks – The project is scheduled to be completed.
- Electrical High-Yard Modification – The project is scheduled to be completed.
- Final Effluent Pump Station (FEPS) Generator – The project is scheduled to be completed.
- Oxygen Generation – The project is scheduled to be completed.
- Wet Cake Pump – The project is scheduled to be completed.
- Condenser Upgrades – The project is scheduled to be completed.
- Centrifuge Backdrive Controls – This project is scheduled to be completed.

2.5.1 MORRIS FORMAN WATER QUALITY TREATMENT CENTER

FY16 Program

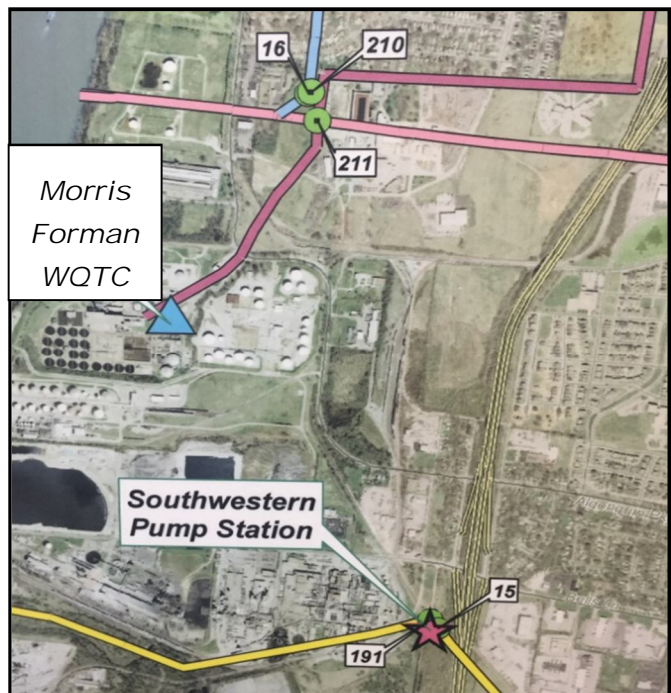
Flows

Continued to maximize flow to the Morris Forman WQTC. Charts that compare plant flow at the Morris Forman WQTC during the reporting period with the occurrence of CSOs at the Main Diversion Structure and the Southwestern Pump Station have been previously included in Consent Decree quarterly reports. Refer to Figure 2.2 for location of the CSOs relative to the WQTC.

Note that the flow meter downstream from CSO211 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. CSO activations at CSO211 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 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

Figure 2.2. Morris Forman WQTC and CSO Locations



CSO activations are shown on the day they occurred but 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 discussion describes significant events that impact the data shown on the Morris Forman WQTC charts.

Outages

Plantwide

- On April 8, 2015, Morris Forman WQTC experienced a complete power outage. The staff spent the month of April restoring processes until 12:28 PM, April 30, 2015, at which time all dry weather flow up to normal flow parameters was receiving secondary treatment at the Morris Forman WQTC. The impact from this outage continued into the fourth quarter of 2015 as the process had to withstand further outages for repairs to electrical, mechanical and control systems.

Headworks / Primary Treatment

- In the month of July 2015, West Headworks Channels 1 and 3 were removed from service for repairs bringing the effective wet weather plant capacity at Morris Forman WQTC to 235 MGD.
- Rain events occurred during July 2015 causing overflows at CSO015, CSO016, CSO191, CSO210 and CSO211 after the influent exceeded the calculated effective plant effluent capacity.
- In August 2015, West Headworks Channel 3 was placed back in service while West Headworks Channel 1 remained out of service bringing the effective wet weather plant capacity to 300 MGD.
- In August 2015 there were a few high intensity rain events that occurred which produced high surges of flow at the Morris Forman WQTC, causing overflows at CSO015, CSO016 and CSO210.
- The Southwestern Pump Station pumps combined storm and sanitary flows into the Morris Forman WQTC. On September 30, 2015, an electrical issue disabled two pumps, thus overwhelming the Southwestern Pump Station and causing an overflow to occur at CSO015. MSD staff was able to bring one of the disabled pumps back online shortly after both pumps failed.
- During the month of October 2015 and continuing through November 2015, Primary Sedimentation Tank #4 was taken out of service for maintenance, bringing the wet weather plant capacity to 270 MGD. Higher than normal blanket depths (in the available sedimentation tanks) reduced the capacity to 250 MGD during a few rain events in October and November. This caused overflows at CSO015, CSO016, CSO191, CSO210 and CSO211 after the influent exceeded the effective effluent capacity.
- By December 2015, Sedimentation Tank #4 was placed back in service. The East Headworks Bar Screen #1 and Grit Chamber #3 were taken out of service for short periods, which kept the effective plant capacity at 270 MGD. During rain events in December 2015, plant effluent flows were sustained at 270 MGD before overflows occurred at CSO015, CSO016, CSO191, CSO210 and CSO211.
- The effects of a rain event beginning December 27, 2015, and continuing to the first week of January 2016, produced a large surge of flow through the Southwestern Gate Structure on January 5, 2016, causing an overflow at CSO015. January 2016 experienced two other significant rain events and the Morris Forman WQTC was able to maximize flow through the treatment plant preventing overflows at the nearby CSOs.

- At the end of January 2016, West Headworks Channel 2 was removed from service at the request of the construction contractor for the Morris Forman Headworks Replacement Project. This brought the capacity to 235 MGD.
- Rain events during the month of February 2016 were concentrated at the beginning and end of the month. A rain event on February 2, 2016 caused surges of influent flows into the Morris Forman WQTC causing overflows at CSO015, CSO016, CSO191, CSO210 and CSO211.
- Through February 2016, construction continued for the Morris Forman Headworks Replacement Project. West Headworks Channels 1 and 2 remained out of service. This affected the hydraulic capacity of the West Headworks Channel 3, the remaining influent channel. In order to prevent bypasses from West Headworks, the Morris Forman staff modulated flows at the Influent Gate upstream of the West Headworks. A rain event occurring on February 21, 2016 caused overflows at CSO015, CSO016, CSO191 and CSO210 while sustaining flows between 170 MGD and 200 MGD at the Morris Forman WQTC. This was followed by, a rain event on February 24, 2016 which caused overflows at CSO015, CSO016, CSO191 and CSO210 while sustaining flows between 170 MGD to 250 MGD at Morris Forman WQTC.
- During rain events in March 2016 plant effluent flows were sustained at 235 MGD before overflows occurred at CSO015, CSO016, CSO191, CSO210 and CSO211.
- Flows at Morris Forman WQTC were sustained at or above 235 MGD before causing overflows at CSO015, CSO016 and CSO191 due to rain events in April 2016. On April 28, 2016, Sedimentation Tank 2 was placed out of service for maintenance. The West Headworks status governed the plant capacity at this time, however higher blanket depths in the remaining sedimentation tanks caused the plant capacity to drop as low as 210 MGD at times. MSD anticipates that the West Headworks will be placed back in service during the next reporting period.
- A series of rain events, starting May 10, 2016, and ending on May 12, 2016, caused surges of influent flows into the Morris Forman WQTC causing overflows at CSO015, CSO016, CSO210 and CSO191. Due to rain intensity and antecedent conditions, a rain event occurring on May 11, 2016, brought a surge of flow into Morris Forman WQTC causing an overflow at CSO015 prior to reaching plant capacity of 235 MGD.
- The Morris Forman Headworks Replacement Project required the West Headworks Channel 3 to be placed out of service on June 9, 2016, along with Channels 1 and 2, bringing the plant capacity down to a range of 140 MGD to 160 MGD. Plant operators were able to sustain 140 MGD to 160 MGD of plant capacity during rain events in June 2016. Influent flows were sustained before causing overflows at CSO015, CSO016, CSO191 and CSO210.

Secondary Treatment / Final Effluent

- There were also outages in Secondary Treatment. Several secondary clarifiers were removed from service, repaired and placed back into service. The Morris Forman WQTC was able to maintain flows of 120 MGD to 140 MGD and above through the secondary treatment process.
- Final Effluent Pump 2 continued to be out of service for repairs into the fourth quarter of 2015.

Solids Processing

- Solids processing was limited at times due to the biosolids dryer condition and capacity, and the Morris Forman WQTC compensated by dewatering and landfilling biosolids to meet the solids processing requirements.

Violations

- In July 2015, a seven-day Fecal Coliform limit was not met.
- In October 2015, the seven-day and 30-day Total Suspended Solids (TSS) limits were not met.
- In February 2016, the monthly and seven-day TSS, seven day Biological Oxygen Demand (BOD) and TSS percent removal effluent limits were not met.
- In April and June 2016, the seven-day and 30-day Secondary Effluent TSS limits were not met.

FY17 Program

The FY17 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 2016 (through June 30) shows a slight increase in base flow compared to 2015, as seen in Figure 2.3. 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 long-term trend shown in Figure 2.3 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 the Morris Forman WQTC, as shown in Figure 2.4. 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.

Figure 2.3. Morris Forman WQTC Wet Weather Capture Trend

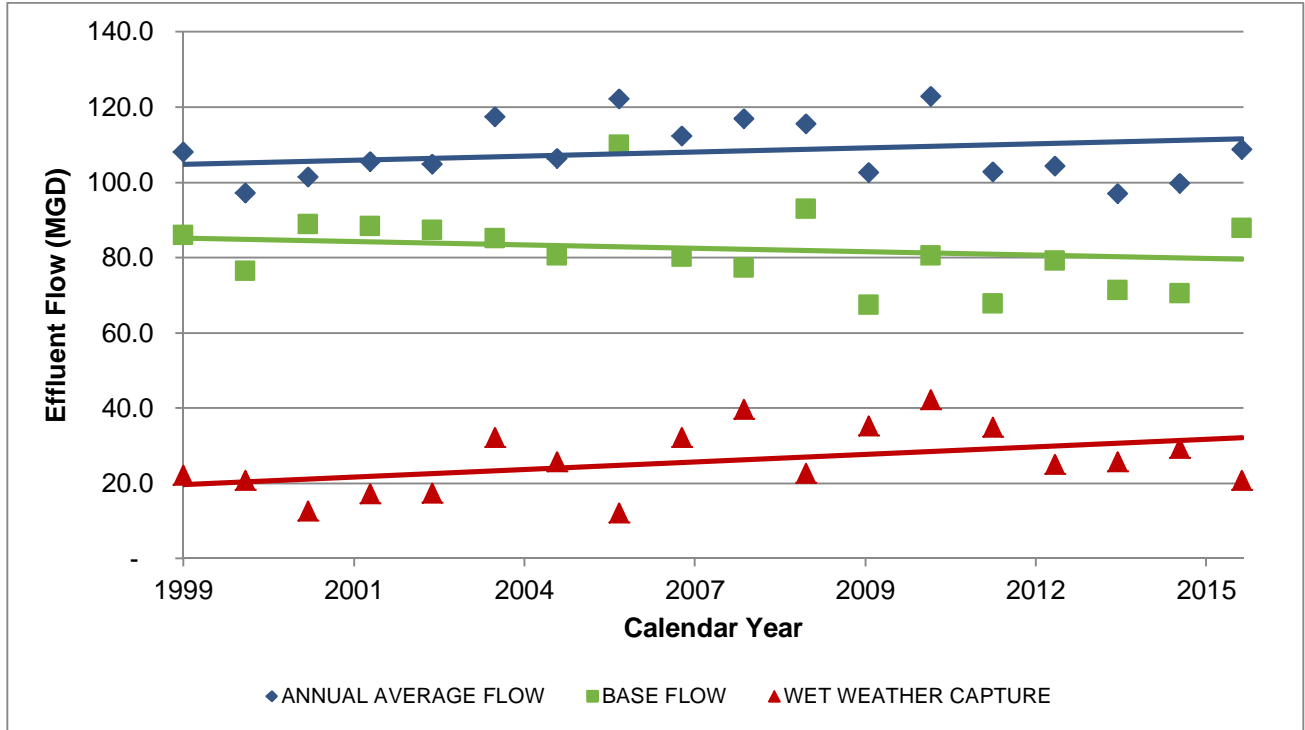
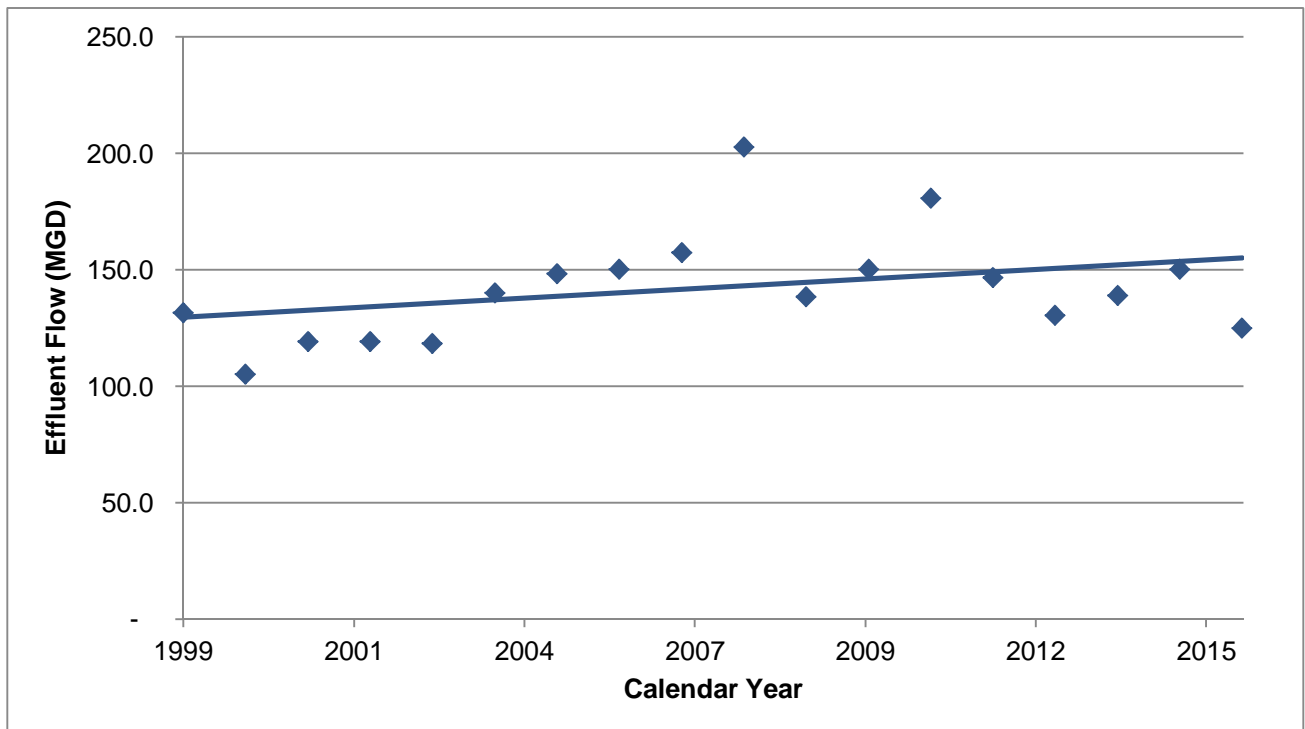


Figure 2.4. Morris Forman WQTC Peak Daily Flow



2.6. NMC 5: ELIMINATION OF COMBINED SEWER OVERFLOWS DURING DRY WEATHER

FY16 Program

Flood Pump Stations

- Continued updates of the U.S. Army Corps of Engineers (USACE) Flood Operations and Maintenance Manual 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 are completed and an ongoing task as NMC programmatic activities are completed.
- Pumped approximately 90,000 gallons of trapped flow back into the combined 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 (FPSs).

Asset Analysis

- Performed the quarterly evaluation of dry weather unauthorized discharges to the WUS, with emphasis on the CSS, to determine causes and to determine if there is a need for corrective activities. The recommendation delivered from the inspection included continued interaction with the Louisville Water Company on response to water main breaks.
- Completed a detailed analysis of CSO153 and the related siphon for a capital solution to the dry weather overflow issue. Performed a cost analysis and replacement of the siphon was deemed not cost efficient.
- Performed inspection and cleaning of Fats, Oils and Grease (FOG) hotspots within the CSS, in accordance with CMOM commitments.

FY17 Program

Flood Pump Stations

- Continue to implement additional operational modifications at FPSs within the CSS to prevent dry weather overflows. Discussions with the USACE to continue 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.
- Continue to review SOPs for the FPSs 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 WUS, with emphasis on the CSS, to determine causes and to determine if there is a need for corrective activities.
- Evaluate dry weather overflows that occurred during the reporting period at CSO113 specifically to determine causes and next steps.

- Perform inspection and cleaning of FOG hotspots within the CSS, in accordance with CMOM commitments.
- Design source control at all upstream catch basins to address clogging of the siphon downstream of CSO153.

2.7. NMC 6: CONTROL OF SOLIDS AND FLOATABLE MATERIALS IN COMBINED SEWER OVERFLOWS

FY16 Program

- Continued to monitor and document performance of the CSO108 Solids & Floatables (S&F) Control Continuous Deflection Separator (CDS) operation in accordance with the Memorandum of Understanding (MOU) with the Kentucky Nature Preserve. Copies of the semi-annual CSO108 efficacy report are provided in quarterly reports for the reporting period (January and July).
- Continued to review new S&F technologies for potential incorporation into the program.
- Performed field review of CSOs with dams that are planned to be raised as part of the Long Term Control Plan (LTCP), including CSO178, CSO023, CSO022, CSO181, CSO036, CSO029, CSO195, CSO197, and CSO190.
- Continued inspection and maintenance procedures for the S&F structures as part of the weekly CSO inspections and PM cleaning routines, outlined under NMC #1. During the reporting period, 601 work orders were issued for debris removal at the S&F 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. Results for the reporting period are shown in Table 2.4 and Figure 2.5. At this time, S&F capture at the headworks of Morris Forman WQTC is not as high as in previous years, likely due to a combination of variables, including the Morris Forman WQTC Headworks project and ongoing recovery efforts related to failure of the high yard on April 8, 2015, as well as unusually dry periods of weather.
- Landfilled 1,722 tons of digester contents.

FY17 Program

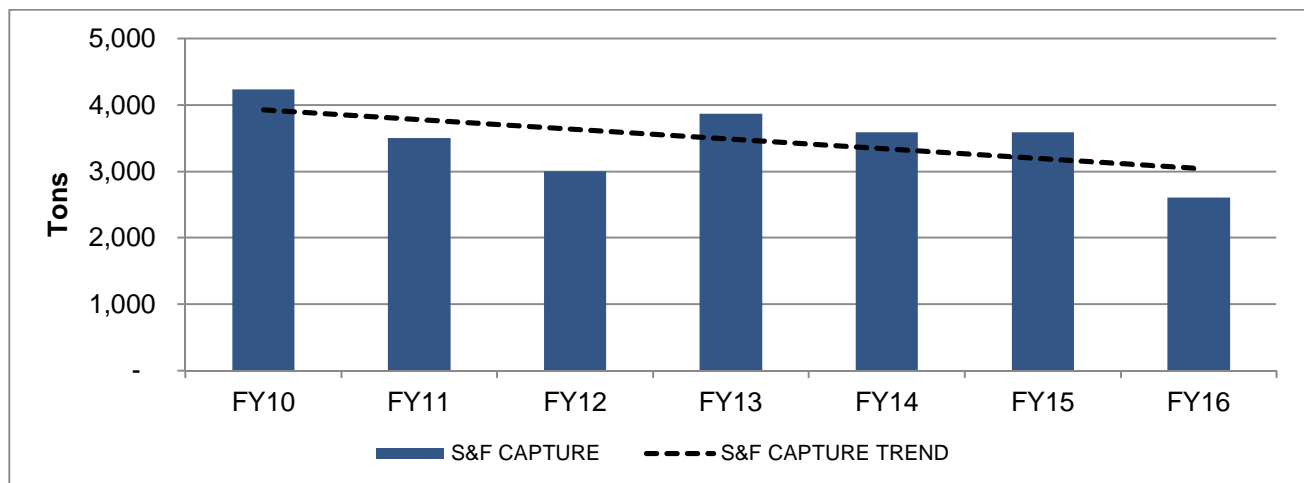
- Review and refine S&F control operations and maintenance training and administer to appropriate staff.
- Evaluate S&F control configuration at CSO016.
- Evaluate S&F controls for needed updates as part of the design at CSOs with dams that are planned to be raised as part of the Long Term Control Plan (LTCP), including CSO178, CSO023, CSO022, CSO181, CSO036, CSO029, CSO195, CSO197, and CSO190.

- Continue to monitor and document performance of the CSO108 S&F structure operation in accordance with the MOU with the Kentucky Nature Preserve by MSD Crews. Reports will be submitted on December 31, 2016, and June 30, 2017.
- Track the volume of S&F materials removed from the CSS.

Table 2.4. Debris Removed from System

ACTIVITY / LOCATION	APPROXIMATE AMOUNT OF DEBRIS REMOVED
Catch Basin and Sewer Cleaning	1,907 CY
Street Sweeping	1,165 tons
Morris Forman WQTC Headworks	2,606 tons

Figure 2.5. Solids and Floatables Capture at Morris Forman WQTC



2.8. NMC 7: POLLUTION PREVENTION PROGRAMS TO REDUCE CONTAMINANTS IN COMBINED SEWER OVERFLOWS

FY16 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 Notice of Violations (NOVs) and Field Correction Notices within the CSS.

- Continued issuance of Wastewater Discharge Permits under the Industrial Pretreatment Program.
- Volunteers participated in the Mayor's Give-A-Day week of service on April 15, 2016, and April 18, 2016, to plant trees in Sun Valley Metro Park and Golf Course and MSD's Central Maintenance Facility.
- Volunteers participated in the Annual Ohio River Sweep on August 29, 2015, and June 18, 2016.
- Promoted Green Infrastructure initiatives within Jefferson County, such as guidance on downspout disconnection and rain garden installation.
- Volunteers led a rain garden workshop at Maupin Elementary: A Catalpa School on October 2, 2015.
- Volunteers led a rain garden workshop at the Waldorf School on April 18, 2016.
- 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 collections system.
- Continued to enhance and train on Stormwater Pollution Prevention Plans (SWPPPs) for the WQTCs, major pump stations, and the Central Maintenance Facility.
- Distributed literature to Significant Industrial Users on Best Management Practices for prevention of pollution.
- Continued enhancement of the framework for the IOAP green infrastructure program tracking in Hansen.
- Utilized and distributed the rain garden handbook to Louisville Metro agencies and to the public in order to encourage green infrastructure.

FY17 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.
- 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 collections system.

2.9. NMC 8: PUBLIC NOTIFICATION

Refer to Section 5: Public Outreach, Education, Notification and Participation for information regarding public notification.

2.10. NMC 9: MONITORING TO CHARACTERIZE COMBINED SEWER OVERFLOW IMPACTS AND THE EFFICACY OF COMBINED SEWER OVERFLOW CONTROLS

Refer to Section 4.5 for information regarding system monitoring.

SECTION 3: PROGRAM ACTIVITIES FOR SEWER OVERFLOW RESPONSE PROTOCOL

3.1. SEWER OVERFLOW RESPONSE PROTOCOL PROGRAM BACKGROUND

Per Paragraph 24.d. of the Amended Consent Decree, MSD initially submitted the Sewer Overflow Response Protocol (SORP) to the Environmental Protection Agency (EPA) and Kentucky Department of Environmental Protection (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, available at www.msdlouky.org/projectwin. The following activities were performed during the reporting period.

3.2. OVERFLOW MANAGEMENT AND FIELD DOCUMENTATION

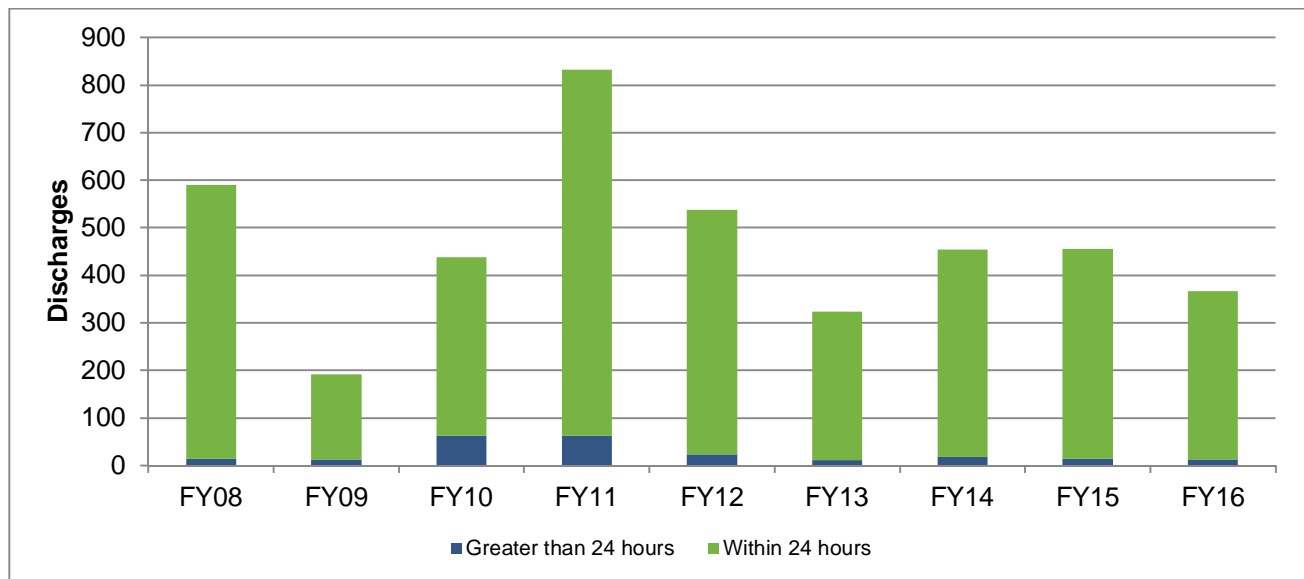
FY16 Program

- Documented a total of 592 overflows and unauthorized discharges to waters of the US (WUS) during the reporting period. The charts pertaining to discharges in Section 1.1.2 show these overflows broken down by result, problem, and asset type. 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 354 of the 367 overflows that reached the WUS (96%) within 24 hours as shown in Figure 3.1.
- Reported 21 of the 367 overflows that reached the WUS (5.7%), as a Bypass or Blending event that required an additional 5-day written report.
- Reported 7 of the 32 dry weather discharges (21.9%), each with a volume between 1,000 and 50,000 gallons.
- Reported 3 of the 32 dry weather discharges (9.4%), 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 MSD Operations and MSD Engineering Divisions.
- Continued to monitor Sanitary Sewer Overflow (SSO) sites, which have been grouped into routes based on the range of rainfall rates necessary to cause an 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. MSD staff executed a total of 103

inspection routes on a total of 28 days, and documented 205 unauthorized discharges through route reconnaissance.

- Continued to monitor over 300 sites via telemetry. There were approximately seven 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, MSD staff hauled over 534,300 gallons of sewage.

Figure 3.1. Reporting Timeframe for Unauthorized Discharges to Waters of the US



FY17 Program

- Continue to monitor data, train staff and update information as needed.
- 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 collections 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 Engineering and Operations Divisions 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

FY16 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.

FY17 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

FY16 Program

- Facilitated SORP Quarterly and Annual Training as detailed in Table 3.1.
- Updated the modules for each of the quarterly SORP training prior to each session.

Table 3.1. SORP Training Schedule and Attendance

KEY LEARNING OBJECTIVE	MONTHS	CLASSES	STAFF TRAINED
Clean Up & Public Notification	July – September	13	243
Annual Overview and Overflow Field Documentation	October - December	23	553
Monitoring, Staging, Reconnaissance and Mobilization	January - March	14	229
Control Zones, Mitigation & Volume Estimation	April – June	13	13

FY17 Program

- Schedule SORP Quarterly and Annual Training as described in Table 3.2.
- Continue to review and update the data associated with overflows.

Table 3.2. Projected SORP Training Schedule

KEY LEARNING OBJECTIVE	MONTHS
Clean Up & Public Notification	July – September
Annual Overview and Overflow Field Documentation	October - December
Monitoring, Staging, Reconnaissance and Mobilization	January - March
Control Zones, Mitigation & Volume Estimation	April – June

3.5. ANNUAL PROGRAM REVIEW

FY16 Program

- Completed the annual SORP document review in August 2015. Revised SSO routes in the SORP document as part of the review.
- Reviewed and updated routes to include any new SSO locations.

FY17 Program

- Perform the annual SORP document review prior to August 2016. There are no major program updates anticipated at this time. Routes will be reviewed and updated to include any new SSO locations or changes in responsible MSD reporting departments.
- Send new SSO routes to EPA/KDEP by August 22, 2016. New routes will be published once approved by EPA/KDEP.

3.6. PUBLIC NOTIFICATION AND COMMUNICATION

Refer to Section 5: Public Outreach, Education, Notification and Participation for information regarding public notification.

SECTION 4: PROGRAM ACTIVITIES FOR DISCHARGE ABATEMENT PLANS

4.1. INTEGRATED OVERFLOW ABATEMENT PLAN

As a requirement of the Amended Consent Decree, per Paragraph 25, MSD is to prepare and submit, for review and approval, discharge abatement plans. These discharge abatement plans identify the plan for the elimination of unauthorized discharges from the separate sanitary sewer system and the combined sewer system (CSS), the reduction and control of discharges from the Combined Sewer Overflow (CSO) locations identified in the Morris Forman Water Quality Treatment Center (WQTC) KPDES permit, and the improvement of water quality in the receiving waters.

The Final Sanitary Sewer Discharge Plan (SSDP) and the Final CSO Long Term Control Plan (LTCP) 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 the Environmental protection Agency (EPA) and Kentucky Department of Environmental Protection (KDEP) on September 20, 2012, with approval granted via certified letter on June 19, 2014. The modified project package, program descriptions and progress, and updated supporting text are included in the revised IOAP, submitted to EPA and KDEP on June 14, 2013. Minor project modifications have been submitted and approved since the 2014 approval of the 2012 IOAP Modification. A summary of these modifications is included in Table 4.1.

4.2. SANITARY SEWER DISCHARGE PLAN

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, available at www.msdlouky.org/projectwin.

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Table 4.1. IOAP Project Minor Modifications

SUBMITTAL DATE	APPROVAL DATE	NEW PROJECT NAME	ORIGINAL PROJECT NAME	IOAP ID NUMBER	MODIFICATION DESCRIPTION
February 16, 2015	September 11, 2015	CSO190 Green Infrastructure Project	18th and Northwestern Parkway Storage Basin	L_SO_MF_190_S_09B_B_A_8	Green Infrastructure solutions for CSO190 replaced the storage basin at 18th and Northwestern Parkway.
February 16, 2015	September 11, 2015	Elimination of Chenoweth Hills WQTC, Chenoweth Run PS, and Chippewa PS	Chenoweth Hills WQTC Elimination and PS Improvements	S_JT_JT_NB01A_M_03_C	Project modification to construct new sewers and eliminate rather than upgrade Chenoweth Run and Chippewa Pump Stations
February 16, 2015	September 11, 2015	Goose Creek PS Phase 1 - Devondale Wet Weather Storage	Goose Creek PS Phase 1 - Devondale Wet Weather Storage	S_MI_MF_NB04_M_03_B	New sewer construction and a new Pump Station at Bancroft allowed for the elimination of both the Bancroft and Devondale WQTCs along with eliminating the need for wet weather storage
February 16, 2015	September 11, 2015	St. Rene Road Pump Station Elimination	St. Rene Road PS Inline Storage	S_FF_CH_NB01_S_09A_C_A	Elimination of the St. Rene Road Pump Station and diverting flow to the Cedar Creek WQTC replaced the in-line storage solution
February 16, 2015	September 11, 2015	Prospect #3 - ORFM System Improvements	Prospect #3 - ORFM System Improvements	S_OR_MF_NB04_M_03_B_B	Replaced in-line storage upstream of the Muddy Fork Pump Station with an offline covered storage basin
August 7, 2015	September 11, 2015	Southwestern Parkway Storage Basin	Southwestern Parkway Storage Basin	L_OR_MF_105_M_13_B_A_0	Increased basin size from 11.07 MG to 20 MG, with a level of control of 8 overflows per Typical Year and no net increase in AAOV
August 7, 2015	September 11, 2015	Portland Storage Basin	Portland Wharf Storage Basin	L_OR_MF_019_S_13_B_A_8	Increased basin size from 6.37 MG to 6.7 MG
August 7, 2015	September 11, 2015	Lexington Road and Payne Street Storage Basin	Lexington Road and Payne Street Storage Basin	L_OR_MF_083_M_09B_B_A_8	Increased basin size from 8.18 MG to 13.7 MG
August 7, 2015	September 11, 2015	Story Avenue and Main Street Storage Basin	Story Avenue and Main Street Storage Basin	L_OR_MF_020_S_09B_B_A_8	Increased basin size from 5.4 MG to 8.3 MG
August 7, 2015	September 11, 2015	13th Street and Rowan Street Storage Basin	13th Street and Rowan Street Storage Basin	L_OR_MF_155_M_09B_B_B_4	Increased basin size from 4.36 MG to 9.8 MG
December 21, 2015	January 11, 2016	Fairmount Road Pump Station Offline Storage Basin	Fairmount Road Pump Station Offline Storage Basin	S_FF_CC_81316_M_03_C_A	Change completion deadline from December 31, 2015 to March 31, 2016
September 28, 2016	November 3, 2016	Logan Street and Breckenridge Street CSO Basin	Logan Street and Breckenridge Street CSO Basin	L_SO_MF_092_M_09B_B_D_8	Change design from an at-grade basin with a building above to open space above the basin structure
September 28, 2016	November 3, 2016	Bells Lane Wet Weather Treatment Facility	Bells Lane Wet Weather Treatment Facility	L_OR_MF_015_M_13_B_B_8	Change completion deadline from December 31, 2016 to September 30, 2017
September 28, 2016	November 3, 2016	Nightingale Pump Station Replacement and Storage	Nightingale Pump Station Replacement and Storage	L_SO_MF_018_S_03_A_A	Change completion deadline from December 31, 2016 to June 30, 2017
September 28, 2016	November 3, 2016	Morris Forman WQTC Headworks	Southern Outfall Inline Storage (SOR2)	L_OR_MF_211_M_13_B_A_8	Elimination of SOR2 project and replace with flow control improvements at the Main Diversion Structure and rehabilitation of Morris Forman WQTC Headworks in order to increase maximum sustainable treatment capacity to 330 MGD
September 27, 2016, with administrative correction submitted on October 17, 2016	November 3, 2016	Ohio River Tunnel	13th Street and Rowan Street Storage Basin	L_OR_MF_155_M_09B_B_B_4	Revise design to a 31.8 MG tunnel solution that consolidates CSO controls for 13th Street and Rowan Street, Story Avenue and Main Street, and Lexington and Payne Street Storage Basins. Tunnel capacity will allow a level of control of eight overflows per Typical Year for 9 CSOs previously associated with 13th and Rowan. Weir raises at 3 CSOs will remain unchanged.
September 27, 2016, with administrative correction submitted on October 17, 2016	November 3, 2016	Ohio River Tunnel	Story Avenue and Main Street Storage Basin	L_OR_MF_020_S_09B_B_A_8	Revise design to a 31.8 MG tunnel solution that consolidates CSO controls for 13th Street and Rowan Street, Story Avenue and Main Street, and Lexington Road and Payne Street Storage Basins. Tunnel capacity will allow a level of control of eight overflows per Typical Year for the one CSO previously associated with Story and Main.
September 27, 2016, with administrative correction submitted on October 17, 2016	November 3, 2016	Ohio River Tunnel	Lexington Road and Payne Street Storage Basin	L_OR_MF_083_M_09B_B_A_8	Revise design to a 31.8 MG tunnel solution that consolidates CSO controls for 13th Street and Rowan Street, Story Avenue and Main Street, and Lexington Road and Payne Street Storage Basins. Tunnel capacity will allow a level of control of zero overflows per Typical Year for the nine CSOs previously associated with Lexington and Payne.

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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 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, and was entered into public record February 15, 2010. A revised SSDP was included in the IOAP revision submitted June 14, 2013. On June 19, 2014, MSD received approval of the 2012 IOAP Modification from EPA / KDEP. Per paragraph 25.a.(3)C., the SSDP shall not extend beyond December 31, 2024. A listing of SSDP projects completed and certified during the reporting period, along with the entire schedule of projects, can be found in Section 4.4.

The following is a summary of activities that support elimination of the Prospect WQTCs.

- Prospect #1 – WQTC Elimination Project – the project involved the construction of the new Harrods Creek Interceptor, including 15,000 LF of 24-inch to 42-inch sewer and 3,400 LF of 6-inch force main to eliminate five Prospect WQTCs. The project also included the construction of two new pump stations and the elimination of the Deep Creek Pump Station (PS). A certification letter was submitted on December 15, 2015, finalizing the completion of the Prospect Area WQTC Elimination projects as detailed in Table 4.2.

Table 4.2. Prospect WQTC Eliminations

WQTC	ELIMINATION DATE
Timberlake WQTC	July 7, 2015
Hunting Creek South WQTC	July 22, 2015
Hunting Creek North WQTC	August 31, 2015
Shadow Wood WQTC	September 1, 2015
Ken Carla WQTC	September 2, 2015

- Prospect #2 – Harrods Creek Pump Station and Force Main Project – the project involved the construction of the new 7.2 MGD Harrods Creek PS and 24,000 LF of 24-inch force main to pump flow to the Hite Creek WQTC. All phases of the project are complete. A certification letter, dated November 13, 2015, was submitted certifying the completion of the project.
- Prospect #3 – Ohio River Force Main (ORFM) System Improvement Project – the project involves the upsizing of 8,300 LF of interceptor sewers upstream of the Muddy Fork PS to 27-inches in diameter, as well as upsizing the Muddy Fork PS force main to 24-inches in diameter. Upgrades will be performed at the Muddy Fork, Winding Falls / Phoenix Hill, and New Market Pump Stations. The project also includes the construction of the 2 MG Muddy Fork Basin. The project was bid on May 10, 2016, with an anticipated construction completion date by the December 31, 2016 IOAP date.

4.3. COMBINED SEWER OVERFLOW 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 COMBINED SEWER OVERFLOW 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 CSO LTCP can be viewed on the MSD Project WIN website, available at 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 COMBINED SEWER OVERFLOW 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. Per paragraph 25.b.(2), completion of the Final CSO LTCP shall not extend beyond December 31, 2020. A listing of Final CSO LTCP projects completed and certified during the reporting period, along with the entire schedule of projects, can be found in Section 4.4.

4.3.3 GREEN DEMONSTRATION PROJECT UPDATE

The Final CSO LTCP (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 as complete.

4.3.4 GREEN INFRASTRUCTURE PROGRAMMATIC ACTIVITIES

This section addresses programmatic activities related to the Green Infrastructure Program.

FY16 Program

- Developed updates to 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.
- Developed and utilized a green tracking protocol for green infrastructure projects.
- Executed memoranda of agreement on the urban reforestation program applicants (1,767 trees included in proposals) to satisfy the 1,000 tree/year IOAP commitment.
- Participated in Urban Heat Island workgroups under the guidance of Louisville Metro.
- Maintained www.msdgreen.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 stormwater capture and estimated overflow reductions.
- Continued the arrangement with EPA Office of Research and Development (ORD) to determine the performance of green infrastructure practices to determine most effective applications, maintenance cycles and areas with high potential for reduction of overflows.

- Partnered with the development community to display and discuss green infrastructure during the Homearama (July 11, 2015 – July 26, 2015) and Home, Garden and Remodeling Show (March 17, 2016 – March 18, 2016) events, which showcases new housing developments and construction practices to the community.
- Hosted a Construction Field Day at the Louisville Water Tower on (September 22, 2015) to demonstrate the viability of green infrastructure to the construction and development communities.
- Participated in the Maupin Elementary School Raingarden Workshop (August 8, 2015), Louisville Sustainability Council Fall Sustainability Summit (November 11, 2015), Urban Heat Island Youth Summit (December 11, 2015), Waldorf School Raingarden Workshop (April 18, 2016), Urban Heat Island Press Conference, and the Clifton Heights Sustainability Fair (May 27, 2016).
- Supported 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 green partnership projects listed in Table 4.3.

Table 4.3. Approved Green Partnership Projects

PROJECT APPROVAL DATE	PROJECT NAME
November 23, 2015	East Market Street/NULU Streetscape
March 15, 2016	Brown-Forman Breckinridge Lot
June 15, 2016	Neighborhood House
June 15, 2016	1301 W. Main St.

FY17 Program

- Publish the revised/updated Green BMP Manual.
- Continue to participate in the Louisville Metro Sustainability Plan.
- Continue to provide urban reforestation grants.
- Continue to track green infrastructure projects in Hansen and MSD's Geographic Information System (GIS).
- Continue to provide incentives for green infrastructure on private property.

4.4. DISCHARGE ABATEMENT PLAN PROJECT STATUS

4.4.1 PROJECT CERTIFICATION PROGRESS

This section addresses project certification progress for the current reporting period and required activities for the upcoming reporting period.

4.4.1.1. SANITARY SEWER DISCHARGE PLAN

Table 4.4 details SSDP projects completed and certified during the current reporting period, and Table 4.5 details SSDP projects required to be completed and certified during the next reporting period.

Table 4.4. FY16 IOAP Project Completion Dates – SSDP

BUDGET ID	ACD PROJECT NUMBER	PROJECT NAME	DATE CERTIFIED	ACD DATE
C94103	S_PO_WC_PC03_M_01_C	Charleswood Interceptor Extension	August 5, 2015	December 31, 2022
D94206	S_OR_MF_NB04_M_03_B_B	Prospect #2 – Harrods Creek PS	November 13, 2015	December 31, 2015
C08433	S_PO_WC_PC08_M_01_C	Lea Ann Way System Improvements	December 4, 2015	December 31, 2015
D94206	S_OR_MF_NB04_M_03_B_B	Prospect #1 - WQTC Eliminations	December 15, 2015	December 31, 2015
H09167	S_FF_CC_81316_M_03_C_A	Fairmount Road Pump Station Offline Storage Basin	March 30, 2016	March 31, 2016
H09183	S_MI_MF_NB04_M_03_B	Goose Creek PS Phase 1 - Devondale Wet Weather Storage	April 15, 2016	December 31, 2024

Table 4.5. FY17 IOAP Project Required Completion Dates – SSDP

BUDGET ID	ACD PROJECT NUMBER	PROJECT NAME	DATE CERTIFIED	ACD DATE
H10045	S_MI_MF_NB06_M_01_A_A - 1	Anchor Estates – Anchor Estates Pump Stations 1 & 2 Eliminations	Under Construction	December 31, 2016
H10047	S_PO_WC_PC09_M_09B_C	Caven Avenue Pump Station Elimination	Under Construction	December 31, 2016
A12023	S_OR_MF_NB04_M_03_B_B	Prospect #3 - ORFM System Improvements	Under Construction	December 31, 2016

4.4.1.2. JEFFERSONTOWN WATER QUALITY CENTER ELIMINATION

Table 4.6 details the Jeffersontown WQTC elimination project completed and certified during the current reporting period. Jeffersontown WQTC Elimination is completed. Subsequent post-construction monitoring activities will be reported in Section 4.5.2.

Table 4.6. FY16 IOAP Project Completion Dates – Jeffersontown WQTC Elimination

BUDGET ID	ACD PROJECT NUMBER	PROJECT NAME	DATE CERTIFIED	ACD DATE
H07293	S_JT_JT_NB01_M_01_C_A	Jeffersontown WQTC Elimination	December 23, 2015	December 31, 2015

4.4.1.3. COMBINED SEWER OVERFLOW LONG TERM CONTROL PLAN

Table 4.7 details CSO LTCP projects completed and certified during the current reporting period, and Table 4.8 details CSO LTCP projects required to be completed and certified during the next reporting period.

Table 4.7. FY16 IOAP Project Completion Dates – CSO LTCP

BUDGET ID	ACD PROJECT NUMBER	PROJECT NAME	DATE CERTIFIED	ACD DATE
H09143	L_SO_MF_093_S_08_A_A_0	CSO 093 Structural Modifications / Green Infrastructure	December 23, 2015	December 31, 2015
H09122	L_MI_MF_140_S_08_A_A_0	CSO 140 Sewer Separation	December 23, 2015	December 31, 2015
H09134	L_OR_MF_160_S_08_A_A_0	CSO 160 Sewer Separation	December 10, 2015	December 31, 2015

Table 4.8. FY17 IOAP Project Required Completion Dates – CSO LTCP

BUDGET ID	ACD PROJECT NUMBER	PROJECT NAME	DATE CERTIFIED	ACD DATE
H09140	L_SO_MF_018_S_03_A_A	Nightingale Pump Station Replacement	Under Construction	December 31, 2016
H09124	L_OR_MF_015_M_13_B_B_8	Bells Lane Wet Weather Treatment Facility	Under Construction	December 31, 2016
H09145	L_SO_MF_130_S_09B_B_A_8	Story Avenue and Spring Street Green Infrastructure	Under Construction	December 31, 2016

4.4.2 DISCHARGE ABATEMENT ACTIVITY PROGRESS

A Gantt chart showing the 2012 IOAP Modification project schedules and subsequent approved minor modifications for the entire program is provided in Figure 4.1.

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Figure 4.1. MSD Integrated Overflow Abatement Plan Implementation Schedule

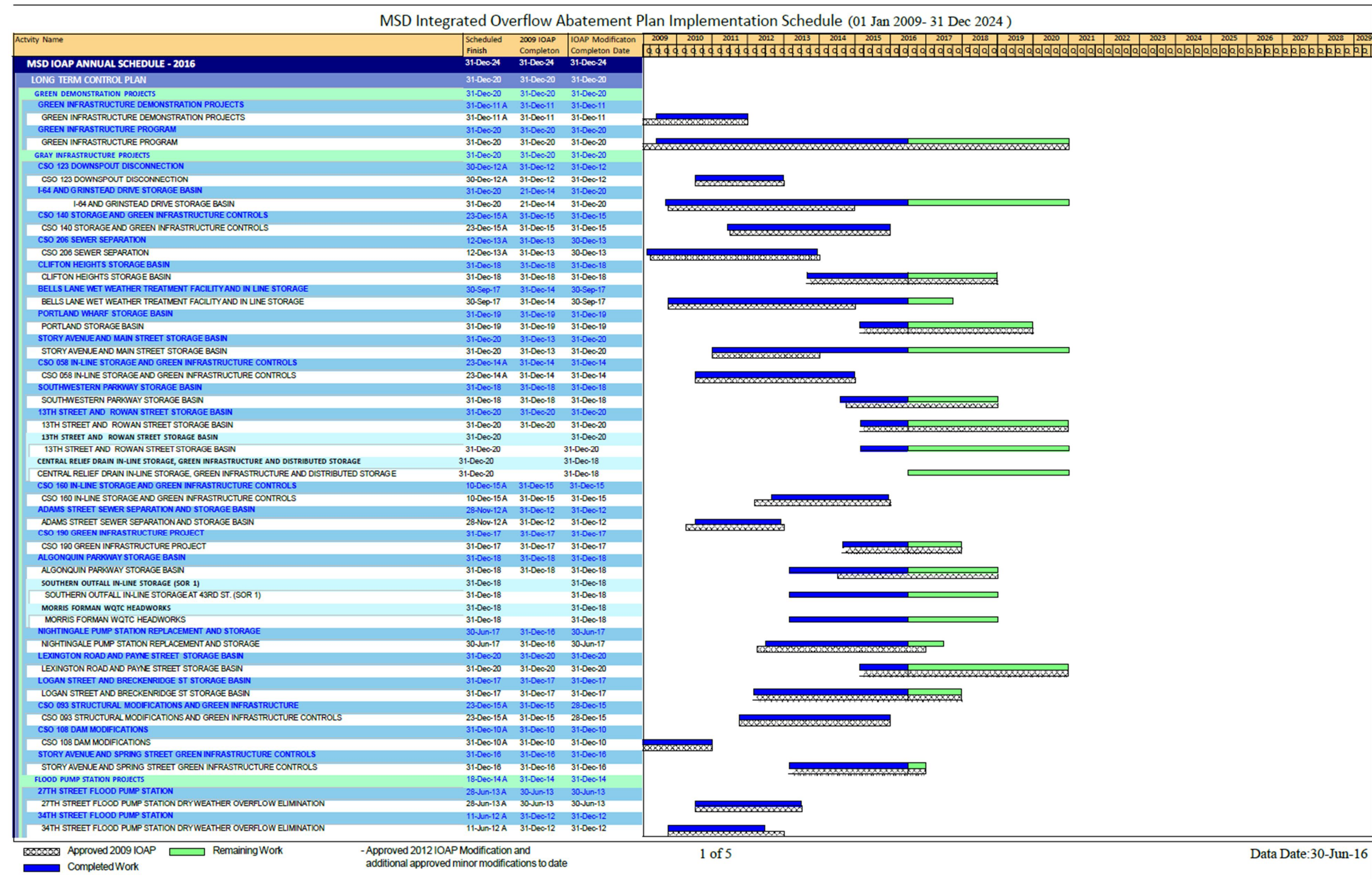


Figure 4.1. MSD Integrated Overflow Abatement Plan Implementation Schedule

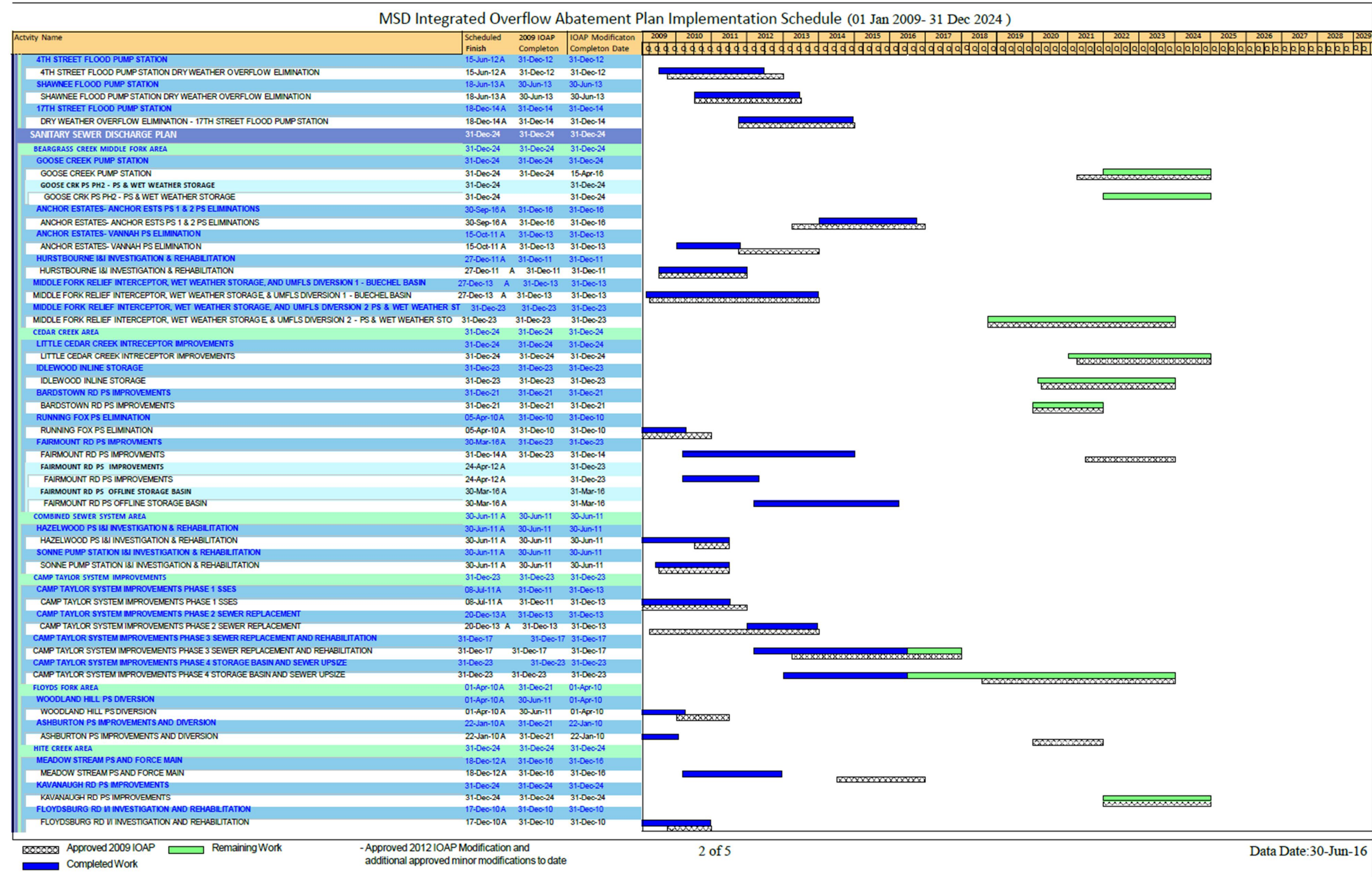


Figure 4.1. MSD Integrated Overflow Abatement Plan Implementation Schedule

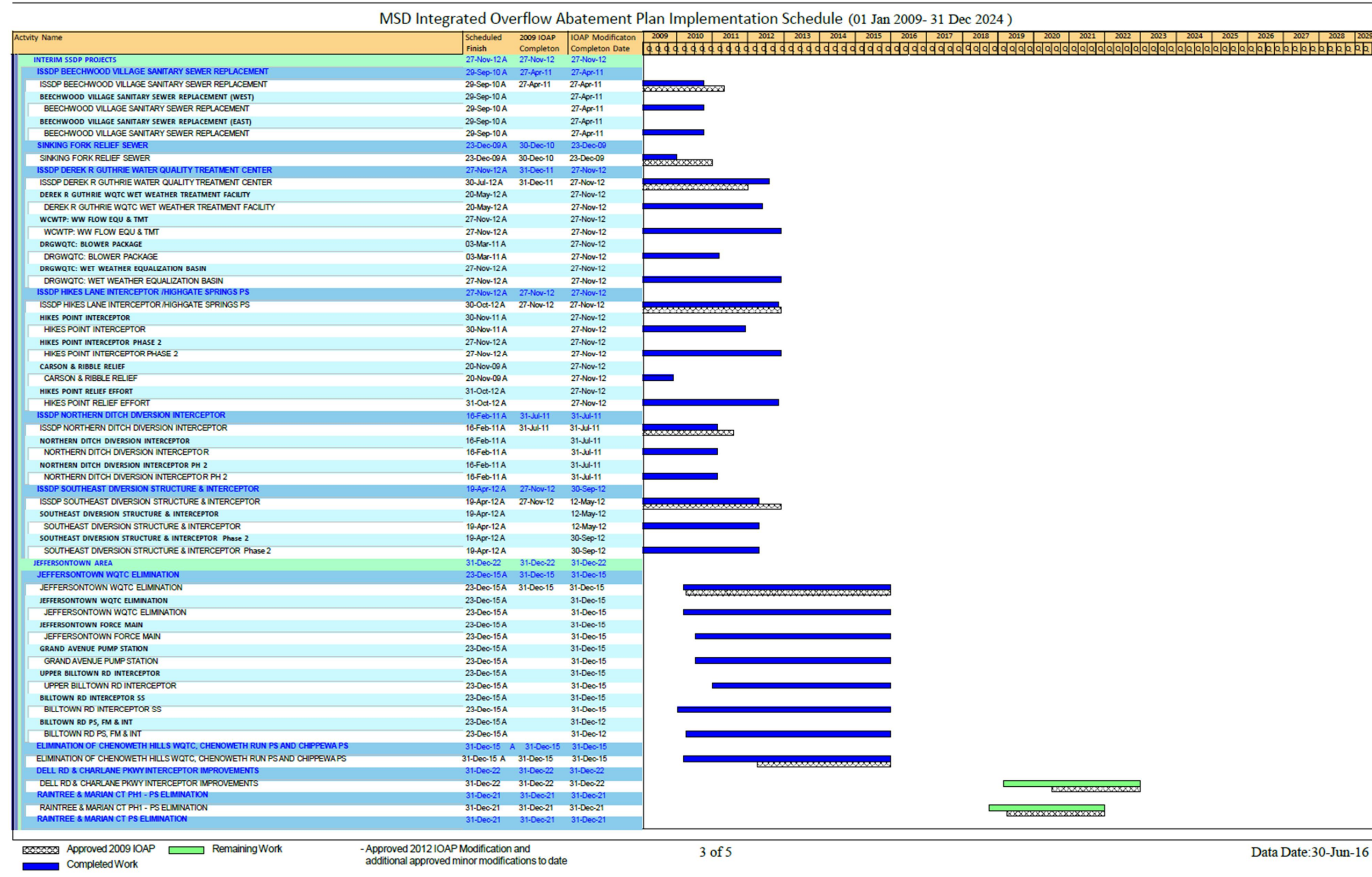


Figure 4.1. MSD Integrated Overflow Abatement Plan Implementation Schedule

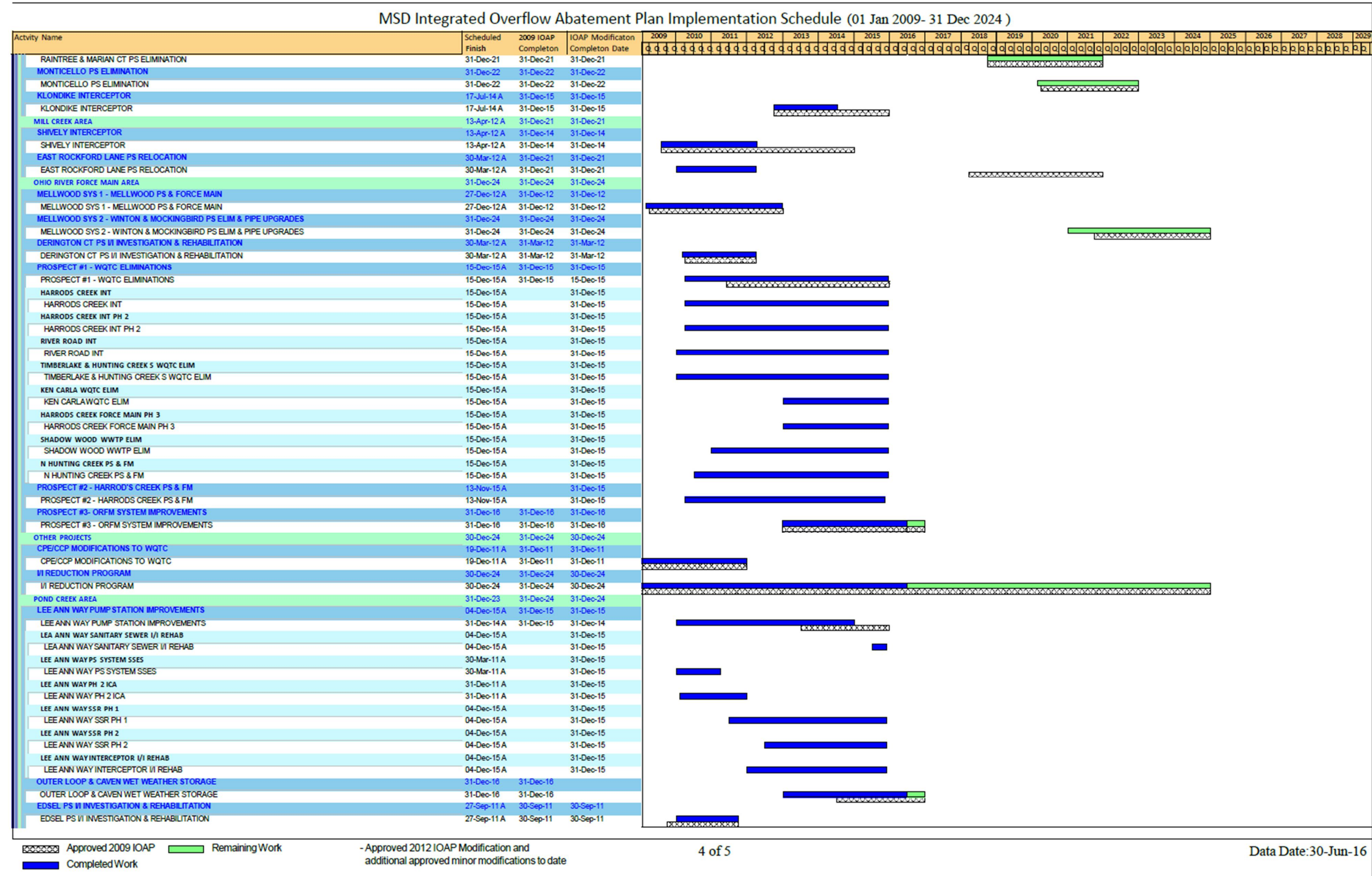
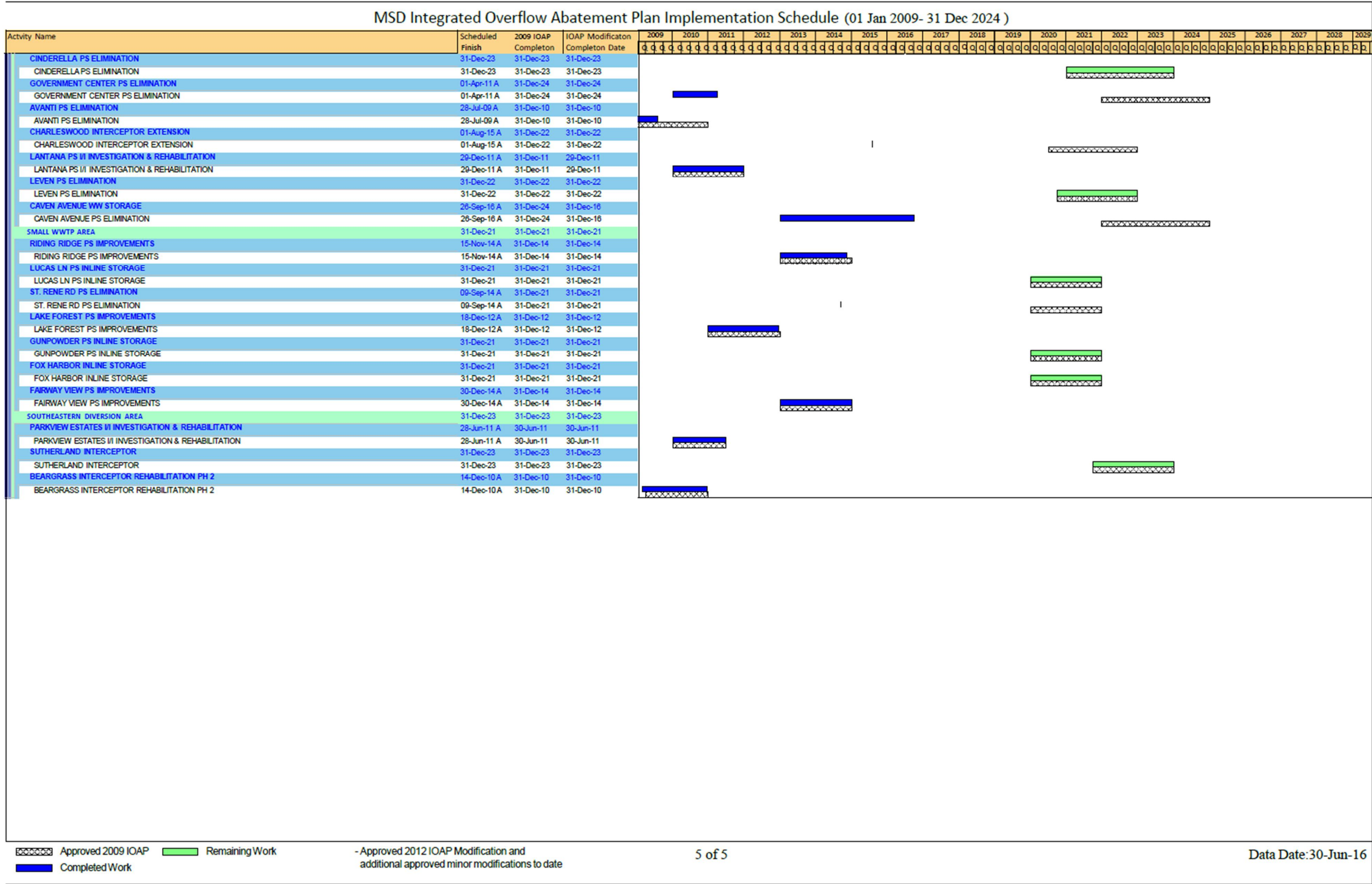


Figure 4.1. MSD Integrated Overflow Abatement Plan Implementation Schedule



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4.5. POST CONSTRUCTION COMPLIANCE MONITORING PROGRAM

Within the IOAP, 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 requirements. Under the IOAP, the primary compliance assessment objectives will be to certify project completion to the selected overflow control level, both for CSOs and SSOs, as well as to determine if predicted levels of overflow control and anticipated water quality benefits are realized. As such, post-construction compliance monitoring supports impact analysis and the validation of various objectives of IOAP project initiatives, and the overall abatement plan.

4.5.1 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 (e.g., storage basins, pump stations, gates) as well as providing validation of predicted project level of control.

MSD has contracted with a hydraulic / hydrologic modeling (H/H) consultant to update and maintain a calibrated Infoworks ICM model of the combined and sanitary sewer collection systems. The model is used for the following activities:

- Planning and design of IOAP and other capital projects, including recommendations for changes to the operation of MSD's RTC system based on project impacts.
- Validation of performance of IOAP projects after construction.
- Evaluation of sewer capacity requests and proposed green infrastructure impacts on the combined and separate sanitary sewer systems.

The model is calibrated to both in-system flow monitors as well as flow monitors on CSO outfalls. MSD continues to look for ways to improve the accuracy and precision of the model by performing field surveys and reconnaissance where additional details or other critical details need clarification to refine calibration of the models.

FY16 Program

- Worked with H/H consultant to update ICM model to incorporate IOAP minor modifications.
- Worked with H/H consultant to review IOAP projects under design for validation of proposed performance.
- Worked with H/H consultant to validate performance of 29 IOAP projects under assessment, as discussed in Section 4.5.2.

FY17 Program

- Work with H/H consultant to review CSO flow monitoring data as discussed in Section 1.2.3.3.
- Work with H/H consultant to review IOAP projects under design for validation of proposed performance.
- Work with H/H consultant to validate performance of IOAP projects after construction is certified.

4.5.2 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 the performance falls below the committed level of control and defining remedial measures and schedule to improve performance to the appropriate level. It is the intent that performance analyses will be conducted for all constructed IOAP projects as monitoring data becomes available. 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) for the majority of the IOAP projects.

Current performance reporting is updated to include additional projects certified through June 30, 2015, with data through the end of the current reporting period.

MSD committed to an analysis of twelve months of final effluent sampling to determine performance of the Derek R. Guthrie WQTC Flow Equalization and Treatment Project, which was completed July 10, 2015. For all other CSO / DWO and SSO projects, the period for monitoring performance and compliance encompasses a three-year window following construction. Green demonstration projects were determined to meet performance commitments based on reported benefit and improvement to MSD's Green Infrastructure Program, as reported in Annual Report 7. Two supplemental environmental projects (SEPs) were assessed for successful restoration.

Detailed performance status of each project is included in Table 4.9. Of the 64 projects analyzed to date, 35 have met the criteria for final committed level of control as discussed and 29 remain under assessment. Projects identified to need additional monitoring or remediation are detailed in Table 4.10. Projects that have been completed through the assessment date but have not been assessed as of the current reporting period and are detailed in Table 4.11.

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Table 4.9. IOAP Project Performance –Performance Status

PROJECT NAME	ACD PROJECT NUMBER	PROJECT CERTIFICATION DATE	PROJECT TYPE	ASSESSMENT RESULT	ASSESSMENT COMPLETION DATE
Adams Street Sewer Separation	L_OR_MF_172_S_09B_B_A_0	November 28, 2012	CSO	Pass	June 30, 2016
CSO093 Structural Modifications & Green Infrastructure	L_SO_MF_093_S_08_A_A_0	December 23, 2015	CSO	Not Assessed	Ongoing
CSO108 Dam Modifications	L_SO_MF_108_S_09A_B_A_4	December 30, 2010	CSO	Not Assessed	Ongoing
CSO123 Downspout Disconnection	L_MI_MF_123_S_08_A_A_0	December 30, 2012	CSO	Pass	June 30, 2016
CSO140 In-Line Storage And Green Infrastructure Controls	L_MI_MF_140_S_08_A_A_0	December 23, 2015	CSO	Not Assessed	Ongoing
CSO160 In-Line Storage And Green Infrastructure	L_OR_MF_160_S_08_A_A_0	December 23, 2015	CSO	Not Assessed	Ongoing
CSO206 Sewer Separation	L_MI_MF_206_S_08_A_A_0	December 12, 2013	CSO	Pass	Ongoing
17th FPS DWO Elimination	L_OR_MF_190_S_03_A_A	December 18, 2014	DWO	Pass	Ongoing
27th Street FPS DWO Elimination	L_OR_MF_019_S_03_A_A	June 28, 2013	DWO	Pass	June 30, 2016
34th Street FPS DWO Elimination	L_OR_MF_019_S_03_A_B	June 11, 2012	DWO	Pass	June 30, 2016
4th Street FPS DWO Elimination	L_OR_MF_022_M_03_A_A	June 15, 2012	DWO	Pass	June 30, 2016
Shawnee FPS DWO Elimination	L_OR_MF_189_M_03_A_A	June 18, 2013	DWO	Pass	June 30, 2016
2300 Block of Congress Street (Formerly Seventh and Market) Permeable Alley	L_OR_MF_053_S_12_A_C	November 11, 2010	Green	Pass	December 30, 2013
3rd Street and Campbell Ventures Green Project (Formerly JFK Montessori Area Dry Well)	L_OR_MF_191_S_12_A_B	December 20, 2011	Green	Pass	December 30, 2013
6th & Martin Luther King (Formerly Sixth and Muhammad Ali) Green Parking Lot	L_OR_MF_022_S_12_A	December 28, 2010	Green	Pass	December 30, 2013
Billy Goat Strut (Formerly Campbell and Main) Permeable Alley	L_SO_MF_121_S_12_A	October 8, 2010	Green	Pass	December 30, 2013
Brandeis Apartments Rain Garden	ADDITIONAL RAIN GARDEN PROJECT	November 15, 2010	Green	Pass	December 30, 2013
Brown-Forman Green Roof Project (Formerly Bardstown Rd Presbyterian Church Green Parking Lot)	ADDITIONAL RAIN GARDEN PROJECT	December 30, 2011	Green	Pass	December 30, 2013

Table 4.9. IOAP Project Performance –Performance Status

PROJECT NAME	ACD PROJECT NUMBER	PROJECT CERTIFICATION DATE	PROJECT TYPE	ASSESSMENT RESULT	ASSESSMENT COMPLETION DATE
Clifton Triangle Area Rain Garden	ADDITIONAL RAIN GARDEN PROJECT	November 11, 2010	Green	Pass	December 30, 2013
East Washington @ Adams Street Green Demonstration Project (Formerly I-264 On-Ramp Dry Well)	L_OR_MF_019_S_12_A	December 19, 2011	Green	Pass	December 30, 2013
German/Paristown Green Street Rain Garden	ADDITIONAL RAIN GARDEN PROJECT	December 20, 2011	Green	Pass	December 30, 2013
Grawemeyer Hall Parking Lot (Formerly I-264 and Gibson Dry Well)	L_OR_MF_191_S_12_A_A	December 20, 2011	Green	Pass	December 30, 2013
Housing Authority Green Roof (Formerly Sixth and Broadway Rain Garden)	L_OR_MF_028_S_12_A	December 30, 2010	Green	Pass	December 30, 2013
MSD Main Office Parking Lot Bioswale	L_OR_MF_053_S_12_A_A	December 3, 2010	Green	Pass	December 30, 2013
Scholar House Green Parking Lot (Formerly Twelfth and Jefferson)	L_OR_MF_208_S_12_A	December 30, 2010	Green	Pass	December 30, 2013
Seventh and Cedar Green Parking Lot	L_OR_MF_053_S_12_A_B	December 30, 2010	Green	Pass	December 30, 2013
Speed Art Museum Infiltration Trench (Formerly I-264 Off-Ramp Dry Well)	L_OR_MF_189_S_12_A	December 20, 2011	Green	Pass	December 30, 2013
Swift Company Green Project (Formerly Second and Broadway Green Parking Lot)	L_OR_MF_181_S_12_A	December 30, 2010	Green	Pass	December 30, 2013
W. Gaulbert & W. Hill (Formerly Seventeenth and W. Hill) Permeable Alley	L_OR_MF_015_S_12_A	October 15, 2010	Green	Pass	December 30, 2013
Wilson Crossings Green Parking Lot (Formerly Russell Lee Drive Dry Well)	L_OR_MF_191_S_12_A_C	December 30, 2011	Green	Pass	December 30, 2013
Cherokee Park Stream Restoration1	SEP PROJECT	December 3, 2010	Other	Pass	May 7, 2014
Pond Creek Trail SEP ³	SEP PROJECT	February 19, 2011	Other	Pass	December 16, 2014
Anchor Estates- Vannah PS Elimination	S_MI_MF_NB06_M_01_A_A - 2	October 15, 2011	SSO	Pass	December 30, 2014
Ashburton PS Improvements And Diversion	S_FF_FF_NB03_M_01_C_A	January 22, 2010	SSO	Pass	December 30, 2013

Table 4.9. IOAP Project Performance –Performance Status

PROJECT NAME	ACD PROJECT NUMBER	PROJECT CERTIFICATION DATE	PROJECT TYPE	ASSESSMENT RESULT	ASSESSMENT COMPLETION DATE
Avanti PS Elimination	S_PO_WC_PC07_M_01_A	July 28, 2009	SSO	Pass	December 30, 2013
Beargrass Interceptor Rehabilitation Ph 2	S_SD_MF_NB06_S_13_C	December 14, 2010	SSO	Phased Project	Ongoing
Beechwood Village Sanitary Sewer Replacement	BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	September 29, 2010	SSO	Pass	December 30, 2014
Camp Taylor #2- Replace Sewers	S_SF_MF_30917_M_09_A	December 20, 2013	SSO	Phased Project	Ongoing
Charleswood Interceptor Extension	S_PO_WC_PC03_M_01_C	August 5, 2015	SSO	Not Assessed	Ongoing
Derek R Guthrie WQTC ²	DEREK R GUTHRIE WATER QUALITY TREATMENT CENTER	November 15, 2012	SSO	Pass	July 10, 2015
Derington Ct PS I/I Investigation & Rehabilitation	S_OR_MF_NB03_S_07_C	March 30, 2012	SSO	Pass	June 30, 2016
East Rockford Lane PS Relocation	S_MC_WC_NB02_S_03_C	March 30, 2012	SSO	Pass	June 30, 2016
Edsel PSI/I Investigation & Rehabilitation	S_PO_WC_PC11_M_07_C	September 27, 2011	SSO	Pass	December 30, 2014
Elimination of Chenoweth Hills WQTC, Chenoweth Run PS, and Chippewa PS	S_JT_JT_NB01A_M_03_C	September 22, 2014	SSO	Pass	Ongoing
Fairmount Rd PS Improvements	S_FF_CC_81316_M_03_C_A	April 24, 2012	SSO	Operational Issue Addressed	Ongoing
Fairmount Road Pump Station Offline Storage Basin	S_FF_CC_81316_M_03_C_A	March 30, 2016	SSO	Not Assessed	Ongoing
Fairway View PS Improvements	S_HC_HS_NB01_S_03_C_A	December 30, 2014	SSO	Pass	Ongoing
Floydsburg Rd I/I Investigation & Rehabilitation	S_HC_HC_MSD1086_M_07_C_A	December 17, 2010	SSO	Remediation Required	Ongoing
Goose Creek PS Phase 1 - Devondale Wet Weather Storage	S_MI_MF_NB04_M_03_B	April 15, 2016	SSO	Not Assessed	Ongoing
Government Center PS Elimination	S_PO_WC_PC06_M_01_C	April 1, 2011	SSO	Pass	December 30, 2014
Hazelwood PS I&I Investigation & Rehabilitation	S_MC_MF_55665_S_07_C	June 30, 2011	SSO	Pass	December 30, 2013

Table 4.9. IOAP Project Performance –Performance Status

PROJECT NAME	ACD PROJECT NUMBER	PROJECT CERTIFICATION DATE	PROJECT TYPE	ASSESSMENT RESULT	ASSESSMENT COMPLETION DATE
Hike Lane Interceptor & Highgate Springs PS	HIKES LANE INTERCEPTOR /HIGHGATE SPRINGS PS	November 2, 2012	SSO	Pass	June 30, 2016
Hurstbourne I&I Investigation & Rehabilitation	S_MI_MF_NB07_S_07_C	December 27, 2011	SSO	Pass	December 30, 2014
Jeffersontown WQTC Elimination	S_JT_JT_NB01_M_01_C_A	December 23, 2015	SSO	Not Assessed	Ongoing
Klondike Interceptor	S_SD_MF_NB04_S_01_B_A	July 17, 2014	SSO	Pass	Ongoing
Lake Forest PS SSO Investigation	S_FF_LF_NB01_S_13_C_A	December 18, 2012	SSO	Pass	June 30, 2016
Lantana PS I/I Investigation & Rehabilitation	S_PO_WC_PC05_M_07_C	December 29, 2011	SSO	Remediation Required	Ongoing
Lea Ann Way System Improvements	S_PO_WC_PC08_M_01_C	December 4, 2015	SSO	Not Assessed	Ongoing
Meadow Stream PS & FM Upgrade	S_HC_HC_MSD1082_S_09A_C	December 18, 2012	SSO	Pass	June 30, 2016
Mellwood Sys 1 - Mellwood Ps & Force Main	S_OR_MF_NB01_M_01_B	December 27, 2012	SSO	Phased Project	Ongoing
Northern Ditch Diversion Interceptor	NORTHERN DITCH DIVERSION INTERCEPTOR	February 16, 2011	SSO	Pass	December 30, 2013
Parkview Estates I/I Investigation & Rehabilitation	S_SD_MF_NB03_S_07_C	June 28, 2011	SSO	Pass	December 30, 2014
Prospect #1 – WQTC Eliminations	S_OR_MF_NB04_M_03_B_B	December 15, 2015	SSO	Not Assessed	Ongoing
Prospect #2 – Harrods Creek PS	S_OR_MF_NB04_M_03_B_B	November 13, 2015	SSO	Not Assessed	Ongoing
Riding Ridge PS Improvements	S_HC_HN_NB01_S_03_C_A	November 15, 2014	SSO	Pass	Ongoing
Running Fox PS Elimination	S_CC_CC_MSD1080_S_01_C	April 5, 2010	SSO	Pass	December 30, 2013
Shively Interceptor	S_MC_WC_NB01_M_01_A	April 13, 2012	SSO	Pass	June 30, 2016
Sinking Fork Relief Sewer	SINKING FORK RELIEF SEWER	December 23, 2009	SSO	Pass	December 30, 2014
Sonne Pump Station I&I Investigation & Rehabilitation	S_OR_MF_42007_S_07_C	June 30, 2011	SSO	Remediation Required	Ongoing

Table 4.9. IOAP Project Performance –Performance Status

PROJECT NAME	ACD PROJECT NUMBER	PROJECT CERTIFICATION DATE	PROJECT TYPE	ASSESSMENT RESULT	ASSESSMENT COMPLETION DATE
Southeast Diversion Structure & Interceptor	SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	April 19, 2012	SSO	Additional Monitoring Required	Ongoing
St. Rene Road Pump Station Elimination	S_FF_CH_NB01_S_09A_C_A	September 19, 2014	SSO	Pass	Ongoing

¹Assessment performed by Stantec Consulting Services, Inc.

²Assessment performed by HDR Engineers, Inc.

³Assessment performed by Redwing Ecological Services, Inc

Table 4.10. IOAP Project Performance – Remediation Project Performance Summary and Action Plan

PROJECT NAME	OVERFLOW EVENTS BELOW LEVEL OF CONTROL		REMEDIAL MEASURES	REMEDATION COMPLETION DATE
	COUNT	VOLUME (GALLONS)		
Beargrass Interceptor Rehabilitation Ph 2	52	469,875	Phased Project: Nightingale PS / Basin (S_SD_MF_NB06_S_13_C)	FY17
Camp Taylor #2- Replace Sewers	63	656,700	Phased Project : Camp Taylor #3 & #4 (S_SF_MF_30917_M_09_A)	FY24
Fairmount Rd PS Improvements	4	1,178,025	Operational Issue addressed on January 27, 2016	FY16
Floydsburg Rd I/I Investigation & Rehabilitation	4	560	Additional rehabilitation	FY18
Lantana PS I/I Investigation & Rehabilitation	9	62,105	Sump pump removal at approximately 14 homes Additional rehabilitation with Admiral PS Rehab Project	FY15 FY17
Mellwood Sys 1 - Mellwood PS & Force Main	11	313,100	Phased Project Winton & Mockingbird PS (S_OR_MF_NB01_M_01_B)	FY25
Sonne Pump Station I&I Investigation & Rehabilitation	1	5	Additional rehabilitation	FY18
Southeast Diversion Structure & Interceptor	16	265,300	Additional rehabilitation may be required dependent on monitoring outcomes after construction of Nightingale PS / Basin (S_SD_MF_NB06_S_13_C)	FY18
UMF #1 - Buechel Basin	70	16,974,591	Phased Project: UMF #2 – PS Diversion & Storage (S_MISF_MF_NB01_M_01_C_A1)	FY24

Table 4.11. IOAP Project Performance – Projects Requiring Assessment

PROJECT NAME	ACD PROJECT NUMBER	PROJECT CERTIFICATION DATE	PROJECT TYPE	PERFORMANCE REPORTING DISCUSSION
CSO093 Structural Modifications & Green Infrastructure	L_SO_MF_093_S_08_A_A_0	December 23, 2015	CSO	Project will be assessed during the next reporting period to provide at least one full year of monitoring data.
CSO108 Dam Modifications	L_SO_MF_108_S_09A_B_A_4	December 30, 2010	CSO	On review of the data it was determined that additional flow monitoring equipment would be required. This equipment will be installed in FY17.
CSO140 In-Line Storage And Green Infrastructure Controls	L_MI_MF_140_S_08_A_A_0	December 23, 2015	CSO	Project will be assessed during the next reporting period to provide at least one full year of monitoring data.
CSO160 In-Line Storage And Green Infrastructure	L_OR_MF_160_S_08_A_A_0	December 23, 2015	CSO	Project will be assessed during the next reporting period to provide at least one full year of monitoring data.
Charleswood Interceptor Extension	S_PO_WC_PC03_M_01_C	August 5, 2015	SSO	Project will be assessed during the next reporting period to provide at least one full year of monitoring data.
Fairmount Road Pump Station Offline Storage Basin	S_FF_CC_81316_M_03_C_A	March 30, 2016	SSO	Project will be assessed during the next reporting period to provide at least one full year of monitoring data.
Goose Creek PS Phase 1 - Devondale Wet Weather Storage	S_MI_MF_NB04_M_03_B	April 15, 2016	SSO	Project will be assessed during the next reporting period to provide at least one full year of monitoring data.
Jeffersontown WQTC Elimination	S_JT_JT_NB01_M_01_C_A	December 23, 2015	SSO	Project will be assessed during the next reporting period to provide at least one full year of monitoring data.
Lea Ann Way System Improvements	S_PO_WC_PC08_M_01_C	December 4, 2015	SSO	Project will be assessed during the next reporting period to provide at least one full year of monitoring data.
Prospect #1 – WQTC Eliminations	S_OR_MF_NB04_M_03_B_B	December 15, 2015	SSO	Project will be assessed during the next reporting period to provide at least one full year of monitoring data.
Prospect #2 – Harrods Creek PS	S_OR_MF_NB04_M_03_B_B	November 13, 2015	SSO	Project will be assessed during the next reporting period to provide at least one full year of monitoring data.

4.5.3 GREEN INFRASTRUCTURE MONITORING

MSD has partnered with the EPA ORD to continue long-term green infrastructure performance monitoring for two CSO areas (CSO130 and CSO190) where green infrastructure solution alternatives have demonstrated more favorable benefit/cost ratios than overflow storage basins. The CSO190 Green Infrastructure Project is nearing completion. 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. EPA ORD has continued to be involved in green infrastructure monitoring data in the CSO190 basin, beginning with the installations in November 2015. Both UofL and EPA ORD will be reviewing field monitoring data for these IOAP projects to ascertain overflow reduction performance. PCCM findings for these projects will be included in the annual report after project certification. Should their findings show that MSD has not achieved the proposed level of control, an action plan will be developed.

4.5.4 WATER QUALITY SYNTHESIS REPORT

In September 2016, MSD submitted the MS4 Annual Report to KDOW. Since this was the fifth year of that permit cycle, MSD assessed stream health in accordance with permit requirements and compiled trend data in Chapter 5: Monitoring. A copy of the 2016 MS4 Annual Report is available online at <http://msdstormwaterquality.org/Stormwater-101/News-Archive/News-Details/ID/22/MSD-Stormwater-Quality-Annual-Report.aspx>. MSD continues to synthesize and trend water quality data in a report as required by the MS4 permit.

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 during the reporting period or are scheduled to occur in the next reporting period.

5.1.1 OVERFLOW ADVISORY SIGNS

FY16 Program

- Updated sign inventory to ensure all needed signs are in place.
- Completed the annual sign inspection process on March 25, 2016. There were 1,214 signs inspected, 335 signs cleaned, and 430 placed or replaced.

FY17 Program

- Perform an evaluation of sign locations against the documented overflows to ensure all needed signs are in place.
- Schedule the Annual Sign Inspection process.

5.1.2 ELECTRONIC NOTIFICATIONS

FY16 Program

- Continued to utilize the Louisville Metro e-mail alert system to notify customers who voluntarily signed up to receive email alerts regarding sewer overflows and to broadcast messages to the public.
- Provided notification on ten dry weather unauthorized discharges of more than 1,000 gallons.

FY17 Program

- Continue email alerts to customers who signed up to receive the information.

5.1.3 PRINT NOTIFICATIONS

FY16 Program

- Mailed 1,658 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.
- In April 2016, distributed the annual mailing to residents within 500 feet of Beargrass Creek and the Ohio River, 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 8, 2016 edition of the Courier Journal in a newspaper advertisement to use caution around streams during and immediately following rain events as they may contain untreated sewage. A copy of the notification is provided in Appendix F.
- Sent 296 public outreach letters to residents in areas that have Fats, Oil and Grease (FOG) issues. The FOG message, included on the reverse of these letters, is provided in Appendix F.
- Included “Rate Increase” print campaign with August / September 2015 billing, provided in Appendix F.
- Included “Downspout” print campaign with February / March 2016 billing, provided in Appendix F.

FY17 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.
- Provide annual notification and informational material to the community, 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, 2017.
- Distribute, prior to May 1, 2017, the annual mailing to residents within 500 feet of Beargrass Creek and the Ohio River, advising the use of caution around streams during and immediately following rain events as they may contain untreated sewage.

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 during the reporting period or are scheduled to occur in the coming fiscal year.

FY16 Program

- Continued to identify areas of public knowledge requiring additional effort and attention and target public education efforts to fill the gaps.
- Continued to provide information on MSD’s Green Infrastructure incentive programs, Louisville’s tree canopy, sewer overflow prevention, pollution prevention and other topics, including the events listed in Table 5.1.

Table 5.1. Public Education Workshops and Activities

DATE(S)	EVENT	BENEFIT / RELEVANCE / IMPACT
July 11, 2015 – July 26, 2015	Homearama	Provided Rain Barrels, Information on Native Plants and Rain Gardens, as well as Information on MSD Programs and Projects required by the Consent Decree
October 13, 2015 – October 15, 2015	Adventures in Water	Raised awareness about stormwater quality by featuring MSD's EnviroScape presentations to local students
October 1, 2015	Canoemobile at McNeely Lake Park	Raised awareness about local water quality by featuring MSD's participation in water quality testing with local students.
September 22, 2015	Construction Field Day 2015	Encouraged attendees to attend a rain garden presentation
March 16, 2016 – March 18, 2016	Home, Garden and Remodeling Show 2016	Encouraged attendees to learn about the benefits of rain gardens, rain barrels and trees.
July 11, 2015 – July 26, 2015	Homearama 2015	Encouraged attendees to learn about the benefits of rain gardens, rain barrels and trees.
October 12, 2015	IdeaFestival Water	Raised awareness about water quality by featuring MSD's participation in IdeaFestival Water.
April 16, 2016 – April 24, 2016	Mayor's Give A Day Week of Service	Raised awareness about the benefits of green infrastructure at two tree plantings and one rain garden installation.
August 29, 2015 & June 18, 2016	Ohio River Sweep 2015 and 2016	Raised awareness about the role the public can play in ensuring good water quality.
October 2, 2015 & April 22, 2016	Rain Garden Workshops	Raised awareness about the benefits of rain gardens by featuring a rain garden installation at local schools – Maupin Elementary and Waldorf Elementary.
May 25, 2016 & June 29, 2016	Waterfront Wednesday	Encouraged attendees to learn about the benefits of rain gardens, rain barrels and trees.
Ongoing	IOAP Project & Program Meetings	Encouraged Twitter users to attend our public meetings concerning MSD's IOAP projects and program

- Continued to be active in Social Media Program with an MSD account on Twitter. As of June 30, 2016, MSD's twitter account had 772 followers. During the reporting period, 1,441 tweets were released on topics including environmental awareness, outreach programs, events, health and safety, and public meetings. Public outreach campaigns supported included World Environment Day, World Oceans Day, Pollinator Week, Skills USA, and Ohio River Sweep. Weekly Twitter campaigns consisted of the following:
 - Fun Fact Mondays – shared the benefits of green infrastructure and sewer overflow prevention.
 - Do's/Don'ts/Tips Tuesdays – encouraged activities and behaviors that have a positive impact on water quality; discouraged activities and behaviors that have a negative impact on local water quality. This campaign included tweets about the proper way to dispose of pharmaceutical products, pet waste, wipes, dental floss and other household products.
 - Value of Water Wednesdays – shared the benefits of fostering good water quality.
- Released monthly paid Twitter ads beginning in February 2016, containing messages related to upcoming IOAP project public meetings.

FY17 Program

- Continue to re-tool public education efforts to address areas of public knowledge requiring additional effort and attention.
- Continue to provide information through Social Media. Plan to launch MSD Facebook account to provide information on the following topics: environmental awareness, outreach programs, events, health and safety and public meetings. Public outreach campaigns supported included World Environment Day, World Oceans Day, Pollinator Week, Skills USA and Ohio River Sweep.

5.2.1 RADIO AND TV ACTIVITIES

FY16 Program

- Coordinated with Metro TV (Channel 25) to broadcast the public input meetings listed in Table 5.2.
- Performed television interviews to discuss green infrastructure on April 21, 2016 (WAVE3) to discuss rain gardens and June 8, 2016 (WDRB) to discuss green infrastructure.

FY17 Program

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

5.2.2 PRINTED MEDIA ACTIVITIES

FY16 Program

- Included the “Changing what it means to be MSD.” advertisement in Business First (January 2016, April 2016) and Louisville Magazine (April 2016, May 2016), provided in Appendix F.
- Provided printed copies of the StreamLine to 700 customers and staff each month. Posted the Streamline to Twitter and Facebook accounts, reaching 2,753 followers. Project WIN related articles are contained in each issue of this newsletter. These publications are available on the MSD Website. Online versions of the StreamLine newsletter can be viewed at <http://www.msdlouky.org/aboutmsd/updatenews.htm>.

FY17 Program

- Continue to utilize various media outlets, including TV, 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

FY16 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.msdprowin.org**.
- Continued communication with customers via posts on www.twitter.com.

FY17 Program

- Continue to post Project WIN information on the website.
- Continue to post communication with customers via www.twitter.com.
- Launch MSD Facebook page to post communication with customers.

Table 5.2. Metro TV Broadcasts

DATE	PROGRAM TITLE	ORIGINAL MEETING DATE
August 3, 2015	Portland Green Project 2	N/A
August 3, 2015	Portland Green Project 2	N/A
August 22, 2015	Portland Green Project 2	N/A
January 30, 2016	Clifton Heights CSO Basin: Conceptual Design Meeting	May 19, 2015
January 31, 2016	Clifton Heights CSO Basin: Conceptual Design Meeting	May 19, 2015
February 3, 2016	Southwestern CSO Basin: Conceptual Design Meeting #2	November 12, 2015
February 3, 2016	Southwestern CSO Basin: Conceptual Design Meeting #3	December 14, 2015
February 3, 2016	Southwestern CSO Basin: Conceptual Design Meeting #2	November 12, 2015
February 4, 2016	Clifton Heights CSO Basin: Advanced Design Meeting	September 15, 2015
February 4, 2016	Southwestern CSO Basin: Conceptual Design Meeting #3	December 14, 2015
February 5, 2016	Southwestern CSO Basin: Conceptual Design Meeting #2	November 12, 2015
February 5, 2016	Southwestern CSO Basin: Conceptual Design Meeting #3	December 14, 2015
February 6, 2016	Clifton Heights CSO Basin: Conceptual Design Meeting	May 19, 2015
February 7, 2016	Southwestern CSO Basin: Conceptual Design Meeting #2	November 12, 2015
February 8, 2016	Southwestern CSO Basin: Conceptual Design Meeting #3	December 14, 2015
February 9, 2016	Southwestern CSO Basin: Conceptual Design Meeting #2	November 12, 2015
February 9, 2016	Story & Main CSO Basin: Orientation Meeting	June 16, 2015
February 13, 2016	Clifton Heights CSO Basin: Conceptual Design Meeting	May 19, 2015
February 13, 2016	Southwestern CSO Basin: Conceptual Design Meeting #3	December 14, 2015
February 13, 2016	Southwestern CSO Basin: Conceptual Design Meeting #2	November 12, 2015
February 13, 2016	Story & Main CSO Basin: Orientation Meeting	June 16, 2015
February 14, 2016	Story & Main CSO Basin: Orientation Meeting	June 16, 2015
February 22, 2016	Clifton Heights CSO Basin: Advanced Design Meeting	September 15, 2015
February 22, 2016	Story & Main CSO Basin: Orientation Meeting	June 16, 2015
February 23, 2016	Southwestern CSO Basin: Conceptual Design Meeting #3	December 14, 2015

Table 5.2. Metro TV Broadcasts

DATE	PROGRAM TITLE	ORIGINAL MEETING DATE
February 24, 2016	Southwestern CSO Basin: Conceptual Design Meeting #2	November 12, 2015
February 25, 2016	Story & Main CSO Basin: Orientation Meeting	June 16, 2015
February 26, 2016	Southwestern CSO Basin: Conceptual Design Meeting #3	December 14, 2015
February 26, 2016	Southwestern CSO Basin: Conceptual Design Meeting #2	November 12, 2015
February 27, 2016	Clifton Heights CSO Basin: Advanced Design Meeting	September 15, 2015
February 29, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
March 3, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
March 3, 2016	Story & Main CSO Basin: Orientation Meeting	June 16, 2015
March 4, 2016	Clifton Heights CSO Basin: Advanced Design Meeting	September 15, 2015
March 4, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
March 5, 2016	Story & Main CSO Basin: Orientation Meeting	June 16, 2015
March 6, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 6, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 7, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
March 7, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 9, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
March 9, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 10, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 12, 2016	Clifton Heights CSO Basin: Advanced Design Meeting	September 15, 2015
March 12, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
March 13, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 15, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 18, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 19, 2016	Clifton Heights CSO Basin: Advanced Design Meeting	September 15, 2015
March 19, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016

Table 5.2. Metro TV Broadcasts

DATE	PROGRAM TITLE	ORIGINAL MEETING DATE
March 21, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 25, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 26, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
March 27, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
March 27, 2016	Story & Main CSO Basin: Orientation Meeting	June 16, 2015
March 28, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
April 1, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
April 3, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
April 6, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 7, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 9, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 9, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 11, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 12, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 15, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 15, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
April 17, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
April 22, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 24, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
April 25, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 25, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
April 25, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
April 28, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 29, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
April 30, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016

Table 5.2. Metro TV Broadcasts

DATE	PROGRAM TITLE	ORIGINAL MEETING DATE
May 1, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
May 2, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
May 6, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
May 9, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
May 11, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
May 12, 2016	Story & Main CSO Basin: Conceptual Design Meeting	February 10, 2016
May 14, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
May 14, 2016	Lexington & Payne CSO Basin: Orientation Meeting	January 19, 2016
May 20, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
May 20, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
May 20, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
May 21, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
May 21, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
May 23, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
May 25, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
May 25, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
May 26, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
May 27, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
May 28, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
May 28, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
June 3, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
June 4, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
June 4, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
June 7, 2016	Clifton Heights CSO Basin: Advanced Design Meeting	September 15, 2015
June 8, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016

Table 5.2. Metro TV Broadcasts

DATE	PROGRAM TITLE	ORIGINAL MEETING DATE
June 8, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
June 9, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
June 9, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
June 10, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
June 11, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
June 11, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
June 18, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
June 19, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
June 20, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
June 20, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
June 21, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
June 22, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
June 23, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
June 25, 2016	MSD Infrastructure	N/A
June 25, 2016	MSD Infrastructure	N/A
June 26, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
June 26, 2016	MSD Infrastructure	N/A
June 26, 2016	MSD Infrastructure	N/A
June 28, 2016	MSD Infrastructure	N/A
June 29, 2016	Clifton Heights CSO Basin: Advanced Design Meeting	September 15, 2015
June 29, 2016	I-64 & Grinstead CSO Basin: Conceptual Design Meeting	March 10, 2016
June 29, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
June 29, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
June 30, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016
June 30, 2016	Lexington & Payne CSO Basin: Conceptual Design Meeting	April 26, 2016

Table 5.2. Metro TV Broadcasts

DATE	PROGRAM TITLE	ORIGINAL MEETING DATE
June 30, 2016	MSD Infrastructure	N/A
June 30, 2016	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016

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, stormwater and flood protection. The following activities occurred within the current reporting period or are scheduled to occur in the coming fiscal year.

5.3.1 GREEN INFRASTRUCTURE WORKSHOPS AND ACTIVITIES

FY16 Program

Presented, attended, and/or facilitated meetings in Table 5.3 related to green infrastructure.

FY17 Program

- Schedule rain garden workshops at various times throughout the year.
- Continue 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

FY16 Program

Activities related to the current reporting period are detailed in Table 5.4.

FY17 Program

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

Table 5.3. Green Infrastructure Workshops and Activities

DATE(S)	EVENT	BENEFIT / RELEVANCE / IMPACT
July 11, 2015 – July 26, 2015	Homearama	Provided Rain Barrels, Information on Native Plants and Rain Gardens, as well as Information on MSD Programs and Projects required by the Consent Decree
August 3, 2015	MS4 Co-Permittee Meeting	Provided Guidance on Green Infrastructure BMPs, the MSD Design Manual and Regulatory Requirements
September 22, 2015	Construction Field Day	Assembled Contractors for Information on Green BMP Construction and Impact on water quality and overflow reduction.
October 8, 2015	Botanica	Coordinated with the Botanica future botanical garden to show best green practices for residential customers to increase the number of properties that utilize rain gardens to manage runoff.
October 23, 2015	Enviroscape Presentation at Cane Run Elementary STEAM Day	Discussed runoff pollution and impacts of rain water in the combined sewer that cause overflows.
October 30, 2015	Environmental Justice Workshop	Workshop focused on one of the values identified by the wet weather team stakeholders when developing the IOAP framework.
November 11, 2015	Louisville Sustainability Council Fall Sustainability Summit	MSD staff presented on green roofs as a management practice for reducing overflows at CSOs in Downtown Louisville.
January 7, 2016	MS4 Co-Permittee Meeting	Discussed updates to the green infrastructure design manual based on lessons learned from co-permittees and stakeholders.
February 8, 2016	Green Infrastructure Design Manual Stakeholder Workshop	Met with a large group of stakeholders to determine best practices and lessons learned for Green Infrastructure implementation, design, and maintenance.
March 10, 2016	Urban Heat Island Greening Team	Coordinated MSD Green Infrastructure needs in the Combined Sewer System with the overall strategy for the reduction of impervious surfaces in Louisville.
March 17, 2016 – March 18, 2016	Home, Garden and Remodeling Show	Provided Rain Barrels, Information on Native Plants and Rain Gardens, as well as Information on MSD Programs and Projects required by the Consent Decree
April 18, 2016	Tree Planting at MSD Central Maintenance Facility (Give-A-Day)	Planted 150 trees with employees as part of the Urban Reforestation Program committed in the IOAP (1000 trees/year)
April 19, 2016	Enviroscape and Flood Simulator Presentation at Meyzeek	Presented on the impact of runoff in the combined sewer system and how to manage overflows with green infrastructure.
April 28, 2016	MS4 Co-Permittee Meeting	Discussed Green Infrastructure practices and lessons learned.
May 25, 2016	Waterfront Wednesday	Provided Rain Barrels, Information on Native Plants and Rain Gardens, as well as Information on MSD Programs and Projects required by the Consent Decree
June 29, 2016	Waterfront Wednesday	Provided Rain Barrels, Information on Native Plants and Rain Gardens, as well as Information on MSD Programs and Projects required by the Consent Decree

Table 5.4. Clean Streams Workshops & Activities

DATE(S)	EVENT	BENEFIT / RELEVANCE / IMPACT
August 29, 2015	Facilitated Ohio River Sweep at the Louisville riverfront.	Facilitated the Ohio River Sweep at the Louisville riverfront.
October 7, 2015	Attended a Kentucky Stormwater Association Meeting.	Discussed Water Quality lessons learned and outreach activities for public engagement.
November 6, 2015	2015 Louisville Sustainability Summit.	MSD staff presented on green roofs as a management practice for reducing overflows at CSOs in Downtown Louisville. Other presentations were focused on water quality improvement opportunities in Louisville.
February 24, 2016	Kentucky Stormwater Association Quarterly Meeting.	Discussed Water Quality lessons learned and outreach activities for public engagement.
June 18, 2016	Ohio River Sweep	Facilitated the Ohio River Sweep at the Louisville riverfront.
June 29, 2016	Kentucky Stormwater Conference Presentation entitled Louisville MS4 Program Update	Discussed the highlights of the Louisville MSD MS4 Program and the focus on improving water quality
Throughout the Year	Assisted Beargrass Creek (BGC) Alliance to mark catch basins in critical areas	Public education and outreach effort in the Combined Sewer System drainage area.

5.3.3 OUTREACH ACTIVITIES FOR STUDENTS

FY16 Program

Attended or presented at the student-centered events detailed in Table 5.5.

FY17 Program

- Continue to facilitate and document IOAP Project Public Input Meetings.
- Continue to inform the Wet Weather Team on the progress of the IOAP implementation by hosting two Wet Weather Team meetings per year.
- Continue to provide information from the Wet Weather Team Stakeholders Group and IOAP Public Input meetings on the Project WIN website, at www.msdlouky.org/projectwin.

Table 5.5. Outreach Activities for Students

DATE(S)	EVENT	BENEFIT / RELEVANCE / IMPACT
September 30 , 2015 – October 1, 2015	ECHO Canoemobile Event.	Discussed water quality and overflows with Metro Parks at Chickasaw Park
October 2, 2015	Maupin Rain Garden.	Assisted Maupin Elementary School students build a rain garden on their grounds in West Louisville.
October 13, 2015 – October 16, 2015	Adventures in Water Festival.	Presented on water treatment, rain gardens, green infrastructure, and water quality.
October 21, 2015	Moore Middle School Field Trip to Floyd's Fork WQTC.	Presented on water treatment, rain gardens, green infrastructure, and water quality.
October 24, 2015	Boy Scout Sustainability Day.	Presented on water treatment, rain gardens, green infrastructure, and water quality.
October 29, 2015	Westport Middle School Field Trip to Louisville Water Tower.	Presented on water treatment, rain gardens, green infrastructure, and water quality
December 11, 2015	Urban Heat Island Youth Summit.	Presented on water treatment, rain gardens, green infrastructure, and water quality
February 25, 2016	ECHO Student-Led Presentations at Maupin Elementary.	Presented on water treatment, rain gardens, green infrastructure, and water quality
March 4, 2016	Shawnee High School Rain Garden.	Discussed impacts of Green Infrastructure on runoff and overflow reduction
March 21, 2016	Louisville Classical Academy field trip to Floyd's Fork WQTC.	Presented on water treatment, rain gardens, green infrastructure, and water quality
April 18, 2016	Enviroscape and Flood Simulator Presentation at Meyzeek Middle School.	Presented on the impact of runoff in the combined sewer system and how to manage overflows with green infrastructure.
April 22, 2016	Waldorf Rain Garden Event (Give-A-Day)	Assisted The Waldorf School students build a rain garden on their grounds in West Louisville.
September 30 , 2015 – October 1, 2015	ECHO Canoemobile Event.	Discussed water quality and overflows with Metro Parks at Chickasaw Park
October 2, 2015	Maupin Rain Garden.	Assisted Maupin Elementary School students build a rain garden on their grounds in West Louisville.

Figure 5.1. MSD’s Structured Public Involvement Meeting Process

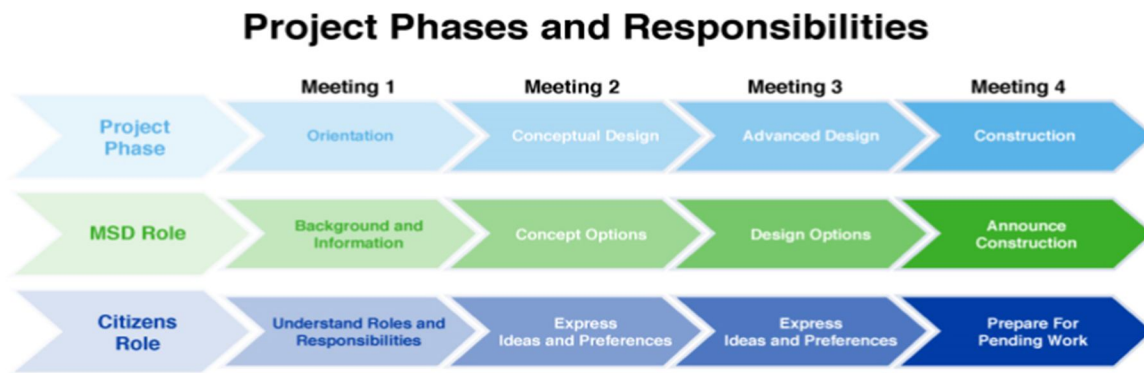


Table 5.6. IOAP Project & Program Meetings

DATE(S)	EVENT
August 11, 2015	Wet Weather Team Meeting
September 15, 2015	Clifton Heights CSO Storage Basin Advanced Design Public Meeting
November 12, 2015	Southwestern Parkway CSO Storage Basin Conceptual Design Public Meeting #2
December 1, 2015	Wet Weather Team Meeting
December 14, 2015	Southwestern Parkway CSO Storage Basin Public Meeting
January 19, 2016	Southwestern Parkway CSO Storage Basin Conceptual Design Public Meeting #3
January 26, 2016	Portland CSO Storage Basin Public Meeting
February 10, 2016	Story Avenue & Main Street CSO Storage Basin Conceptual Design Public Meeting
March 10, 2016	Interstate 64 & Grinstead Drive CSO Storage Basin Conceptual Design Public Meeting
March 22, 2016	Wet Weather Team Meeting
April 26, 2016	Lexington & Payne CSO Storage Basin Orientation Conceptual Design Public Meeting
May 25, 2016	Wet Weather Team Meeting
June 7, 2016	Clifton Heights Construction Public Meeting
June 14, 2016	Portland CSO Storage Basin Advanced Design Public Meeting

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SECTION 6: CAPACITY MANAGEMENT OPERATIONS AND MAINTENANCE 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 the Environmental Protection Agency (EPA) and Kentucky Department of Environmental Protection (KDEP) on February 10, 2006. MSD received a letter of approval on August 22, 2006. The approved CMOM document can be viewed on the Project WIN website www.msdlouky.org/projectwin. Highlights of the CMOM program implementation during FY16 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

The Louisville MSD Organizational Chart is updated every quarter. See Appendix G for the latest version.

M-A-2 Relationship to Other Departments

FY16 Program

- Carried 656.5 approved positions at the beginning of the reporting period and 681 approved positions at the end of the reporting period. This is an increase of 24.5 positions.
- Carried 67.5 vacant positions at the beginning of the reporting period and 75 vacant positions at the end of the reporting period.

FY17 Program

- Continue to hire staff to fill vacant positions
- Procure services of executive recruiter to find qualified candidates to fill specialty and senior/mid/upper management positions critical to the success of the Amended Consent Decree (ACD).

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), conference and seminar attendance,

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

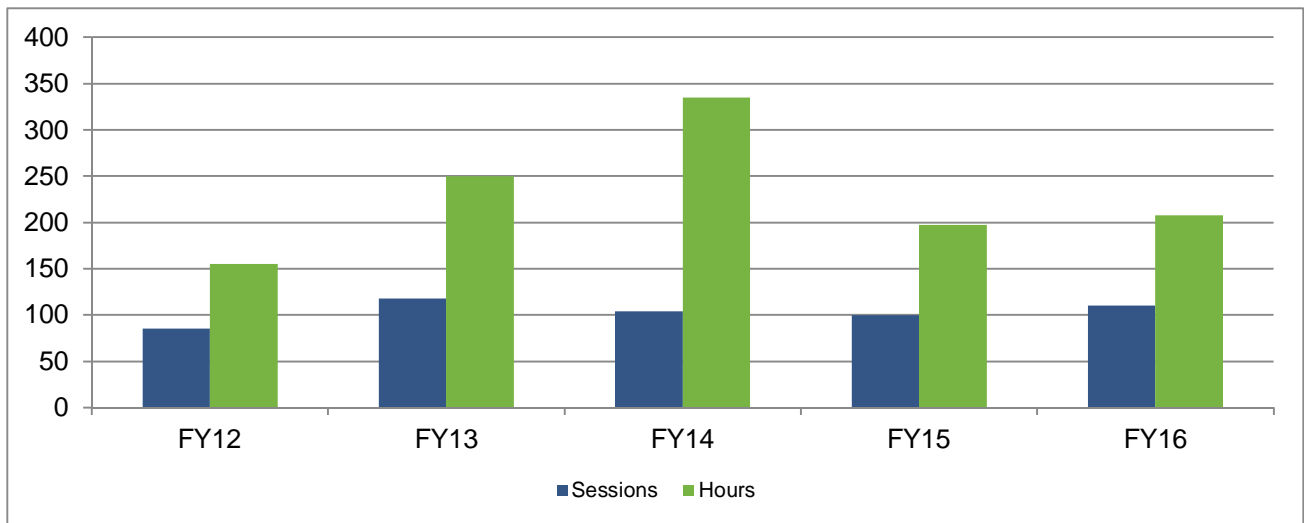
M-B-2 Skills Training

FY16 Program

Administrative Training

Administrative Training sessions included such topics as New Employee Orientation, Project Management, Leadership, Records Retention, Crew Management, Supplier Diversity Procurement Procedures, and Ethics. Training for the reporting period is detailed in Figure 6.1.

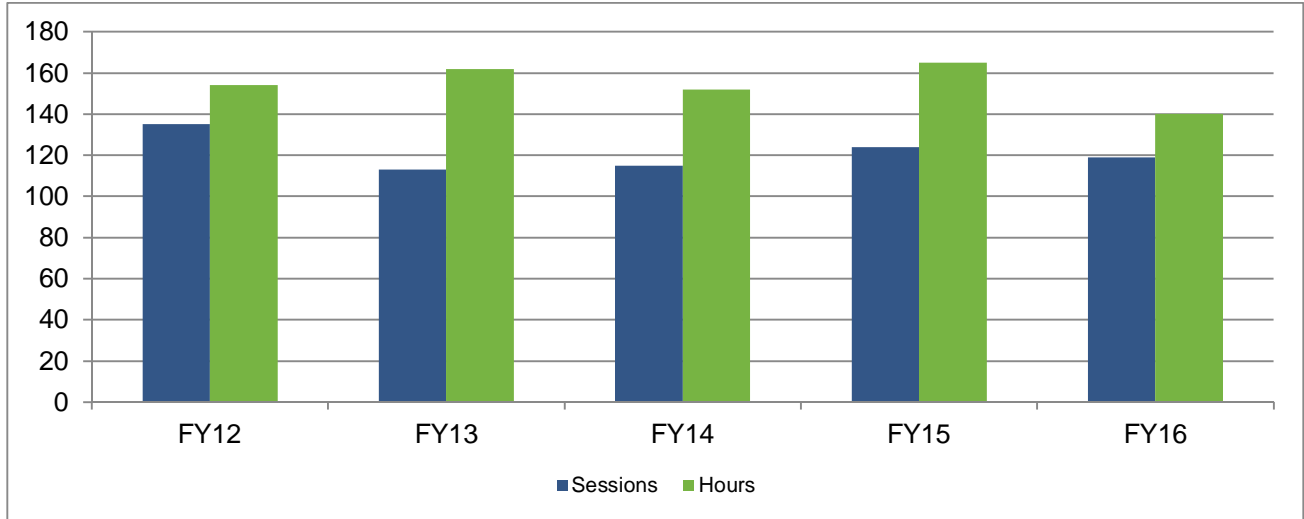
Figure 6.1. Administrative Training



Collections System Training

Collections System training sessions included such topics as Sewer Overflow Response Protocol, Erosion Prevention & Sedimentation Control, Stormwater Pollution Prevention Plans (SWPPP) Training, Combined Sewer Overflow (CSO) & Siphon Preventative Maintenance, Sewer Cleaning, and Construction Blueprints. Training for the reporting period is detailed in Figure 6.2.

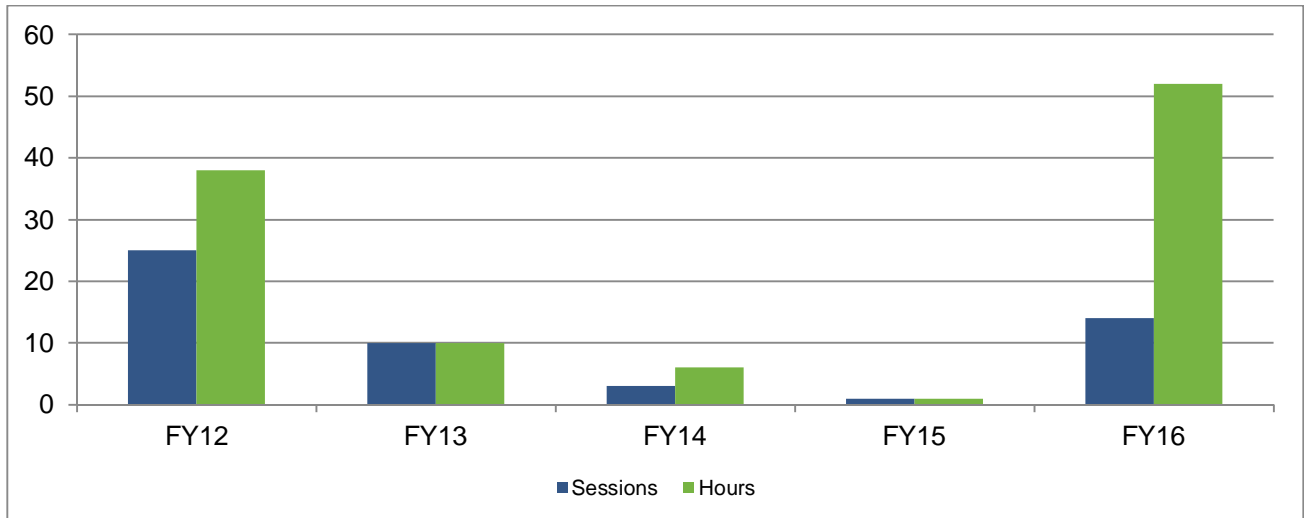
Figure 6.2. Collections System Training



Reporting Training

Reporting training sessions included such topics as Crystal Reports, Telog, Budget Software and eB basics. Training for the reporting period is detailed in Figure 6.3.

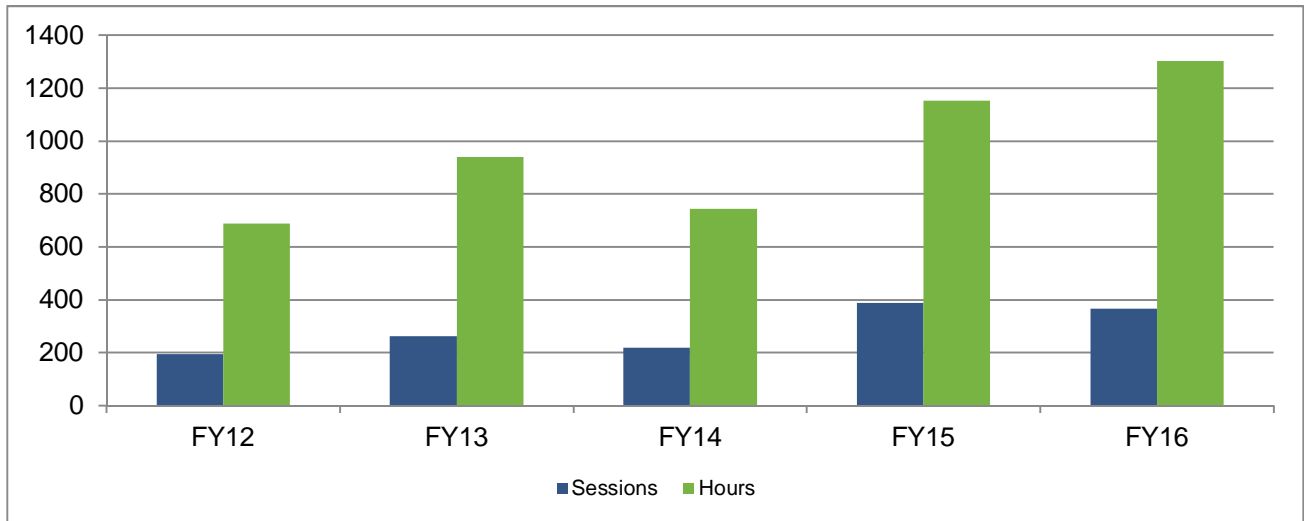
Figure 6.3. Reporting Training



Equipment Training

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

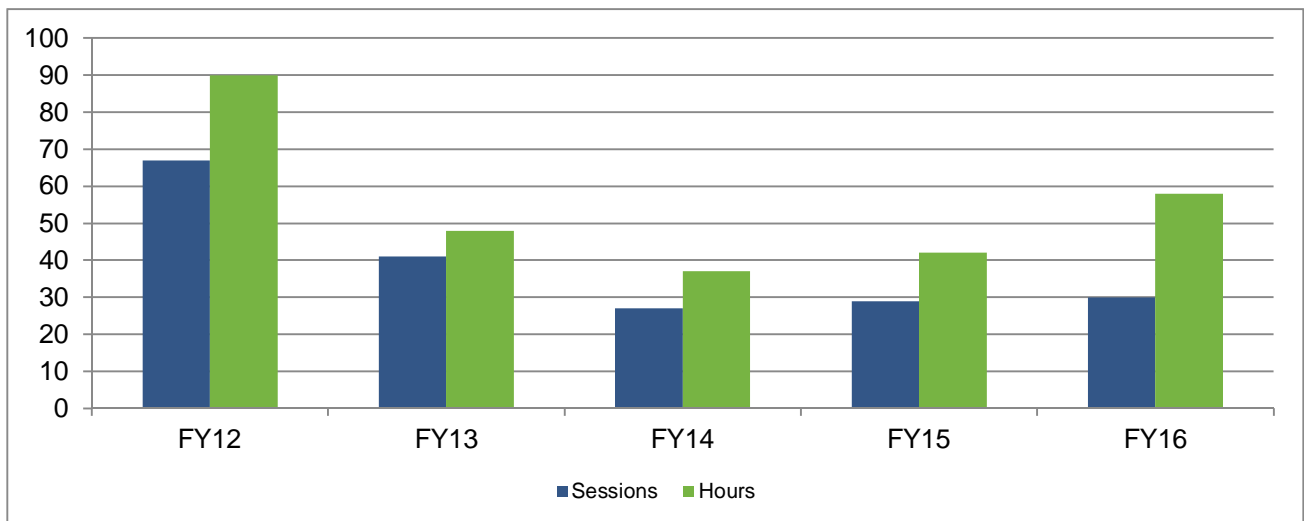
Figure 6.4. Equipment Training



Wastewater Operations

This training focused on knowledge and skills related to wastewater treatment process and control, including sampling, Louisville Green Management System training, and Wastewater Lab Certification Preparation. Training for the reporting period is detailed in Figure 6.5.

Figure 6.5. Wastewater Operations Training



FY17 Program

- Continue to develop competent and capable employees through technical and skills training related to job duties.
- Continue to implement employee performance-based goals as part of annual appraisal process and utilize performance results to identify additional training needs.
- Develop processes to better link organizational goals to individual employee goals.

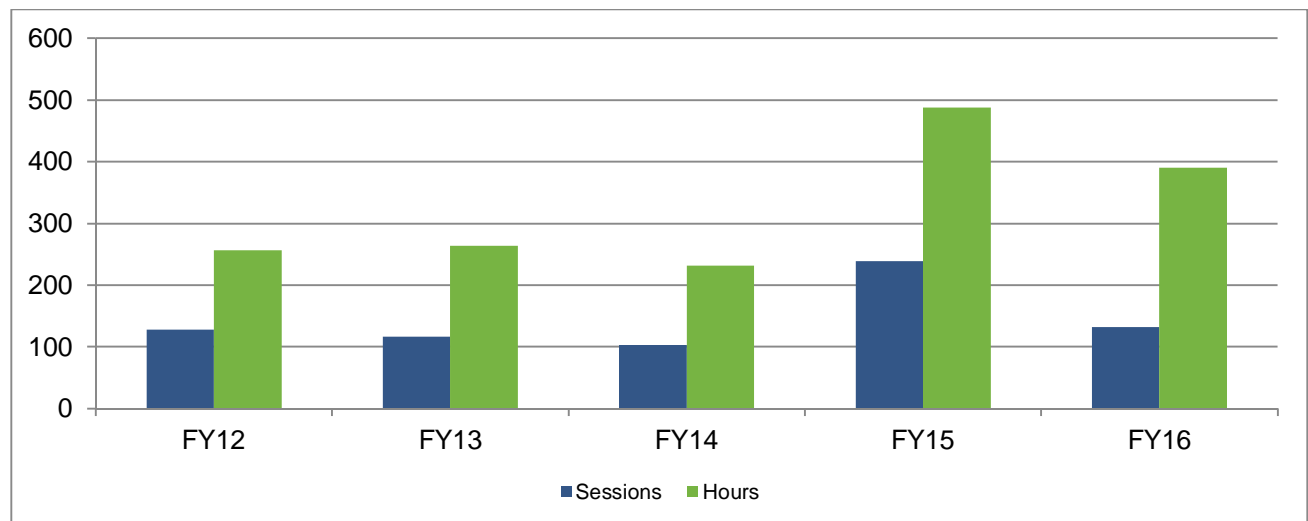
M-B-3 Safety Training

FY16 Program

Safety Training

MSD employees receive safety training in such areas as Traffic Control, Hearing Protection, Confined Space Entry, Blood borne Pathogens, Hazmat, Lock Out/Tag Out, and Competent Person training for trenching and excavation. Training for the reporting period is detailed in Figure 6.6.

Figure 6.6. Safety Training



FY17 Program

Continue to train employees of MSD Standard Safety Procedures.

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

FY16 Program

- Conducted quarterly meetings with the Safety Committee. This Committee includes representatives from across the Operations Division, including Treatment, Collections System, and Drainage and Flood Protection representatives.
- Performed random job site inspections on Drainage/Sanitary crews, inspections at Morris Forman WQTC, and quarterly inspections with Operations of WQTCs and Flood & Viaduct Pump Stations.

FY17 Program

- Continue Safety Committee meetings to perform inspections and review policy and incidents. Address safety concerns presented by safety committee members.
- Organize Central Maintenance Facility and Treatment Safety Committees due to reorganization.

M-C-2 Confined Space Entry

FY16 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 annual inspections on confined space entry equipment such as tripods, wenchers and harnesses.
- Implemented new calibration station for Collections at Cedar Creek to keep separate from treatment.

FY17 Program

- Continue to administer training and monitor procedures on confined space entry in order to maintain compliance with 29 CFR 1910.146. Health and Safety personnel will spot-check confined space entries to determine compliance with company procedure.
- Continue to ensure that all "Climb Down Lift Stations" in Metro Operations 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.
- Continue to assess confined space monitor calibration status and purchase calibration gas for the six calibration stations.

M-C-3 General Safety Procedures

FY16 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 Emergency Response Team (ERT) fire drills and tornado 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.

FY17 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 fire and tornado drills.
- Continue to conduct annual audiograms district-wide.
- Schedule 40-hour HAZ-MAT Technician Level training for newly hired employees as needed based on hiring demands.
- 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 and hire a senior electrical engineer.
- Replace current Material Safety Data Sheets in the MSDS Pro database with updated safety data sheets compliant with the Globally Harmonized System (GHS) standard.

M-C-4 Traffic Management

FY16 Program

- Purchased and maintained traffic control equipment to reduce hazardous operational exposure.
- Provided training on traffic control during licensing and equipment operating training, conducted as employees are hired or as employee job duties require.

FY17 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

FY16 Program

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

FY17 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 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 prior to performing a lock out.

M-C-6 Safety Equipment

FY16 Program

Continued to provide required personal protective equipment to employees.

FY17 Program

- Maintain safety related equipment or replace the equipment per governing policies or as the need arises.
- Assist MSD Operations Division with the purchase of additional confined space escape bottles.
- Explore options for more comfortable safety equipment to maintain employee adherence to safety policies and procedures.

M-C-7 Performance Measures

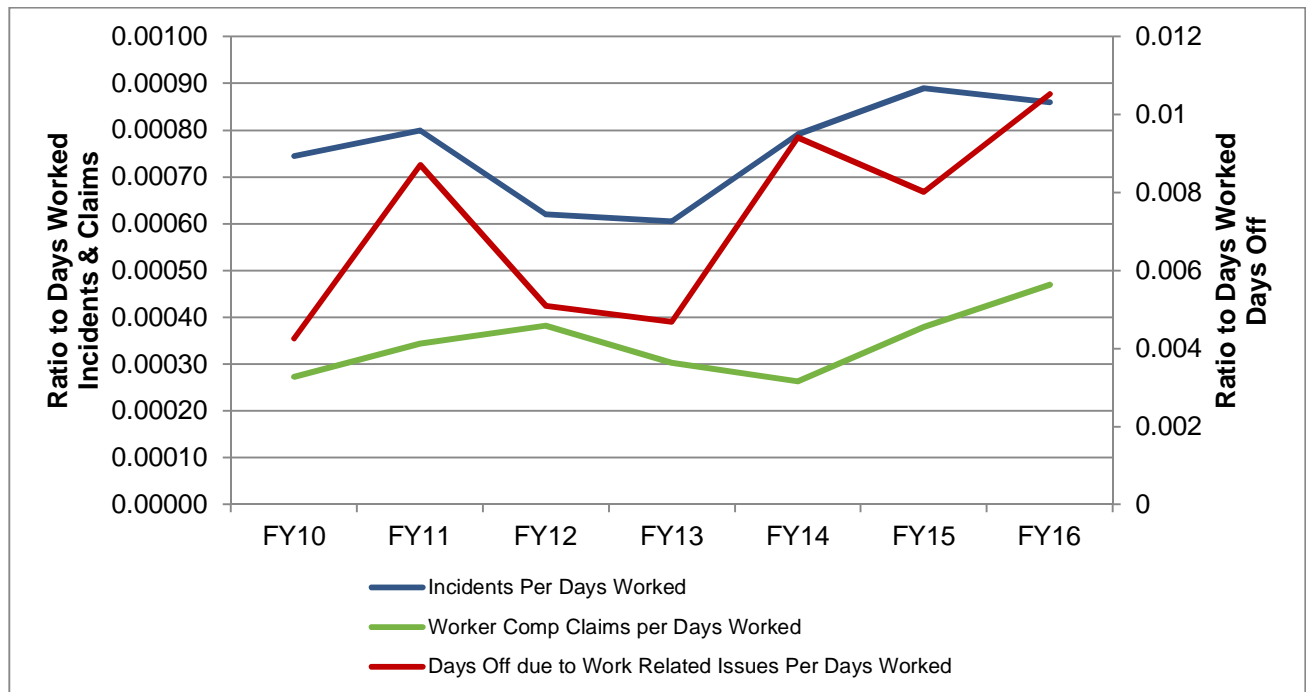
FY16 Program

- Received no MSD construction site visits from OSHA, which resulted in no Notice of Violations.
- Ensured that appropriate staff attended mandatory training on trench excavation safety, confined space, first aid, hazmat response and fire extinguisher usage.
- Safety / worker compensation metrics for MSD employees are detailed in Table 6.1 and Figure 6.7

Table 6.1. Safety Incidents and Worker Compensation Claims

FY	DAYS WORKED (8 HOURS)	SAFETY INCIDENTS	WORKER COMP CLAIMS	DAYS OFF DUE TO WORK RELATED ISSUES
FY12	151,605	94	58	773
FY13	145,302	88	44	681
FY14	144,178	114	38	1,357
FY15	141,353	126	55	1,134
FY16	143,113	123	67	1,507

Figure 6.7. Safety Performance Rate Trends



FY17 Program

Mitigate the adverse trends shown through the reporting period by completing the following activities:

- Maintain field inspections as discussed under M-C-1 Safety Committee to reduce the number of incidents.
- Continue to improve compliance with NFPA 70E and the GHS standard as discussed under M-C-3 General Safety Procedures.

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

FY16 Program

- Completed implementation of Phase II of Network Upgrade with the implementation of Cisco ASA Firewalls.
- Completed implementation of Phase III of Network Upgrade with the upgrade to AT&T Switched Ethernet Network connectivity for faster network speeds.
- Replaced 124 of 152 Windows 2003 Servers.
- Acquired Spring 2016, 4-inch resolution aerial imagery and 1-meter LiDAR data of Jefferson, Oldham, Bullitt Counties, and initiated the update of planimetric/topographic mapping in the LOJIC GIS.
- Updated LOJIC GIS desktop software and applications to ArcGIS 10.2.1.
- Upgraded the LOJIC GIS Floodplain Determination application to report permits, Local Regulatory Floodplain and Continuing Sewer System Assessment (CSSA) information.
- Completed maintenance and update of the local geodetic survey control network to support FEMA CRS, MSD projects and local development.
- Continued to work on the migration to tracking capital project performance measures and milestones through SharePoint.
- Utilized a wide variety of software to operate the day to day business activities associated with wastewater collections, conveyance and treatments. The major Utility Information Management (UIM) applications are shown in Table 6.2. Continued enhancement of The Project WIN website with

updated information related to the Amended Consent Decree: General site statistics are included in **Table 6.3**.

- Strived to provide network availability 24 hours per day, 7 days per week, 365 days per year.
- Maintained a helpdesk system to track and respond to requests from users.

FY17 Program

- Upgrade the Hansen Oracle Database to Oracle version 11g.
- Migrate 20 MSD custom written operations applications to a new Oracle 11g Oracle Database.
- Complete the replacement of all Windows 2003 Servers.
- Install new VMWare Virtual server hardware in the Disaster Recovery site.
- Install new Oracle hardware in the Disaster Recovery site.
- Upgrade GIS databases, HARP and all MSD web-based GIS applications to ArcGIS 10.2.1.
- Complete maintenance and update of the local geodetic survey control network.
- Deploy redundant GIS database in Oracle to support 24/7 web applications.
- Continue the migration to tracking capital project performance measures and project milestones through SharePoint.
- Revise and document procedures for dry weather overflow notifications out of Telog monitoring system.

Table 6.2. Utility Information Management (UIM) Applications

UTILITY INFORMATION MANAGEMENT (UIM) APPLICATIONS			
eB	OneRain	GIS (HARP)	Performance Measures
Crystal Reports	SAP	EGIS	SCADA
Hansen	Telog	GPS	LIMS
FASTER	SharePoint		

Table 6.3. Project WIN Site Statistics

METRIC	FY12	FY13	FY14	FY15	FY16
Number of Visits:	89,753	93,326	109,689	149,677	155,790
Average Number of Visits Per Day:	380	256	301	408	428
Average Visit Duration (minutes):	20	6	10	15	8
Unique Visitors:	31,387	12,714	31,155	38,649	40,029
One-time Visitors:	23,115	7,224	16,855	25,416	25,960
Repeat Visitors:	8,272	7,749	14,270	13,233	14,069
Average Visits per Visitor:	2.85	2.52	3.52	3.93	3.71

6.1.1.5. ENGINEERING PROGRAMS

This section describes MSD's Engineering Capacity Management Operations and Maintenance (CMOM) activities. 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: collections 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

MSD has an extensive collection of record drawings of the sewer facilities dating back to 1874. In addition to the original record drawing, a scanned image is stored in eB, MSD's records management system. Plans are scanned twice during a project life cycle – once when the project is approved for construction and a second time when the plans are made "as-built" after construction completion. After a set of plans has been constructed, the facilities are created in GIS and the attributes of the facilities are stored in a corresponding asset record in the Hansen database. Map corrections are also obtained during asset inspection activities described in Appendix E.

FY16 Program

- Captured assets in the GIS and asset management software. Added 1,211 property service connection records and 125,841 feet of sewer records.
- Corrected 101 sewer errata.
- Scanned 215 construction plan sets into the eB Imaging System.

FY17 Program

- Continue to scan plans and update data in the GIS and asset management software from the collections and transmission plans.
- Continue the enhancement of the HARP application.
- Update sewersheds as pump station projects are completed to support SCAP implementation.

M-E-4 Sewer System Design

FY16 Program

- Updated the Green Infrastructure Chapter of the Design Manual (Chapter 18) throughout the reporting period. Several workshops and a public comment period were administered to provide opportunity to stakeholders for input. The revised document is expected to be published as final in FY17.
- Continued to hold The Qualified Post-Construction Inspector (QPCI) training course, 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 by a QPCI to verify continued on-site stormwater management.
- Continued use of new AutoCAD templates available on the MSD public webpage, including new AutoCAD 3D templates, for use by private firms as well as in-house design.

FY17 Program

- 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

In January 2015, MSD interviewed and hired 11 full-time construction inspectors and two construction inspector supervisors. This effort was to bring inspection in-house to be done by the owner and to eliminate the need for contracted inspection services.

FY16 Program

- Implemented a new policy on significant capital projects, including projects with construction cost greater than \$10,000,000, projects with a higher implementation of electrical and/or mechanical technology which requires specialized knowledge, and projects requiring specialized construction knowledge, such as storage basins. In lieu of hiring full-time staff, MSD will rely on the design engineer to be the engineer of record or resident project representative (RPR). The RPR is responsible for all inspection, materials testing, manufacture and performance testing, project commissioning, final as-built drawings and certification that the project was completed as designed.
- Began review and updates of the capital construction inspector field handbook.

FY17 Program

- Continue construction inspection activities in-house.
- Continue acquisition of RPR services for significant capital projects.
- Continue review and updates of the capital construction inspector field handbook.

M-E-7 Acquisition Considerations

FY16 Program

- Financed capital expenditures of \$184,082,000.
- Committed professional services funds of \$25,114,082.
- Committed construction funds of \$102,465,015.
- Awarded construction contracts valued at \$119,871,042.
- Processed total change orders equaling \$1,759,496:
 - MSD-requested scope change – 59%
 - Unforeseen conditions – 40%
 - Design error or omission – 1%
 - Final compensating quantities – 0%
 - Emergency Work – 0%

FY17 Program

- Budget for capital expenditures up to \$166,900,000.
- Monitor expenditures related to professional services and construction.

M-E-8 Continuing Sewer System Assessment

Refer to Appendix E for details on the CSSA activities for the reporting period in.

M-E-9 Infrastructure Rehabilitation

Refer to Section 4: Program Activities for Discharge Abatement Plans for more details on infrastructure rehabilitation projects identified in the IOAP. Refer to Appendix E for an update on all rehabilitation projects completed during the reporting period and planned for the next reporting period in accordance with CSSA.

M-E-10 System Capacity Assurance Program

FY16 Program

- Continued to collect formula-based defect inspection of significant footage of sewer lines in various sewer-sheds 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. Refer to Appendix E for a progress update.
- 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.
- In accordance with the System Capacity Assurance Program (SCAP), reviewed capacity requests as follows:
 - Approved 123 capacity requests with projected flow of 700,864 GPD.
 - Denied approval of three capacity requests with projected flow of 13,450 GPD due to capacity limitations.
 - Conditionally approved 214 capacity requests with projected flow of 3,700,133 GPD.
- Continued to work on the procedures for documentation of rehabilitation and the calculation of SCAP results.
- Submitted credit catchment ledgers to the Kentucky Division of Water (KDOW) and EPA as part of quarterly reports.

FY17 Program

- Continue to perform formula-based inspection of sewer lines in various sewer-sheds across the county. Refer to Appendix E for an update on the areas selected for inspection.
- Continue tracking pump station capacities through testing, investigation and capacity evaluations.
- Update WQTC 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 the procedures for documentation of rehabilitation and the calculation of SCAP credits.
- Update SCAP areas based on pump station and WQTC elimination projects that have been completed.

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

Refer to Section 1: Project WIN Performance Overview for detailed information.

M-F-2 Sanitary Sewer Overflow Notification

M-F-3 Tracking Sanitary Sewer Overflows

Refer to Section 3: Program Activities for Sewer Overflow Response Protocol 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

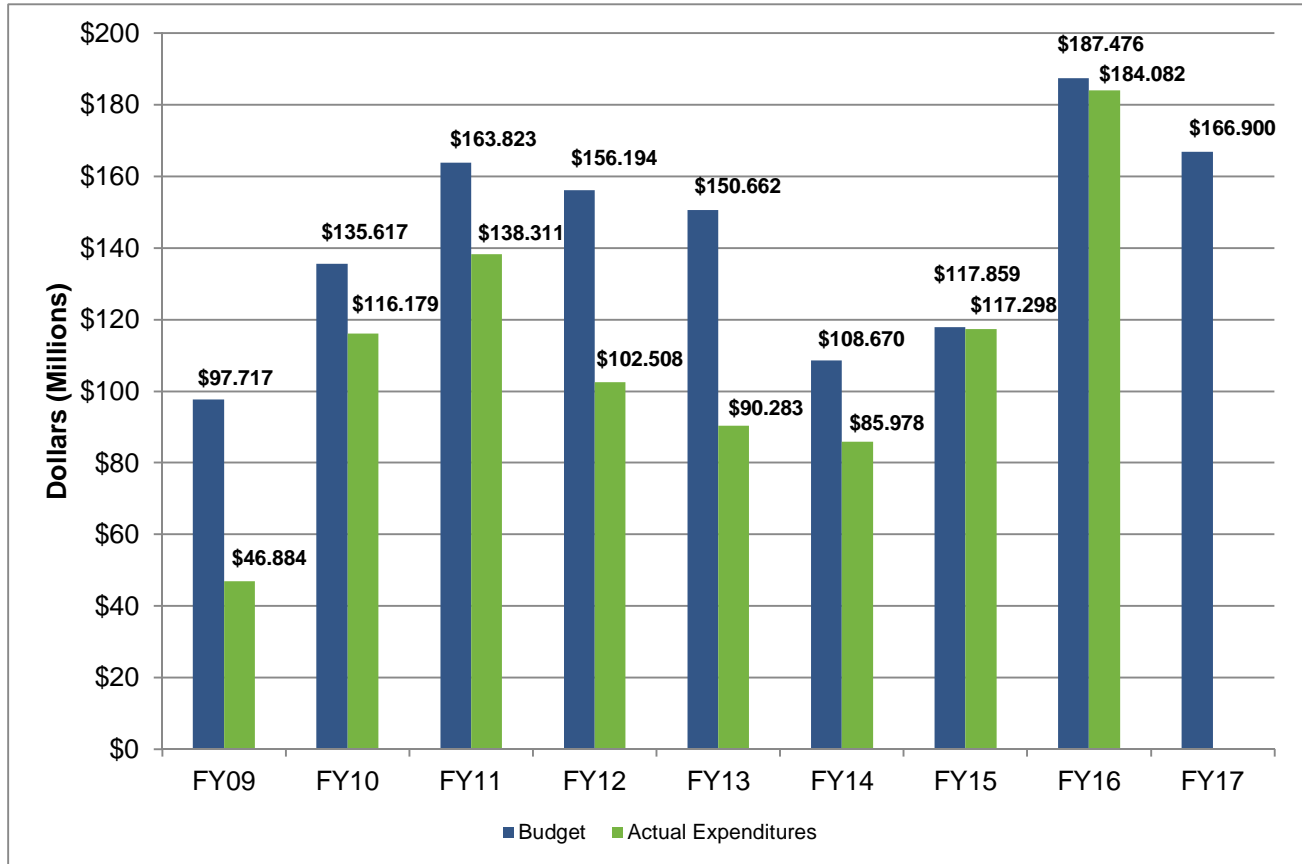
FY16 Program

- Reported operating revenues growth of 5.8% in FY16 (\$243,290,000 in FY16 vs. \$229,869,000 in FY15).
- Determined FY15 operating revenues were \$3,539,000 more than the budgeted amount (\$239,751,000).
- Determined wastewater & stormwater revenue was \$3,229,000 more than budgeted.
- Reported investment income of \$17,278,000 was \$1,708,000 less than the budget of \$18,986,000.
- Reported FY16 debt service coverage ratio of 180%. This was down from 188% in FY15.
- Reported total operating expenses of \$151,978,000, including depreciation, was \$12,539,000 more than FY15 and \$3,828,000 higher than FY16 budget of \$148,150,000 due to the inclusion of MSD's share of the state's unfunded pension liability of \$4,100,000 (GASB 68).
- Increase in operating expense from prior year can be attributed to an increase in administrative and repairs costs of \$6,772,000.
- Capital spending for FY15 was \$117,298,000 vs. a budget of \$117,859,000. The same amounts for FY16 are \$184,082,000 vs. a budget of \$187,476,000 as shown in Figure 6.8. Please note that the values reflected in the figure are revised and no longer include capitalized operating costs.

FY17 Program

- Set the operating budget at \$120,900,000 and the capital budget at \$166,900,000.
- Issue \$150 million of revenue bonds in FY17 to fund the capital program.

Figure 6.8. MSD Capitalized Budget Performance



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

FY16 Program

- Established customer service team goal for continual operations improvements.
- Continued weekly meetings with departments for improved customer service, inventory management of critical spare parts, reorganization of new storeroom locations, and future consideration of site delivery for field crews.

- Continued improvements with asset security at all storeroom locations.
- Provided advanced training to storeroom team members on inventory management applications and utilize software for regular inventory counts to manage spare parts.
- Continued asset management process to replace identified spare parts from Morris Forman WQTC flood event.

FY17 Program

- Upgrade security at all storeroom locations.
- Develop team goals for concentration of inventory management improvements with spare parts.
- Continue weekly meetings with departments for improved customer service, inventory management of critical spare parts, reorganization of new storeroom locations, and future consideration of site delivery for field crews.
- Provide Excel refresher course training to storeroom team members for improvements with cycle counting and report design.
- Work on new spare parts for Morris Forman WQTC storeroom from ongoing equipment replacement projects.

M-H-2 Equipment and Tools Repair Management**FY16 Program**

- Continued to review and update safety equipment and inspection controls (Arc Flash Personal Protective Equipment (PPE), safety harness inspections, eyewash stations, ladders, safety PPE, and fire extinguishers).
- Continued annual audit of standard operating procedures (SOPs) for tooling inspections and implement improved security measures for cost savings initiatives and asset management that aligned with departmental goals when necessary.
- Prepared and executed Tooling Inspection and Equipment Repair training for all Treatment and Collections operators, mechanics, electricians and controls technicians.
- Audited Tool and Equipment Repair process and form through MSD Tool Shop for continuous improvement of systems.
- Continued updating standard tooling lists for all Treatment and Collections operators, electricians, mechanics, control specialists, and field supervisors for cost savings initiatives by recycling old tools and utilizing internal contracts.
- Participated on Morris Forman Safety Committee Membership by attending regular safety inspections, safety meetings, and supporting safety standards.

FY17 Program

- Complete upload of employee tooling lists to eB software for internal management access.
- Continue participation on Central Maintenance Facility and Morris Forman Safety Committees by attending regular safety inspections, safety meetings, and supporting safety standards.
- Finalize process with Engineering on Arc Flash PPE, and begin regular inspections of PPE and equipment.
- Begin training on safety related storeroom processes and inventory for all employees.
- Continue annual audit of SOP for tooling inspections and implement improved security measures for cost savings initiatives and asset management that aligned with departmental goals when necessary.
- Redesign Tool Shop at Central Maintenance Facility for continuous improvement of systems, and to streamline process.

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 Nine Minimum Controls (NMC) and CMOM activities, targeting an overall average availability of 95% or higher for all MCE. Five types of equipment were identified as MCEs in the MSD fleet as shown in Table 6.4 with availability for the current reporting period.

Table 6.4. Mission Critical Equipment

EQUIPMENT TYPE	QUANTITY	EVALUATED MISSION CRITICAL AVAILABILITY
High-Pressure Sewer Flusher/Jetter Trucks	6	78.8%
Vacuum Sewer / Catch Basin Cleaner Trucks	9	88.7%
Catch Basin Cleaners (mechanical clamshell type)	5	97.5%
Tele-Inspection Vehicles	7	90.5%
Sound Attenuated Six-Inch Trash Pumps	13	96.4%

FY16 Program

- Continued monitoring and reporting availability of MCE targeting an overall average availability of 95% or higher for all MCE. Changed documentation process to ensure out of service times and classifications of repairs are accurate and recorded on a timely basis.
- Monitored equipment and work order data using FASTER System reports to analyze and target areas where improvement is needed and to plan future replacements.
- Implemented revised preventive maintenance (PM) schedules to be class-specific and in line with industry standards, specifically addressing the operating environment of all MCE increasing the frequency of PM performed to improve availability to the operating division.

- Analyzed FY17 capital purchasing needs, including the evaluation of MCE for replacement.
- Completed the following activities related to High-Pressure Sewer Flusher/Jetter Trucks:
 - Procured four new units to replace aging equipment and improve availability.
 - Coordinated technician training on new units for fleet technicians and operators.
 - Completed operator training for fleet technicians to create an improved understanding of the operating environment and recognition of quality control issues related to outsourced vendor repairs.
- Completed the following activities related to Tele-Inspection Vehicles:
 - Procured two new units to replace aging equipment and improve availability.
 - Coordinated technician training on new units for fleet technicians and operators.
 - Procured Mud Master inspection tool.
- Continued efforts associated with One Water Initiative with LWC to capitalize on fleet services opportunities to realize cost savings while better serving our customers and increasing levels of service to the community:
 - Completed overhaul of the LWC stockroom and implementation of the Metro Louisville NAPA parts contract for both companies. This included NAPA conducting storeroom operations at LWC.
 - Upgraded and deployed the FASTER Asset Management System in both LWC and MSD from which data can be analyzed to make fact-based, data-driven fleet management decisions.
 - Sourced and procured Global Positioning Systems for both LWC and MSD to improve operational efficiencies and enhance driver safety.

FY17 Program

- Continue monitoring and reporting availability of MCE targeting an overall average availability of 95% or higher for all MCE.
- Continue monitoring equipment and work order data using FASTER System reports to analyze and target areas where improvement is needed and to plan future replacements.
- Continue to revise PM schedules which are class-specific to address specific needs of MSD based upon the operating environment of equipment to improve overall preventive maintenance program effectiveness.
- Analyze FY18 capital purchasing needs, including the evaluation of all MCE for replacement.
- Complete the following activities related to High-Pressure Sewer Flusher/Jetter Trucks:
 - Prepare specifications for, bid, receive and place in service two new units to replace aging equipment and improve availability.
 - Coordinate operator and fleet technician training on new units after receipt.

- Complete the following activities related to Tele-Inspection Vehicles:
 - Prepare specifications for, bid, receive and place in service for two new units to replace aging equipment and improve availability.
 - Coordinate operator and fleet technician training on new units after receipt.
- Continue to explore One Water Initiatives with LWC to capitalize on fleet services opportunities to realize cost savings while better serving our customers and increasing levels of service to the community.

M-H-4 Supplies Management

FY16 Program

- Audited Storeroom SOP for quality improvements and determine best practices to improve operations.
- Analyzed storage space at all locations and prepare plan for warehouse improvements of stock management.
- Moved goal to develop on-line materials catalog from FY16 to FY18 to prioritize bar code scanning for improved storeroom efficiency and inventory control.
- Continued improvements with recycling program.
- Improved cross training of all storeroom team and establish goals to learn new inventory management processes.

FY17 Program

- Update SOPs for quality improvements and determine best practices to improve operations.
- Complete Bar-Code Scanning initiatives for inventory control.
- Update inventory descriptions and relocate like parts.
- Review contract management of Vendor Management Inventory.
- Begin “Back to Basics” training for goal setting and incorporate focus commodities for team members.

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

FY16 Program

- Mailed out 1,658 Project WIN and Plumbing Modification Program packets of information or applications.
- Received 65,943 calls during FY16 as shown in Table 6.5. The chart below breaks down the calls from FY08 through the reporting period, and includes calls answered by MSD on behalf of Louisville Metro through FY14.
- Launched the Customer Relations new “Customer Care” program to improve communications and provide information to MSD customers who have requested service work from MSD. Customers were asked for their preferred method of communication (phone, email or letter) and MSD agents monitored the progress throughout the service request. This approach will allow MSD to keep the customers informed of the project status until completion. In addition, service requests will be tracked to assure our crews have met customer expectations. The table below shows the Customer Service Call Data along with the “Customer Care” Data for this reporting period.
- Continued to train staff on use of Customer Care and Billing (CC&B) application, implemented in FY15 for joint use by MSD and LWC for customer billing information.
- Continued effort to keep the percentage of abandoned calls below target level as shown in Figure 6.10. Rate is trending upward as staff trained on new billing software shared with LWC and prepared to take LWC calls. However it is anticipated that this rate will decrease with experience in the LWC system.

Figure 6.9. Total Calls Received

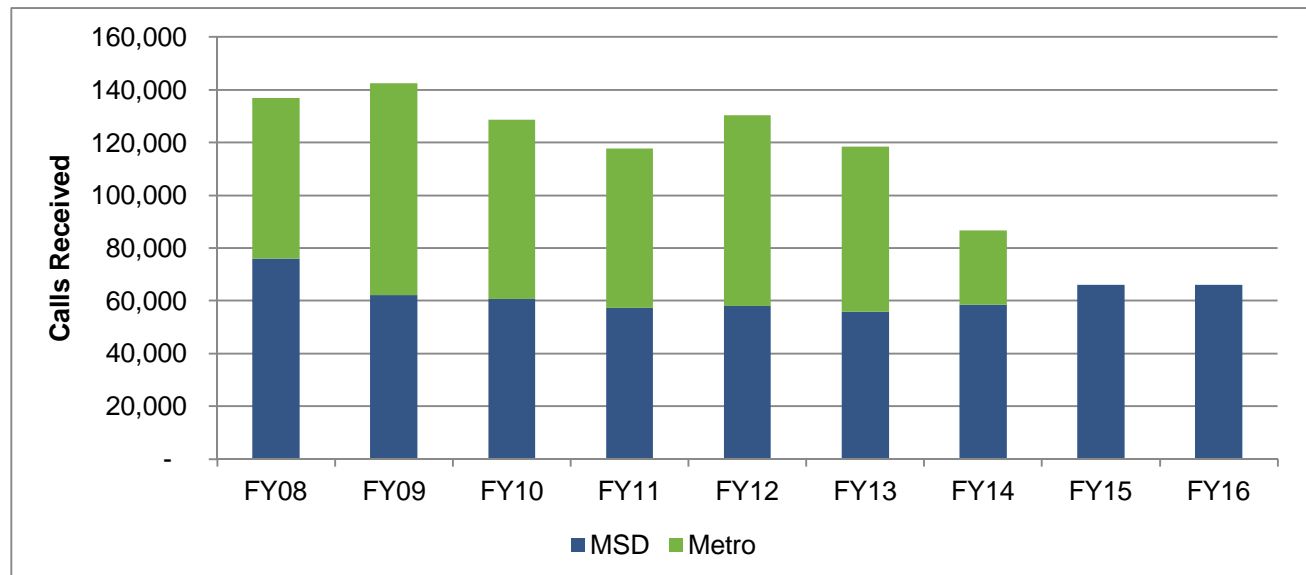
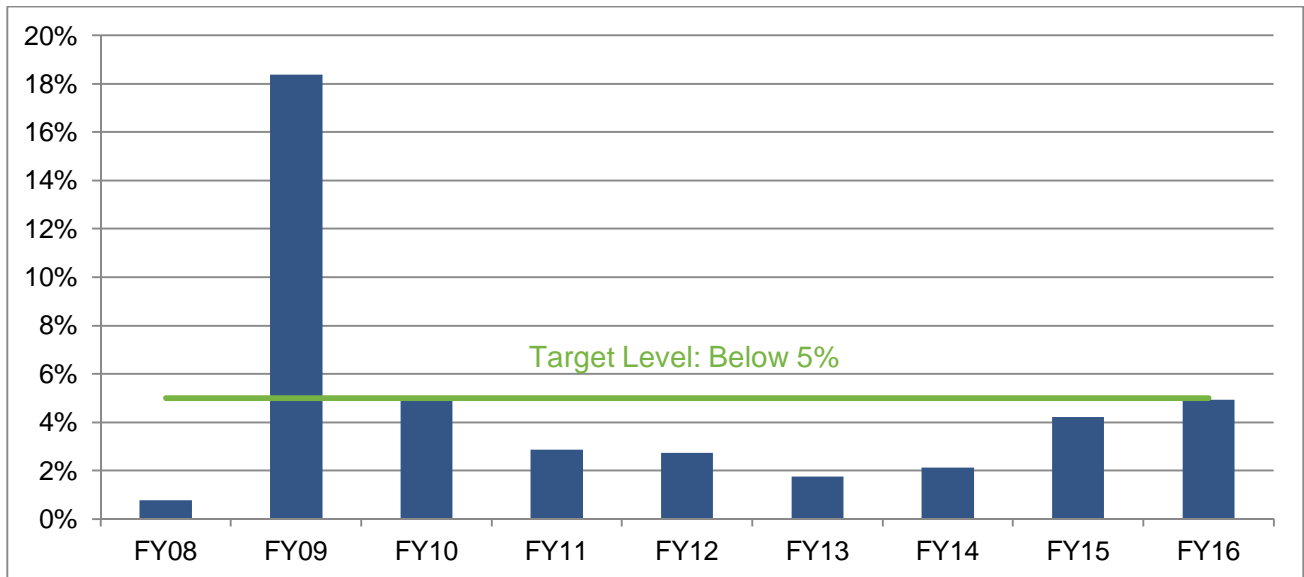


Table 6.5. FY16 Customer Service Call Data

MONTH	MSD CALLS RECEIVED	MSD CALLS ABANDONED	AVG. HOLD TIME (SEC)	CUSTOMER CARE CALLS RECEIVED
July	7,256	651	80	811
August	5,194	219	66	953
September	5,834	310	64	761
October	5,348	211	63	826
November	4,955	156	53	702
December	4,858	289	54	1,189
January	4,073	150	50	718
February	4,779	184	57	557
March	6,838	356	59	866
April	5,471	243	58	937
May	5,545	220	65	769
June	5,830	264	63	867

Figure 6.10. Abandoned Call Rate



FY17 Program

- Continue to keep the number of abandoned calls below target level.
- Continue forward with the "Customer Care" Program to keep customers informed of the current project status in their area.

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

FY16 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 IOAP related projects.
- Participated in the acquisition of properties and/or property interests (easements and/or fee simple ownership) critical to the completion of IOAP 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 Municipal Separate Storm Sewer System NPDES permit.
- Provided support to regulatory programs including the Wastewater Stormwater Discharge Regulations, Hazardous Materials Ordinance, and Erosion Prevention and Sediment Control Ordinance.

FY17 Program

Continue to provide legal services to support MSD.

M-J-3 Pretreatment

Refer to Sections 2.4 and 6.1.2.2 for details related to pretreatment.

M-J-4 Grease Control

Refer to Section 6.1.2.4 for details related to grease control.

M-J-5 Service Laterals

Refer to Section 6.1.2.5 for details about service connections.

M-J-6 Septic Tank Haulers Legal Support

Refer to Section 6.1.2.7 for details related to septic tanks.

M-J-7 “Call Before You Dig”

Refer to Section 6.1.2.8 for details related to the 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. Water Quality monitoring data is also assessed and provided in the Water Quality Synthesis Report.

M-K-1 Routine Water Quality Monitoring Programs

M-K-2 Investigative Water Quality Monitoring

M-K-3 Water Quality Monitoring for Spill Impact

MSD has aggressively pursued a watershed management approach that relies heavily on an established water quality monitoring program. The program has an extensive in-stream monitoring effort for tributary streams and for emergency spill responses, including:

- Ambient monitoring includes a grid of monitoring sites across Jefferson County to monitor multiple physical and biological indicator parameters.
- Recreation contact monitoring is conducted seasonally at each of the ambient monitoring sites for parameters such as fecal coliform.
- The United States Geological Survey (USGS) collects continuous flow data at each of the ambient monitoring sites.
- Sanitary Sewer Overflows (SSOs) / Combined Sewer Overflows (CSOs)/ Significant Industrial Users (SIUs) point sampling monitors the risk of water quality impairment to discharges associated with SIUs and General Discharger Permits, and those that are associated with emergency responses.
- CSO flow monitoring measures flow within the combined sewer system to provide improved data input into water quality models.

Additional information on these programs is provided in Section 4.5.

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

FY16 Program

- Worked with the National Weather Service, USGS, and Louisville Metro Emergency Management Agency (EMA) to develop a pilot project to install flow and level monitors at a site for early warning of significant weather events. Significant changes in both meters would trigger a notification at MSD and EMA.
- Continued efforts to improve disaster response protocols. Developed draft matrix for internal training modules to be implemented, including training on first aid, CPR, bloodborne pathogens, and the National Incident Management System's Incident Management System and National Response Framework.
- Performed "table top" exercise in March 2016 with 19 federal, state, local and private entities to develop Catastrophic Urban Flood Plan.
- Practiced annual Floodwall Closure Installations.
- Worked to develop IT Disaster Recovery Plan. Identified forty-two elements that outline infrastructure and application requirements. Current activity on these elements is primarily focused on the enhancement of disaster recovery infrastructure.
- Revised the Comprehensive Nature Disaster and Business Continuity Plan, including development of several key documents and organizational structure of the comprehensive plan. Identified the critical paths for the development of the key elements for the completion of the plan.

FY17 Program

- Work with the National Weather Service regarding monitors for early warning of significant weather events to continue.
- Continue revision of Comprehensive Nature Disaster and Business Continuity Plan using the critical path. A disaster planning consultant will be selected to aid in the completion of the plan with a target of June 2018. This revision will include training and emergency exercises.
- Continue to work with other agencies to develop Catastrophic Urban Flood Plan.
- Continue to practice annual Floodwall Closure Installations.
- Continue development of IT Disaster Recovery Plan.
- Develop a new comprehensive ERP as a part of MSD Business Strategy No. 5. This will include development of SOPs for critical facilities and training, beginning in FY17. The ERP will be updated as necessary.

M-L-3 Public Notification Plan

M-L-4 Agency Notification Plan

FY16 Program

Continued quarterly and annual training as outlined in Section 3: Program Activities for Sewer Overflow Response Protocol.

FY17 Program

Continue quarterly and annual 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

FY16 Program

Strategy 5 of MSD's Strategic Business Plan requires that MSD "develop a comprehensive disaster response and business continuity plan for disasters that impact our ability to serve our customers and the community". As part of this effort, a diverse team from across MSD has been working to complete the following initiatives of this plan:

- Assessed level of asset protection through independent consultant evaluation of insurance and risk management plans.
- Completed preliminary vulnerability assessment of MSD operations and infrastructure assets, using industry best practices.
- Completed one internal disaster response scenario and one community wide scenario with partner agencies to identify operational hazards and resources needed for response scenarios, and define disaster response roles for employees and external resources.
- Provided recommendations on systems and improvements necessary to mitigate risks and integrate into 20-Year Comprehensive Facility Plan document and capital budget.
- Developed outline and key elements to be included in Comprehensive Disaster Response and Business Continuity Plan along with schedule for completion by end of FY18.
- Began developing the metrics for elements of Effective Utility Management (EUM) related to Operational Resiliency.

FY17 Program

- Develop a catastrophic urban flood plan in conjunction with the Department of Homeland Security, US Army Corps of Engineers, Kentucky Emergency Management, Louisville Emergency Management Agency and other partners.
- Finalize comprehensive risk and vulnerability assessment of MSD operations and infrastructure assets, using industry best practices.

- Continue to work with Engineering to integrate recommendations on systems and improvements necessary to mitigate risks into 20-Year Comprehensive Facility Plan document and capital budget.
- Develop request for qualifications and proposals (RFQ and RFP) to obtain a qualified consultant to assist in the completion of a Comprehensive Disaster Response and Business Continuity Plan.
- Finalize elements and metrics of EUM related to Operational Resiliency.

M-L-7 Preparedness Training

FY16 Program

Training for Emergency Response procedures was conducted as per Section 6.1.1.2.

FY17 Program

Training for Emergency Response procedures will continue as per Section 6.1.1.2.

M-L-8 Water Quality Monitoring Plan

Refer to Sections 4.5 and 6.1.1.11 for more details on the MSD Water Quality Monitoring Plan.

M-L-9 Sewer Overflow Response Protocol

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

FY16 Program

- Continued review and updates, as needed, of the U.S. Army Corps of Engineers (USACE) Flood Operations and Maintenance Manual based on USACE and staff review comments. The manual is continuously under review as MSD completes both Long Term Control Plan (LTCP) and Nine Minimum Controls (NMC) programmatic activities.
- Updated SOP for 17th Street Flood Pump Stations to reflect installation of hydraulic sluice gate.
- Determined capital project priorities and the budgetary needs during regular meetings with MSD Operations and Regulatory Compliance staff.
- Continued to develop operations and maintenance (O&M) manuals for existing sanitary pump stations that do not have formal O&M manuals. New O&M manuals were created for 20 sanitary pump stations as listed in Table 6.6.

- Continued to develop an application to automate the drawdown testing and to develop trending standards using Telog.
- Reviewed pump stations for the automated drawdown effort. MSD staff has installed level sensors at both the Pond Creek and Bingham Way pump stations. While supporting the automated drawdown effort, the level sensors also add trend information for collections system performance.

Table 6.6. FY16 Pump Station O&M Manual Updates

PUMP STATION ID	PUMP STATION NAME
MSD0002-PS	Hazelwood
MSD0007-PS	Mockingbird Valley
MSD0010-PS	Winton
MSD0029-PS	5th & Lee
MSD0034-PS	St. Matthews #4
MSD0042-PS	Sonne Ave
MSD0052-PS	Mill Creek
MSD0053-PS	Sanders Lane
MSD0064-PS	Riverfront
MSD0068-PS	Coldstream
MSD0095-PS	Derington Court
MSD0099-PS	Poplar Level
MSD0111-LS	Valley Village
MSD0148-PS	Marian Court
MSD0154-PS	Broadfern Drive
MSD0164-LS	Oreland Mill
MSD0173-PS	Denbeigh Court
MSD1017-PS	Belvedere
MSD1047-LS	Parkwood
MSD1066-LS.	Star Point

FY17 Program

- Continue regular meetings with MSD 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 two 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 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. New O&M Manuals have been assigned for 20 sanitary pump stations as detailed in Table 6.7.

- 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 application to complete automatic pump station draw down tests remotely. Select sites for testing and begin trending.
- Continue reviewing Pump Stations for the installation of level sensors in support of the Automated Drawdown Application.

Table 6.7. FY17 Pump Station O&M Manual Updates

PUMP STATION ID	PUMP STATION NAME
MSD0027-PS	Crossgate
MSD0038-PS	Woodland Hills
MSD0049-PS	Rosa Terrace
MSD0069-PS	Bluegrass Fields
MSD0070-PS	St. Matthews Village
MSD0086-PS	Glenview Place
MSD0119-PS	Shady Villa
MSD0125-PS	Trail Ridge
MSD0126-PS	Ridge Top
MSD0152-PS	Taylorsville Road
MSD0174-PS	Titleist Road
MSD1008-PS	Francell
MSD1057-LS	City Hall
MSD1060-LS	Riding Ridge
MSD1062-LS	Deep Trail
MSD1071-PS	Harrods Landing
MSD1170-LS	Worthing
MSD1200-PS	Pirogue Court
MSD1201-PS	Modesto Road
MSD1203-PS	Kirby Lane

O-A-2 Emergency Operating Programs

FY16 Program

- 3rd and L&N Viaduct Pump Station Access Road – Created this project to install a permanent access road to the 3rd and L&N Viaduct Pump Station. Quotes for project were solicited on June 4, 2015, and were received on June 19, 2015. A Notice-to-Proceed for construction was issued on June 19, 2015. Acceptance of completed construction occurred on September 29, 2015.

- South Pope Lick Pump Station (Budget ID H16356) – A large surge event caused damage to the piping within the east valve vault and also to the vault itself. A study to determine the cause of the surge and a corresponding design to fix the damaged pump station, and prevent future surge-related damage, was completed in October 2015. The plans for these replacements have been designed, and this project will be constructed in FY17.
- Westover Pump Station Access Road (Budget ID H14115) – Bid and award a construction contract for the replacement and expansion of the access road to Westover Pump Station as well as a retaining wall to improve safety during wet weather. Acceptance of completed construction occurred on January 27, 2016.
- Gate 147 Bank Stabilization Project (Budget ID F16063) - The benching and compacting of soil to reestablish the original contours and provide slope stabilization for the levee at Floodgate 147. Acceptance of completed construction occurred on June 30, 2016.
- Paddy's Run Pumping Station Instrumentation Installation (Budget ID F15007) - 2 piezometers were installed at Paddy's Run Pumping Station to gather piezometric information to support evaluation of relief well abandonment. Data will be collected quarterly for three years.

FY17 Program

- Flood Gate 136 Actuator Replacement Project (Budget ID F16021) - The parts and labor to replace electrical actuators and upgrade electrical components at Flood Gate 136. Construction of this project is scheduled for completion on May 27, 2017.
- Flood Gate 145 Electrical Service and Actuator Replacement Project (Budget ID F16021) - The parts and labor to replace electrical actuators and upgrade electrical components at Flood Gate 145. Construction of this project is scheduled for completion on May 27, 2017.
- 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. Future rehabilitation work will also correct any pump station operation level settings to prevent line surcharging. An Abbreviated Green Line Study for MSD1203-PS Kirby Lane and MSD0038-PS Woodland Hills was initiated in FY15, but was put on-hold until more accurate hydraulic models could be put in place, MSD expects the completion of the study in FY17. MSD has planned for another Abbreviated Green Line Study for MSD1218-PS Aiken #1 to occur by June 30, 2017.
- South Pope Lick Pump Station Project (Budget ID H16356) – Bid and award of construction associated with repair of the South Pope Lick Pump Station after a surge event damaged both the east valve vault and the corresponding piping. The project was advertised July 7, 2016, and a notice-to-proceed was issued October 24, 2016. Construction of this project is scheduled for completion on July 21, 2017.

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 pretreat their effluent to required levels through industrial user permitting, inspection, sampling and enforcement.

O-B-1 Industrial User Permit

O-B-2 Inspection

O-B-3 Sampling Enforcement

Administered pretreatment limitations at Hite Creek, Floyds Fork, Derek R. Guthrie and Morris Forman WQTCs. Additional information related to the MSD Pretreatment Program for the combined sewer system can be found in Section 2.4. Jeffersontown WQTC was eliminated and flow was redirected to the Morris Forman and Cedar Creek WQTCs in December 2015. Local limits for Cedar Creek WQTC have been submitted to the State for review.

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

FY16 Program

- Continued to clean MSD facilities to minimize odors.
- Recorded service requests regarding odor in Hansen and assigned to the relevant department staff based on the asset involved. Odor calls associated with WQTC sites are assigned to Operations Treatment staff. Calls related to Pump Stations and Force Mains are investigated by Collections System Pump Station staff. Odors in the Gravity Sewers are addressed by Collections System Sanitary staff.

FY17 Program

- Continue to clean MSD facilities to minimize odors.
- Continue to enhance asset review and documentation.
- Conduct pilot test of a new odor control treatment product at a pump station wet well. The product uses sodium chlorite as its active ingredient.
- Investigate corrosion and odor control along the Ohio River Force Main (ORFM) to prioritize locations for projects.
- Monitor and evaluate gravity lines within the collections system through the CSSA/Blockage Abatement Program.

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 Fats, Oils and Grease Program

FY16 Program

- Conducted 66 inspections at Food Service Establishments (FSEs) within Jefferson County. Inspections resulted in immediate issuance of appropriate enforcement actions to include Field Correction Notices (FCNs). FCNs were issued for violation of MSDs Wastewater/Stormwater Discharge Regulations and FOG Policies.
- Issued 103 Enforcement Actions to include FCNs, Notice of Violations (NOVs) and NOVs with Fines to FSEs requiring action(s) to prevent and/or eliminate grease blockages in MSDs Collections System. The Enforcement Actions required FSEs to install and/or modify Grease Control Equipment, with additional requirements to submit documentation of installations and/or modifications.
- Conducted 205 Plan Review inspections to insure proper Grease Control Equipment was installed at new and/or modified FSEs.
- Mailed 296 FOG Residential Public Service notifications. The public service outreach informed residents of a recent sanitary sewer blockage occurrence near their home. Information sent to residents informs the customer of measures that could be taken within a residential dwelling to prevent any further occurrences.
- Conducted two Certified Grease Waste Hauler Training Classes for haulers servicing Grease Control Equipment within Jefferson County. Class numbers 14 and 15 were provided to haulers during this period. Grease Waste Haulers as well as Master and Journeyman Plumbers that service or repair grease traps or grease interceptors within Jefferson County are required to participate and receive approval to service Grease Control Equipment. FSEs in Jefferson County must only utilize MSDs Certified Grease Waste Haulers or Plumbers that have obtained the appropriate certification.
- Performed 17 Certified Grease Waste Hauler audits for haulers participating in the Certified Grease Waste Haulers Program. Audits are conducted to assure Certified Grease Waste Haulers comply with hauler agreements between MSD and Hauler. MSD conducts audits with unspecified Haulers randomly during FY.
- Continued to track FOG removal by Certified Grease Waste Haulers; MSD FOG Volume Tracker indicated 3,407,767 gallons of FOG was removed collectively from Grease Control Equipment maintained by area FSEs during the reporting period.

- Conducted seven FOG Reconnaissance Television Inspections in conjunction with MSDs Television Inspections Crew at various locations. The locations inspected were areas where FSEs have not properly maintained Grease Control Equipment.
- Continued to track FOG Program performance measures.

FY17 Program

- Continue to conduct inspections at FESs and issue enforcement 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.
- Participate in public education and outreach programs to inform the public regarding MSD's FOG Program.
- Continue to host at least two Certified Grease Waste Hauler training classes.
- Continue to conduct Certified Grease Waste Hauler audits.
- Continue to track FOG Program performance measures and develop reporting tools.

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 tap approval process, inspection, enforcement, and performance measures for new connections to existing sewers and increased flow on existing service connection locations. All new service connections are installed by contractors that have a master plumber on staff. New connections made to public sanitary sewers are inspected by MSD personnel.

O-E-1 Installation of New Service Taps

O-E-2 Inspection

O-E-3 Enforcement

O-E-4 Performance Measures

O-E-5 Other

FY16 Program

- Approved plans for 336 new connections. Treatment capacity is reviewed prior to approval of any plans based on SCAP.
- Inspected installation of 114 new property service connections (PSCs) on existing MSD's sewers.

FY17 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 Temporary Stations

Refer to Section 4.5 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

Inspection is handled through a managed contract as detailed in O-H-4 Performance Measures.

O-H-3 Enforcement

Enforcement is handled by the Commonwealth of Kentucky.

O-H-4 Performance Measures

FY16 Program

- Contracted \$722,436.54 for fiscal year time frame to process 105,370 Locate Requests to identify MSD facilities.
- Contracted with the KY 811 (BUD Center) \$131,256 to participate in this program.
- Requested 2,997 (1,132 via web and 1,865 via phone) to the BUD Center for the marking of other utilities during this time period.

FY17 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 Maintenance

S-A-2 Mechanical Maintenance

S-A-3 Physical Maintenance

FY16 Program

- Continued preventive maintenance inspections for sanitary and flood pump stations. Continue to annually train staff to use the Hansen asset management system to track pump station work orders as well as associated pump station assets.
- Incorporated changes to the system with the elimination of the non-regional water quality treatment centers and the addition of storage basins and associated pump stations as required by the IOAP.

Table 6.8. FY16 Sanitary Pump Station Repair Activities

REPAIR ACTIVITIES	COUNT	COST
Pump Replacement	26	\$170,345
Pump Repair (MSD)	54	\$149,648
Pump Repair (Vendor)	8	\$10,888
Electrical Upgrades	56	\$72,698
Valve Replacements	37	\$55,764
Generator Repair	131	\$86,069

FY17 Program

- Continue preventive maintenance inspections for sanitary and flood pump stations. Continue to annually train staff to use the Hansen asset management system to track pump station work orders as well as associated pump station assets.
- Maintenance staff will continue to work with designers and contractors to incorporate changes to the system with the elimination of the non-regional WQTCs and the addition of storage basins and associated pump stations as required by the IOAP.

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 walking the force main alignment to find cave-ins and air relief valve inspections.

S-B-1 Air Release Valves

S-B-2 Valve Exercise Program

FY16 Program

Conducted the Annual Force Main Program evaluation and completed inspections on force mains listed in Table 6.9, covering 198,237 LF. Each inspection consisted of inspecting wet wells, valve vaults, air release valves, and discharge manholes; exercising cross-connections; and observing the ground above the lines to find any evidence of pipe failure below ground. As a result, it was determined that 11 air release valves required either lid repairs or valve replacement.

Table 6.9. FY16 Force Main Inspections

FORCE MAIN	FORCE MAIN	FORCE MAIN	FORCE MAIN
Ballantrae	Laurel Lane	Sanctuary Bluff	Waterstone
Breakwater	Ohio River Force Main	Seaton Place	West County Sludge Main
Broadfern	Piccadilly	Shakes Run	Wind Ridge
Covered Cove	Pine Glen	Spring Farm	Woodsong
Gorham	Ridge Top	Trail Ridge	
Grand Isle	Rock Hill	Trail Ridge Court	
Innisbrook	Rubbertown	Walnut Ridge	

FY17 Program

- Complete the annual force main evaluation by December 31, 2016. Adjustments to the inspection schedule will be made based on conditions observed during the inspection cycle.
- Schedule FY17 force mains for inspection.
- Review 5-year trends in activities and performance metrics, comparing to targets established in 2006.

6.1.3.3. GRAVITY LINE PREVENTIVE MAINTENANCE

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 E for more details on the Gravity Line Preventative Maintenance Program.

6.1.3.4. EQUIPMENT AND COLLECTIONS SYSTEM MAINTENANCE

S-D-1 Equipment Maintenance

Equipment and vehicle maintenance is discussed in detail in Section 6.1.1.8.

6.2. COMPREHENSIVE PERFORMANCE EVALUATIONS AND COMPOSITE CORRECTION PLANS

Per requirements of MSD's 2009 Amended Consent Decree, MSD implemented a Comprehensive Performance Evaluation (CPE) and Composite Correction Plan (CCP) program for MSD's Water Quality Treatment Centers (WQTCs). This program defined specific WQTC improvements to be completed by December 31, 2011. These improvements under this program are discussed under Section 6.2.1. Although the IOAP CPE/CCP improvements were completed by December 31, 2011, MSD will continue to implement CPE/CCP activities as part of the MSD'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.

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 the reporting period and being planned for the next fiscal year. Schedules for CPE/CCP related capital projects are provided in Section 6.3.

6.2.2.1. CEDAR CREEK WATER QUALITY TREATMENT CENTER

FY16 Program

- Began design of the Cedar Creek WQTC Motor Control upgrade project in FY16, with construction starting in FY17.
- Designed and started construction of the Cedar Creek WQTC Influent Pump Station Gate Repair. In addition to the repair of the influent gate, this project includes improvements to the ultraviolet (UV) gate. These projects were both part of the recommendations of a study performed in 2014.

FY17 Program

Anticipate completion of both projects listed above in FY17.

6.2.2.2. HITE CREEK WATER QUALITY TREATMENT CENTER

FY16 Program

- Continued construction of the Hite Creek WQTC Hydraulic Improvements Project. The hydraulic improvements increase the capacity of the plant from 4 MGD to 6 MGD.
- Began design of the Hite Creek WQTC Expansion Project. The project will increase the average daily treatment capacity from 6 to 9 MGD. Construction is expected to begin in FY18.
- Selected a consultant to complete an alternative solids study (completed in FY14) and tertiary filter replacement study (completed in FY15). As a result, it was determined that dewatering of sludge at the Hite Creek WQTC and replacement of the tertiary filters should be included in the next plant expansion. The Facilities Plan was approved by Kentucky Division of Water (KDOW) in June 2015. The Hite Creek WQTC Expansion Project, which will increase the average daily treatment capacity from 6.0 to 9.0 MGD, began design in March 2016.

FY17 Program

- Anticipate construction of the Hydraulic Improvements for the Hite Creek WQTC to be completed by February 28, 2017.
- Anticipate design of the Hite Creek WQTC expansion will continue through this period.

6.2.2.3. FLOYDS FORK WATER QUALITY TREATMENT CENTER

FY16 Program

There were no major capital projects at the Floyds Fork WQTC in FY16.

FY17 Program

There are no major capital projects planned for the Floyds Fork WQTC in FY17.

6.2.2.4. DEREK R. GUTHRIE WATER QUALITY TREATMENT CENTER

MSD requested guidance on the steps needed for a rerate of the Derek R. Guthrie WQTC facility from 30 MGD to 60 MGD, given the increased service area for the plant during wet weather conditions. MSD and KDOW have discussed and developed a plan to coordinate submittals of the Derek R. Guthrie WQTC Facility Plan, an updated Derek R. Guthrie WQTC permit application, and the Return Activated Sludge (RAS) project construction drawings in order to provide the necessary rationale for increasing flows at the plant.

FY16 Program

Started construction on the mechanism replacement for Clarifiers No. 1, 2 and 3.

FY17 Program

- Complete construction on the Clarifier No. 1, 2 and 3 Mechanism Replacement Project, scheduled to be completed by May 1, 2017.

- Upgrade the RAS Pumps 1 and 4, and replace the variable frequency drives for Pumps 1, 2, 3 and 4 once the Facilities Plan is approved.
- Submit updated permit application, Facility Plan, and RAS construction drawings to KDOW.

6.2.2.5. JEFFERSONTOWN WATER QUALITY TREATMENT CENTER

MSD submitted a Jeffersontown WQTC Process Control Plan on October 31, 2008, as required by paragraph 26a 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.

On Wednesday December 23, 2015, coordinated efforts allowed MSD contractors to permanently divert all flow away from the Jeffersontown Siphon and the WQTC. The flow is now being diverted towards the new Grand Avenue Pump Station. The new sewer piping diverts flow around the previous siphon to the Upper Billtown Interceptor. The Jeffersontown WQTC is now off-line. This will be the final annual report to include graphs for data at the siphon upstream of the headworks at the Jeffersontown WQTC.

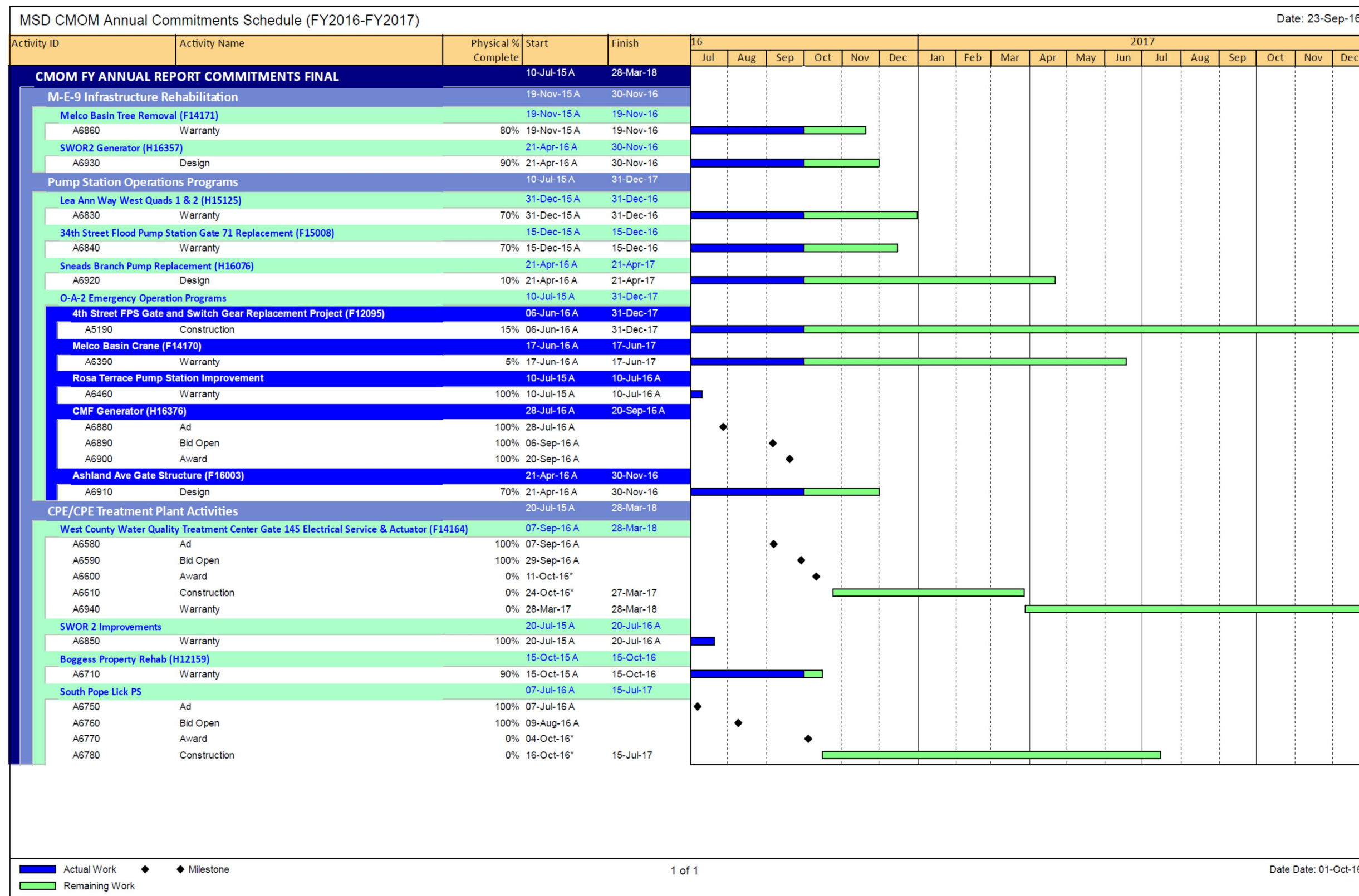
6.2.2.6. Non-Regional Water Quality Treatment Center Updates

MSD has completed the elimination of all existing non-regional WQTCs at this time. Refer to Table 1.19 for details. No further reporting will be included on these facilities in future reporting periods.

6.3. CMOM ACTIVITY SCHEDULE

CMOM capital project milestones for the period of July 1, 2015, through June 30, 2016, as well as a look-ahead for the period of July 1, 2016, through December 31, 2016, are provided in Figure 6.11.

Figure 6.11. CMOM Annual Commitments Schedule



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APPENDICES

Appendix A	Acronyms
Appendix B	Annual Average Overflow Volume
Appendix C	CSO Flow Monitoring Data
Appendix D	Discharge Work Orders
Appendix D-1	Discharge Work Orders – Waters of the United States
Appendix D-2	Discharge Work Orders – Ground
Appendix D-3	Discharge Work Orders – Interior
Appendix E	CSSA Annual Report
Appendix F	Public Notification
Appendix G	Organizational Chart

Appendix A

Acronyms

Appendix A Acronyms

AAOV	Average Annual Overflow Volume
ACD	Amended Consent Decree
BAP	Blockage Abatement Program
BGC	Beargrass Creek
BMP	Best Management Practices
BOD	Biological Oxygen Demand
BUD	Before "U" Dig
CC&B	Customer Care and Billing
CCP	Composite Correction Plan
CDS	Continuous Deflection Separator
CFR	Code of Federal Regulations
CMOM	Capacity Management Operations and Maintenance
CPE	Comprehensive Performance Evaluations
CRD	Central Relief Drain
CRS	Community Rating System
CSO	Combined Sewer Overflow
CSOFT	Software Name
CSS	Combined Sewer System
CSSA	Continuing Sewer System Assessment
DWO	Dry Weather Overflow
eB	Enterprise Bridge (Enterprise Informatics scanning software for document management)
EGIS	Emergency Geographic Information System
EMA	Louisville Metro Emergency Management Agency
EPA	Environmental Protection Agency
EPSC	Erosion Prevention and Sediment Control
ERT	Emergency Response Team
EUM	Effective Utility Management
FCN	Field Correction Notice
FEMA	Federal Emergency Management Agency
FEPS	Final Effluent Pump Station
FM	Force Main
FOG	Fats, Oil & Grease
FPS	Flood Pump Station
FSE	Food Service Establishment
FY	Fiscal Year
GASB	Governmental Accounting Standards Board
GHS	Globally Harmonized System
GIS	Geographic Information System
GLPM	Gravity Line Preventive Maintenance

Appendix A Acronyms

GPD	Gallons per Day
GPS	Global Positioning System
I&I	Inflow and Infiltration
ICM	Integrated Catchment Model
ID	Identification
IOAP	Integrated Overflow Abatement Plan
ISSDP	Interim Sanitary Sewer Discharge Plan
IT	Information Technology
KDEP	Kentucky Department of Environmental Protection
KDOW	Kentucky Division of Water
KPDES	Kentucky Pollutant Discharge Elimination System
KY	Kentucky
LG&E	Louisville Gas and Electric
LIMS	Laboratory Information Management System
LOJIC	Louisville and Jefferson County Information Consortium
LTCP	Long Term Control Plan
LWC	Louisville Water Company
MCE	Mission Critical Equipment
MG	Million Gallons
MGD	Million Gallons per Day
MOU	Memorandum of Understanding
MSD	Metropolitan Sewer District (Louisville and Jefferson County)
MSDS	Material Safety Data Sheet
NACWA	National Association of Clean Water Agencies
NASSCO	National Association of Sewer Services Companies
NDD	Non-Domestic Dischargers
NFPA	National Fire Protection Association
NMC	Nine Minimum Controls
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPS	Nightingale Pump Station
O&M	Operations and Maintenance
ORD	Office of Research and Development
ORFM	Ohio River Force Main
PACP	Pipeline Assessment and Certification Program
PCCM	Post Construction Compliance Monitoring
PM	Preventive Maintenance
PS	Pump Station
QPCI	Qualified Post-Construction Inspector

Appendix A Acronyms

RFP	Request for Proposal
RFQ	Request for Qualifications
RPR	Resident Project Representative
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
SOP	Standard Operating Procedure
SORP	Sewer Overflow Response Protocol
SSDP	Sanitary Sewer Discharge Plan
SSSES	Sanitary Sewer Evaluation Study
SSO	Sanitary Sewer Overflow
SSOP	Sanitary Sewer Overflow Plan
SWOR1	Southwestern Outfall relief – Phase 1
SWOR2	Southwestern Outfall Relief – Phase 2
SWPPP	Stormwater Pollution Prevention Plan
SWPS	Southwestern Pump Station
TSS	Total Suspended Solids
TV	Television
UIM	Utility Information Management
UMF	Upper Middle Fork
UofL	University of Louisville
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
WIN	Waterway Improvements Now
WQTC	Water Quality Treatment Center
WUS	Waters of the United States

Appendix B Annual Average Overflow Volume

Appendix B Annual Average Overflow Volume

CSO	CSO Name	Associated Project	Boundary Drainage Area	Existing / Baseline Gauged Link	Initial Conditions ¹		Current Conditions ¹		Baseline Conditions ¹		LTCP ^{2,3}	
					Total Volume = 6448 MG		Total Volume = 3658 MG		Total Volume = 3475 MG		Total Volume = 340 MG	
					Overflow Vol. (MG)	# Of Overflows	Overflow Vol. (MG)	# Of Overflows	Overflow Vol. (MG)	# Of Overflows	Overflow Vol. (MG)	# Of Overflows
015	SOUTHWESTERN PS	Paddy's Run Wet Weather Treatment Facility	7417.3	85205-T.w >> 50946A-Ta.2	2780	76	881	30	795	29	110	7
016	MILES PARK BYPASS	SOR1/SOR2 Inline Storage	3.6	CSO016.w	39	32	133	34	122	33	0.99	8
018	NIGHTINGALE PS	Nightingale PS Replacement		28176A.1	158	28	68	24	35	19	0.00	0
019	34th STREET PS	Portland Wharf Storage Basin	1094.7	CSO019a.3	193	67	193	66	193	66	4.3	7
020	BUCHANAN PS	Story Avenue and Main Street Storage Basin	64.1	CSO020.w	355	74	342	72	294	71	20.2	3
022	FOURTH ST PS	CSO022	63.4	CSO022.w	4.5	16	5.9	17	4.5	16	1.8	7
023	ORI @ 4th ST PS	13th Street and Rowan Street Storage Basin	15.2	12062-T.w	1.8	8	16	17	4.7	9	5.3	6
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...	1.1	20	1.1	20	1.1	20	0.00	0
029	CRD 8th & YORK	CRD	0.0	CSO029.w	4.6	40	4.6	40	4.6	40	0.04	2
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.w	3.0	39	3.0	39	3.0	39	0.07	4
035	CRD 2nd & BROADWAY NO 1	CRD	16.0	CSO035.w	0.00	0	0.00	0	0.00	0	0.00	0
036	CRD 3rd & BROADWAY	CRD	29.5	CSO036.w	0.21	7	0.21	7	0.21	7	0.10	4
038	CRD 5th & BROADWAY	CRD	8.9	CSO038.w	0.11	5	0.09	4	0.11	5	0.07	4
050	12th STREET	13th Street and Rowan Street Storage Basin	39.3	CSO050.w	20	55	27	55	22	55	1.7	1
051	11th STREET	13th Street and Rowan Street Storage Basin	5.8	CSO051.w	0.32	8	1.31	16	0.68	10	0.00	0
052	10th STREET	13th Street and Rowan Street Storage Basin	9.7	CSO052.w	2.5	21	4.5	26	3.2	24	0.00	0
053	8th STREET	13th Street and Rowan Street Storage Basin	34.8	CSO053.w	7.7	50	7.7	50	7.7	50	0.00	0
054	7th STREET	13th Street and Rowan Street Storage Basin	3.8	CSO054.w	1.8	35	1.9	19	2.3	35	0.00	0
055	6th STREET	13th Street and Rowan Street Storage Basin	16.0	CSO055.w	4.9	17	11	27	6.8	21	0.00	0
056	5th STREET	13th Street and Rowan Street Storage Basin	36.4	CSO056.w	4.3	24	5.6	27	4.7	24	0.00	0
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	51	68	0	1	52	63	1.9	7
062	LOGAN COMPANY		106.6	CSO062.w	100	69	92	69	72	66	0.76	6
082	BGI AT BGC	Lexington Road and Payne Street Storage Basin	12.9	CSO082.1	19	50	18	50	16	46	0.00	0
083	BRENT ST & BROADWAY CONNECT	Lexington Road and Payne Street Storage Basin	30.5	CSO083a.2	0.47	7	0.46	7	0.46	7	0.00	0
084	BRENT ST @ BGC	Lexington Road and Payne Street Storage Basin	146.3	CSO084.w	19	46	19	44	19	44	0.00	0
086	PAYNE AT SPRING		3.3		0.00	0	0.00	0	0.00	0	0.00	0
088	MELLWOOD AVE INT	Clifton Heights Storage Basin	2.3	CSO088.1	11	45	11	46	11	46	0.01	1
091	SCHILLER AVE OVFL	Logan Street and Breckinridge Street Storage Basin	14.2	CSO091.2	2.7	44	2.7	44	2.7	44	0.00	0
092	ST CATHERINE @ BGC		10.3	CSO092.2	1.3	33	1.3	33	1.3	33	0.00	0
093	SPRING STREET	CSO093 Sewer Separation	17.5	CSO093.1	0.02	1	0.02	1	0.02	1	0.00	0
097	CANTONMENT SIPHON NO 2	Logan Street and Breckinridge Street Storage Basin		CSO097.1	18	50	13	45	11	45	0.23	4
104	SW PKWY SEWER @ BROADWAY	Southwestern Parkway Storage Basin	68.5	CSO104.w	9.5	20	9.6	20	9.5	20	Eliminated	
105	WESTERN OUTFALL @ BROADWAY	Southwestern Parkway Storage Basin	1087.8	CSO105a.w	260	46	264	45	263	45	32	6
106	ROYAL - NEFF	Logan Street and Breckinridge Street Storage Basin	9.9	CSO106.w	0.28	10	0.28	10	0.28	10	0.00	
108	REG NO 1 - NEWBURG	CSO108 Dam Modification	507.5	CSO108.W	52	41	21	43	16	43	0.44	4
109	REG NO 2 - DEER PARK	Logan Street and Breckinridge Street Storage Basin	101.0	CSO109.4	1.2	11	1.5	12	1.3	11	1.5	8
110	REG NO 3 - GOSS AVE	Logan Street and Breckinridge Street Storage Basin	92.9	CSO110.w	20	47	17	44	16	44	0.25	4
111	EMERSON STREET SEWER	Logan Street and Breckinridge Street Storage Basin	87.5	CSO111b.w	5.0	35	5.0	30	4.9	29	0.58	4
113	ELLISON AVENUE SEWER	Logan Street and Breckinridge Street Storage Basin	67.2	CSO113.w	6.2	28	6.1	27	6.0	26	0.00	0
117	REG NO 11 - DRY RUN	Logan Street and Breckinridge Street Storage Basin	73.2	CSO117a.W	86	60	86	59	85	59	30	7
118	REG NO 15 - E BRDWAY	Lexington Road and Payne Street Storage Basin	339.1	CSO118.W	118	60	117	60	116	60	0.00	0
119	BRENT STREET SEWER	Lexington Road and Payne Street Storage Basin	4.5	CSO119.2	10	53	10	52	10	51	0.00	0
120	PHOENIX HILL SEWER	Lexington Road and Payne Street Storage Basin	15.4	CSO120.w	7.5	52	7.4	52	7.4	52	0.00	0

¹ Based on 2015 Model runs with minor updates from August 2016

² Based on August 2016 Model runs

³ Several CSOs were manually modified using Engineering Judgement to account for future RTC to dewater the storage basins.

Appendix B Annual Average Overflow Volume

CSO	CSO Name	Associated Project	Boundary Drainage Area	Existing / Baseline Gauged Link	Initial Conditions ¹		Current Conditions ¹		Baseline Conditions ¹		LTCP ^{2,3}	
					Total Volume = 6448 MG		Total Volume = 3658 MG		Total Volume = 3475 MG		Total Volume = 340 MG	
					Overflow Vol. (MG)	# Of Overflows	Overflow Vol. (MG)	# Of Overflows	Overflow Vol. (MG)	# Of Overflows	Overflow Vol. (MG)	# Of Overflows
121	REG NO 18 - GREEN ST	Lexington Road and Payne Street Storage Basin	101.6	CSO121b.2	5.5	23	5.4	22	5.4	22	0.00	0
125	REG NO 24 - GRINSTEAD DR	I-64 and Grinstead Drive Storage Basin	359.3	CSO125.w	24	43	24	43	24	43	0.00	0
126	REG NO 26 - RAYMOND AVE	I-64 and Grinstead Drive Storage Basin	37.4	CSO126.w	3.4	20	3.3	20	1.4	11	0.00	0
127	ETLEY AVENUE	I-64 and Grinstead Drive Storage Basin	216.0	CSO127.w	12	39	12	39	11	39	Eliminated	
130	WEBSTER STREET	Story Avenue and Spring Street Storage Basin	16.0	CSO130.w	2.2	26	1.9	24	1.3	18	0.00	0
131	REG NO 33 - MELWD & FRANKFORT	Clifton Heights Storage Basin	30.5	CSO131.2	1.7	16	1.7	16	1.7	16	0.06	2
132	REG NO 35 - BROWNSBORO	Clifton Heights Storage Basin	674.0	CSO132.w	83	61	86	61	79	60	7.4	4
137	CALVARY CEMETARY	Logan Street and Breckinridge Street Storage Basin	72.2	CSO137.w	9.5	54	9.4	54	9.3	54	0.00	
140	LOCUST STREET	CSO140 Sewer Separation	77.9	CSO140.w	2.6	29	2.6	29	2.6	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	0.78	11	0.78	11	0.78	11	0.13	4
146	SNEADS BRANCH DIVERSION	Logan Street and Breckinridge Street Storage Basin	97.5	CSO146.w	38	40	37	40	37	40	0.82	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	138	47	138	47	138	47	21	7
150	8th ST @ COMMON PLACE	13th Street and Rowan Street Storage Basin	1.7	088308.w	0.80	10	2.0	21	1.2	16	0.00	0
151	REG NO 5 - CASTLEWOOD	Logan Street and Breckinridge Street Storage Basin	245.4	CSO151.4	98	72	84	69	80	69	0.04	2
152	REG NO 7 - SOUTHEASTERN	Logan Street and Breckinridge Street Storage Basin	242.3	CSO152.1	59	62	58	62	58	61	5.8	6
153	COOPER STREET	Lexington Road and Payne Street Storage Basin	41.2	CSO153.2	19	71	19	71	18	71	0.00	0
154	MELLWOOD @ SCHOEFFEL	Clifton Heights Storage Basin	34.7	CSO154.w	23	56	24	56	27	53	0.00	0
155	ROWAN ST @ 12th ST	13th Street and Rowan Street Storage Basin	4.9	CSO155.w	0.59	18	0.59	18	0.59	18	0.00	0
160	SEWER IN ALLEY SAN DIV	CSO160 Sewer Separation	2.3	CSO160.w	0.05	1	0.05	1	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	CSO166.w	52	46	52	46	48	44	0.00	0
167	BROWNSBORO LAT NO 2	Clifton Heights Storage Basin	21.1	CSO167.w	0.47	11	0.49	11	0.45	10	0.76	4
172	ADAMS STREET	Adams Street Storage Basin	10.3	CSO172.w	0.80	18	0.79	18	0.79	18	0.00	
178	CRD 9th & YORK "B"	CRD	39.3	CSO178.w	20	58	20	58	20	58	0.33	6
179	KENTUCKY ST SEWER OVFL		223.3	CSO179.w	0.00	0	0.00	0	0.00	0	0.00	0
181	CRD 2nd & BROADWAY NO 2	CRD	42.5	CSO181.w	3.8	42	3.8	42	3.8	42	0.00	0
189	NORTHWESTERN SAN DIV	Southwestern Parkway Storage Basin	1186.4	CSO189.w	240	52	256	52	254	52	24	6
190	SEVENTEENTH ST SAN DIV	18th and Northwestern Pky Storage Basin	142.4	CSO190.w	30	56	30	56	30	56	0.27	7
191	ALGONQUIN PKWY SAN DIV	Paddy's Run Wet Weather Treatment Facility	334.4	CSO191.w >> 50946A-Ta.2	4.3	16	26	30	24.0	29	13	7
193	CRD S 6th & KENTUCKY	CRD	17.8	CSO193.w	0.09	4	0.09	4	0.09	4	0.08	4
195	CRD S 4th & OAK	CRD	5.7	CSO195.w	2.8	44	2.8	44	2.8	44	0.00	0
196	CRD S 3rd & OAK	CRD	4.0	CSO196.w	0.04	1	0.04	1	0.04	1	0.00	0
197	CRD S 3rd S OF OAK	CRD	3.7	CSO197.w	2.8	43	2.8	43	2.8	43	0.06	4
198	CRD S 3rd & ORMSBY	CRD	3.6	CSO198.w	0.09	4	0.09	4	0.09	4	0.03	2
199	CRD S 3rd N OF MAGNOLIA	CRD	2.0	CSO199.w	0.73	24	0.72	23	0.72	23	0.01	1
200	CRD S 3rd & MAGNOLIA	CRD	7.6	CSO200.w	2.2	45	2.2	45	2.2	45	0.00	0
201	CRD S 5th & KENTUCKY	CRD	10.0	CSO201.w	0.69	11	0.68	11	0.68	11	0.43	7
202	CRD S ORMSBY W OF 3rd	CRD	5.9	CSO202.w	0.15	6	0.15	6	0.15	6	0.01	1
203	CRD S 4th & ORMSBY	CRD	8.5	CSO203.w	0.02	0	0.02	0	0.02	0	0.00	0
206	CHEROKEE PARK @ SPRING DR	CSO206 Sewer Separation	8.4	CSO206.w	29	70	0	8	29	70	Eliminated	
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	0.74	21	0.16	5	0.74	21	0.26	8
210	45th STREET-GREENWOOD	SOR1/SOR2 Inline Storage	181.2	CSO210a.1	19	31	24	33	24	31	2.1	8
211	MAIN DIVERSION STRUCTURE	SOR1/SOR2 Inline Storage	3709.2	CSO211b.W	1090	62	308	25	298	25	43	8
Snead's Branch Overflow Volume to Beargrass Creek				71909B-AGA.w	46	38	8	8	8	8	8.1	8

Appendix B Annual Average Overflow Volume

CSO	CSO Name	Associated Project	Boundary Drainage Area	Existing / Baseline Gauged Link	Initial Conditions ¹		Current Conditions ¹		Baseline Conditions ¹		LTCP ^{2,3}	
					Total Volume = 6448 MG		Total Volume = 3658 MG		Total Volume = 3475 MG		Total Volume = 340 MG	
					Overflow Vol. (MG)	# Of Overflows	Overflow Vol. (MG)	# Of Overflows	Overflow Vol. (MG)	# Of Overflows	Overflow Vol. (MG)	# Of Overflows
The following CSOs are included in the "Snead's Branch Overflow Volume to Beargrass Creek" item.												
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	40	14	40	14	40	9.6	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	31	38	31	38	31	38	26	36
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	0.27	7
185	SBR SHELBY & KESWICK		163.9	CSO185.w	1.6	16	1.6	16	1.6	16	1.6	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

Appendix C CSO Flow Monitoring Data

There are known issues with the flow monitoring data quality.
MSD is currently working on resolving these issues.

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July 1st, 2015 to June 30th 2016
Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO015	2-Jul-2015	2-Jul-2015	0	1	806,855	3	0	3	Atlas	661,621
CSO015	2-Jul-2015	3-Jul-2015	0	1	67,851	3	0	3	Atlas	55,638
CSO015	3-Jul-2015	3-Jul-2015	0	1	733,681	3	1	1	Atlas	763,028
CSO015	7-Jul-2015	7-Jul-2015	0	1	1,012,902	3	0	6	Atlas	952,128
CSO015	10-Jul-2015	10-Jul-2015	0	1	1,653,609	3	0	6	Atlas	859,877
CSO015	12-Jul-2015	12-Jul-2015	0	1	2,611,746	3	0	1	Atlas	1,749,870
CSO015	13-Jul-2015	15-Jul-2015	1	1	114,039,696	4	0	1	Atlas	61,581,436
CSO015	18-Jul-2015	18-Jul-2015	1	1	46,324,976	2	0	3	Atlas	33,353,982
CSO015	4-Aug-2015	5-Aug-2015	0	0	34,736,762	0	0	1	Atlas	8,684,191
CSO015	6-Aug-2015	6-Aug-2015	0	1	11,252,701	1	0	1	Atlas	9,002,161
CSO015	19-Aug-2015	19-Aug-2015	0	1	4,810	0	0	1	Atlas	3,608
CSO015	29-Sep-2015	30-Sep-2015	0	0	33,514,310	1	0	24	Atlas	16,757,155
CSO015	2-Oct-2015	3-Oct-2015	0	0	7,122,938	1	0	12	Atlas	3,347,781
CSO015	27-Oct-2015	28-Oct-2015	1	3	1,703,283	4	2	24	Cloudburst	5,842,260
CSO015	6-Nov-2015	6-Nov-2015	0	1	2,210,351	1	1	3	Atlas	2,232,455
CSO015	12-Nov-2015	12-Nov-2015	0	0	697,506	2	0	3	Atlas	244,127
CSO015	18-Nov-2015	19-Nov-2015	1	2	3,872,830	2	1	6	Atlas	7,087,279
CSO015	28-Nov-2015	29-Nov-2015	0	1	750,105	1	0	48	Atlas	682,595
CSO015	30-Nov-2015	1-Dec-2015	1	1	3,364,964	2	0	12	Atlas	2,187,227
CSO015	7-Dec-2015	7-Dec-2015	0	0	355,892	1	0	1	Atlas	3,559
CSO015	22-Dec-2015	22-Dec-2015	0	1	2,188,039	1	0	24	Atlas	1,422,226
CSO015	23-Dec-2015	25-Dec-2015	1	1	7,047,937	2	1	1	Atlas	6,426,539
CSO015	26-Dec-2015	26-Dec-2015	0	1	471,334	2	0	12	Atlas	282,800
CSO015	27-Dec-2015	27-Dec-2015	0	3	5,336,129	4	1	48	Atlas	14,941,161
CSO015	28-Dec-2015	29-Dec-2015	0	3	260,926	5	1	48	Atlas	730,592
CSO015	6-Jan-2016	6-Jan-2016	0	3	37,525,035	0	1	48	Atlas	105,070,098
CSO015	2-Feb-2016	3-Feb-2016	1	2	90,741,106	2	1	6	Atlas	139,741,304
CSO015	21-Feb-2016	21-Feb-2016	0	1	55,722,787	1	0	12	Atlas	40,677,634
CSO015	24-Feb-2016	24-Feb-2016	1	2	258,912,120	3	1	24	Atlas	554,071,936
CSO015	1-Mar-2016	1-Mar-2016	0	1	15,806,791	3	0	6	Atlas	9,642,142
CSO015	10-Mar-2016	11-Mar-2016	1	1	47,245,736	1	0	12	Atlas	62,836,828
CSO015	12-Mar-2016	13-Mar-2016	1	0	177,247,731	2	0	24	Atlas	83,306,433
CSO015	24-Mar-2016	24-Mar-2016	0	0	75,568,995	0	0	1	Atlas	18,136,559
CSO015	27-Mar-2016	28-Mar-2016	0	1	77,738,841	1	1	3	Atlas	58,304,130
CSO015	31-Mar-2016	31-Mar-2016	0	1	22,146,925	2	1	24	Atlas	29,455,410
CSO015	31-Mar-2016	31-Mar-2016	0	1	22,146,925	2	1	24	Atlas	29,455,410

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO015	1-Apr-2016	1-Apr-2016	0	1	9,015,105	2	1	24	Atlas	11,990,089
CSO015	1-Apr-2016	2-Apr-2016	2	1	66,336,121	2	1	24	Atlas	88,227,041
CSO015	11-Apr-2016	12-Apr-2016	0	1	51,666,260	1	0	12	Atlas	49,599,609
CSO015	26-Apr-2016	26-Apr-2016	0	0	9,845,745	1	0	1	Atlas	2,461,436
CSO015	27-Apr-2016	28-Apr-2016	0	1	154,123,426	2	1	3	Atlas	181,865,643
CSO015	30-Apr-2016	30-Apr-2016	0	1	5,355,494	2	0	24	Atlas	4,445,060
CSO015	1-May-2016	1-May-2016	0	0	91,200,952	3	0	1	Atlas	32,832,343
CSO015	7-May-2016	8-May-2016	0	0	2,700,278	1	0	3	Atlas	810,083
CSO015	10-May-2016	10-May-2016	0	1	22,075,318	1	0	24	Atlas	18,764,020
CSO015	11-May-2016	12-May-2016	0	0	107,398,226	2	0	6	Atlas	40,811,326
CSO015	17-May-2016	17-May-2016	0	1	2,808,167	2	0	24	Atlas	2,021,881
CSO015	20-May-2016	21-May-2016	1	1	69,567,972	2	0	3	Atlas	54,958,698
CSO015	26-May-2016	26-May-2016	0	1	18,119,590	1	0	3	Atlas	9,784,578
CSO015	2-Jun-2016	2-Jun-2016	0	1	34,198,801	1	1	1	Atlas	29,752,957
CSO015	4-Jun-2016	4-Jun-2016	0	0	11,692,260	1	0	3	Atlas	4,793,827
CSO015	12-Jun-2016	12-Jun-2016	0	1	17,480,860	1	1	1	Atlas	12,935,836
CSO015	14-Jun-2016	14-Jun-2016	0	1	69,242,428	2	1	6	Atlas	74,781,823
CSO015	15-Jun-2016	15-Jun-2016	0	0	80,710,098	2	0	1	Atlas	4,035,505
CSO015	23-Jun-2016	24-Jun-2016	0	2	107,838,454	2	1	12	Atlas	231,852,675
CSO015 Count										55
CSO015 Total										2,167,277,610
CSO016	2-Jul-2015	2-Jul-2015	0	1	3,552,829	3	0	3	Atlas	2,984,376
CSO016	2-Jul-2015	2-Jul-2015	0	1	386,544	3	0	3	Atlas	324,697
CSO016	3-Jul-2015	3-Jul-2015	0	1	1,240,419	4	2	1	Atlas	1,835,821
CSO016	7-Jul-2015	7-Jul-2015	0	1	3,485,605	3	0	6	Atlas	3,171,901
CSO016	10-Jul-2015	10-Jul-2015	0	0	2,569,541	2	0	6	Atlas	1,181,989
CSO016	12-Jul-2015	13-Jul-2015	1	1	16,429,133	2	0	1	Atlas	11,993,267
CSO016	13-Jul-2015	13-Jul-2015	0	1	6,479,144	3	0	1	Atlas	3,304,364
CSO016	14-Jul-2015	14-Jul-2015	0	0	8,598,925	3	0	1	Atlas	2,579,678
CSO016	14-Jul-2015	14-Jul-2015	0	0	213,435	3	0	1	Atlas	34,150
CSO016	17-Jul-2015	18-Jul-2015	0	1	8,343,632	3	1	3	Atlas	6,925,215
CSO016	4-Aug-2015	4-Aug-2015	0	0	1,767,037	0	0	1	Atlas	318,067
CSO016	6-Aug-2015	6-Aug-2015	0	1	362,597	1	0	1	Atlas	282,826
CSO016	2-Oct-2015	2-Oct-2015	0	0	150,222	1	0	12	Atlas	69,102
CSO016	27-Oct-2015	28-Oct-2015	1	3	6,981,008	4	2	24	Cloudburst	24,014,668
CSO016	6-Nov-2015	6-Nov-2015	0	1	4,941,723	1	1	3	Atlas	5,188,810

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO016	9-Nov-2015	10-Nov-2015	0	1	2,024,864	2	0	12	Atlas	1,214,919
CSO016	12-Nov-2015	12-Nov-2015	0	0	3,082,768	2	0	3	Atlas	924,830
CSO016	18-Nov-2015	18-Nov-2015	0	2	7,904,108	2	1	6	Atlas	13,911,230
CSO016	28-Nov-2015	28-Nov-2015	0	1	281,164	1	0	12	Atlas	244,613
CSO016	30-Nov-2015	1-Dec-2015	0	1	11,708,864	1	0	12	Atlas	6,556,964
CSO016	22-Dec-2015	22-Dec-2015	0	1	2,732,620	1	0	24	Atlas	1,912,834
CSO016	23-Dec-2015	24-Dec-2015	0	1	4,925,285	2	1	1	Atlas	4,974,538
CSO016	26-Dec-2015	26-Dec-2015	0	1	3,230,950	2	0	12	Atlas	1,873,951
CSO016	27-Dec-2015	29-Dec-2015	2	3	9,133,275	5	1	48	Atlas	23,107,187
CSO016	2-Feb-2016	3-Feb-2016	1	2	12,265,524	2	1	6	Atlas	18,520,941
CSO016	21-Feb-2016	21-Feb-2016	0	1	13,267,264	1	0	12	Atlas	14,195,973
CSO016	23-Feb-2016	24-Feb-2016	1	2	8,892,305	3	1	12	Atlas	19,918,764
CSO016	1-Mar-2016	1-Mar-2016	0	1	5,824,025	3	0	6	Atlas	3,785,617
CSO016	10-Mar-2016	11-Mar-2016	0	1	9,501,104	1	0	48	Atlas	12,446,446
CSO016	12-Mar-2016	13-Mar-2016	1	0	14,155,587	2	0	24	Atlas	7,077,794
CSO016	24-Mar-2016	24-Mar-2016	0	0	2,237,161	0	0	1	Atlas	693,520
CSO016	27-Mar-2016	28-Mar-2016	0	1	5,306,478	1	1	1	Atlas	4,085,988
CSO016	31-Mar-2016	31-Mar-2016	0	1	2,712,784	2	1	24	Atlas	3,635,131
CSO016	31-Mar-2016	31-Mar-2016	0	1	2,712,784	2	1	24	Atlas	3,635,131
CSO016	31-Mar-2016	1-Apr-2016	0	1	2,810,016	2	1	24	Atlas	3,765,422
CSO016	31-Mar-2016	1-Apr-2016	0	1	2,810,016	2	1	24	Atlas	3,765,422
CSO016	11-Apr-2016	12-Apr-2016	0	1	10,977,771	1	0	6	Atlas	10,648,438
CSO016	21-Apr-2016	21-Apr-2016	0	0	4,895,471	0	0	24	Atlas	1,419,687
CSO016	26-Apr-2016	27-Apr-2016	0	0	7,249,256	1	0	3	Atlas	1,739,822
CSO016	27-Apr-2016	28-Apr-2016	1	1	8,658,001	2	0	3	Atlas	8,917,741
CSO016	30-Apr-2016	30-Apr-2016	0	1	8,205,775	2	0	24	Atlas	6,482,563
CSO016	1-May-2016	1-May-2016	0	0	13,807,624	2	0	3	Atlas	4,418,440
CSO016	7-May-2016	8-May-2016	0	0	12,549,351	1	0	3	Atlas	4,643,260
CSO016	10-May-2016	11-May-2016	1	1	17,387,805	2	0	24	Atlas	14,779,634
CSO016	11-May-2016	12-May-2016	0	0	12,119,803	2	0	12	Atlas	4,363,129
CSO016	12-May-2016	13-May-2016	0	0	20,290,732	2	0	3	Atlas	3,246,517
CSO016	17-May-2016	17-May-2016	0	1	3,372,657	2	0	24	Atlas	2,259,680
CSO016	20-May-2016	20-May-2016	0	1	9,616,340	1	0	3	Atlas	7,019,928
CSO016	26-May-2016	26-May-2016	0	0	12,552,379	1	0	3	Atlas	5,271,999
CSO016	2-Jun-2016	2-Jun-2016	0	1	8,059,496	1	1	1	Atlas	7,253,546
CSO016	4-Jun-2016	4-Jun-2016	0	0	19,609,624	1	0	12	Atlas	5,882,887

There are known issues with the flow monitoring data quality.
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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO016	12-Jun-2016	13-Jun-2016	0	1	8,811,974	1	1	1	Atlas	7,930,777
CSO016	14-Jun-2016	15-Jun-2016	1	1	11,003,098	2	1	6	Atlas	15,514,369
CSO016	23-Jun-2016	24-Jun-2016	1	2	12,903,346	2	1	12	Atlas	26,193,793
CSO016 Count										54
CSO016 Total										352,442,356
CSO018	10-Jul-2015	10-Jul-2015	0	1	46,062	2	0	1	Atlas	32,244
CSO018	12-Jul-2015	12-Jul-2015	1	1	629,399	3	1	1	Atlas	547,577
CSO018	13-Jul-2015	14-Jul-2015	1	1	1,693,426	4	0	1	Atlas	948,319
CSO018	17-Jul-2015	18-Jul-2015	1	1	416,011	3	1	3	Atlas	465,932
CSO018	6-Aug-2015	6-Aug-2015	0	1	2,742	2	0	24	Atlas	3,537
CSO018	27-Oct-2015	27-Oct-2015	0	3	322	2	1	48	Atlas	942
CSO018	6-Nov-2015	6-Nov-2015	0	1	13,096	1	1	3	Atlas	13,227
CSO018	18-Nov-2015	18-Nov-2015	0	2	208,397	2	1	6	Atlas	389,703
CSO018	23-Dec-2015	24-Dec-2015	0	1	98,083	2	1	1	Atlas	101,026
CSO018	27-Dec-2015	29-Dec-2015	2	2	1,244,567	5	1	48	Atlas	3,111,417
CSO018	31-Dec-2015	31-Dec-2015	0			3				616,338
CSO018	2-Feb-2016	3-Feb-2016	0	2	105,897	2	1	6	Atlas	170,494
CSO018	24-Feb-2016	25-Feb-2016	1	2	927,742	3	1	12	Atlas	1,818,375
CSO018	10-Mar-2016	10-Mar-2016	0	1	5,216	1	0	12	Atlas	6,937
CSO018	12-Mar-2016	12-Mar-2016	0	1	1,513	2	0	24	Atlas	1,346
CSO018	13-Mar-2016	13-Mar-2016	0	1	189,816	2	0	24	Atlas	168,936
CSO018	24-Mar-2016	24-Mar-2016	0	0	50,890	1	0	1	Atlas	17,811
CSO018	27-Mar-2016	27-Mar-2016	0	1	69,174	1	1	3	Atlas	68,482
CSO018	31-Mar-2016	31-Mar-2016	0	1	1,226	2	1	24	Atlas	1,717
CSO018	31-Mar-2016	31-Mar-2016	0	1	1,226	2	1	24	Atlas	1,717
CSO018	10-May-2016	10-May-2016	0	1	21,152	2	0	24	Atlas	16,499
CSO018	20-May-2016	20-May-2016	0	1	61,845	1	0	3	Atlas	51,950
CSO018	23-Jun-2016	24-Jun-2016	0	1	68,914	2	1	6	Atlas	95,102
CSO018 Count										23
CSO018 Total										8,649,628
CSO019	2-Jul-2015	3-Jul-2015	2	1	16,123,473	4	0	24	Atlas	19,670,637
CSO019	7-Jul-2015	7-Jul-2015	0	1	2,757,027	3	0	6	Atlas	2,701,886
CSO019	8-Jul-2015	8-Jul-2015	0	1	58,546	3	0	6	Atlas	57,375
CSO019	9-Jul-2015	9-Jul-2015	1	0	4,662,941	2	0	12	Atlas	1,492,141
CSO019	10-Jul-2015	10-Jul-2015	1	0	3,248,317	2	0	6	Atlas	1,396,776
CSO019	12-Jul-2015	12-Jul-2015	0	1	8,730,300	3	1	1	Atlas	6,635,028

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO019	13-Jul-2015	13-Jul-2015	0	0	5,629,352	3	0	1	Atlas	1,913,980
CSO019	14-Jul-2015	14-Jul-2015	1	1	6,364,840	3	0	1	Atlas	3,500,662
CSO019	17-Jul-2015	18-Jul-2015	0	2	8,010,208	3	1	3	Atlas	12,175,516
CSO019	20-Jul-2015	20-Jul-2015	0	0	400,040	2	0	1	Atlas	4,000
CSO019	29-Jul-2015	29-Jul-2015	0	0	2,389,018	0	0	1	Atlas	668,925
CSO019	4-Aug-2015	4-Aug-2015	0	0	17,083,079	0	0	1	Atlas	3,758,277
CSO019	5-Aug-2015	5-Aug-2015	0	1	1,842,650	1	0	24	Atlas	1,529,400
CSO019	6-Aug-2015	6-Aug-2015	0	1	2,142,575	1	0	24	Atlas	1,778,338
CSO019	10-Aug-2015	10-Aug-2015	0	0	275,084	1	0	1	Atlas	5,502
CSO019	10-Aug-2015	12-Aug-2015	2	0	2,216,330	1	0	1	Atlas	132,980
CSO019	19-Aug-2015	19-Aug-2015	1	1	3,028,962	1	1	1	Atlas	3,665,044
CSO019	5-Sep-2015	5-Sep-2015	0	0	5,220,192	0	0	6	Atlas	574,221
CSO019	25-Sep-2015	25-Sep-2015	0	0	36,430	0	0	3	Atlas	3,643
CSO019	29-Sep-2015	29-Sep-2015	1	1	120,498	1	0	48	Atlas	103,628
CSO019	30-Sep-2015	30-Sep-2015	0	1	20,825	1	0	48	Atlas	17,909
CSO019	2-Oct-2015	3-Oct-2015	0	0	2,589,260	1	0	6	Atlas	1,216,952
CSO019	12-Oct-2015	12-Oct-2015	0	0	1,749,625	0	0	1	Atlas	437,406
CSO019	24-Oct-2015	24-Oct-2015	0	0	1,991,821	0	0	6	Atlas	378,446
CSO019	27-Oct-2015	29-Oct-2015	2	4	5,913,665	4	2	24	Cloudburst	20,934,374
CSO019	31-Oct-2015	1-Nov-2015	0	0	326,054	4	0	3	Atlas	55,429
CSO019	6-Nov-2015	6-Nov-2015	1	1	7,413,455	1	0	3	Atlas	6,079,033
CSO019	9-Nov-2015	10-Nov-2015	0	1	2,243,806	1	0	12	Atlas	1,368,721
CSO019	12-Nov-2015	12-Nov-2015	0	0	4,664,161	2	0	3	Atlas	1,305,965
CSO019	18-Nov-2015	19-Nov-2015	1	2	7,041,495	2	1	6	Atlas	12,040,957
CSO019	21-Nov-2015	21-Nov-2015	0	0	99,920	2	0	1	Atlas	11,990
CSO019	28-Nov-2015	29-Nov-2015	1	1	1,762,405	1	0	12	Atlas	1,145,563
CSO019	30-Nov-2015	1-Dec-2015	1	1	3,005,712	1	0	12	Atlas	1,773,370
CSO019	14-Dec-2015	14-Dec-2015	0	0	763,410	0	0	6	Atlas	190,853
CSO019	21-Dec-2015	22-Dec-2015	1	1	2,513,066	1	0	24	Atlas	1,457,578
CSO019	23-Dec-2015	24-Dec-2015	1	2	4,109,286	2	2	1	Atlas	7,355,622
CSO019	26-Dec-2015	26-Dec-2015	0	0	748,396	3	0	3	Atlas	359,230
CSO019	27-Dec-2015	31-Dec-2015	2	3	2,691,076	6	1	48	Atlas	8,027,636
CSO019	9-Jan-2016	10-Jan-2016	1	0	1,128,002	0	0	12	Atlas	315,841
CSO019	2-Feb-2016	3-Feb-2016	1	1	2,554,683	1	1	6	Atlas	3,295,541
CSO019	21-Feb-2016	21-Feb-2016	1	1	577,481	1	0	6	Atlas	410,012
CSO019	23-Feb-2016	25-Feb-2016	1	2	2,178,806	3	1	12	Atlas	4,531,917

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO019	29-Feb-2016	29-Feb-2016	0	0	149,200	2	0	1	Atlas	7,460
CSO019	1-Mar-2016	1-Mar-2016	0	1	220,308	3	1	1	Atlas	182,855
CSO019	9-Mar-2016	9-Mar-2016	0	1	68,434	1	0	48	Atlas	91,702
CSO019	10-Mar-2016	11-Mar-2016	1	1	550,109	1	0	48	Atlas	737,146
CSO019	12-Mar-2016	13-Mar-2016	1	1	1,985,327	2	0	24	Atlas	1,091,930
CSO019	24-Mar-2016	24-Mar-2016	0	1	611,886	1	1	1	Atlas	513,984
CSO019	27-Mar-2016	27-Mar-2016	0	1	1,781,938	1	0	1	Atlas	962,247
CSO019	31-Mar-2016	1-Apr-2016	1	2	743,323	3	1	24	Atlas	1,144,718
CSO019	1-Apr-2016	1-Apr-2016	0	2	79,462	2	1	24	Atlas	123,166
CSO019	11-Apr-2016	11-Apr-2016	0	1	1,199,024	1	0	6	Atlas	1,211,014
CSO019	21-Apr-2016	21-Apr-2016	0	0	280,654	0	0	3	Atlas	36,485
CSO019	22-Apr-2016	22-Apr-2016	0	0	182,124	0	0	6	Atlas	23,676
CSO019	26-Apr-2016	26-Apr-2016	0	0	257,158	1	0	3	Atlas	74,576
CSO019	27-Apr-2016	28-Apr-2016	1	1	662,240	2	0	12	Atlas	662,240
CSO019	30-Apr-2016	30-Apr-2016	0	1	358,838	2	0	24	Atlas	279,894
CSO019	1-May-2016	1-May-2016	0	1	82,908	2	0	24	Atlas	64,668
CSO019	1-May-2016	1-May-2016	0	0	89,506	2	0	3	Atlas	13,426
CSO019	4-May-2016	4-May-2016	0	0	49,829	2	0	3	Atlas	8,471
CSO019	7-May-2016	7-May-2016	0	1	477,974	1	0	6	Atlas	253,326
CSO019	10-May-2016	11-May-2016	0	1	621,918	2	0	6	Atlas	659,233
CSO019	11-May-2016	11-May-2016	0	0	381,597	2	0	3	Atlas	76,319
CSO019	17-May-2016	17-May-2016	0	0	73,146	2	0	12	Atlas	20,481
CSO019	17-May-2016	17-May-2016	0	0	257,105	1	0	6	Atlas	66,847
CSO019	20-May-2016	20-May-2016	0	1	1,419,843	1	0	3	Atlas	866,104
CSO019	25-May-2016	25-May-2016	0	0	795,812	1	0	1	Atlas	7,958
CSO019	26-May-2016	26-May-2016	0	0	200,216	1	0	3	Atlas	82,089
CSO019	28-May-2016	28-May-2016	0	0	161,577	1	0	6	Atlas	40,394
CSO019	2-Jun-2016	2-Jun-2016	0	1	2,532,027	1	1	1	Atlas	2,709,269
CSO019	4-Jun-2016	4-Jun-2016	0	0	271,841	2	0	1	Atlas	76,116
CSO019	12-Jun-2016	12-Jun-2016	0	0	241,026	0	0	1	Atlas	94,000
CSO019	14-Jun-2016	15-Jun-2016	0	1	3,144,500	2	1	3	Atlas	4,433,745
CSO019	22-Jun-2016	22-Jun-2016	0	1	388,327	1	0	3	Atlas	236,879
CSO019	23-Jun-2016	23-Jun-2016	0	2	2,858,830	3	1	6	Cloudburst	5,431,776
CSO019 Count										75
CSO019 Total										156,762,498
CSO020	2-Jul-2015	2-Jul-2015	0	2	347,162	2	1	24	Atlas	607,534

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO020	2-Jul-2015	2-Jul-2015	0	2	3,289,888	4	1	24	Atlas	5,757,304
CSO020	3-Jul-2015	3-Jul-2015	0	0	2,854,619	3	0	6	Atlas	1,056,209
CSO020	7-Jul-2015	7-Jul-2015	0	1	4,168,778	3	0	6	Atlas	3,335,022
CSO020	8-Jul-2015	8-Jul-2015	0	1	722,536	3	0	6	Atlas	578,029
CSO020	9-Jul-2015	9-Jul-2015	0	0	2,284,276	2	0	12	Atlas	753,811
CSO020	10-Jul-2015	10-Jul-2015	0	0	5,261,538	2	0	6	Atlas	1,841,538
CSO020	12-Jul-2015	13-Jul-2015	1	2	30,947,824	3	1	3	Atlas	47,659,649
CSO020	13-Jul-2015	13-Jul-2015	0	1	4,157,048	4	0	1	Atlas	2,327,947
CSO020	14-Jul-2015	14-Jul-2015	1	1	38,209,929	5	1	1	Atlas	28,275,347
CSO020	17-Jul-2015	18-Jul-2015	1	2	48,737,071	5	2	3	Atlas	81,390,909
CSO020	4-Aug-2015	4-Aug-2015	0	1	57,735	1	1	1	Atlas	45,033
CSO020	5-Aug-2015	5-Aug-2015	0	1	99,341	1	0	24	Atlas	78,479
CSO020	6-Aug-2015	6-Aug-2015	0	1	1,462,454	2	0	24	Atlas	1,155,339
CSO020	19-Aug-2015	19-Aug-2015	0	0	121,417	0	0	24	Atlas	36,425
CSO020	27-Oct-2015	28-Oct-2015	1	2	11,390,555	3	1	24	Atlas	26,995,616
CSO020	6-Nov-2015	6-Nov-2015	0	1	5,859,230	1	1	3	Atlas	5,097,530
CSO020	9-Nov-2015	9-Nov-2015	0	1	2,125,074	1	0	12	Atlas	1,211,292
CSO020	12-Nov-2015	12-Nov-2015	0	0	4,621,857	2	0	3	Atlas	1,294,120
CSO020	18-Nov-2015	18-Nov-2015	0	1	16,710,211	2	1	6	Atlas	22,391,683
CSO020	28-Nov-2015	28-Nov-2015	0	1	1,279,110	1	0	12	Atlas	844,213
CSO020	30-Nov-2015	1-Dec-2015	0	1	6,268,815	1	0	12	Atlas	3,761,289
CSO020	22-Dec-2015	22-Dec-2015	0	1	9,317,105	1	0	24	Atlas	5,124,408
CSO020	23-Dec-2015	24-Dec-2015	0	1	16,378,432	1	1	1	Atlas	12,938,962
CSO020	26-Dec-2015	26-Dec-2015	0	0	4,887,478	2	0	12	Atlas	1,563,993
CSO020	27-Dec-2015	29-Dec-2015	2	2	68,388,944	4	1	6	Atlas	143,616,782
CSO020	2-Feb-2016	3-Feb-2016	1	1	14,738,919	1	1	12	Atlas	20,044,930
CSO020	21-Feb-2016	21-Feb-2016	0	1	16,331,795	1	0	12	Atlas	14,535,297
CSO020	23-Feb-2016	25-Feb-2016	2	2	34,042,344	3	1	12	Atlas	65,361,301
CSO020	1-Mar-2016	1-Mar-2016	0	0	4,998,554	2	0	6	Atlas	1,999,421
CSO020	10-Mar-2016	10-Mar-2016	0	1	7,142,625	1	0	48	Atlas	8,356,872
CSO020	12-Mar-2016	13-Mar-2016	1	1	13,829,694	2	0	24	Atlas	9,957,380
CSO020	24-Mar-2016	24-Mar-2016	0	0	2,808,237	0	0	1	Atlas	758,224
CSO020	27-Mar-2016	27-Mar-2016	0	1	3,894,802	1	1	1	Atlas	3,154,790
CSO020	31-Mar-2016	31-Mar-2016	0	1	977,237	2	0	24	Atlas	1,084,734
CSO020	31-Mar-2016	31-Mar-2016	0	1	977,237	2	0	24	Atlas	1,084,734
CSO020	31-Mar-2016	1-Apr-2016	0	1	1,952,391	2	0	24	Atlas	2,167,154

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO020	31-Mar-2016	1-Apr-2016	0	1	1,952,391	2	0	24	Atlas	2,167,154
CSO020	11-Apr-2016	11-Apr-2016	0	1	4,045,263	1	0	6	Atlas	4,126,168
CSO020	26-Apr-2016	26-Apr-2016	0	0	481,537	1	0	3	Atlas	130,015
CSO020	27-Apr-2016	27-Apr-2016	0	1	1,676,578	1	0	12	Atlas	1,173,605
CSO020	10-May-2016	11-May-2016	0	1	4,273,089	1	0	24	Atlas	2,948,431
CSO020	11-May-2016	11-May-2016	0	0	3,460,266	1	0	3	Atlas	692,053
CSO020	17-May-2016	17-May-2016	0	0	121	1	0	6	Atlas	38
CSO020	20-May-2016	20-May-2016	0	1	8,358,055	1	0	3	Atlas	4,513,350
CSO020	2-Jun-2016	2-Jun-2016	0	0	1,748,888	0	0	1	Atlas	524,666
CSO020	4-Jun-2016	4-Jun-2016	0	0	722,601	1	0	1	Atlas	202,328
CSO020	12-Jun-2016	12-Jun-2016	0	0	684,367	0	0	1	Atlas	123,186
CSO020	14-Jun-2016	14-Jun-2016	0	1	5,041,120	1	1	3	Atlas	4,032,896
CSO020	23-Jun-2016	24-Jun-2016	0	2	6,026,580	3	2	6	Cloudburst	13,559,805
CSO020 Count										50
CSO020 Total										562,436,995
CSO022	2-Jul-2015	2-Jul-2015	0	2	430,031	4	1	24	Atlas	1,053,577
CSO022	7-Jul-2015	7-Jul-2015	0	1	155,071	3	0	6	Atlas	145,767
CSO022	12-Jul-2015	12-Jul-2015	0	1	639,864	3	1	3	Atlas	767,837
CSO022	18-Jul-2015	18-Jul-2015	0	2	185,555	4	1	3	Atlas	300,599
CSO022	15-Aug-2015	15-Aug-2015	0	0	35,547,098	0	0	1	Atlas	355,471
CSO022	9-Sep-2015	9-Sep-2015	0	0	964,020	0	0	1	Atlas	308,486
CSO022	27-Oct-2015	27-Oct-2015	0	2	117,727	2	1	24	Atlas	286,076
CSO022	6-Nov-2015	6-Nov-2015	0	1	816,337	1	1	3	Atlas	751,030
CSO022	18-Nov-2015	18-Nov-2015	0	1	656,833	2	1	6	Atlas	860,451
CSO022	12-Mar-2016	12-Mar-2016	0	1	379,402	2	0	6	Atlas	345,255
CSO022	27-Mar-2016	27-Mar-2016	0	1	897,907	1	1	3	Atlas	691,388
CSO022	11-Apr-2016	11-Apr-2016	0	1	38,799	1	0	6	Atlas	38,799
CSO022	26-Apr-2016	26-Apr-2016	0	0	319,661	0	0	3	Atlas	92,702
CSO022	27-Apr-2016	27-Apr-2016	0	1	43,304	1	0	12	Atlas	35,942
CSO022	30-Apr-2016	30-Apr-2016	0	1	49,148	1	0	24	Atlas	34,895
CSO022	10-May-2016	10-May-2016	0	1	310,506	2	0	6	Atlas	294,981
CSO022	20-May-2016	20-May-2016	0	0	149,938	1	0	6	Atlas	70,471
CSO022	2-Jun-2016	2-Jun-2016	0	1	487,367	1	0	1	Atlas	287,547
CSO022	4-Jun-2016	4-Jun-2016	0	0	919,334	1	0	1	Atlas	266,607
CSO022 Count										19
CSO022 Total										6,987,881

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO023	9-Dec-2015	9-Dec-2015	0							48,073
CSO023	2-Feb-2016	3-Feb-2016	0	1	11,266	1	1	6	Atlas	14,534
CSO023	8-Mar-2016	8-Mar-2016	0			0				17,292,555
CSO023	23-Jun-2016	23-Jun-2016	0	3	1,657	3	4	6	Cloudburst	4,374
CSO023 Count										4
CSO023 Total										17,359,536
CSO027	12-Jul-2015	12-Jul-2015	0	1	5,357	3	1	1	Atlas	5,679
CSO027	14-Jun-2016	14-Jun-2016	0	1	2,695,544	1	1	3	Atlas	224,629
CSO027 Count										2
CSO027 Total										230,308
CSO028	2-Jul-2015	2-Jul-2015	0	1	508	3	0	3	Atlas	580
CSO028	12-Jul-2015	12-Jul-2015	0	1	48,228	3	1	1	Atlas	51,122
CSO028	18-Jul-2015	18-Jul-2015	0	1	705	3	1	3	Atlas	747
CSO028	18-Nov-2015	18-Nov-2015	0	1	327	1	1	6	Atlas	399
CSO028	23-Dec-2015	23-Dec-2015	0	1	9,635	1	1	1	Atlas	7,612
CSO028	27-Dec-2015	27-Dec-2015	0	2	512	3	1	3	Atlas	1,092
CSO028	3-Feb-2016	3-Feb-2016	0	1	3,195	1	1	6	Atlas	4,121
CSO028	27-Mar-2016	27-Mar-2016	0	1	8,217	1	0	1	Atlas	5,587
CSO028	27-Apr-2016	27-Apr-2016	0	1	15,762	2	1	1	Atlas	15,605
CSO028	30-Apr-2016	30-Apr-2016	0	1	5,906	2	0	6	Atlas	3,839
CSO028	10-May-2016	10-May-2016	0	1	13,531	2	0	24	Atlas	12,043
CSO028	17-May-2016	17-May-2016	0	1	3,319	2	0	24	Atlas	2,290
CSO028	20-May-2016	20-May-2016	0	1	21,168	1	0	3	Atlas	11,007
CSO028	26-May-2016	26-May-2016	0	0	8,601	1	0	3	Atlas	2,580
CSO028	2-Jun-2016	2-Jun-2016	0	0	27,036	0	0	1	Atlas	7,029
CSO028	4-Jun-2016	4-Jun-2016	0	0	632	1	0	3	Atlas	202
CSO028	14-Jun-2016	14-Jun-2016	0	1	9,270	1	1	3	Atlas	8,158
CSO028	22-Jun-2016	22-Jun-2016	0	0	90,431	0	0	3	Atlas	21,703
CSO028	23-Jun-2016	23-Jun-2016	0	2	64,862	2	2	6	Cloudburst	131,022
CSO028 Count										19
CSO028 Total										286,738
CSO029	2-Jul-2015	2-Jul-2015	0	1	362,806	3	0	3	Atlas	413,598
CSO029	3-Jul-2015	3-Jul-2015	0	0	18,811	3	0	1	Atlas	7,525
CSO029	7-Jul-2015	7-Jul-2015	0	1	9,401	2	0	6	Atlas	7,803
CSO029	9-Jul-2015	9-Jul-2015	0	0	11,120	2	0	3	Atlas	3,781
CSO029	10-Jul-2015	10-Jul-2015	0	0	11,094	2	0	6	Atlas	5,325

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CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO029	12-Jul-2015	12-Jul-2015	0	1	357,545	3	1	1	Atlas	378,998
CSO029	13-Jul-2015	13-Jul-2015	0	0	81,457	3	0	1	Atlas	25,252
CSO029	14-Jul-2015	14-Jul-2015	0	1	48,510	4	1	1	Atlas	33,472
CSO029	17-Jul-2015	18-Jul-2015	0	1	301,755	3	1	3	Atlas	319,860
CSO029	4-Aug-2015	4-Aug-2015	0	0	10,363	0	0	1	Atlas	3,213
CSO029	6-Aug-2015	6-Aug-2015	0	0	23,318	1	0	1	Atlas	11,659
CSO029	9-Sep-2015	9-Sep-2015	0	0	132,065	0	0	1	Atlas	36,978
CSO029	29-Sep-2015	29-Sep-2015	0	1	32,318	1	0	48	Atlas	25,531
CSO029	27-Oct-2015	27-Oct-2015	0	2	8,960	2	1	24	Atlas	21,415
CSO029	28-Oct-2015	28-Oct-2015	0	2	270	3	1	24	Atlas	645
CSO029	6-Nov-2015	6-Nov-2015	0	1	16,418	1	1	3	Atlas	15,433
CSO029	12-Nov-2015	12-Nov-2015	0	0	135,137	2	0	3	Atlas	33,784
CSO029	18-Nov-2015	18-Nov-2015	0	1	51,903	1	1	6	Atlas	63,322
CSO029	23-Dec-2015	23-Dec-2015	0	1	477,058	1	1	1	Atlas	376,876
CSO029	27-Dec-2015	27-Dec-2015	0	2	61,372	3	1	3	Atlas	130,723
CSO029	2-Feb-2016	3-Feb-2016	0	1	35,648	1	1	6	Atlas	45,986
CSO029	21-Feb-2016	21-Feb-2016	0	1	20,616	1	1	12	Atlas	23,090
CSO029	24-Feb-2016	24-Feb-2016	0	2	16,509	3	1	12	Atlas	31,532
CSO029	12-Mar-2016	12-Mar-2016	0	1	69,880	2	0	6	Atlas	51,711
CSO029	13-Mar-2016	13-Mar-2016	0	1	4,960	2	0	6	Atlas	3,671
CSO029	24-Mar-2016	24-Mar-2016	0	0	13,434	1	0	1	Atlas	6,448
CSO029	27-Mar-2016	27-Mar-2016	0	1	82,517	1	0	1	Atlas	56,111
CSO029	31-Mar-2016	31-Mar-2016	0	1	1,514	2	0	24	Atlas	1,787
CSO029	31-Mar-2016	31-Mar-2016	0	1	1,514	2	0	24	Atlas	1,787
CSO029	11-Apr-2016	11-Apr-2016	0	1	18,578	1	0	6	Atlas	18,206
CSO029	26-Apr-2016	26-Apr-2016	0	0	9,458	0	0	6	Atlas	3,310
CSO029	27-Apr-2016	27-Apr-2016	0	1	8,819	1	1	1	Atlas	8,731
CSO029	30-Apr-2016	30-Apr-2016	0	1	2,958	2	0	6	Atlas	1,923
CSO029	1-May-2016	1-May-2016	0	0	8,027	2	0	3	Atlas	1,766
CSO029	7-May-2016	7-May-2016	0	1	5,865	1	0	1	Atlas	4,458
CSO029	10-May-2016	10-May-2016	0	1	4,600	1	0	24	Atlas	4,094
CSO029	20-May-2016	20-May-2016	0	1	329	1	0	3	Atlas	171
CSO029	25-May-2016	25-May-2016	0	0	45,763	1	0	1	Atlas	1,373
CSO029	2-Jun-2016	2-Jun-2016	0	0	33,532	0	0	1	Atlas	8,718
CSO029	4-Jun-2016	4-Jun-2016	0	0	107,368	1	0	3	Atlas	34,358
CSO029	14-Jun-2016	14-Jun-2016	0	1	109,417	1	1	3	Atlas	96,287

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO029	23-Jun-2016	23-Jun-2016	0	2	127,845	2	2	6	Cloudburst	258,247
CSO029 Count										42
CSO029 Total										2,578,958
CSO031	2-Jul-2015	2-Jul-2015	0	1	22,594	3	0	3	Atlas	25,757
CSO031	2-Jul-2015	2-Jul-2015	0	1	84,329	3	0	3	Atlas	96,135
CSO031	3-Jul-2015	3-Jul-2015	0	0	19,482	3	0	1	Atlas	7,793
CSO031	7-Jul-2015	7-Jul-2015	0	1	6,761	2	0	6	Atlas	5,611
CSO031	10-Jul-2015	10-Jul-2015	0	0	10,204	2	0	6	Atlas	4,898
CSO031	12-Jul-2015	12-Jul-2015	0	1	150,877	3	1	1	Atlas	159,930
CSO031	13-Jul-2015	13-Jul-2015	0	0	7,149	3	0	1	Atlas	2,216
CSO031	14-Jul-2015	14-Jul-2015	0	1	49,297	4	1	1	Atlas	34,015
CSO031	17-Jul-2015	18-Jul-2015	0	1	157,874	3	1	3	Atlas	167,346
CSO031	6-Aug-2015	6-Aug-2015	1	0	242,676	1	0	1	Atlas	121,338
CSO031	21-Apr-2016	21-Apr-2016	0	0	171,910	0	0	3	Atlas	49,854
CSO031	26-Apr-2016	27-Apr-2016	0	0	486,143	1	0	6	Atlas	170,150
CSO031	27-Apr-2016	27-Apr-2016	0	1	126,801	2	1	1	Atlas	125,533
CSO031	4-May-2016	4-May-2016	0	0	46,138	2	0	3	Atlas	10,150
CSO031	4-Jun-2016	4-Jun-2016	0	0	76,235	1	0	3	Atlas	24,395
CSO031 Count										15
CSO031 Total										1,005,121
CSO034	2-Jul-2015	2-Jul-2015	0	1	7,571	3	0	3	Atlas	8,631
CSO034	12-Jul-2015	12-Jul-2015	0	1	66,468	3	1	1	Atlas	70,456
CSO034	18-Jul-2015	18-Jul-2015	0	1	8,448	3	1	3	Atlas	8,955
CSO034	9-Sep-2015	9-Sep-2015	0	0	14,695	0	0	1	Atlas	4,115
CSO034	6-Nov-2015	6-Nov-2015	0	1	23,360	1	1	3	Atlas	21,958
CSO034	18-Nov-2015	18-Nov-2015	0	1	17,132	1	1	6	Atlas	20,901
CSO034	23-Dec-2015	23-Dec-2015	0	1	86,770	1	1	1	Atlas	68,548
CSO034	27-Dec-2015	27-Dec-2015	0	2	2,773	3	1	3	Atlas	5,906
CSO034	3-Feb-2016	3-Feb-2016	0	1	14,262	1	1	6	Atlas	18,398
CSO034	27-Mar-2016	27-Mar-2016	0	1	10,283	1	0	1	Atlas	6,993
CSO034	10-May-2016	11-May-2016	1	1	13,403	2	0	24	Atlas	11,929
CSO034	11-May-2016	11-May-2016	0	0	5,378	2	0	3	Atlas	1,452
CSO034	2-Jun-2016	2-Jun-2016	0	0	10,687	0	0	1	Atlas	2,779
CSO034	4-Jun-2016	4-Jun-2016	0	0	79,448	1	0	3	Atlas	25,423
CSO034	14-Jun-2016	14-Jun-2016	0	1	26,568	1	1	3	Atlas	23,380
CSO034	23-Jun-2016	23-Jun-2016	0	2	118,266	2	2	6	Cloudburst	238,898

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO034 Count										16
CSO034 Total										538,722
CSO035	6-Nov-2015	6-Nov-2015	0	1	702,487	1	0	3	Atlas	533,890
CSO035	12-Nov-2015	12-Nov-2015	0	0	4,007	1	0	6	Atlas	1,042
CSO035	18-Nov-2015	18-Nov-2015	0	1	450,246	2	1	6	Atlas	589,823
CSO035	22-Dec-2015	22-Dec-2015	0	0	119,054	1	0	1	Atlas	46,431
CSO035	23-Dec-2015	23-Dec-2015	0	1	816,751	1	1	1	Atlas	784,081
CSO035	27-Dec-2015	27-Dec-2015	0	2	325,259	3	1	3	Atlas	617,991
CSO035	2-Feb-2016	3-Feb-2016	0	1	292,255	1	1	6	Atlas	353,629
CSO035	21-Feb-2016	21-Feb-2016	0	1	176,480	1	1	12	Atlas	194,128
CSO035	12-Mar-2016	12-Mar-2016	0	1	148,646	2	0	24	Atlas	114,457
CSO035	24-Mar-2016	24-Mar-2016	0	0	23,615	1	0	1	Atlas	11,099
CSO035	27-Mar-2016	27-Mar-2016	0	1	490,142	1	0	1	Atlas	352,902
CSO035	11-Apr-2016	11-Apr-2016	0	1	4,611	1	0	6	Atlas	4,242
CSO035	21-Apr-2016	21-Apr-2016	0	0	52,935	0	0	3	Atlas	17,468
CSO035	26-Apr-2016	26-Apr-2016	0	0	500,623	0	0	6	Atlas	165,206
CSO035	27-Apr-2016	27-Apr-2016	0	1	263,414	1	0	1	Atlas	184,390
CSO035	30-Apr-2016	30-Apr-2016	0	1	192,084	1	0	6	Atlas	115,251
CSO035	10-May-2016	10-May-2016	0	1	229,009	2	0	12	Atlas	215,268
CSO035	20-May-2016	20-May-2016	0	1	281,464	1	0	3	Atlas	143,547
CSO035	2-Jun-2016	2-Jun-2016	0	0	628,033	0	0	1	Atlas	213,531
CSO035	4-Jun-2016	4-Jun-2016	0	0	1,201,117	1	0	1	Atlas	276,257
CSO035	14-Jun-2016	14-Jun-2016	0	1	526,185	1	1	3	Atlas	441,995
CSO035	22-Jun-2016	22-Jun-2016	0	0	476,815	0	0	3	Atlas	81,059
CSO035	23-Jun-2016	23-Jun-2016	0	2	817,318	2	1	6	Cloudburst	1,536,558
CSO035 Count										23
CSO035 Total										6,994,245
CSO036	2-Jul-2015	2-Jul-2015	0	1	56,202	3	0	24	Atlas	66,880
CSO036	10-Jul-2015	11-Jul-2015	0	1	27,571	2	0	6	Atlas	15,164
CSO036	12-Jul-2015	12-Jul-2015	0	1	320,922	3	1	1	Atlas	372,269
CSO036	14-Jul-2015	18-Jul-2015	4	1	6,515,380	5	1	1	Atlas	4,625,920
CSO036	4-Aug-2015	5-Aug-2015	1	0	79,446	0	0	1	Atlas	16,684
CSO036	6-Aug-2015	7-Aug-2015	1	0	83,642	1	0	1	Atlas	40,985
CSO036	19-Aug-2015	19-Aug-2015	0	0	8,250	1	0	1	Atlas	3,135
CSO036	9-Sep-2015	9-Sep-2015	0	0	11,466	0	0	1	Atlas	2,408
CSO036	27-Oct-2015	28-Oct-2015	1	2	11,701	3	1	24	Atlas	26,328

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO036	6-Nov-2015	6-Nov-2015	0	1	41,176	1	0	3	Atlas	31,294
CSO036	9-Nov-2015	9-Nov-2015	0	0	34,520	1	0	12	Atlas	16,570
CSO036	12-Nov-2015	12-Nov-2015	0	0	28,971	1	0	6	Atlas	7,532
CSO036	18-Nov-2015	18-Nov-2015	0	1	30,175	2	1	6	Atlas	39,529
CSO036	30-Nov-2015	1-Dec-2015	0	1	4,439	2	0	12	Atlas	3,640
CSO036	22-Dec-2015	22-Dec-2015	0	0	18,943	1	0	1	Atlas	7,388
CSO036	23-Dec-2015	23-Dec-2015	0	1	174,739	2	1	1	Atlas	167,750
CSO036	25-Dec-2015	25-Dec-2015	0	0	8,123	2	0	3	Atlas	1,056
CSO036	26-Dec-2015	26-Dec-2015	0	0	10,770	2	0	3	Atlas	3,554
CSO036	27-Dec-2015	27-Dec-2015	0	2	39,914	3	1	3	Atlas	75,837
CSO036	28-Dec-2015	28-Dec-2015	0	2	1,462	4	1	3	Atlas	2,778
CSO036	2-Feb-2016	3-Feb-2016	0	1	4,733	1	1	6	Atlas	5,727
CSO036	21-Feb-2016	21-Feb-2016	0	1	3,781	1	1	12	Atlas	4,159
CSO036	24-Feb-2016	24-Feb-2016	0	2	7,747	3	1	12	Atlas	15,340
CSO036	27-Mar-2016	27-Mar-2016	0	1	8,762	1	0	1	Atlas	6,309
CSO036	11-Apr-2016	11-Apr-2016	0	1	14,372	1	0	6	Atlas	13,222
CSO036	26-Apr-2016	26-Apr-2016	0	0	7,951	0	0	6	Atlas	2,624
CSO036	27-Apr-2016	27-Apr-2016	0	1	3,161	1	0	1	Atlas	2,212
CSO036	30-Apr-2016	30-Apr-2016	0	1	9,017	1	0	6	Atlas	5,410
CSO036	1-May-2016	1-May-2016	0	0	1,398	2	0	3	Atlas	280
CSO036	10-May-2016	10-May-2016	0	1	4,684	2	0	12	Atlas	4,403
CSO036	12-May-2016	12-May-2016	0	0	7,691	2	0	3	Atlas	1,154
CSO036	20-May-2016	20-May-2016	0	1	25,371	1	0	3	Atlas	12,939
CSO036	2-Jun-2016	2-Jun-2016	0	0	16,070	0	0	1	Atlas	5,464
CSO036	14-Jun-2016	14-Jun-2016	0	1	18,928	1	1	3	Atlas	15,900
CSO036	23-Jun-2016	23-Jun-2016	0	2	870,617	2	1	6	Cloudburst	1,636,760
CSO036 Count										35
CSO036 Total										7,258,604
CSO038	2-Jul-2015	2-Jul-2015	0	1	20,450	3	0	3	Atlas	23,312
CSO038	12-Jul-2015	12-Jul-2015	0	1	629,303	3	1	1	Atlas	667,061
CSO038	14-Jul-2015	14-Jul-2015	0	1	46,512	4	1	1	Atlas	32,093
CSO038	18-Jul-2015	18-Jul-2015	0	1	54,865	3	1	3	Atlas	58,157
CSO038	6-Aug-2015	6-Aug-2015	1	0	425,426	1	0	1	Atlas	212,713
CSO038	23-Dec-2015	23-Dec-2015	0	1	173,124	1	1	1	Atlas	136,768
CSO038	27-Dec-2015	27-Dec-2015	0	2	33,525	3	1	3	Atlas	71,408
CSO038	3-Feb-2016	3-Feb-2016	0	1	4,224	1	1	6	Atlas	5,449

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO038	10-May-2016	10-May-2016	0	1	3,572	2	0	24	Atlas	3,179
CSO038	2-Jun-2016	2-Jun-2016	0	0	121,971	0	0	1	Atlas	31,712
CSO038	4-Jun-2016	4-Jun-2016	0	0	12,874	1	0	3	Atlas	4,120
CSO038 Count										11
CSO038 Total										1,245,972
CSO050	2-Jul-2015	2-Jul-2015	1	2	405,900	4	1	1	Atlas	982,278
CSO050	3-Jul-2015	3-Jul-2015	0	1	335,656	4	0	1	Atlas	191,324
CSO050	7-Jul-2015	7-Jul-2015	0	1	135,817	4	1	3	Atlas	145,324
CSO050	8-Jul-2015	8-Jul-2015	0	1	19,811	4	1	3	Atlas	21,198
CSO050	9-Jul-2015	9-Jul-2015	0	0	244,808	3	0	12	Atlas	83,235
CSO050	10-Jul-2015	10-Jul-2015	0	0	179,978	2	0	6	Atlas	89,989
CSO050	12-Jul-2015	12-Jul-2015	0	1	674,989	3	1	1	Atlas	722,238
CSO050	13-Jul-2015	13-Jul-2015	0	0	376,606	3	0	1	Atlas	173,239
CSO050	14-Jul-2015	14-Jul-2015	0	1	610,930	4	1	1	Atlas	513,181
CSO050	14-Jul-2015	14-Jul-2015	0	0	39,664	3	0	1	Atlas	1,190
CSO050	17-Jul-2015	18-Jul-2015	0	2	1,051,665	4	1	3	Atlas	1,661,631
CSO050	29-Jul-2015	29-Jul-2015	0	0	113,833	0	0	1	Atlas	13,660
CSO050	4-Aug-2015	4-Aug-2015	0	1	367,075	1	0	1	Atlas	190,879
CSO050	5-Aug-2015	5-Aug-2015	0	1	89,702	1	1	1	Atlas	101,363
CSO050	6-Aug-2015	6-Aug-2015	1	1	61,357	2	1	1	Atlas	69,334
CSO050	10-Aug-2015	10-Aug-2015	0	0	117,152	2	0	1	Atlas	7,029
CSO050	15-Aug-2015	15-Aug-2015	0	0	2,625,883	0	0	1	Atlas	52,518
CSO050	19-Aug-2015	19-Aug-2015	0	1	57,100	1	0	12	Atlas	43,396
CSO050	5-Sep-2015	5-Sep-2015	0	0	156,771	0	0	1	Atlas	48,599
CSO050	9-Sep-2015	9-Sep-2015	0	0	3,344,043	1	0	1	Atlas	133,762
CSO050	11-Sep-2015	11-Sep-2015	0	0	49,465	1	0	6	Atlas	13,355
CSO050	29-Sep-2015	29-Sep-2015	0	1	12,225	0	0	48	Atlas	9,536
CSO050	29-Sep-2015	29-Sep-2015	0	1	5,753	1	0	48	Atlas	4,487
CSO050	2-Oct-2015	2-Oct-2015	0	1	77,920	1	0	6	Atlas	42,077
CSO050	12-Oct-2015	12-Oct-2015	0	0	88,647	0	0	1	Atlas	31,026
CSO050	24-Oct-2015	24-Oct-2015	0	0	53,066	0	0	6	Atlas	16,450
CSO050	27-Oct-2015	28-Oct-2015	1	3	628,696	3	1	24	Atlas	1,879,801
CSO050	28-Oct-2015	28-Oct-2015	0	3	4,679	3	1	24	Atlas	13,990
CSO050	31-Oct-2015	31-Oct-2015	0	0	11,054	3	0	3	Atlas	1,769
CSO050	6-Nov-2015	6-Nov-2015	0	1	549,231	1	0	3	Atlas	439,385
CSO050	9-Nov-2015	9-Nov-2015	0	1	59,526	1	0	12	Atlas	37,501

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO050	12-Nov-2015	12-Nov-2015	0	0	120,223	2	0	3	Atlas	37,269
CSO050	14-Dec-2015	14-Dec-2015	0	0	113,834	0	0	6	Atlas	30,735
CSO050	21-Dec-2015	21-Dec-2015	0	1	34,513	0	0	24	Atlas	19,672
CSO050	21-Dec-2015	22-Dec-2015	0	1	250,542	1	0	24	Atlas	142,809
CSO050	23-Dec-2015	23-Dec-2015	0	1	6,046	1	1	1	Atlas	5,079
CSO050	23-Dec-2015	23-Dec-2015	0	1	1,185,571	1	1	1	Atlas	995,879
CSO050	25-Dec-2015	25-Dec-2015	0	0	66,948	2	0	6	Atlas	8,703
CSO050	26-Dec-2015	26-Dec-2015	0	1	798,118	2	0	3	Atlas	526,758
CSO050	27-Dec-2015	28-Dec-2015	1	2	1,215,173	4	1	48	Atlas	3,025,782
CSO050	28-Dec-2015	28-Dec-2015	0	2	247,356	4	1	48	Atlas	615,916
CSO050	9-Jan-2016	9-Jan-2016	0	0	91,699	0	0	12	Atlas	17,423
CSO050	2-Feb-2016	3-Feb-2016	0	2	1,122,301	2	1	6	Atlas	1,683,451
CSO050	8-Feb-2016	8-Feb-2016	0	0	1,815	2	0	12	Atlas	254
CSO050	21-Feb-2016	21-Feb-2016	0	1	631,673	1	0	12	Atlas	524,289
CSO050	23-Feb-2016	24-Feb-2016	1	2	1,077,243	2	1	24	Atlas	1,960,582
CSO050	29-Feb-2016	29-Feb-2016	0	0	596,000	2	0	1	Atlas	17,880
CSO050	1-Mar-2016	1-Mar-2016	0	0	323,141	2	0	6	Atlas	155,108
CSO050	9-Mar-2016	9-Mar-2016	0	1	66,761	0	0	12	Atlas	89,459
CSO050	10-Mar-2016	10-Mar-2016	0	1	543,775	1	0	12	Atlas	728,659
CSO050	12-Mar-2016	13-Mar-2016	0	1	1,029,698	2	0	6	Atlas	669,304
CSO050	13-Mar-2016	13-Mar-2016	0	1	362,242	2	0	6	Atlas	235,458
CSO050	24-Mar-2016	24-Mar-2016	0	0	279,324	0	0	1	Atlas	92,177
CSO050	27-Mar-2016	27-Mar-2016	0	1	632,710	1	1	3	Atlas	556,785
CSO050	31-Mar-2016	1-Apr-2016	1	1	465,796	3	1	24	Atlas	642,799
CSO050	31-Mar-2016	31-Mar-2016	1	1	386,363	3	1	24	Atlas	533,181
CSO050 Count										56
CSO050 Total										21,050,155
CSO051	2-Jul-2015	2-Jul-2015	1	2	19,099	4	1	1	Atlas	46,220
CSO051	3-Jul-2015	3-Jul-2015	0	1	9,270	4	0	1	Atlas	5,284
CSO051	7-Jul-2015	7-Jul-2015	0	1	3,178	4	1	3	Atlas	3,401
CSO051	9-Jul-2015	9-Jul-2015	0	0	4,832	3	0	12	Atlas	1,643
CSO051	10-Jul-2015	10-Jul-2015	0	0	2,040	2	0	6	Atlas	1,020
CSO051	12-Jul-2015	12-Jul-2015	0	1	21,492	3	1	1	Atlas	22,996
CSO051	13-Jul-2015	13-Jul-2015	0	0	2,355	3	0	1	Atlas	1,083
CSO051	14-Jul-2015	14-Jul-2015	0	1	5,941	4	1	1	Atlas	4,990
CSO051	17-Jul-2015	18-Jul-2015	0	2	65,329	4	1	3	Atlas	103,220

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO051	29-Jul-2015	29-Jul-2015	0	0	30,144	0	0	1	Atlas	3,617
CSO051	4-Aug-2015	4-Aug-2015	0	1	20,900	1	0	1	Atlas	10,868
CSO051	5-Aug-2015	5-Aug-2015	0	1	12,393	1	1	1	Atlas	14,004
CSO051	6-Aug-2015	6-Aug-2015	0	1	3,646	1	1	1	Atlas	4,120
CSO051	10-Aug-2015	10-Aug-2015	0	0	42,599	2	0	1	Atlas	2,556
CSO051	15-Aug-2015	15-Aug-2015	0	0	115,444	0	0	1	Atlas	2,309
CSO051	5-Sep-2015	5-Sep-2015	0	0	20,723	0	0	1	Atlas	6,424
CSO051	9-Sep-2015	9-Sep-2015	0	0	4,736	1	0	1	Atlas	1,610
CSO051	27-Oct-2015	28-Oct-2015	1	3	10,292	3	1	24	Atlas	30,772
CSO051	6-Nov-2015	6-Nov-2015	0	1	7,075	1	0	3	Atlas	5,660
CSO051	18-Nov-2015	18-Nov-2015	0	1	24,549	2	1	6	Atlas	33,632
CSO051	22-Dec-2015	22-Dec-2015	0	1	942	1	0	24	Atlas	537
CSO051	23-Dec-2015	23-Dec-2015	0	1	19,472	1	1	1	Atlas	16,357
CSO051	27-Dec-2015	27-Dec-2015	0	2	16,015	4	1	48	Atlas	39,878
CSO051	2-Feb-2016	3-Feb-2016	0	2	21,955	1	1	6	Atlas	32,933
CSO051	21-Feb-2016	21-Feb-2016	0	1	6,865	1	0	12	Atlas	5,698
CSO051	24-Feb-2016	24-Feb-2016	0	2	5,819	2	1	24	Atlas	10,591
CSO051	1-Mar-2016	1-Mar-2016	0	0	4,734	2	0	6	Atlas	2,272
CSO051	12-Mar-2016	12-Mar-2016	0	1	54,117	2	0	6	Atlas	35,176
CSO051	13-Mar-2016	13-Mar-2016	0	1	1,070	2	0	6	Atlas	696
CSO051	24-Mar-2016	24-Mar-2016	0	0	25,876	0	0	1	Atlas	8,539
CSO051	27-Mar-2016	27-Mar-2016	0	1	14,776	1	1	3	Atlas	13,003
CSO051	31-Mar-2016	31-Mar-2016	0	1	765	2	1	24	Atlas	1,056
CSO051	31-Mar-2016	31-Mar-2016	0	1	765	2	1	24	Atlas	1,056
CSO051	11-Apr-2016	11-Apr-2016	0	1	746	1	1	6	Atlas	828
CSO051	21-Apr-2016	21-Apr-2016	0	0	639	0	0	24	Atlas	224
CSO051	27-Apr-2016	27-Apr-2016	0	1	70	1	0	1	Atlas	61
CSO051	30-Apr-2016	30-Apr-2016	0	1	8,188	2	0	24	Atlas	7,123
CSO051	1-May-2016	1-May-2016	0	1	1,131	2	0	24	Atlas	984
CSO051	1-May-2016	1-May-2016	0	0	1,788	2	0	3	Atlas	590
CSO051	7-May-2016	7-May-2016	0	1	1,327	1	0	6	Atlas	1,061
CSO051	10-May-2016	10-May-2016	0	1	14,298	2	0	12	Atlas	11,867
CSO051	20-May-2016	20-May-2016	0	1	7,460	1	0	6	Atlas	4,103
CSO051	2-Jun-2016	2-Jun-2016	0	1	29,351	1	1	1	Atlas	32,873
CSO051	4-Jun-2016	4-Jun-2016	0	0	1,760	1	0	3	Atlas	581
CSO051	14-Jun-2016	14-Jun-2016	0	1	69,847	1	1	3	Atlas	79,625

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO051	22-Jun-2016	22-Jun-2016	0	0	13,435	0	0	3	Atlas	4,568
CSO051	23-Jun-2016	23-Jun-2016	0	2	20,095	2	2	6	Cloudburst	42,600
CSO051 Count										47
CSO051 Total										660,309
CSO052	27-Oct-2015	28-Oct-2015	1	3	368,654	3	1	24	Atlas	940,067
CSO052	28-Oct-2015	28-Oct-2015	0	0	2,459	3	0	6	Atlas	418
CSO052	6-Nov-2015	6-Nov-2015	0	1	122,351	1	1	3	Atlas	116,234
CSO052	9-Nov-2015	9-Nov-2015	0	1	48,116	2	0	12	Atlas	28,870
CSO052	11-Nov-2015	12-Nov-2015	0	0	69,469	2	0	3	Atlas	22,230
CSO052	18-Nov-2015	18-Nov-2015	0	1	345,200	2	1	6	Atlas	431,500
CSO052	30-Nov-2015	1-Dec-2015	0	1	36,970	2	0	12	Atlas	24,400
CSO052	22-Dec-2015	22-Dec-2015	0	1	327	1	0	24	Atlas	196
CSO052	23-Dec-2015	23-Dec-2015	0	1	293,613	1	1	1	Atlas	217,274
CSO052	26-Dec-2015	26-Dec-2015	0	1	19,147	2	0	3	Atlas	10,340
CSO052	27-Dec-2015	28-Dec-2015	1	2	246,855	4	1	6	Atlas	545,550
CSO052	28-Dec-2015	28-Dec-2015	0	2	45,499	4	1	6	Atlas	100,553
CSO052	2-Feb-2016	3-Feb-2016	0	1	214,637	2	1	6	Atlas	319,809
CSO052	21-Feb-2016	21-Feb-2016	0	1	66,462	1	0	12	Atlas	57,157
CSO052	24-Feb-2016	24-Feb-2016	0	2	183,399	2	1	24	Atlas	348,458
CSO052	10-Mar-2016	10-Mar-2016	0	1	25,454	1	0	12	Atlas	33,599
CSO052	12-Mar-2016	12-Mar-2016	0	1	84,290	2	0	6	Atlas	73,332
CSO052	24-Mar-2016	24-Mar-2016	0	0	29,571	0	0	1	Atlas	8,576
CSO052	27-Mar-2016	27-Mar-2016	0	1	45,820	1	0	3	Atlas	33,449
CSO052	31-Mar-2016	31-Mar-2016	0	1	51,939	2	1	24	Atlas	69,079
CSO052	31-Mar-2016	31-Mar-2016	0	1	25,941	2	1	24	Atlas	34,502
CSO052	31-Mar-2016	1-Apr-2016	0	1	17,187	2	1	24	Atlas	22,858
CSO052	31-Mar-2016	1-Apr-2016	0	1	37,004	2	1	24	Atlas	49,215
CSO052	11-Apr-2016	11-Apr-2016	0	1	127,110	1	0	6	Atlas	130,923
CSO052	21-Apr-2016	21-Apr-2016	0	0	2,594	0	0	24	Atlas	1,089
CSO052	26-Apr-2016	26-Apr-2016	0	0	1,982	0	0	1	Atlas	614
CSO052	27-Apr-2016	27-Apr-2016	0	1	90,842	2	0	12	Atlas	74,491
CSO052	30-Apr-2016	30-Apr-2016	0	1	90,639	2	0	24	Atlas	75,230
CSO052	10-May-2016	10-May-2016	0	1	209,867	2	0	24	Atlas	188,880
CSO052	20-May-2016	20-May-2016	0	1	135,518	1	0	3	Atlas	71,824
CSO052	2-Jun-2016	2-Jun-2016	0	1	122,981	1	1	1	Atlas	83,627
CSO052	23-Jun-2016	23-Jun-2016	0	2	109,903	3	3	6	Cloudburst	260,469

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO052 Count										32
CSO052 Total										4,374,813
CSO053	2-Jul-2015	2-Jul-2015	1	3	172,760	4	1	1	Atlas	443,994
CSO053	3-Jul-2015	3-Jul-2015	0	0	130,304	4	0	1	Atlas	57,334
CSO053	7-Jul-2015	7-Jul-2015	0	1	122,288	4	0	3	Atlas	127,180
CSO053	8-Jul-2015	8-Jul-2015	0	1	28,161	4	0	3	Atlas	29,287
CSO053	9-Jul-2015	9-Jul-2015	0	0	97,161	3	0	12	Atlas	40,807
CSO053	10-Jul-2015	10-Jul-2015	0	0	95,133	2	0	6	Atlas	40,907
CSO053	12-Jul-2015	12-Jul-2015	0	1	434,426	3	1	1	Atlas	477,869
CSO053	13-Jul-2015	13-Jul-2015	0	0	110,955	3	0	1	Atlas	52,149
CSO053	14-Jul-2015	14-Jul-2015	0	1	153,885	4	1	1	Atlas	152,346
CSO053	17-Jul-2015	18-Jul-2015	0	2	504,314	4	2	3	Atlas	837,161
CSO053	29-Jul-2015	29-Jul-2015	0	0	210,792	0	0	1	Atlas	35,835
CSO053	4-Aug-2015	4-Aug-2015	0	1	194,600	1	0	1	Atlas	107,030
CSO053	5-Aug-2015	5-Aug-2015	0	0	369,295	1	0	1	Atlas	114,481
CSO053	6-Aug-2015	6-Aug-2015	1	0	193,384	1	0	1	Atlas	85,089
CSO053	10-Aug-2015	10-Aug-2015	0	0	77,403	1	0	1	Atlas	4,644
CSO053	15-Aug-2015	15-Aug-2015	0	0	4,139,672	0	0	1	Atlas	82,793
CSO053	19-Aug-2015	19-Aug-2015	0	0	339	0	0	3	Atlas	139
CSO053	5-Sep-2015	5-Sep-2015	0	0	598,754	0	0	6	Atlas	59,875
CSO053	9-Sep-2015	9-Sep-2015	0	0	1,248,931	0	0	1	Atlas	49,957
CSO053	11-Sep-2015	11-Sep-2015	0	0	9,920	1	0	3	Atlas	2,381
CSO053	29-Sep-2015	29-Sep-2015	0	1	1,511	1	0	48	Atlas	1,013
CSO053	2-Oct-2015	2-Oct-2015	0	1	17,799	1	0	6	Atlas	10,146
CSO053	12-Oct-2015	12-Oct-2015	0	0	45,212	0	0	1	Atlas	15,824
CSO053	24-Oct-2015	24-Oct-2015	0	0	11,319	0	0	6	Atlas	3,509
CSO053	27-Oct-2015	28-Oct-2015	1	3	163,312	3	1	24	Atlas	416,446
CSO053	28-Oct-2015	28-Oct-2015	0	0	255,180	3	0	6	Atlas	43,381
CSO053	6-Nov-2015	6-Nov-2015	0	1	277,458	1	1	3	Atlas	263,585
CSO053	9-Nov-2015	9-Nov-2015	0	1	15,037	2	0	12	Atlas	9,022
CSO053	12-Nov-2015	12-Nov-2015	0	0	173,598	2	0	3	Atlas	55,552
CSO053	18-Nov-2015	18-Nov-2015	0	1	371,245	2	1	6	Atlas	464,056
CSO053	28-Nov-2015	28-Nov-2015	0	1	1,117	0	0	12	Atlas	759
CSO053	30-Nov-2015	1-Dec-2015	0	1	181,183	2	0	12	Atlas	119,581
CSO053	21-Dec-2015	21-Dec-2015	0	1	19,818	0	0	24	Atlas	11,891
CSO053	21-Dec-2015	22-Dec-2015	0	1	148,639	1	0	24	Atlas	89,183

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO053	23-Dec-2015	23-Dec-2015	0	1	349,741	1	1	1	Atlas	258,808
CSO053	26-Dec-2015	26-Dec-2015	0	1	99,430	2	0	3	Atlas	53,692
CSO053	27-Dec-2015	27-Dec-2015	0	2	208,407	3	1	6	Atlas	460,579
CSO053	28-Dec-2015	28-Dec-2015	0	2	433	4	1	6	Atlas	958
CSO053	28-Dec-2015	28-Dec-2015	0	2	13,286	4	1	6	Atlas	29,363
CSO053	2-Feb-2016	3-Feb-2016	0	1	315,467	1	1	6	Atlas	470,046
CSO053	21-Feb-2016	21-Feb-2016	0	1	209,013	1	0	12	Atlas	179,751
CSO053	23-Feb-2016	24-Feb-2016	0	2	195,193	2	1	24	Atlas	370,867
CSO053	1-Mar-2016	1-Mar-2016	0	0	60,862	2	0	6	Atlas	30,431
CSO053	9-Mar-2016	9-Mar-2016	0	1	6,770	0	0	12	Atlas	8,937
CSO053	10-Mar-2016	10-Mar-2016	0	1	52,190	1	0	12	Atlas	68,891
CSO053	12-Mar-2016	12-Mar-2016	0	1	256,322	2	0	6	Atlas	223,000
CSO053	13-Mar-2016	13-Mar-2016	0	1	54,659	2	0	6	Atlas	47,553
CSO053	24-Mar-2016	24-Mar-2016	0	0	191,051	0	0	1	Atlas	55,405
CSO053	27-Mar-2016	27-Mar-2016	0	1	301,058	1	0	3	Atlas	219,773
CSO053	31-Mar-2016	1-Apr-2016	1	1	60,654	2	1	24	Atlas	80,670
CSO053	31-Mar-2016	1-Apr-2016	1	1	60,654	2	1	24	Atlas	80,670
CSO053	11-Apr-2016	11-Apr-2016	0	1	132,171	1	0	6	Atlas	136,136
CSO053	21-Apr-2016	21-Apr-2016	0	0	51,634	0	0	24	Atlas	21,686
CSO053	26-Apr-2016	26-Apr-2016	0	0	348,699	1	0	1	Atlas	108,097
CSO053	27-Apr-2016	27-Apr-2016	0	1	308,676	1	0	12	Atlas	253,114
CSO053	30-Apr-2016	30-Apr-2016	0	1	145,266	2	0	24	Atlas	120,570
CSO053	30-Apr-2016	1-May-2016	0	1	13,292	2	0	24	Atlas	11,032
CSO053	1-May-2016	1-May-2016	0	0	22,757	2	0	3	Atlas	6,372
CSO053	4-May-2016	4-May-2016	0	0	30,582	2	0	3	Atlas	6,116
CSO053	7-May-2016	7-May-2016	0	1	83,951	1	0	6	Atlas	57,926
CSO053	10-May-2016	10-May-2016	0	1	231,614	2	0	24	Atlas	208,452
CSO053	11-May-2016	11-May-2016	0	0	47,436	2	0	3	Atlas	10,436
CSO053	17-May-2016	17-May-2016	0	1	1,000	2	0	24	Atlas	640
CSO053	17-May-2016	17-May-2016	0	1	1,637	1	0	24	Atlas	1,048
CSO053	20-May-2016	20-May-2016	0	1	195,352	1	0	3	Atlas	103,536
CSO053	25-May-2016	25-May-2016	0	0	492,721	1	0	1	Atlas	19,709
CSO053	26-May-2016	26-May-2016	0	0	8,249	1	0	3	Atlas	2,475
CSO053	1-Jun-2016	1-Jun-2016	0	1	239	0	1	1	Atlas	163
CSO053	2-Jun-2016	2-Jun-2016	0	1	306,276	1	1	1	Atlas	208,268
CSO053	4-Jun-2016	4-Jun-2016	0	1	338,938	1	0	1	Atlas	179,637

There are known issues with the flow monitoring data quality.
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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO053	23-Jun-2016	23-Jun-2016	0	2	31,536	3	3	6	Cloudburst	74,740
CSO053 Count										71
CSO053 Total										8,474,753
CSO054	1-Jul-2015	2-Jul-2015	1	3	39,406	4	1	1	Atlas	101,273
CSO054	3-Jul-2015	3-Jul-2015	0	0	41,670	4	0	1	Atlas	18,335
CSO054	7-Jul-2015	8-Jul-2015	1	1	8,169	4	0	3	Atlas	8,496
CSO054	8-Jul-2015	8-Jul-2015	0	1	910	4	0	3	Atlas	946
CSO054	9-Jul-2015	9-Jul-2015	0	0	13,134	3	0	12	Atlas	5,516
CSO054	10-Jul-2015	10-Jul-2015	0	0	7,954	2	0	6	Atlas	3,420
CSO054	12-Jul-2015	12-Jul-2015	0	1	103,329	3	1	1	Atlas	113,662
CSO054	13-Jul-2015	13-Jul-2015	0	0	20,585	3	0	1	Atlas	9,675
CSO054	14-Jul-2015	14-Jul-2015	0	1	60,042	4	1	1	Atlas	59,441
CSO054	17-Jul-2015	18-Jul-2015	0	2	120,871	4	2	3	Atlas	200,646
CSO054	29-Jul-2015	29-Jul-2015	0	0	1,883	0	0	1	Atlas	320
CSO054	4-Aug-2015	4-Aug-2015	0	1	64,068	1	0	1	Atlas	35,238
CSO054	5-Aug-2015	5-Aug-2015	0	0	29,766	1	0	1	Atlas	9,227
CSO054	6-Aug-2015	6-Aug-2015	1	0	14,010	1	0	1	Atlas	6,165
CSO054	10-Aug-2015	10-Aug-2015	0	0	42,986	1	0	1	Atlas	2,579
CSO054	15-Aug-2015	15-Aug-2015	0	0	994,639	0	0	1	Atlas	19,893
CSO054	19-Aug-2015	19-Aug-2015	0	0	6,911	0	0	3	Atlas	2,834
CSO054	5-Sep-2015	5-Sep-2015	0	0	60,572	0	0	6	Atlas	6,057
CSO054	9-Sep-2015	9-Sep-2015	0	0	303,398	0	0	1	Atlas	12,136
CSO054	11-Sep-2015	11-Sep-2015	0	0	5,232	1	0	3	Atlas	1,256
CSO054	25-Sep-2015	25-Sep-2015	0	0	12,220	0	0	6	Atlas	1,344
CSO054	29-Sep-2015	29-Sep-2015	0	1	829	0	0	48	Atlas	556
CSO054	29-Sep-2015	29-Sep-2015	0	1	547	1	0	48	Atlas	366
CSO054	30-Sep-2015	30-Sep-2015	0	1	424	1	0	48	Atlas	284
CSO054	2-Oct-2015	2-Oct-2015	0	1	3,210	1	0	6	Atlas	1,829
CSO054	12-Oct-2015	12-Oct-2015	0	0	9,471	0	0	1	Atlas	3,315
CSO054	24-Oct-2015	24-Oct-2015	0	0	3,032	0	0	6	Atlas	940
CSO054	27-Oct-2015	28-Oct-2015	2	3	35,405	3	1	24	Atlas	90,282
CSO054	31-Oct-2015	31-Oct-2015	0	0	9,086	3	0	3	Atlas	1,363
CSO054	6-Nov-2015	6-Nov-2015	0	1	22,836	1	1	3	Atlas	21,694
CSO054	9-Nov-2015	9-Nov-2015	0	1	5,524	2	0	12	Atlas	3,314
CSO054	11-Nov-2015	12-Nov-2015	0	0	13,181	2	0	3	Atlas	4,218
CSO054	18-Nov-2015	18-Nov-2015	0	1	61,945	2	1	6	Atlas	77,431

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO054	21-Nov-2015	21-Nov-2015	0	0	9,514	2	0	1	Atlas	666
CSO054	28-Nov-2015	28-Nov-2015	0	1	3,619	1	0	12	Atlas	2,461
CSO054	30-Nov-2015	1-Dec-2015	0	1	6,626	2	0	12	Atlas	4,373
CSO054	14-Dec-2015	14-Dec-2015	0	0	9,126	0	0	6	Atlas	2,373
CSO054	21-Dec-2015	21-Dec-2015	0	1	1,696	0	0	24	Atlas	1,018
CSO054	21-Dec-2015	22-Dec-2015	0	1	8,084	1	0	24	Atlas	4,851
CSO054	23-Dec-2015	23-Dec-2015	0	0	8,445	1	0	3	Atlas	253
CSO054	23-Dec-2015	23-Dec-2015	0	1	153,371	1	1	1	Atlas	113,495
CSO054	25-Dec-2015	25-Dec-2015	0	0	1,443	1	0	3	Atlas	188
CSO054	26-Dec-2015	26-Dec-2015	0	1	4,989	2	0	3	Atlas	2,694
CSO054	27-Dec-2015	28-Dec-2015	1	2	55,309	4	1	6	Atlas	122,233
CSO054	15-Jan-2016	15-Jan-2016	0	0	1,202	0	0	6	Atlas	120
CSO054	2-Feb-2016	3-Feb-2016	0	1	44,141	2	1	6	Atlas	65,770
CSO054	21-Feb-2016	21-Feb-2016	0	1	22,516	1	0	12	Atlas	19,363
CSO054	23-Feb-2016	24-Feb-2016	1	2	23,947	3	1	24	Atlas	45,499
CSO054	12-Mar-2016	13-Mar-2016	0	1	33,241	2	0	6	Atlas	28,920
CSO054	13-Mar-2016	13-Mar-2016	0	1	3,610	2	0	6	Atlas	3,141
CSO054	11-Apr-2016	11-Apr-2016	0	1	11,222	1	0	6	Atlas	11,559
CSO054	27-Apr-2016	27-Apr-2016	0	1	22,259	1	0	12	Atlas	18,252
CSO054	10-May-2016	10-May-2016	0	1	34,813	2	0	24	Atlas	31,332
CSO054	20-May-2016	20-May-2016	0	1	23,490	1	0	3	Atlas	12,450
CSO054	4-Jun-2016	4-Jun-2016	0	1	10,573	1	0	1	Atlas	5,603
CSO054	14-Jun-2016	14-Jun-2016	0	1	105,446	1	1	3	Atlas	112,827
CSO054	22-Jun-2016	22-Jun-2016	0	1	5,541	1	0	3	Atlas	3,047
CSO054	23-Jun-2016	23-Jun-2016	0	2	62,456	3	3	6	Cloudburst	148,021
CSO054 Count										58
CSO054 Total										1,584,560
CSO055	2-Jul-2015	2-Jul-2015	0	3	26,018	4	1	1	Atlas	66,866
CSO055	12-Jul-2015	12-Jul-2015	0	1	37,988	3	1	1	Atlas	41,786
CSO055	14-Jul-2015	14-Jul-2015	0	1	3,174	4	1	1	Atlas	3,142
CSO055	17-Jul-2015	18-Jul-2015	0	2	44,121	4	2	3	Atlas	73,242
CSO055	4-Aug-2015	4-Aug-2015	0	1	238,001	1	0	1	Atlas	130,901
CSO055	5-Aug-2015	5-Aug-2015	0	0	367,644	1	0	1	Atlas	113,970
CSO055	6-Aug-2015	6-Aug-2015	0	0	149,953	1	0	1	Atlas	65,979
CSO055	15-Aug-2015	15-Aug-2015	0	0	1,146,782	0	0	1	Atlas	22,936
CSO055	5-Sep-2015	5-Sep-2015	0	0	119,088	0	0	6	Atlas	11,909

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO055	9-Sep-2015	9-Sep-2015	0	0	49,162	0	0	1	Atlas	15,732
CSO055	12-Oct-2015	12-Oct-2015	0	0	3,740	0	0	1	Atlas	1,309
CSO055	27-Oct-2015	28-Oct-2015	1	3	142,358	3	1	24	Atlas	363,013
CSO055	6-Nov-2015	6-Nov-2015	0	1	37,678	1	1	3	Atlas	35,794
CSO055	12-Nov-2015	12-Nov-2015	0	0	2,953	2	0	3	Atlas	945
CSO055	18-Nov-2015	18-Nov-2015	0	1	149,889	2	1	6	Atlas	187,362
CSO055	30-Nov-2015	1-Dec-2015	0	1	18,518	2	0	12	Atlas	12,222
CSO055	22-Dec-2015	22-Dec-2015	0	1	1,559	1	0	24	Atlas	935
CSO055	23-Dec-2015	23-Dec-2015	0	1	166,621	1	1	1	Atlas	123,300
CSO055	26-Dec-2015	26-Dec-2015	0	1	475	2	0	3	Atlas	256
CSO055	27-Dec-2015	27-Dec-2015	0	2	10,651	3	1	6	Atlas	23,538
CSO055	28-Dec-2015	28-Dec-2015	0	2	605	4	1	6	Atlas	1,336
CSO055	2-Feb-2016	3-Feb-2016	0	1	27,691	2	1	6	Atlas	41,259
CSO055	21-Feb-2016	21-Feb-2016	0	1	3,580	1	0	12	Atlas	3,079
CSO055	24-Feb-2016	24-Feb-2016	0	2	1,269	2	1	24	Atlas	2,411
CSO055	10-Mar-2016	10-Mar-2016	0	1	4,803	1	0	12	Atlas	6,340
CSO055	12-Mar-2016	13-Mar-2016	0	1	57,029	2	0	6	Atlas	49,616
CSO055	13-Mar-2016	13-Mar-2016	0	1	2,317	2	0	6	Atlas	2,016
CSO055	24-Mar-2016	24-Mar-2016	0	0	8,716	0	0	1	Atlas	2,527
CSO055	27-Mar-2016	27-Mar-2016	0	1	39,557	1	0	3	Atlas	28,876
CSO055	31-Mar-2016	31-Mar-2016	0	1	10,623	2	1	24	Atlas	14,129
CSO055	31-Mar-2016	31-Mar-2016	0	1	10,623	2	1	24	Atlas	14,129
CSO055	31-Mar-2016	1-Apr-2016	0	1	3,820	2	1	24	Atlas	5,081
CSO055	31-Mar-2016	1-Apr-2016	0	1	3,820	2	1	24	Atlas	5,081
CSO055	11-Apr-2016	11-Apr-2016	0	1	32,806	1	0	6	Atlas	33,791
CSO055	21-Apr-2016	21-Apr-2016	0	0	20,797	0	0	24	Atlas	8,735
CSO055	26-Apr-2016	26-Apr-2016	0	0	30,353	0	0	1	Atlas	9,410
CSO055	27-Apr-2016	28-Apr-2016	0	1	19,480	2	0	12	Atlas	15,974
CSO055	30-Apr-2016	30-Apr-2016	0	1	6,652	2	0	24	Atlas	5,521
CSO055	1-May-2016	1-May-2016	0	1	741	2	0	24	Atlas	615
CSO055	7-May-2016	7-May-2016	0	1	5,333	1	0	6	Atlas	3,680
CSO055	10-May-2016	10-May-2016	0	1	59,486	2	0	24	Atlas	53,538
CSO055	20-May-2016	20-May-2016	0	1	85,895	1	0	3	Atlas	45,524
CSO055	25-May-2016	25-May-2016	0	0	101,597	1	0	1	Atlas	4,064
CSO055	26-May-2016	26-May-2016	0	0	5,436	1	0	3	Atlas	1,631
CSO055	2-Jun-2016	2-Jun-2016	0	1	42,210	1	1	1	Atlas	28,703

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO055	4-Jun-2016	4-Jun-2016	0	1	49,904	1	0	1	Atlas	26,449
CSO055	14-Jun-2016	14-Jun-2016	0	1	75,191	1	1	3	Atlas	80,454
CSO055	22-Jun-2016	22-Jun-2016	0	1	27,680	0	0	3	Atlas	15,224
CSO055	23-Jun-2016	23-Jun-2016	0	2	112,515	3	3	6	Cloudburst	266,661
CSO055 Count										49
CSO055 Total										2,070,991
CSO057	2-Jul-2015	2-Jul-2015	0	2	174	3	1	24	Atlas	351
CSO057	18-Jul-2015	18-Jul-2015	0	1	8,949	4	1	3	Atlas	11,724
CSO057	4-Aug-2015	4-Aug-2015	0	0	656	0	0	1	Atlas	282
CSO057	5-Aug-2015	5-Aug-2015	0	1	6,022	1	0	24	Atlas	4,216
CSO057	9-Sep-2015	9-Sep-2015	0	0	312	0	0	1	Atlas	87
CSO057	26-Dec-2015	26-Dec-2015	0	0	22	2	0	12	Atlas	10
CSO057	27-Dec-2015	27-Dec-2015	0	2	4	3	1	6	Atlas	9
CSO057	26-Apr-2016	26-Apr-2016	0	0	12,035	0	0	1	Atlas	3,731
CSO057	27-Apr-2016	27-Apr-2016	0	1	10	1	0	3	Atlas	8
CSO057	10-May-2016	10-May-2016	0	1	3	2	0	12	Atlas	3
CSO057	17-May-2016	17-May-2016	0	0	23	2	0	12	Atlas	8
CSO057	25-May-2016	25-May-2016	0	0	451	1	0	1	Atlas	18
CSO057	2-Jun-2016	2-Jun-2016	0	0	370	0	0	1	Atlas	126
CSO057	4-Jun-2016	4-Jun-2016	0	0	4,305	1	0	1	Atlas	1,292
CSO057	14-Jun-2016	14-Jun-2016	0	1	4,283	1	1	3	Atlas	4,069
CSO057	23-Jun-2016	23-Jun-2016	0	2	434	3	4	6	Cloudburst	1,076
CSO057 Count										16
CSO057 Total										27,010
CSO058	2-Jul-2015	2-Jul-2015	1	2	4,449	4	1	24	Atlas	8,586
CSO058	3-Jul-2015	3-Jul-2015	0	0	720	3	0	1	Atlas	288
CSO058	7-Jul-2015	7-Jul-2015	0	1	1,249	3	0	6	Atlas	1,086
CSO058	8-Jul-2015	8-Jul-2015	0	0	3,305	3	0	1	Atlas	430
CSO058	9-Jul-2015	9-Jul-2015	0	0	1,113	3	0	3	Atlas	390
CSO058	10-Jul-2015	10-Jul-2015	0	0	363	2	0	6	Atlas	152
CSO058	12-Jul-2015	12-Jul-2015	0	1	149,570	3	1	3	Atlas	194,441
CSO058	13-Jul-2015	13-Jul-2015	0	1	1,637	4	0	1	Atlas	884
CSO058	14-Jul-2015	14-Jul-2015	0	1	6,670	4	1	1	Atlas	4,469
CSO058	17-Jul-2015	18-Jul-2015	0	1	155,266	4	1	3	Atlas	225,136
CSO058	4-Aug-2015	4-Aug-2015	0	0	4,617	0	0	1	Atlas	2,124
CSO058	5-Aug-2015	5-Aug-2015	0	1	276	1	0	24	Atlas	196

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO058	6-Aug-2015	6-Aug-2015	0	1	76	1	0	24	Atlas	54
CSO058	15-Aug-2015	15-Aug-2015	0	0	9,172	0	0	1	Atlas	367
CSO058	19-Aug-2015	19-Aug-2015	0	0	721	0	0	24	Atlas	209
CSO058	19-Aug-2015	19-Aug-2015	0	0	1,089	0	0	24	Atlas	316
CSO058	9-Sep-2015	9-Sep-2015	0	0	22,309	1	0	1	Atlas	892
CSO058	27-Oct-2015	28-Oct-2015	0	2	359	2	1	24	Atlas	844
CSO058	6-Nov-2015	6-Nov-2015	0	1	3,263	1	1	3	Atlas	3,002
CSO058	12-Nov-2015	12-Nov-2015	0	0	1,160	2	0	3	Atlas	313
CSO058	18-Nov-2015	18-Nov-2015	0	1	2,860	2	1	6	Atlas	3,747
CSO058	14-Dec-2015	14-Dec-2015	0	0	245	0	0	3	Atlas	59
CSO058	21-Dec-2015	21-Dec-2015	0	1	138	0	0	1	Atlas	97
CSO058	21-Dec-2015	22-Dec-2015	0	1	1,359	1	0	1	Atlas	951
CSO058	23-Dec-2015	23-Dec-2015	0	1	7,752	1	1	1	Atlas	5,427
CSO058	26-Dec-2015	26-Dec-2015	0	0	228	2	0	12	Atlas	96
CSO058	27-Dec-2015	27-Dec-2015	0	2	874	3	1	3	Atlas	1,793
CSO058	2-Feb-2016	3-Feb-2016	0	1	2,288	1	1	6	Atlas	3,135
CSO058	21-Feb-2016	21-Feb-2016	0	1	745	1	0	12	Atlas	797
CSO058	24-Feb-2016	24-Feb-2016	0	2	140	3	1	12	Atlas	269
CSO058	12-Mar-2016	12-Mar-2016	0	1	1,366	2	0	6	Atlas	1,093
CSO058	13-Mar-2016	13-Mar-2016	0	1	338	2	0	6	Atlas	271
CSO058	24-Mar-2016	24-Mar-2016	0	0	295	0	0	1	Atlas	121
CSO058	27-Mar-2016	27-Mar-2016	0	1	3,265	1	0	3	Atlas	2,318
CSO058	31-Mar-2016	31-Mar-2016	0	1	50	2	0	24	Atlas	57
CSO058	31-Mar-2016	31-Mar-2016	0	1	50	2	0	24	Atlas	57
CSO058	11-Apr-2016	11-Apr-2016	0	1	103	1	0	6	Atlas	102
CSO058	26-Apr-2016	26-Apr-2016	0	0	6,260	0	0	1	Atlas	2,128
CSO058	27-Apr-2016	27-Apr-2016	0	1	1,582	1	0	3	Atlas	1,060
CSO058	30-Apr-2016	30-Apr-2016	0	1	335	1	0	6	Atlas	211
CSO058	7-May-2016	7-May-2016	0	1	8,839	1	0	6	Atlas	5,392
CSO058	10-May-2016	10-May-2016	0	1	2,385	2	0	12	Atlas	2,242
CSO058	25-May-2016	25-May-2016	0	0	35,017	1	0	1	Atlas	1,050
CSO058	26-May-2016	26-May-2016	0	0	434	1	0	3	Atlas	117
CSO058	2-Jun-2016	2-Jun-2016	0	0	3,579	0	0	1	Atlas	1,217
CSO058	4-Jun-2016	4-Jun-2016	0	0	11,405	1	0	1	Atlas	3,194
CSO058	12-Jun-2016	12-Jun-2016	0	0	12,230	0	0	1	Atlas	856
CSO058	14-Jun-2016	14-Jun-2016	0	1	5,706	1	1	3	Atlas	5,364

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO058	22-Jun-2016	22-Jun-2016	0	0	3,451	0	0	3	Atlas	897
CSO058	23-Jun-2016	23-Jun-2016	0	2	50,288	3	3	6	Cloudburst	123,709
CSO058 Count										50
CSO058 Total										612,006
CSO082	27-Oct-2015	28-Oct-2015	1	3	197,101	3	1	48	Atlas	494,723
CSO082	6-Nov-2015	6-Nov-2015	0	1	141,964	1	0	3	Atlas	120,669
CSO082	18-Nov-2015	18-Nov-2015	0	1	463,161	2	1	6	Atlas	648,425
CSO082	1-Dec-2015	1-Dec-2015	0	1	1,721	2	0	12	Atlas	1,101
CSO082	22-Dec-2015	22-Dec-2015	0	1	71,118	1	0	1	Atlas	52,628
CSO082	23-Dec-2015	23-Dec-2015	0	1	465,961	2	1	1	Atlas	335,492
CSO082	27-Dec-2015	29-Dec-2015	2	2	2,179,256	4	1	3	Atlas	4,293,135
CSO082	2-Feb-2016	3-Feb-2016	0	1	348,994	1	1	6	Atlas	467,653
CSO082	21-Feb-2016	21-Feb-2016	0	1	214,001	1	1	12	Atlas	235,401
CSO082	23-Feb-2016	25-Feb-2016	1	2	469,701	3	1	12	Atlas	958,190
CSO082	10-Mar-2016	10-Mar-2016	0	1	4,120	1	0	48	Atlas	4,573
CSO082	12-Mar-2016	12-Mar-2016	0	1	63,731	2	0	6	Atlas	50,985
CSO082	13-Mar-2016	13-Mar-2016	0	1	54,000	2	0	6	Atlas	43,200
CSO082	27-Mar-2016	27-Mar-2016	0	1	30,446	1	1	1	Atlas	22,835
CSO082	11-Apr-2016	11-Apr-2016	0	1	12,614	1	0	6	Atlas	13,118
CSO082	10-May-2016	10-May-2016	0	1	16,417	1	0	24	Atlas	11,492
CSO082	20-May-2016	20-May-2016	0	1	100,793	1	0	3	Atlas	53,420
CSO082	14-Jun-2016	14-Jun-2016	0	1	27,678	1	1	3	Atlas	22,696
CSO082	23-Jun-2016	23-Jun-2016	0	2	135,009	2	2	6	Cloudburst	290,269
CSO082 Count										19
CSO082 Total										8,120,005
CSO083	2-Jul-2015	2-Jul-2015	0	1	1,842	3	1	24	Atlas	2,395
CSO083	7-Jul-2015	7-Jul-2015	0	1	8,977	2	0	6	Atlas	7,182
CSO083	12-Jul-2015	12-Jul-2015	0	1	97,037	3	1	1	Atlas	102,859
CSO083	14-Jul-2015	14-Jul-2015	0	1	32,431	4	0	1	Atlas	16,540
CSO083	17-Jul-2015	18-Jul-2015	0	1	47,096	3	1	3	Atlas	55,573
CSO083	6-Nov-2015	6-Nov-2015	0	1	17,279	1	0	3	Atlas	14,342
CSO083	18-Nov-2015	18-Nov-2015	0	2	10,213	2	1	6	Atlas	16,034
CSO083	23-Dec-2015	23-Dec-2015	0	1	119,516	1	1	1	Atlas	98,003
CSO083	27-Dec-2015	27-Dec-2015	0	2	16,599	3	1	3	Atlas	33,363
CSO083	3-Feb-2016	3-Feb-2016	0	1	26,112	1	1	6	Atlas	31,334
CSO083	21-Feb-2016	21-Feb-2016	0	1	2,594	1	1	12	Atlas	2,905

There are known issues with the flow monitoring data quality.
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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO083	24-Mar-2016	24-Mar-2016	0	1	47,580	1	0	1	Atlas	28,072
CSO083	27-Mar-2016	27-Mar-2016	0	1	5,700	1	1	1	Atlas	4,560
CSO083	10-May-2016	10-May-2016	0	1	69,723	2	0	24	Atlas	55,081
CSO083	14-Jun-2016	14-Jun-2016	0	1	90,561	1	0	3	Atlas	61,581
CSO083	23-Jun-2016	23-Jun-2016	0	2	12,189	2	1	6	Cloudburst	22,794
CSO083 Count										16
CSO083 Total										552,618
CSO084	2-Jul-2015	2-Jul-2015	0	1	4,634	2	1	24	Atlas	6,024
CSO084	2-Jul-2015	2-Jul-2015	0	1	5,406	3	1	24	Atlas	7,027
CSO084	3-Jul-2015	3-Jul-2015	0	0	16,024	3	0	1	Atlas	5,288
CSO084	7-Jul-2015	7-Jul-2015	0	1	7,188	2	0	6	Atlas	5,750
CSO084	8-Jul-2015	8-Jul-2015	0	0	16,962	3	0	1	Atlas	1,187
CSO084	9-Jul-2015	9-Jul-2015	0	0	6,599	2	0	3	Atlas	1,848
CSO084	10-Jul-2015	10-Jul-2015	0	0	2,733	2	0	6	Atlas	1,175
CSO084	12-Jul-2015	12-Jul-2015	0	1	5,605	3	1	1	Atlas	5,942
CSO084	13-Jul-2015	13-Jul-2015	0	0	3,771	3	0	1	Atlas	1,508
CSO084	14-Jul-2015	14-Jul-2015	0	1	10,423	4	0	1	Atlas	5,316
CSO084	17-Jul-2015	18-Jul-2015	0	1	21,430	3	1	3	Atlas	25,288
CSO084	5-Aug-2015	5-Aug-2015	0	1	2,614	0	0	24	Atlas	2,274
CSO084	6-Aug-2015	6-Aug-2015	0	1	2,448	1	0	24	Atlas	2,130
CSO084	9-Sep-2015	9-Sep-2015	0	0	7,787	1	0	1	Atlas	1,791
CSO084	12-Oct-2015	12-Oct-2015	0	0	8,235	0	0	3	Atlas	1,812
CSO084	27-Oct-2015	28-Oct-2015	0	2	8,060	2	1	24	Atlas	18,861
CSO084	6-Nov-2015	6-Nov-2015	0	1	2,901	1	0	3	Atlas	2,408
CSO084	12-Nov-2015	12-Nov-2015	0	0	14,294	2	0	3	Atlas	4,002
CSO084	18-Nov-2015	18-Nov-2015	0	2	13,692	2	1	6	Atlas	21,496
CSO084	30-Nov-2015	1-Dec-2015	0	1	25,556	2	0	12	Atlas	18,656
CSO084	21-Dec-2015	22-Dec-2015	0	0	17,992	1	0	6	Atlas	8,996
CSO084	23-Dec-2015	23-Dec-2015	0	1	1,907	2	1	1	Atlas	1,564
CSO084	26-Dec-2015	26-Dec-2015	0	0	7,107	2	0	12	Atlas	1,777
CSO084	27-Dec-2015	27-Dec-2015	0	2	1,877	3	1	3	Atlas	3,772
CSO084	28-Dec-2015	28-Dec-2015	0	2	430	4	1	3	Atlas	864
CSO084	2-Feb-2016	3-Feb-2016	0	1	8,682	1	1	6	Atlas	10,418
CSO084	21-Feb-2016	21-Feb-2016	0	1	4,417	1	1	12	Atlas	4,947
CSO084	23-Feb-2016	24-Feb-2016	0	2	11,515	3	1	12	Atlas	23,260
CSO084	1-Mar-2016	1-Mar-2016	0	0	8,383	2	0	3	Atlas	2,096

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO084	10-Mar-2016	10-Mar-2016	0	1	9,333	1	0	48	Atlas	9,613
CSO084	12-Mar-2016	12-Mar-2016	0	1	4,111	2	0	6	Atlas	3,782
CSO084	13-Mar-2016	13-Mar-2016	0	1	4,690	2	0	6	Atlas	4,315
CSO084	24-Mar-2016	24-Mar-2016	0	1	2,312	1	0	1	Atlas	1,364
CSO084	27-Mar-2016	27-Mar-2016	0	1	1,743	1	1	1	Atlas	1,395
CSO084	31-Mar-2016	31-Mar-2016	0	1	1,938	2	0	24	Atlas	1,918
CSO084	31-Mar-2016	31-Mar-2016	0	1	1,938	2	0	24	Atlas	1,918
CSO084	31-Mar-2016	31-Mar-2016	0	1	1,754	2	0	24	Atlas	1,737
CSO084	31-Mar-2016	31-Mar-2016	0	1	1,754	2	0	24	Atlas	1,737
CSO084	11-Apr-2016	11-Apr-2016	0	1	4,929	1	0	6	Atlas	4,387
CSO084	21-Apr-2016	21-Apr-2016	0	0	598	0	0	3	Atlas	174
CSO084	26-Apr-2016	26-Apr-2016	0	0	3,186	1	0	6	Atlas	1,242
CSO084	27-Apr-2016	27-Apr-2016	0	1	13,536	1	0	3	Atlas	6,904
CSO084	30-Apr-2016	30-Apr-2016	0	0	3,489	1	0	6	Atlas	1,675
CSO084	1-May-2016	1-May-2016	0	0	4,214	2	0	3	Atlas	969
CSO084	7-May-2016	7-May-2016	0	1	998	1	0	6	Atlas	609
CSO084	10-May-2016	10-May-2016	0	1	2,643	1	0	24	Atlas	2,088
CSO084	20-May-2016	20-May-2016	0	1	11,278	1	0	3	Atlas	6,428
CSO084	26-May-2016	26-May-2016	0	0	1,224	1	0	3	Atlas	282
CSO084	2-Jun-2016	2-Jun-2016	0	0	6,360	0	0	1	Atlas	2,162
CSO084	4-Jun-2016	4-Jun-2016	0	0	11,791	1	0	12	Atlas	1,533
CSO084	12-Jun-2016	12-Jun-2016	0	0	10,106	0	0	1	Atlas	1,718
CSO084	14-Jun-2016	14-Jun-2016	0	1	2,382	1	0	3	Atlas	1,619
CSO084	22-Jun-2016	22-Jun-2016	0	0	4,604	0	0	3	Atlas	829
CSO084	23-Jun-2016	23-Jun-2016	0	2	1,605	2	1	6	Cloudburst	3,001
CSO084 Count										54
CSO084 Total										260,876
CSO088	2-Jul-2015	2-Jul-2015	0	2	539	2	1	24	Atlas	900
CSO088	2-Jul-2015	2-Jul-2015	0	2	101,575	3	1	24	Atlas	169,630
CSO088	7-Jul-2015	7-Jul-2015	0	1	5,653	2	0	6	Atlas	4,409
CSO088	8-Jul-2015	8-Jul-2015	0	1	516	3	0	6	Atlas	402
CSO088	9-Jul-2015	9-Jul-2015	0	0	4,089	2	0	12	Atlas	1,390
CSO088	10-Jul-2015	10-Jul-2015	0	0	22,645	2	0	6	Atlas	9,284
CSO088	12-Jul-2015	12-Jul-2015	0	2	302,045	3	2	1	Atlas	528,578
CSO088	13-Jul-2015	13-Jul-2015	0	1	36,065	4	1	1	Atlas	24,164
CSO088	14-Jul-2015	14-Jul-2015	1	1	383,486	5	1	1	Atlas	260,770

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO088	18-Jul-2015	18-Jul-2015	2	2	619,105	5	1	3	Atlas	953,422
CSO088	4-Aug-2015	4-Aug-2015	0	1	126,768	1	0	1	Atlas	65,919
CSO088	5-Aug-2015	5-Aug-2015	0	0	47,168	1	0	1	Atlas	13,679
CSO088	6-Aug-2015	6-Aug-2015	0	1	45,196	1	0	12	Atlas	23,954
CSO088	19-Aug-2015	19-Aug-2015	0	0	36,333	0	0	12	Atlas	12,353
CSO088	19-Aug-2015	19-Aug-2015	0	0	2,724	0	0	12	Atlas	926
CSO088	27-Oct-2015	28-Oct-2015	0	2	21,059	2	1	24	Atlas	50,120
CSO088	6-Nov-2015	6-Nov-2015	0	1	68,885	1	0	3	Atlas	50,975
CSO088	12-Nov-2015	12-Nov-2015	0	0	17,563	2	0	3	Atlas	5,445
CSO088	18-Nov-2015	18-Nov-2015	0	1	88,634	2	1	6	Atlas	122,314
CSO088	22-Dec-2015	22-Dec-2015	0	0	31,617	1	0	1	Atlas	14,860
CSO088	23-Dec-2015	23-Dec-2015	0	1	112,702	2	1	1	Atlas	93,543
CSO088	27-Dec-2015	1-Jan-2016	5	2	2,689,736	4	1	3	Atlas	5,325,677
CSO088	2-Feb-2016	3-Feb-2016	0	1	46,877	1	1	12	Atlas	69,847
CSO088	21-Feb-2016	21-Feb-2016	0	1	13,199	1	0	12	Atlas	12,143
CSO088	24-Feb-2016	24-Feb-2016	0	2	46,492	3	1	12	Atlas	92,985
CSO088	12-Mar-2016	12-Mar-2016	0	1	10,576	2	0	24	Atlas	8,038
CSO088	13-Mar-2016	13-Mar-2016	0	1	5,851	2	0	24	Atlas	4,447
CSO088	24-Mar-2016	24-Mar-2016	0	0	18,506	0	0	1	Atlas	4,997
CSO088	27-Mar-2016	27-Mar-2016	0	1	17,720	1	1	3	Atlas	13,290
CSO088	11-Apr-2016	11-Apr-2016	0	1	17,477	1	0	6	Atlas	17,303
CSO088	26-Apr-2016	26-Apr-2016	0	0	14,059	0	0	3	Atlas	3,655
CSO088	27-Apr-2016	27-Apr-2016	0	1	7,242	1	0	12	Atlas	4,779
CSO088 Count										32
CSO088 Total										7,964,198
CSO091	2-Jul-2015	2-Jul-2015	0	1	1,833	2	0	3	Atlas	1,594
CSO091	2-Jul-2015	2-Jul-2015	0	1	40,850	3	0	3	Atlas	35,540
CSO091	3-Jul-2015	3-Jul-2015	0	0	85,368	2	0	1	Atlas	29,879
CSO091	7-Jul-2015	7-Jul-2015	0	1	28,680	2	0	6	Atlas	21,510
CSO091	9-Jul-2015	9-Jul-2015	0	0	5,612	2	0	3	Atlas	1,571
CSO091	10-Jul-2015	10-Jul-2015	0	0	3,299	2	0	6	Atlas	1,287
CSO091	12-Jul-2015	12-Jul-2015	0	1	154,378	2	1	3	Atlas	129,678
CSO091	13-Jul-2015	13-Jul-2015	0	0	46,906	3	0	1	Atlas	15,010
CSO091	14-Jul-2015	14-Jul-2015	0	1	113,770	3	0	3	Atlas	63,711
CSO091	17-Jul-2015	18-Jul-2015	0	1	122,499	3	1	3	Atlas	106,574
CSO091	29-Jul-2015	29-Jul-2015	0	0	23,455	0	0	1	Atlas	1,876

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO091	4-Aug-2015	4-Aug-2015	0	0	20,023	0	0	1	Atlas	2,202
CSO091	5-Aug-2015	5-Aug-2015	0	1	2,044	0	0	24	Atlas	1,860
CSO091	6-Aug-2015	6-Aug-2015	1	1	22,860	1	0	24	Atlas	20,802
CSO091	19-Aug-2015	19-Aug-2015	0	1	73,568	0	0	1	Atlas	41,934
CSO091	19-Aug-2015	19-Aug-2015	0	1	10,961	1	0	1	Atlas	6,248
CSO091	9-Sep-2015	9-Sep-2015	0	0	32,855	0	0	1	Atlas	6,900
CSO091	11-Sep-2015	11-Sep-2015	0	0	4,031	1	0	1	Atlas	806
CSO091	12-Oct-2015	12-Oct-2015	0	0	5,742	0	0	3	Atlas	1,435
CSO091	27-Oct-2015	28-Oct-2015	1	3	12,792	3	1	24	Atlas	32,619
CSO091 Count										20
CSO091 Total										523,036
CSO092	2-Jul-2015	2-Jul-2015	0	1	1,068	2	0	3	Atlas	930
CSO092	2-Jul-2015	2-Jul-2015	0	1	48,384	3	0	3	Atlas	42,094
CSO092	3-Jul-2015	3-Jul-2015	0	0	166,408	2	0	1	Atlas	58,243
CSO092	7-Jul-2015	8-Jul-2015	1	1	37,698	2	0	6	Atlas	28,273
CSO092	9-Jul-2015	9-Jul-2015	0	0	8,831	2	0	3	Atlas	2,473
CSO092	10-Jul-2015	10-Jul-2015	0	0	10,507	2	0	6	Atlas	4,098
CSO092	12-Jul-2015	12-Jul-2015	0	1	157,043	2	1	3	Atlas	131,916
CSO092	13-Jul-2015	13-Jul-2015	0	0	3,390	3	0	1	Atlas	1,085
CSO092	14-Jul-2015	14-Jul-2015	0	1	131,881	3	0	3	Atlas	73,853
CSO092	17-Jul-2015	18-Jul-2015	0	1	89,714	3	1	3	Atlas	78,051
CSO092	29-Jul-2015	29-Jul-2015	0	0	47,985	0	0	1	Atlas	3,839
CSO092	5-Aug-2015	5-Aug-2015	0	1	821	0	0	24	Atlas	747
CSO092	6-Aug-2015	6-Aug-2015	1	1	41,966	1	0	24	Atlas	38,189
CSO092	10-Aug-2015	10-Aug-2015	0	0	4,275	1	0	1	Atlas	385
CSO092	19-Aug-2015	19-Aug-2015	0	1	11	0	0	1	Atlas	6
CSO092	19-Aug-2015	19-Aug-2015	0	1	1,301	1	0	1	Atlas	742
CSO092	9-Sep-2015	9-Sep-2015	0	0	263	0	0	1	Atlas	55
CSO092	11-Sep-2015	11-Sep-2015	0	0	117	1	0	1	Atlas	23
CSO092	6-Nov-2015	6-Nov-2015	0	1	21,112	1	0	3	Atlas	15,834
CSO092	11-Nov-2015	12-Nov-2015	0	0	3,060	2	0	3	Atlas	887
CSO092	18-Nov-2015	18-Nov-2015	0	2	28,884	2	1	6	Atlas	48,237
CSO092	30-Nov-2015	1-Dec-2015	0	1	758	2	0	12	Atlas	523
CSO092	22-Dec-2015	22-Dec-2015	0	1	1,736	1	0	6	Atlas	955
CSO092	23-Dec-2015	23-Dec-2015	0	1	49,902	1	1	1	Atlas	41,418
CSO092	26-Dec-2015	26-Dec-2015	0	0	200	2	0	12	Atlas	56

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO092	27-Dec-2015	27-Dec-2015	0	2	619	3	1	3	Atlas	1,250
CSO092	2-Feb-2016	3-Feb-2016	0	1	1,510	1	1	6	Atlas	1,872
CSO092	8-Feb-2016	9-Feb-2016	1	0	1,349	1	0	24	Atlas	148
CSO092	15-Feb-2016	15-Feb-2016	0	0	61	0	0	1	Atlas	14
CSO092	21-Feb-2016	21-Feb-2016	0	1	1,355	1	0	12	Atlas	1,437
CSO092	23-Feb-2016	25-Feb-2016	1	2	1,730	3	1	12	Atlas	3,494
CSO092	1-Mar-2016	1-Mar-2016	0	0	3,557	2	0	3	Atlas	1,031
CSO092	19-Mar-2016	19-Mar-2016	3	0	46,940	1	0	1	Atlas	7,510
CSO092	24-Mar-2016	24-Mar-2016	0	1	917	1	0	1	Atlas	560
CSO092	27-Mar-2016	27-Mar-2016	0	1	13,944	1	1	1	Atlas	11,295
CSO092	31-Mar-2016	1-Apr-2016	1	1	28,548	2	0	24	Atlas	30,547
CSO092	31-Mar-2016	1-Apr-2016	1	1	28,548	2	0	24	Atlas	30,547
CSO092	11-Apr-2016	11-Apr-2016	0	1	1,257	1	0	6	Atlas	1,068
CSO092	21-Apr-2016	21-Apr-2016	0	0	4,460	0	0	3	Atlas	1,338
CSO092	27-Apr-2016	27-Apr-2016	0	1	3,910	1	0	1	Atlas	2,150
CSO092	30-Apr-2016	30-Apr-2016	0	0	2,349	1	0	6	Atlas	1,104
CSO092	30-Apr-2016	1-May-2016	1	0	5,486	2	0	6	Atlas	2,579
CSO092	4-May-2016	4-May-2016	0	0	2,437	2	0	1	Atlas	487
CSO092	7-May-2016	7-May-2016	0	1	1,180	1	0	6	Atlas	744
CSO092	10-May-2016	10-May-2016	1	1	917	2	0	24	Atlas	779
CSO092	20-May-2016	20-May-2016	0	1	922	1	0	3	Atlas	581
CSO092	2-Jun-2016	2-Jun-2016	0	0	1,118	0	0	1	Atlas	526
CSO092	23-Jun-2016	24-Jun-2016	0	2	4,899	2	1	6	Atlas	7,936
CSO092 Count										48
CSO092 Total										681,909
CSO093	2-Jul-2015	2-Jul-2015	0	2	1,661	2	1	24	Atlas	2,541
CSO093	2-Jul-2015	2-Jul-2015	0	2	3,646	3	1	24	Atlas	5,578
CSO093	3-Jul-2015	3-Jul-2015	0	0	623	3	0	1	Atlas	224
CSO093	7-Jul-2015	8-Jul-2015	1	1	2,938	3	0	6	Atlas	2,115
CSO093	8-Jul-2015	8-Jul-2015	0	0	13,591	3	0	1	Atlas	1,359
CSO093	9-Jul-2015	9-Jul-2015	0	0	5,248	2	0	12	Atlas	1,522
CSO093	10-Jul-2015	10-Jul-2015	0	0	2,923	2	0	6	Atlas	1,316
CSO093	12-Jul-2015	12-Jul-2015	0	1	53,972	3	1	1	Atlas	73,401
CSO093	13-Jul-2015	13-Jul-2015	0	0	2,158	3	0	1	Atlas	1,057
CSO093	14-Jul-2015	14-Jul-2015	0	1	34,066	4	1	1	Atlas	22,143
CSO093	14-Jul-2015	14-Jul-2015	0	0	1,792	4	0	1	Atlas	323

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO093	17-Jul-2015	18-Jul-2015	0	1	54,114	4	1	3	Atlas	75,760
CSO093	4-Aug-2015	4-Aug-2015	0	0	25,576	0	0	1	Atlas	8,952
CSO093	5-Aug-2015	5-Aug-2015	0	1	626	1	0	24	Atlas	563
CSO093	6-Aug-2015	6-Aug-2015	1	1	1,060	1	0	24	Atlas	954
CSO093	19-Aug-2015	19-Aug-2015	0	0	7,598	0	0	12	Atlas	2,887
CSO093	19-Aug-2015	19-Aug-2015	0	0	13,264	1	0	12	Atlas	5,040
CSO093	9-Sep-2015	9-Sep-2015	0	0	50,044	1	0	1	Atlas	13,011
CSO093	11-Sep-2015	11-Sep-2015	0	0	731	1	0	3	Atlas	139
CSO093	29-Sep-2015	29-Sep-2015	0	1	998	1	0	48	Atlas	838
CSO093	30-Sep-2015	30-Sep-2015	0	1	1,085	1	0	48	Atlas	911
CSO093	2-Oct-2015	2-Oct-2015	0	1	4,345	1	0	6	Atlas	2,433
CSO093	12-Oct-2015	12-Oct-2015	0	0	2,007	0	0	3	Atlas	562
CSO093	24-Oct-2015	24-Oct-2015	0	0	279	0	0	3	Atlas	89
CSO093	27-Oct-2015	28-Oct-2015	1	3	4,283	3	1	24	Atlas	10,750
CSO093	31-Oct-2015	31-Oct-2015	0	0	163	3	0	3	Atlas	29
CSO093	6-Nov-2015	6-Nov-2015	0	1	1,647	1	1	3	Atlas	1,400
CSO093	9-Nov-2015	9-Nov-2015	0	1	2,738	1	0	12	Atlas	1,506
CSO093	12-Nov-2015	12-Nov-2015	0	0	1,562	2	0	3	Atlas	453
CSO093	18-Nov-2015	18-Nov-2015	0	2	10,143	2	1	6	Atlas	15,315
CSO093	21-Nov-2015	21-Nov-2015	0	0	3,240	2	0	1	Atlas	356
CSO093	28-Nov-2015	28-Nov-2015	0	1	4,639	1	0	12	Atlas	2,969
CSO093	30-Nov-2015	1-Dec-2015	0	1	4,454	1	0	12	Atlas	2,984
CSO093	14-Dec-2015	14-Dec-2015	0	0	10,087	0	0	6	Atlas	2,522
CSO093	21-Dec-2015	22-Dec-2015	0	1	1,393	1	0	1	Atlas	822
CSO093	23-Dec-2015	23-Dec-2015	0	1	333	1	1	1	Atlas	290
CSO093	20-Jan-2016	21-Jan-2016	1	0	270,815	0	0	12	Atlas	48,747
CSO093	4-Jun-2016	4-Jun-2016	0	0	444	1	0	3	Atlas	84
CSO093	23-Jun-2016	23-Jun-2016	0	2	2,478	1	1	6	Cloudburst	4,807
CSO093 Count										39
CSO093 Total										316,752
CSO097	2-Jul-2015	2-Jul-2015	0	1	100,647	2	0	3	Atlas	74,479
CSO097	2-Jul-2015	2-Jul-2015	0	1	50,901	2	0	3	Atlas	37,667
CSO097	3-Jul-2015	3-Jul-2015	0	0	287,326	2	0	1	Atlas	86,198
CSO097	7-Jul-2015	7-Jul-2015	0	1	129,109	2	0	6	Atlas	87,794
CSO097	9-Jul-2015	9-Jul-2015	0	0	103,353	1	0	3	Atlas	21,704
CSO097	10-Jul-2015	10-Jul-2015	0	1	424,463	2	0	6	Atlas	284,390

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CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO097	12-Jul-2015	15-Jul-2015	4	1	2,114,551	4	1	1	Atlas	1,903,096
CSO097	17-Jul-2015	18-Jul-2015	1	1	457,161	3	1	3	Atlas	397,730
CSO097	4-Aug-2015	4-Aug-2015	0	0	146	0	0	1	Atlas	26
CSO097	6-Aug-2015	6-Aug-2015	0	1	99,158	1	0	24	Atlas	107,091
CSO097	19-Aug-2015	19-Aug-2015	0	1	7,043	0	0	1	Atlas	4,578
CSO097	19-Aug-2015	19-Aug-2015	0	1	675	1	0	1	Atlas	439
CSO097	7-Sep-2015	7-Sep-2015	0	1	32,447	1	1	1	Atlas	34,069
CSO097	2-Oct-2015	2-Oct-2015	0	1	30,865	2	0	6	Atlas	18,519
CSO097	12-Oct-2015	12-Oct-2015	0	0	40,100	0	0	3	Atlas	11,629
CSO097	27-Oct-2015	28-Oct-2015	1	3	202,933	3	1	48	Atlas	543,861
CSO097	28-Oct-2015	28-Oct-2015	0	0	139	3	0	6	Atlas	21
CSO097	6-Nov-2015	6-Nov-2015	0	1	417,758	1	0	3	Atlas	275,720
CSO097	9-Nov-2015	10-Nov-2015	0	0	299,735	1	0	12	Atlas	149,868
CSO097	12-Nov-2015	12-Nov-2015	0	0	312,798	1	0	3	Atlas	96,967
CSO097	18-Nov-2015	19-Nov-2015	1	2	367,524	2	1	6	Atlas	701,972
CSO097	21-Nov-2015	21-Nov-2015	0	0	6,254	2	0	1	Atlas	876
CSO097	28-Nov-2015	29-Nov-2015	1	1	670,746	1	0	12	Atlas	456,107
CSO097	30-Nov-2015	2-Dec-2015	1	1	1,050,127	2	0	12	Atlas	777,094
CSO097	14-Dec-2015	14-Dec-2015	0	0	316,065	0	0	6	Atlas	88,498
CSO097	21-Dec-2015	21-Dec-2015	0	1	8,021	0	0	6	Atlas	6,256
CSO097	21-Dec-2015	22-Dec-2015	1	1	525,484	1	0	6	Atlas	409,877
CSO097	23-Dec-2015	31-Dec-2015	8	1	8,394,352	4	1	1	Atlas	7,974,635
CSO097	9-Jan-2016	10-Jan-2016	0	0	72,136	0	0	12	Atlas	14,427
CSO097	2-Feb-2016	6-Feb-2016	3	2	1,792,874	2	1	6	Atlas	2,707,240
CSO097	8-Feb-2016	8-Feb-2016	0	0	241,711	2	0	24	Atlas	26,588
CSO097	21-Feb-2016	22-Feb-2016	2	1	774,253	1	0	12	Atlas	650,372
CSO097	23-Feb-2016	3-Mar-2016	8	2	3,024,541	3	1	12	Atlas	6,351,536
CSO097	3-Mar-2016	3-Mar-2016	0	0	98,145	0	0	1	Atlas	981
CSO097	10-Mar-2016	18-Mar-2016	8	1	5,438,856	2	0	12	Atlas	6,091,519
CSO097	24-Mar-2016	24-Mar-2016	0	0	316,638	1	0	1	Atlas	139,321
CSO097	27-Mar-2016	28-Mar-2016	1	1	611,789	1	1	3	Atlas	526,138
CSO097	31-Mar-2016	2-Apr-2016	2	1	1,531,782	2	0	24	Atlas	1,761,549
CSO097	31-Mar-2016	4-Apr-2016	5	1	3,520,497	2	0	24	Atlas	4,048,572
CSO097	11-Apr-2016	11-Apr-2016	0	1	249,332	1	0	6	Atlas	201,959
CSO097	21-Apr-2016	21-Apr-2016	0	0	99,986	0	0	3	Atlas	34,995
CSO097	26-Apr-2016	26-Apr-2016	0	0	121,811	1	0	3	Atlas	40,198

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CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO097	27-Apr-2016	28-Apr-2016	0	1	236,950	1	0	3	Atlas	142,170
CSO097	30-Apr-2016	30-Apr-2016	0	0	184,226	1	0	24	Atlas	92,113
CSO097	30-Apr-2016	1-May-2016	0	0	4,423	1	0	24	Atlas	2,211
CSO097	1-May-2016	2-May-2016	1	0	273,351	2	0	1	Atlas	131,209
CSO097	4-May-2016	4-May-2016	0	0	321,913	2	0	1	Atlas	57,944
CSO097	7-May-2016	8-May-2016	0	1	167,223	1	0	6	Atlas	98,661
CSO097	10-May-2016	14-May-2016	4	1	1,140,428	2	0	24	Atlas	775,491
CSO097	17-May-2016	17-May-2016	0	0	244,394	1	0	12	Atlas	75,762
CSO097	17-May-2016	18-May-2016	0	0	363,976	1	0	6	Atlas	87,354
CSO097	20-May-2016	22-May-2016	2	1	472,818	1	0	3	Atlas	373,526
CSO097	26-May-2016	26-May-2016	0	0	283,554	1	0	3	Atlas	65,217
CSO097	2-Jun-2016	2-Jun-2016	0	1	103,371	1	0	1	Atlas	53,753
CSO097	12-Jun-2016	12-Jun-2016	0	0	128,924	0	0	1	Atlas	61,883
CSO097	14-Jun-2016	14-Jun-2016	0	1	123,101	1	0	3	Atlas	77,554
CSO097	23-Jun-2016	24-Jun-2016	1	2	176,106	2	1	6	Atlas	301,141
CSO097 Count										57
CSO097 Total										39,542,545
CSO104	2-Jul-2015	2-Jul-2015	0	1	21,121	3	1	3	Atlas	20,909
CSO104	3-Jul-2015	3-Jul-2015	0	2	110,726	4	3	1	Atlas	167,196
CSO104	7-Jul-2015	7-Jul-2015	0	1	24,346	4	1	3	Atlas	26,050
CSO104	10-Jul-2015	10-Jul-2015	0	0	4,864	2	0	6	Atlas	2,238
CSO104	12-Jul-2015	12-Jul-2015	0	1	161,269	3	0	3	Atlas	112,888
CSO104	13-Jul-2015	13-Jul-2015	0	0	154,041	3	0	1	Atlas	58,535
CSO104	14-Jul-2015	14-Jul-2015	0	0	6,841	3	0	1	Atlas	1,847
CSO104	14-Jul-2015	14-Jul-2015	0	0	27,861	2	0	1	Atlas	3,901
CSO104	17-Jul-2015	18-Jul-2015	0	1	355,337	3	1	3	Atlas	412,191
CSO104	29-Jul-2015	29-Jul-2015	0	0	1,513	0	0	1	Atlas	499
CSO104	19-Aug-2015	19-Aug-2015	0	1	50,710	1	0	1	Atlas	40,568
CSO104	9-Sep-2015	9-Sep-2015	0	1	1,992	1	1	1	Atlas	1,694
CSO104	27-Oct-2015	27-Oct-2015	0	3	12,515	2	1	24	Cloudburst	42,300
CSO104	6-Nov-2015	6-Nov-2015	0	1	78,139	1	1	3	Atlas	71,107
CSO104	18-Nov-2015	18-Nov-2015	0	2	62,377	2	1	6	Atlas	109,160
CSO104	23-Dec-2015	23-Dec-2015	0	1	401,804	2	1	1	Atlas	514,309
CSO104	27-Dec-2015	27-Dec-2015	0	3	78,913	4	1	48	Atlas	209,120
CSO104	2-Feb-2016	3-Feb-2016	0	1	239,581	1	1	6	Atlas	321,039
CSO104	21-Feb-2016	21-Feb-2016	0	1	10,125	1	0	12	Atlas	8,100

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CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO104	24-Feb-2016	24-Feb-2016	0	2	71,234	3	1	12	Atlas	165,263
CSO104	11-Mar-2016	12-Mar-2016	1	1	57,386	1	0	48	Atlas	75,176
CSO104	27-Mar-2016	27-Mar-2016	0	1	51,354	1	1	1	Atlas	37,488
CSO104	11-Apr-2016	11-Apr-2016	0	1	1,465	1	1	6	Atlas	1,670
CSO104	27-Apr-2016	28-Apr-2016	1	1	84,205	2	0	3	Atlas	76,626
CSO104	11-May-2016	11-May-2016	0	0	2,705	2	0	3	Atlas	812
CSO104	2-Jun-2016	2-Jun-2016	0	1	247,792	2	3	1	Atlas	369,209
CSO104	12-Jun-2016	12-Jun-2016	0	1	21,430	1	1	1	Atlas	12,643
CSO104	14-Jun-2016	14-Jun-2016	0	1	355,314	2	1	1	Atlas	518,758
CSO104	22-Jun-2016	22-Jun-2016	0	0	17,248	0	0	6	Atlas	2,932
CSO104	23-Jun-2016	24-Jun-2016	0	2	184,202	2	1	6	Cloudburst	390,509
CSO104 Count										30
CSO104 Total										3,774,737
CSO105	1-Jul-2015	2-Jul-2015	1	1	7,774,444	3	1	3	Atlas	7,696,700
CSO105	3-Jul-2015	3-Jul-2015	0	2	3,591,727	4	3	1	Atlas	5,423,508
CSO105	7-Jul-2015	7-Jul-2015	0	1	4,601,186	4	1	3	Atlas	4,923,269
CSO105	9-Jul-2015	9-Jul-2015	0	0	1,230,459	3	0	1	Atlas	344,528
CSO105	10-Jul-2015	10-Jul-2015	0	0	1,675,549	2	0	6	Atlas	770,752
CSO105	12-Jul-2015	12-Jul-2015	0	1	11,421,686	3	0	3	Atlas	7,995,181
CSO105	13-Jul-2015	13-Jul-2015	0	0	9,057,695	3	0	1	Atlas	3,441,924
CSO105	14-Jul-2015	14-Jul-2015	0	0	8,432,974	3	0	1	Atlas	2,276,903
CSO105	14-Jul-2015	14-Jul-2015	0	0	13,233,888	2	0	1	Atlas	1,852,744
CSO105	17-Jul-2015	18-Jul-2015	0	1	13,558,323	3	1	3	Atlas	15,727,655
CSO105	29-Jul-2015	29-Jul-2015	0	0	439,057	0	0	1	Atlas	144,889
CSO105	4-Aug-2015	4-Aug-2015	0	0	175,380	1	0	1	Atlas	49,106
CSO105	5-Aug-2015	5-Aug-2015	0	1	980,969	1	1	1	Atlas	1,216,401
CSO105	6-Aug-2015	6-Aug-2015	0	1	1,324,989	1	1	1	Atlas	1,642,987
CSO105	10-Aug-2015	10-Aug-2015	0	0	45,463	2	0	1	Atlas	4,546
CSO105	15-Aug-2015	15-Aug-2015	0	0	23,278,521	0	0	1	Atlas	232,785
CSO105	19-Aug-2015	19-Aug-2015	0	1	2,861,797	1	0	1	Atlas	2,289,438
CSO105	23-Aug-2015	23-Aug-2015	0	0	2,204	1	0	1	Atlas	154
CSO105	9-Sep-2015	9-Sep-2015	0	0	7,621,131	1	0	1	Atlas	2,133,917
CSO105	11-Sep-2015	11-Sep-2015	0	0	23,585	1	0	1	Atlas	5,660
CSO105	25-Sep-2015	25-Sep-2015	0	0	114,715	0	0	6	Atlas	12,619
CSO105	29-Sep-2015	29-Sep-2015	0	1	22,538	0	0	48	Atlas	19,157
CSO105	29-Sep-2015	29-Sep-2015	0	1	13,682	1	0	48	Atlas	11,630

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO105	30-Sep-2015	30-Sep-2015	0	1	615	1	0	48	Atlas	523
CSO105	2-Oct-2015	2-Oct-2015	0	0	1,848,487	1	0	12	Atlas	868,789
CSO105	12-Oct-2015	12-Oct-2015	0	0	596,793	0	0	1	Atlas	208,878
CSO105	24-Oct-2015	24-Oct-2015	0	0	34,696	0	0	1	Atlas	11,103
CSO105	27-Oct-2015	28-Oct-2015	1	3	7,308,548	4	1	24	Cloudburst	24,702,891
CSO105	6-Nov-2015	6-Nov-2015	0	1	8,073,722	1	1	3	Atlas	7,347,087
CSO105	9-Nov-2015	9-Nov-2015	0	1	1,587,654	2	0	12	Atlas	1,031,975
CSO105	11-Nov-2015	12-Nov-2015	0	0	4,404,412	2	0	3	Atlas	1,277,279
CSO105	18-Nov-2015	18-Nov-2015	0	2	9,324,528	2	1	6	Atlas	16,317,924
CSO105	28-Nov-2015	28-Nov-2015	0	1	639,142	1	0	48	Atlas	530,488
CSO105	30-Nov-2015	1-Dec-2015	0	1	5,809,028	1	0	12	Atlas	2,962,604
CSO105	14-Dec-2015	14-Dec-2015	0	0	185,523	0	0	6	Atlas	50,091
CSO105	21-Dec-2015	21-Dec-2015	0	0	53,712	0	0	24	Atlas	26,856
CSO105	21-Dec-2015	22-Dec-2015	0	0	3,786,876	1	0	24	Atlas	1,893,438
CSO105	23-Dec-2015	23-Dec-2015	0	1	11,389,922	2	1	1	Atlas	14,579,100
CSO105	26-Dec-2015	26-Dec-2015	0	0	5,204,519	2	0	12	Atlas	2,185,898
CSO105	27-Dec-2015	27-Dec-2015	1	3	9,060,959	4	1	48	Atlas	24,011,542
CSO105	28-Dec-2015	28-Dec-2015	1	3	1,176,732	5	1	48	Atlas	3,118,340
CSO105	2-Feb-2016	3-Feb-2016	0	1	14,577,187	1	1	6	Atlas	19,533,431
CSO105	21-Feb-2016	21-Feb-2016	0	1	9,891,365	1	0	12	Atlas	7,913,092
CSO105	23-Feb-2016	24-Feb-2016	1	2	11,147,301	3	1	12	Atlas	25,861,739
CSO105	1-Mar-2016	1-Mar-2016	0	1	2,213,706	3	0	6	Atlas	1,571,731
CSO105	9-Mar-2016	9-Mar-2016	0	1	340,925	0	0	48	Atlas	446,611
CSO105	10-Mar-2016	10-Mar-2016	1	1	4,906,472	1	0	48	Atlas	6,427,479
CSO105	12-Mar-2016	13-Mar-2016	1	0	12,581,307	2	0	24	Atlas	6,039,028
CSO105	24-Mar-2016	24-Mar-2016	0	1	3,456,083	1	0	1	Atlas	1,762,603
CSO105	27-Mar-2016	28-Mar-2016	0	1	8,016,219	1	1	1	Atlas	5,851,840
CSO105	31-Mar-2016	31-Mar-2016	0	1	2,055,390	2	1	24	Atlas	2,836,438
CSO105	31-Mar-2016	31-Mar-2016	0	1	2,055,390	2	1	24	Atlas	2,836,438
CSO105	31-Mar-2016	1-Apr-2016	0	1	2,102,125	2	1	24	Atlas	2,900,932
CSO105	31-Mar-2016	1-Apr-2016	0	1	2,102,125	2	1	24	Atlas	2,900,932
CSO105	11-Apr-2016	11-Apr-2016	0	1	5,042,703	1	1	6	Atlas	5,748,681
CSO105	21-Apr-2016	21-Apr-2016	0	0	244,865	0	0	24	Atlas	100,395
CSO105	22-Apr-2016	22-Apr-2016	0	0	584,168	0	0	24	Atlas	239,509
CSO105	26-Apr-2016	26-Apr-2016	0	0	587,023	1	0	1	Atlas	140,886
CSO105	27-Apr-2016	28-Apr-2016	0	1	4,820,552	2	0	3	Atlas	4,386,702

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO105	30-Apr-2016	30-Apr-2016	0	1	2,852,233	2	0	24	Atlas	2,253,264
CSO105	1-May-2016	1-May-2016	0	1	713,416	3	0	3	Atlas	463,720
CSO105	7-May-2016	7-May-2016	0	1	3,553,958	2	0	3	Atlas	1,848,058
CSO105	10-May-2016	11-May-2016	0	1	6,088,148	2	0	3	Atlas	4,383,466
CSO105	11-May-2016	11-May-2016	0	0	1,337,517	2	0	3	Atlas	401,255
CSO105	20-May-2016	20-May-2016	0	1	8,519,265	1	0	3	Atlas	5,367,137
CSO105	26-May-2016	26-May-2016	0	0	187,915	1	0	3	Atlas	67,650
CSO105	2-Jun-2016	2-Jun-2016	0	1	7,633,443	2	3	1	Atlas	11,373,831
CSO105	4-Jun-2016	4-Jun-2016	0	0	5,082,369	2	0	12	Atlas	914,826
CSO105	12-Jun-2016	12-Jun-2016	0	1	2,014,038	1	1	1	Atlas	1,188,282
CSO105	14-Jun-2016	14-Jun-2016	0	1	9,236,340	2	1	1	Atlas	13,485,056
CSO105	23-Jun-2016	24-Jun-2016	0	2	8,188,135	2	1	6	Cloudburst	17,358,846
CSO105 Count										71
CSO105 Total										315,945,117
CSO106	2-Jul-2015	2-Jul-2015	0	1	3,052	2	0	3	Atlas	2,258
CSO106	2-Jul-2015	2-Jul-2015	0	1	20,283	2	0	3	Atlas	15,010
CSO106	3-Jul-2015	3-Jul-2015	0	0	30,057	2	0	1	Atlas	9,017
CSO106	7-Jul-2015	7-Jul-2015	0	1	3,361	2	0	6	Atlas	2,286
CSO106	9-Jul-2015	9-Jul-2015	0	0	12,768	1	0	3	Atlas	2,681
CSO106	10-Jul-2015	10-Jul-2015	0	1	65,143	2	0	6	Atlas	43,646
CSO106	12-Jul-2015	12-Jul-2015	0	1	65,163	3	1	1	Atlas	58,647
CSO106	13-Jul-2015	13-Jul-2015	0	0	12,817	3	0	1	Atlas	5,127
CSO106	14-Jul-2015	14-Jul-2015	0	0	45,276	3	0	1	Atlas	22,638
CSO106	17-Jul-2015	18-Jul-2015	0	1	51,572	3	1	3	Atlas	44,868
CSO106	29-Jul-2015	29-Jul-2015	0	0	22,200	0	0	1	Atlas	1,332
CSO106	4-Aug-2015	4-Aug-2015	0	0	2,174	0	0	1	Atlas	391
CSO106	5-Aug-2015	5-Aug-2015	0	1	98	0	0	24	Atlas	106
CSO106	6-Aug-2015	6-Aug-2015	0	1	34,088	1	0	24	Atlas	36,815
CSO106	19-Aug-2015	19-Aug-2015	0	1	8,745	0	0	1	Atlas	5,684
CSO106	19-Aug-2015	19-Aug-2015	0	1	13,560	1	0	1	Atlas	8,814
CSO106	7-Sep-2015	7-Sep-2015	0	1	39,956	1	1	1	Atlas	41,954
CSO106	9-Sep-2015	9-Sep-2015	0	0	3,332	1	0	1	Atlas	333
CSO106	29-Sep-2015	29-Sep-2015	0	1	391	1	0	48	Atlas	399
CSO106	12-Oct-2015	12-Oct-2015	0	0	16,374	0	0	3	Atlas	4,749
CSO106	27-Oct-2015	28-Oct-2015	1	3	4,386	3	1	48	Atlas	11,753
CSO106	6-Nov-2015	6-Nov-2015	0	1	15,463	1	0	3	Atlas	10,205

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO106 Count										22
CSO106 Total										328,713
CSO108	10-Jul-2015	10-Jul-2015	0	1	107,093	2	0	1	Atlas	86,745
CSO108	12-Jul-2015	12-Jul-2015	0	1	3,147,996	3	1	1	Atlas	3,210,956
CSO108	13-Jul-2015	13-Jul-2015	0	1	125,697	3	0	1	Atlas	71,648
CSO108	14-Jul-2015	14-Jul-2015	0	1	1,592,936	4	0	1	Atlas	987,620
CSO108	17-Jul-2015	18-Jul-2015	0	1	477,053	4	1	3	Atlas	596,317
CSO108	6-Aug-2015	6-Aug-2015	0	1	46,837	2	0	24	Atlas	61,825
CSO108	19-Aug-2015	19-Aug-2015	0	1	50,705	1	0	1	Atlas	27,888
CSO108	7-Sep-2015	7-Sep-2015	0	1	177,825	1	2	1	Atlas	243,620
CSO108	29-Oct-2015	30-Oct-2015	0	3	2,197	3	1	48	Atlas	6,613
CSO108	6-Nov-2015	7-Nov-2015	0	1	179,906	1	1	3	Atlas	188,901
CSO108	12-Nov-2015	14-Nov-2015	1	0	123,506	2	0	3	Atlas	50,637
CSO108	19-Nov-2015	20-Nov-2015	0	2	53,154	2	1	6	Atlas	97,273
CSO108	21-Nov-2015	22-Nov-2015	1	0	121,882	2	0	1	Atlas	19,501
CSO108	2-Dec-2015	4-Dec-2015	1	0	2,728,555	2	0	1	Atlas	81,857
CSO108	23-Dec-2015	24-Dec-2015	1	1	1,032,667	2	1	1	Atlas	1,022,340
CSO108	27-Dec-2015	28-Dec-2015	1	3	1,695,556	5	1	48	Atlas	5,307,091
CSO108	29-Dec-2015	29-Dec-2015	0	0	2,593,329	4	0	1	Atlas	25,933
CSO108	4-Jan-2016	5-Jan-2016	1	0	906,497	1	0	3	Atlas	18,130
CSO108	10-Jan-2016	11-Jan-2016	1	0	1,253,903	0	0	12	Atlas	225,703
CSO108	12-Jan-2016	16-Jan-2016	4	0	4,375,390	0	0	1	Atlas	87,508
CSO108	17-Jan-2016	18-Jan-2016	1	0	3,899,999	0	0	1	Atlas	39,000
CSO108	19-Jan-2016	19-Jan-2016	0			0				31,176
CSO108	2-Feb-2016	3-Feb-2016	0	2	341,733	2	1	6	Atlas	543,356
CSO108	24-Feb-2016	24-Feb-2016	0	2	673,529	2	1	12	Atlas	1,313,382
CSO108	24-Mar-2016	24-Mar-2016	0	0	410,713	1	0	1	Atlas	176,607
CSO108	27-Mar-2016	27-Mar-2016	0	1	275,137	1	1	3	Atlas	264,132
CSO108	31-Mar-2016	31-Mar-2016	0	1	10,036	2	1	24	Atlas	14,251
CSO108	31-Mar-2016	31-Mar-2016	0	1	10,036	2	1	24	Atlas	14,251
CSO108	1-May-2016	1-May-2016	0	0	662,601	2	0	3	Atlas	251,788
CSO108	10-May-2016	10-May-2016	0	1	51,183	2	0	24	Atlas	45,553
CSO108	20-May-2016	20-May-2016	0	1	81,294	1	0	3	Atlas	65,848
CSO108	23-Jun-2016	24-Jun-2016	0	1	166,659	2	1	6	Atlas	229,989
CSO108 Count										32
CSO108 Total										15,407,439

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO109	6-Nov-2015	6-Nov-2015	0	1	384,726	1	1	3	Atlas	388,573
CSO109	12-Nov-2015	12-Nov-2015	0	0	113,877	2	0	3	Atlas	46,690
CSO109	18-Nov-2015	18-Nov-2015	0	2	624,152	2	1	6	Atlas	1,167,164
CSO109	22-Dec-2015	22-Dec-2015	0	1	262,492	1	0	6	Atlas	228,368
CSO109	23-Dec-2015	23-Dec-2015	0	1	1,953,288	2	1	1	Atlas	2,011,887
CSO109	27-Dec-2015	27-Dec-2015	0	2	6,140,489	4	1	48	Atlas	15,351,223
CSO109	2-Feb-2016	3-Feb-2016	0	2	274,172	2	1	6	Atlas	441,417
CSO109	21-Feb-2016	21-Feb-2016	0	1	67,707	1	0	12	Atlas	50,103
CSO109	24-Feb-2016	24-Feb-2016	0	2	318,829	2	1	12	Atlas	624,904
CSO109	12-Mar-2016	12-Mar-2016	0	1	42,959	2	0	24	Atlas	38,234
CSO109	13-Mar-2016	13-Mar-2016	0	1	6,851	2	0	24	Atlas	6,097
CSO109	24-Mar-2016	24-Mar-2016	0	0	900,525	1	0	1	Atlas	315,184
CSO109	27-Mar-2016	27-Mar-2016	0	1	697,002	1	1	3	Atlas	690,032
CSO109	31-Mar-2016	31-Mar-2016	0	1	76,937	2	1	24	Atlas	107,712
CSO109	31-Mar-2016	31-Mar-2016	0	1	76,937	2	1	24	Atlas	107,712
CSO109	11-Apr-2016	11-Apr-2016	0	1	22,352	1	0	6	Atlas	17,881
CSO109	27-Apr-2016	27-Apr-2016	0	1	104,897	1	0	3	Atlas	73,428
CSO109	1-May-2016	1-May-2016	0	0	2,865,523	2	0	3	Atlas	1,031,588
CSO109	10-May-2016	10-May-2016	0	1	888,379	2	0	24	Atlas	692,936
CSO109	20-May-2016	20-May-2016	0	1	257,475	1	0	3	Atlas	216,279
CSO109	2-Jun-2016	2-Jun-2016	0	1	151,500	1	0	1	Atlas	83,325
CSO109	12-Jun-2016	12-Jun-2016	0	1	298,871	1	1	1	Atlas	191,278
CSO109	23-Jun-2016	23-Jun-2016	0	1	571,553	1	1	6	Atlas	788,743
CSO109 Count										23
CSO109 Total										24,670,758
CSO110	2-Jul-2015	2-Jul-2015	0	1	424,523	2	0	3	Atlas	326,883
CSO110	2-Jul-2015	2-Jul-2015	0	1	171,341	2	0	3	Atlas	131,932
CSO110	3-Jul-2015	3-Jul-2015	0	0	539,467	2	0	1	Atlas	151,051
CSO110	7-Jul-2015	7-Jul-2015	0	1	456,141	2	0	6	Atlas	328,422
CSO110	9-Jul-2015	9-Jul-2015	0	0	354,373	1	0	3	Atlas	77,962
CSO110	10-Jul-2015	10-Jul-2015	0	1	988,856	2	0	6	Atlas	553,759
CSO110	12-Jul-2015	12-Jul-2015	0	1	961,227	3	1	1	Atlas	903,553
CSO110	13-Jul-2015	14-Jul-2015	1	0	2,929,717	3	0	1	Atlas	1,054,698
CSO110	14-Jul-2015	14-Jul-2015	0	0	2,620,096	3	0	1	Atlas	183,407
CSO110	17-Jul-2015	18-Jul-2015	0	1	1,492,060	3	1	3	Atlas	1,283,172
CSO110	29-Jul-2015	29-Jul-2015	0	0	69,698	0	0	1	Atlas	3,485

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO110	4-Aug-2015	4-Aug-2015	0	0	187,493	0	0	1	Atlas	33,749
CSO110	6-Aug-2015	6-Aug-2015	0	1	490,627	1	0	24	Atlas	529,877
CSO110	19-Aug-2015	19-Aug-2015	0	1	105,816	0	0	1	Atlas	73,013
CSO110	19-Aug-2015	19-Aug-2015	0	1	77,196	1	0	1	Atlas	53,265
CSO110	7-Sep-2015	7-Sep-2015	0	0	1,835,878	0	0	1	Atlas	440,611
CSO110	2-Oct-2015	2-Oct-2015	0	1	175,379	2	0	6	Atlas	108,735
CSO110	12-Oct-2015	12-Oct-2015	0	0	317,314	0	0	3	Atlas	92,021
CSO110	27-Oct-2015	28-Oct-2015	1	3	784,051	3	1	48	Atlas	2,077,734
CSO110	28-Oct-2015	28-Oct-2015	0	0	26,795	3	0	6	Atlas	4,555
CSO110	6-Nov-2015	6-Nov-2015	0	1	1,301,243	1	0	3	Atlas	858,820
CSO110	9-Nov-2015	9-Nov-2015	0	0	574,720	1	0	12	Atlas	281,613
CSO110	12-Nov-2015	12-Nov-2015	0	0	972,450	1	0	3	Atlas	311,184
CSO110	18-Nov-2015	18-Nov-2015	0	2	1,937,908	2	1	6	Atlas	3,410,719
CSO110	28-Nov-2015	28-Nov-2015	0	1	1,098,047	1	0	12	Atlas	746,672
CSO110	30-Nov-2015	1-Dec-2015	0	1	1,416,240	2	0	12	Atlas	1,033,855
CSO110	14-Dec-2015	14-Dec-2015	0	0	74,340	0	0	6	Atlas	19,328
CSO110	22-Dec-2015	22-Dec-2015	0	1	1,564,908	1	0	6	Atlas	876,349
CSO110	23-Dec-2015	24-Dec-2015	0	1	1,477,917	2	1	1	Atlas	1,404,021
CSO110	25-Dec-2015	25-Dec-2015	0	0	524,507	2	0	6	Atlas	57,696
CSO110	26-Dec-2015	26-Dec-2015	0	0	860,411	2	0	12	Atlas	266,727
CSO110	27-Dec-2015	29-Dec-2015	2	2	2,139,667	4	1	48	Atlas	4,386,317
CSO110	2-Feb-2016	3-Feb-2016	0	1	1,593,771	1	1	6	Atlas	2,040,026
CSO110	21-Feb-2016	21-Feb-2016	0	1	884,617	1	0	12	Atlas	831,540
CSO110	23-Feb-2016	24-Feb-2016	1	2	1,408,765	3	1	12	Atlas	2,859,792
CSO110	29-Feb-2016	29-Feb-2016	0	0	1,823,318	2	0	3	Atlas	36,466
CSO110	1-Mar-2016	1-Mar-2016	0	0	1,440,386	2	0	3	Atlas	417,712
CSO110	10-Mar-2016	10-Mar-2016	0	1	870,518	1	0	12	Atlas	931,454
CSO110	12-Mar-2016	13-Mar-2016	1	1	1,051,858	2	0	24	Atlas	946,673
CSO110	24-Mar-2016	24-Mar-2016	0	0	635,051	1	0	1	Atlas	273,072
CSO110	27-Mar-2016	27-Mar-2016	0	1	846,151	1	1	1	Atlas	820,767
CSO110	31-Mar-2016	1-Apr-2016	1	1	847,117	3	0	24	Atlas	974,184
CSO110	31-Mar-2016	1-Apr-2016	1	1	847,117	3	0	24	Atlas	974,184
CSO110	11-Apr-2016	11-Apr-2016	0	1	736	1	0	6	Atlas	670
CSO110	21-Apr-2016	21-Apr-2016	0	0	322	0	0	3	Atlas	97
CSO110	26-Apr-2016	26-Apr-2016	0	0	463	1	0	6	Atlas	148
CSO110	27-Apr-2016	27-Apr-2016	0	1	1,037	1	0	1	Atlas	622

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO110	30-Apr-2016	30-Apr-2016	0	0	295	1	0	24	Atlas	142
CSO110	1-May-2016	1-May-2016	0	1	782	2	0	1	Atlas	415
CSO110	4-May-2016	4-May-2016	0	0	466	2	0	3	Atlas	89
CSO110	7-May-2016	7-May-2016	0	1	573	2	0	6	Atlas	470
CSO110	10-May-2016	10-May-2016	0	1	1,135	2	0	24	Atlas	863
CSO110	11-May-2016	11-May-2016	0	0	591	2	0	3	Atlas	160
CSO110	12-May-2016	12-May-2016	0	0	301	2	0	1	Atlas	30
CSO110	17-May-2016	17-May-2016	0	0	369	1	0	12	Atlas	129
CSO110	17-May-2016	17-May-2016	0	0	501	1	0	6	Atlas	130
CSO110	20-May-2016	20-May-2016	0	1	1,627	1	0	3	Atlas	1,123
CSO110	26-May-2016	26-May-2016	0	0	429	1	0	3	Atlas	111
CSO110	2-Jun-2016	2-Jun-2016	0	1	489	1	0	1	Atlas	249
CSO110	12-Jun-2016	12-Jun-2016	0	0	580	0	0	1	Atlas	226
CSO110	14-Jun-2016	14-Jun-2016	0	1	814	1	0	3	Atlas	537
CSO110	23-Jun-2016	23-Jun-2016	0	2	923	2	1	6	Atlas	1,550
CSO110 Count										62
CSO110 Total										33,178,816
CSO111	10-Jul-2015	10-Jul-2015	0	1	516	1	0	6	Atlas	289
CSO111	12-Jul-2015	12-Jul-2015	0	1	21,813	2	1	1	Atlas	20,504
CSO111	14-Jul-2015	14-Jul-2015	0	0	5,061	3	0	1	Atlas	1,721
CSO111	6-Aug-2015	6-Aug-2015	0	1	6,084	1	0	24	Atlas	6,571
CSO111	19-Aug-2015	19-Aug-2015	0	1	2,008	1	0	1	Atlas	1,386
CSO111	27-Oct-2015	27-Oct-2015	0	3	182	2	1	48	Atlas	483
CSO111	6-Nov-2015	6-Nov-2015	0	1	2,552	1	0	3	Atlas	1,685
CSO111	18-Nov-2015	18-Nov-2015	0	2	659	1	1	6	Atlas	1,160
CSO111	30-Nov-2015	30-Nov-2015	0	1	378	1	0	12	Atlas	276
CSO111	22-Dec-2015	22-Dec-2015	0	1	4,222	1	0	6	Atlas	2,364
CSO111	23-Dec-2015	23-Dec-2015	0	1	193,724	2	1	1	Atlas	184,038
CSO111	3-Feb-2016	3-Feb-2016	1	1	573,951	1	1	6	Atlas	734,657
CSO111	24-Feb-2016	24-Feb-2016	0	2	397	2	1	12	Atlas	805
CSO111	24-Feb-2016	26-Feb-2016	2	2	1,234,985	3	1	12	Atlas	2,507,019
CSO111	2-Mar-2016	2-Mar-2016	0	0	2,766	2	0	3	Atlas	802
CSO111	27-Mar-2016	28-Mar-2016	1	1	324,688	1	1	1	Atlas	314,947
CSO111	1-May-2016	1-May-2016	0	1	22,766	2	0	1	Atlas	12,066
CSO111	14-Jun-2016	14-Jun-2016	0	1	3,075	1	0	3	Atlas	2,030
CSO111	23-Jun-2016	23-Jun-2016	0	2	545	2	1	6	Atlas	916

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO111 Count										19
CSO111 Total										3,793,719
CSO113	2-Jul-2015	2-Jul-2015	0	1	74,702	2	0	3	Atlas	64,991
CSO113	2-Jul-2015	2-Jul-2015	0	1	136,243	3	0	3	Atlas	118,531
CSO113	3-Jul-2015	3-Jul-2015	0	0	228,493	2	0	1	Atlas	79,972
CSO113	7-Jul-2015	8-Jul-2015	1	1	221,071	2	0	6	Atlas	165,803
CSO113	8-Jul-2015	8-Jul-2015	0	0	24,434	2	0	1	Atlas	1,466
CSO113	9-Jul-2015	9-Jul-2015	0	0	127,528	2	0	3	Atlas	35,708
CSO113	10-Jul-2015	10-Jul-2015	0	0	167,092	2	0	6	Atlas	65,166
CSO113	12-Jul-2015	12-Jul-2015	0	1	522,296	2	1	3	Atlas	438,729
CSO113	13-Jul-2015	13-Jul-2015	0	0	329,006	3	0	1	Atlas	105,282
CSO113	14-Jul-2015	14-Jul-2015	1	1	485,036	3	0	3	Atlas	271,620
CSO113	17-Jul-2015	18-Jul-2015	0	1	837,105	3	1	3	Atlas	728,282
CSO113	4-Aug-2015	4-Aug-2015	0	0	9,647	0	0	1	Atlas	1,061
CSO113	5-Aug-2015	5-Aug-2015	0	1	2,917	0	0	24	Atlas	2,654
CSO113	6-Aug-2015	6-Aug-2015	1	1	450,518	1	0	24	Atlas	409,971
CSO113	10-Aug-2015	10-Aug-2015	0	0	12,442	1	0	1	Atlas	1,120
CSO113	19-Aug-2015	19-Aug-2015	0	1	246,527	1	0	1	Atlas	140,520
CSO113	7-Sep-2015	7-Sep-2015	0	0	21,139	0	0	1	Atlas	1,903
CSO113	9-Sep-2015	9-Sep-2015	0	0	13,994	0	0	1	Atlas	2,939
CSO113	11-Sep-2015	11-Sep-2015	0	0	27,861	1	0	1	Atlas	5,572
CSO113 Count										19
CSO113 Total										2,641,290
CSO117	2-Jul-2015	2-Jul-2015	0	1	682,310	2	0	24	Atlas	811,949
CSO117	2-Jul-2015	2-Jul-2015	0	1	695,579	3	0	24	Atlas	827,740
CSO117	3-Jul-2015	3-Jul-2015	0	0	1,611,220	3	0	1	Atlas	596,151
CSO117	7-Jul-2015	7-Jul-2015	0	1	1,288,036	2	0	3	Atlas	953,147
CSO117	8-Jul-2015	8-Jul-2015	0	0	685,561	2	0	1	Atlas	89,123
CSO117	9-Jul-2015	9-Jul-2015	0	0	1,266,914	2	0	3	Atlas	392,743
CSO117	10-Jul-2015	10-Jul-2015	0	1	1,073,820	2	0	6	Atlas	547,648
CSO117	12-Jul-2015	12-Jul-2015	1	1	1,909,605	3	1	1	Atlas	2,176,949
CSO117	13-Jul-2015	13-Jul-2015	0	0	1,108,243	3	0	1	Atlas	410,050
CSO117	14-Jul-2015	14-Jul-2015	0	1	1,407,638	4	1	1	Atlas	900,888
CSO117	14-Jul-2015	14-Jul-2015	0	0	2,373,724	3	0	1	Atlas	47,474
CSO117	17-Jul-2015	18-Jul-2015	0	1	2,136,338	3	1	3	Atlas	2,414,062
CSO117	4-Aug-2015	4-Aug-2015	0	0	223,230	0	0	1	Atlas	40,181

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO117	5-Aug-2015	5-Aug-2015	0	0	926,547	0	0	1	Atlas	129,717
CSO117	6-Aug-2015	6-Aug-2015	1	1	2,014,377	1	0	1	Atlas	1,087,764
CSO117	15-Aug-2015	15-Aug-2015	0	0	698,209	0	0	1	Atlas	97,749
CSO117	19-Aug-2015	19-Aug-2015	0	0	1,870,877	1	0	3	Atlas	673,516
CSO117	9-Sep-2015	9-Sep-2015	0	0	1,495,088	0	0	1	Atlas	343,870
CSO117	11-Sep-2015	11-Sep-2015	0	0	345,356	1	0	1	Atlas	51,803
CSO117	29-Sep-2015	29-Sep-2015	0	1	14,952	1	0	48	Atlas	11,513
CSO117	2-Oct-2015	2-Oct-2015	0	1	595,496	1	0	6	Atlas	375,162
CSO117	12-Oct-2015	12-Oct-2015	0	0	946,730	0	0	3	Atlas	246,150
CSO117	27-Oct-2015	28-Oct-2015	1	2	2,015,844	3	1	24	Atlas	4,535,649
CSO117	28-Oct-2015	28-Oct-2015	0	0	22,904	3	0	1	Atlas	2,978
CSO117	6-Nov-2015	6-Nov-2015	0	1	1,846,710	1	0	3	Atlas	1,477,368
CSO117	9-Nov-2015	9-Nov-2015	0	0	713,269	1	0	12	Atlas	356,634
CSO117	12-Nov-2015	12-Nov-2015	0	0	2,299,514	2	0	3	Atlas	597,874
CSO117	18-Nov-2015	18-Nov-2015	0	1	2,386,171	2	1	6	Atlas	3,269,054
CSO117	28-Nov-2015	28-Nov-2015	0	1	845,725	1	0	12	Atlas	592,008
CSO117	30-Nov-2015	1-Dec-2015	0	1	1,605,235	2	0	12	Atlas	1,364,450
CSO117	14-Dec-2015	14-Dec-2015	0	0	582,813	0	0	3	Atlas	145,703
CSO117	21-Dec-2015	21-Dec-2015	0	0	128,565	0	0	6	Atlas	23,142
CSO117	21-Dec-2015	22-Dec-2015	0	0	3,573,224	1	0	6	Atlas	1,465,022
CSO117	23-Dec-2015	24-Dec-2015	0	1	3,093,523	2	1	1	Atlas	2,784,171
CSO117	26-Dec-2015	26-Dec-2015	0	0	1,653,100	2	0	12	Atlas	512,461
CSO117	27-Dec-2015	28-Dec-2015	1	2	3,294,569	3	1	3	Atlas	6,325,572
CSO117	28-Dec-2015	28-Dec-2015	0	2	312,222	4	1	3	Atlas	599,466
CSO117	2-Feb-2016	3-Feb-2016	0	1	3,070,571	1	1	6	Atlas	3,715,390
CSO117	21-Feb-2016	21-Feb-2016	0	1	2,145,773	1	1	12	Atlas	2,403,266
CSO117	23-Feb-2016	24-Feb-2016	0	2	2,540,189	3	1	12	Atlas	5,054,976
CSO117 Count										40
CSO117 Total										48,450,533
CSO118	12-Jul-2015	12-Jul-2015	0	1	808	3	1	1	Atlas	856
CSO118	9-Jan-2016	10-Jan-2016	0	0	15,181	0	0	12	Atlas	2,884
CSO118	2-Feb-2016	3-Feb-2016	0	1	5,036,370	1	1	6	Atlas	6,043,644
CSO118	21-Feb-2016	21-Feb-2016	0	1	2,522,586	1	1	12	Atlas	2,825,296
CSO118	23-Feb-2016	24-Feb-2016	0	2	3,599,144	3	1	12	Atlas	7,270,271
CSO118	1-Mar-2016	1-Mar-2016	0	0	1,925,447	2	0	3	Atlas	481,362
CSO118	9-Mar-2016	9-Mar-2016	0	1	19,884	0	0	48	Atlas	20,481

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO118	10-Mar-2016	10-Mar-2016	0	1	2,008,935	1	0	48	Atlas	2,069,203
CSO118	12-Mar-2016	13-Mar-2016	0	1	2,334,319	2	0	6	Atlas	2,147,574
CSO118	13-Mar-2016	13-Mar-2016	0	1	1,591,853	2	0	6	Atlas	1,464,505
CSO118	24-Mar-2016	24-Mar-2016	0	1	1,179,413	1	0	1	Atlas	695,853
CSO118	27-Mar-2016	27-Mar-2016	0	1	3,229,163	1	1	1	Atlas	2,583,330
CSO118	31-Mar-2016	1-Apr-2016	1	1	1,835,542	2	0	24	Atlas	1,817,187
CSO118	31-Mar-2016	1-Apr-2016	1	1	1,835,542	2	0	24	Atlas	1,817,187
CSO118	11-Apr-2016	11-Apr-2016	0	1	2,113,022	1	0	6	Atlas	1,880,590
CSO118	21-Apr-2016	21-Apr-2016	0	0	1,450,031	0	0	3	Atlas	420,509
CSO118	22-Apr-2016	22-Apr-2016	0	0	602	0	0	3	Atlas	175
CSO118	26-Apr-2016	26-Apr-2016	0	0	1,825,821	1	0	6	Atlas	712,070
CSO118	27-Apr-2016	27-Apr-2016	0	1	3,006,345	1	0	3	Atlas	1,533,236
CSO118	30-Apr-2016	30-Apr-2016	0	0	1,433,316	1	0	6	Atlas	687,992
CSO118	30-Apr-2016	30-Apr-2016	0	0	163	1	0	6	Atlas	78
CSO118	1-May-2016	1-May-2016	0	0	786,417	2	0	3	Atlas	180,876
CSO118	4-May-2016	4-May-2016	0	0	309,445	1	0	1	Atlas	61,889
CSO118	7-May-2016	7-May-2016	0	1	421,511	1	0	6	Atlas	257,122
CSO118	10-May-2016	10-May-2016	1	1	3,366,255	2	0	24	Atlas	2,659,341
CSO118	11-May-2016	11-May-2016	0	0	1,403,728	2	0	3	Atlas	294,783
CSO118	12-May-2016	12-May-2016	0	0	690,632	2	0	3	Atlas	82,876
CSO118	17-May-2016	17-May-2016	0	1	61,168	1	0	24	Atlas	38,536
CSO118	17-May-2016	17-May-2016	0	1	80,168	1	0	24	Atlas	50,506
CSO118	20-May-2016	20-May-2016	0	1	4,242,742	1	0	3	Atlas	2,418,363
CSO118	25-May-2016	25-May-2016	0	0	6,265	1	0	1	Atlas	251
CSO118	26-May-2016	26-May-2016	0	0	735,959	1	0	3	Atlas	169,271
CSO118	2-Jun-2016	2-Jun-2016	0	0	3,316,892	1	0	1	Atlas	1,127,743
CSO118	4-Jun-2016	4-Jun-2016	0	0	7,326,951	1	0	12	Atlas	952,504
CSO118	12-Jun-2016	12-Jun-2016	0	0	1,034,079	0	0	1	Atlas	175,793
CSO118	14-Jun-2016	14-Jun-2016	0	1	5,042,943	1	0	3	Atlas	3,429,201
CSO118	22-Jun-2016	22-Jun-2016	0	0	2,956,453	0	0	3	Atlas	532,162
CSO118	23-Jun-2016	23-Jun-2016	0	2	3,610,847	2	1	6	Cloudburst	6,752,284
CSO118 Count										38
CSO118 Total										53,657,784
CSO119	2-Jul-2015	2-Jul-2015	0	1	66,473	2	1	24	Atlas	86,415
CSO119	2-Jul-2015	2-Jul-2015	0	1	137,545	3	1	24	Atlas	178,808
CSO119	3-Jul-2015	3-Jul-2015	0	0	226,838	3	0	1	Atlas	74,856

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO119	7-Jul-2015	7-Jul-2015	0	1	182,120	2	0	6	Atlas	145,696
CSO119	8-Jul-2015	8-Jul-2015	0	0	449,965	3	0	1	Atlas	31,498
CSO119	9-Jul-2015	9-Jul-2015	0	0	166,659	2	0	3	Atlas	46,665
CSO119	10-Jul-2015	10-Jul-2015	0	0	129,805	2	0	6	Atlas	55,816
CSO119	12-Jul-2015	12-Jul-2015	0	1	840,662	3	1	1	Atlas	891,102
CSO119	13-Jul-2015	13-Jul-2015	0	0	65,843	3	0	1	Atlas	26,337
CSO119	14-Jul-2015	14-Jul-2015	0	1	194,362	4	0	1	Atlas	99,125
CSO119	17-Jul-2015	18-Jul-2015	0	1	370,006	3	1	3	Atlas	436,607
CSO119	4-Aug-2015	4-Aug-2015	0	0	126,192	0	0	1	Atlas	17,667
CSO119	5-Aug-2015	5-Aug-2015	0	1	60,704	0	0	24	Atlas	52,812
CSO119	6-Aug-2015	6-Aug-2015	1	1	184,733	1	0	24	Atlas	160,718
CSO119	19-Aug-2015	19-Aug-2015	0	0	241,758	0	0	24	Atlas	84,615
CSO119	19-Aug-2015	19-Aug-2015	0	0	72,376	0	0	24	Atlas	25,332
CSO119	9-Sep-2015	9-Sep-2015	0	0	221,247	1	0	1	Atlas	50,887
CSO119	11-Sep-2015	11-Sep-2015	0	0	7,659	1	0	1	Atlas	1,072
CSO119	12-Oct-2015	12-Oct-2015	0	0	121,165	0	0	3	Atlas	26,656
CSO119	27-Oct-2015	28-Oct-2015	1	2	220,434	3	1	24	Atlas	515,815
CSO119	6-Nov-2015	6-Nov-2015	0	1	278,821	1	0	3	Atlas	231,421
CSO119	11-Nov-2015	12-Nov-2015	0	0	371,794	2	0	3	Atlas	104,102
CSO119	18-Nov-2015	18-Nov-2015	0	2	382,483	2	1	6	Atlas	600,499
CSO119	30-Nov-2015	1-Dec-2015	0	1	255,387	2	0	12	Atlas	186,432
CSO119	21-Dec-2015	22-Dec-2015	0	0	340,294	1	0	6	Atlas	170,147
CSO119	23-Dec-2015	23-Dec-2015	0	1	261,222	2	1	1	Atlas	214,202
CSO119	26-Dec-2015	26-Dec-2015	0	0	75,028	2	0	12	Atlas	18,757
CSO119	27-Dec-2015	27-Dec-2015	0	2	315,655	3	1	3	Atlas	634,467
CSO119	28-Dec-2015	28-Dec-2015	0	2	3,849	3	1	3	Atlas	7,736
CSO119	28-Dec-2015	28-Dec-2015	0	2	48,885	4	1	3	Atlas	98,258
CSO119	2-Feb-2016	3-Feb-2016	0	1	389,066	1	1	6	Atlas	466,879
CSO119	21-Feb-2016	21-Feb-2016	0	1	239,026	1	1	12	Atlas	267,709
CSO119	23-Feb-2016	24-Feb-2016	0	2	372,808	3	1	12	Atlas	753,073
CSO119	1-Mar-2016	1-Mar-2016	0	0	272,221	2	0	3	Atlas	68,055
CSO119	10-Mar-2016	10-Mar-2016	0	1	168,396	1	0	48	Atlas	173,448
CSO119	12-Mar-2016	12-Mar-2016	0	1	129,217	2	0	6	Atlas	118,879
CSO119	13-Mar-2016	13-Mar-2016	0	1	158,500	2	0	6	Atlas	145,820
CSO119	24-Mar-2016	24-Mar-2016	0	1	146,302	1	0	1	Atlas	86,318
CSO119	27-Mar-2016	27-Mar-2016	0	1	185,676	1	1	1	Atlas	148,541

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO119	31-Mar-2016	31-Mar-2016	0	1	39,001	2	0	24	Atlas	38,611
CSO119	31-Mar-2016	31-Mar-2016	0	1	39,001	2	0	24	Atlas	38,611
CSO119	31-Mar-2016	31-Mar-2016	0	1	114,458	2	0	24	Atlas	113,314
CSO119	31-Mar-2016	31-Mar-2016	0	1	114,458	2	0	24	Atlas	113,314
CSO119	11-Apr-2016	11-Apr-2016	0	1	184,777	1	0	6	Atlas	164,451
CSO119	21-Apr-2016	21-Apr-2016	0	0	10,493	0	0	3	Atlas	3,043
CSO119	26-Apr-2016	26-Apr-2016	0	0	128,094	1	0	6	Atlas	49,957
CSO119	27-Apr-2016	27-Apr-2016	0	1	298,174	1	0	3	Atlas	152,069
CSO119	30-Apr-2016	30-Apr-2016	0	0	89,283	1	0	6	Atlas	42,856
CSO119	1-May-2016	1-May-2016	0	0	123,871	2	0	3	Atlas	28,490
CSO119	7-May-2016	7-May-2016	0	1	1,758	1	0	6	Atlas	1,072
CSO119	10-May-2016	10-May-2016	0	1	232,526	2	0	24	Atlas	183,696
CSO119	11-May-2016	11-May-2016	0	0	160,870	2	0	3	Atlas	33,783
CSO119	20-May-2016	20-May-2016	0	1	411,115	1	0	3	Atlas	234,335
CSO119	26-May-2016	26-May-2016	0	0	20,578	1	0	3	Atlas	4,733
CSO119	2-Jun-2016	2-Jun-2016	0	0	271,768	0	0	1	Atlas	92,401
CSO119	4-Jun-2016	4-Jun-2016	0	0	433,726	1	0	12	Atlas	56,384
CSO119	12-Jun-2016	12-Jun-2016	0	0	264,549	0	0	1	Atlas	44,973
CSO119	14-Jun-2016	14-Jun-2016	0	1	243,089	1	0	3	Atlas	165,301
CSO119	22-Jun-2016	22-Jun-2016	0	0	139,193	0	0	3	Atlas	25,055
CSO119	23-Jun-2016	23-Jun-2016	0	2	187,669	2	1	6	Cloudburst	350,942
CSO119 Count										60
CSO119 Total										9,440,633
CSO120	2-Jul-2015	2-Jul-2015	0	2	36,665	2	1	24	Atlas	60,864
CSO120	2-Jul-2015	2-Jul-2015	0	2	177,932	3	1	24	Atlas	295,367
CSO120	3-Jul-2015	3-Jul-2015	0	0	133,935	3	0	1	Atlas	46,877
CSO120	7-Jul-2015	7-Jul-2015	0	1	187,748	3	0	6	Atlas	163,340
CSO120	8-Jul-2015	8-Jul-2015	0	1	32,727	3	0	6	Atlas	28,472
CSO120	9-Jul-2015	9-Jul-2015	0	0	79,911	2	0	3	Atlas	24,773
CSO120	10-Jul-2015	10-Jul-2015	0	0	68,129	2	0	6	Atlas	29,295
CSO120	12-Jul-2015	12-Jul-2015	0	1	255,833	3	1	1	Atlas	345,375
CSO120	13-Jul-2015	13-Jul-2015	0	0	162,835	3	0	1	Atlas	81,418
CSO120	14-Jul-2015	14-Jul-2015	0	1	259,809	4	1	1	Atlas	189,661
CSO120	17-Jul-2015	18-Jul-2015	0	2	221,024	4	1	3	Atlas	353,639
CSO120	29-Jul-2015	29-Jul-2015	0	0	409,271	0	0	1	Atlas	32,742
CSO120	4-Aug-2015	4-Aug-2015	0	0	245,537	0	0	1	Atlas	108,036

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO120	5-Aug-2015	5-Aug-2015	0	1	49,092	1	0	24	Atlas	37,801
CSO120	6-Aug-2015	6-Aug-2015	1	1	237,923	1	0	24	Atlas	183,201
CSO120	19-Aug-2015	19-Aug-2015	0	0	259,184	0	0	24	Atlas	72,572
CSO120	19-Aug-2015	19-Aug-2015	0	0	368,250	0	0	24	Atlas	103,110
CSO120	5-Sep-2015	5-Sep-2015	0	0	242,762	0	0	1	Atlas	29,131
CSO120	7-Sep-2015	7-Sep-2015	0	1	10,970	1	1	1	Atlas	6,582
CSO120	9-Sep-2015	9-Sep-2015	0	0	297,599	1	0	1	Atlas	80,352
CSO120	11-Sep-2015	11-Sep-2015	0	0	212,936	1	0	1	Atlas	40,458
CSO120	12-Oct-2015	12-Oct-2015	0	0	194,515	0	0	3	Atlas	52,519
CSO120	27-Oct-2015	28-Oct-2015	1	3	139,959	3	1	48	Atlas	351,297
CSO120	6-Nov-2015	6-Nov-2015	0	1	425,332	1	0	3	Atlas	361,532
CSO120	12-Nov-2015	12-Nov-2015	0	0	330,046	2	0	3	Atlas	92,413
CSO120	18-Nov-2015	18-Nov-2015	0	1	396,588	2	1	6	Atlas	555,224
CSO120	21-Nov-2015	21-Nov-2015	0	0	9,071	2	0	1	Atlas	726
CSO120	30-Nov-2015	1-Dec-2015	0	1	197,479	2	0	12	Atlas	126,387
CSO120	21-Dec-2015	22-Dec-2015	0	1	208,768	1	0	1	Atlas	154,489
CSO120	23-Dec-2015	23-Dec-2015	0	1	291,367	1	1	1	Atlas	209,784
CSO120	26-Dec-2015	26-Dec-2015	0	0	156,849	2	0	12	Atlas	56,466
CSO120	27-Dec-2015	27-Dec-2015	0	2	323,483	3	1	3	Atlas	637,261
CSO120	28-Dec-2015	28-Dec-2015	0	2	29,996	4	1	3	Atlas	59,093
CSO120	2-Feb-2016	3-Feb-2016	0	1	320,419	1	1	6	Atlas	429,362
CSO120	21-Feb-2016	21-Feb-2016	0	1	197,304	1	1	12	Atlas	217,034
CSO120	23-Feb-2016	24-Feb-2016	0	2	265,129	3	1	12	Atlas	540,862
CSO120	1-Mar-2016	1-Mar-2016	0	0	293,733	2	0	3	Atlas	85,182
CSO120	10-Mar-2016	10-Mar-2016	0	1	44,997	1	0	48	Atlas	49,947
CSO120	12-Mar-2016	12-Mar-2016	0	1	176,152	2	0	6	Atlas	140,922
CSO120	13-Mar-2016	13-Mar-2016	0	1	117,097	2	0	6	Atlas	93,678
CSO120	24-Mar-2016	24-Mar-2016	0	1	229,807	1	0	1	Atlas	117,201
CSO120	27-Mar-2016	27-Mar-2016	0	1	346,834	1	1	1	Atlas	260,125
CSO120	31-Mar-2016	31-Mar-2016	0	1	1,502	2	0	24	Atlas	1,562
CSO120	31-Mar-2016	31-Mar-2016	0	1	1,502	2	0	24	Atlas	1,562
CSO120	31-Mar-2016	31-Mar-2016	0	1	63,039	2	0	24	Atlas	65,561
CSO120	31-Mar-2016	31-Mar-2016	0	1	63,039	2	0	24	Atlas	65,561
CSO120	11-Apr-2016	11-Apr-2016	0	1	118,820	1	0	6	Atlas	123,573
CSO120	21-Apr-2016	21-Apr-2016	0	0	136,800	0	0	3	Atlas	42,408
CSO120	26-Apr-2016	26-Apr-2016	0	0	133,585	1	0	6	Atlas	57,442

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO120	27-Apr-2016	27-Apr-2016	0	1	270,189	1	0	12	Atlas	156,709
CSO120	30-Apr-2016	30-Apr-2016	0	1	62,112	1	0	6	Atlas	32,919
CSO120	1-May-2016	1-May-2016	0	0	93,342	2	0	3	Atlas	24,269
CSO120	7-May-2016	7-May-2016	0	0	64,883	1	0	6	Atlas	32,442
CSO120	10-May-2016	10-May-2016	0	1	165,025	1	0	24	Atlas	115,518
CSO120	12-May-2016	12-May-2016	0	0	132,950	2	0	3	Atlas	27,919
CSO120	20-May-2016	20-May-2016	0	1	327,988	1	0	3	Atlas	173,834
CSO120	26-May-2016	26-May-2016	0	0	21,377	1	0	3	Atlas	4,917
CSO120	2-Jun-2016	2-Jun-2016	0	0	587,584	0	0	1	Atlas	199,779
CSO120	4-Jun-2016	4-Jun-2016	0	0	467,240	1	0	1	Atlas	102,793
CSO120	12-Jun-2016	12-Jun-2016	0	0	1,085,270	0	0	1	Atlas	97,674
CSO120	14-Jun-2016	14-Jun-2016	0	1	188,421	1	1	3	Atlas	154,505
CSO120	22-Jun-2016	22-Jun-2016	0	0	140,857	0	0	3	Atlas	36,623
CSO120	23-Jun-2016	23-Jun-2016	0	2	147,256	2	2	6	Cloudburst	316,600
CSO120 Count										63
CSO120 Total										8,738,740
CSO121	2-Jul-2015	2-Jul-2015	0	2	3,493	2	1	24	Atlas	5,798
CSO121	2-Jul-2015	2-Jul-2015	0	2	310,930	3	1	24	Atlas	516,144
CSO121	3-Jul-2015	3-Jul-2015	0	0	18,585	3	0	1	Atlas	6,505
CSO121	7-Jul-2015	7-Jul-2015	0	1	7,869	3	0	6	Atlas	6,846
CSO121	8-Jul-2015	8-Jul-2015	0	1	1,925	3	0	6	Atlas	1,674
CSO121	8-Jul-2015	8-Jul-2015	0	1	23,691	3	0	6	Atlas	20,611
CSO121	9-Jul-2015	9-Jul-2015	0	0	56,002	2	0	3	Atlas	17,361
CSO121	10-Jul-2015	10-Jul-2015	0	0	55,923	2	0	6	Atlas	24,047
CSO121	12-Jul-2015	12-Jul-2015	0	1	227,646	3	1	1	Atlas	307,322
CSO121	13-Jul-2015	13-Jul-2015	0	0	9,664	3	0	1	Atlas	4,832
CSO121	14-Jul-2015	14-Jul-2015	0	1	46,185	4	1	1	Atlas	33,715
CSO121	17-Jul-2015	18-Jul-2015	0	2	112,085	4	1	3	Atlas	179,335
CSO121	29-Jul-2015	29-Jul-2015	0	0	32,565	0	0	1	Atlas	2,605
CSO121	4-Aug-2015	4-Aug-2015	0	0	19,680	0	0	1	Atlas	8,659
CSO121	5-Aug-2015	5-Aug-2015	0	1	114,367	1	0	24	Atlas	88,063
CSO121	6-Aug-2015	6-Aug-2015	1	1	134,815	1	0	24	Atlas	103,808
CSO121	19-Aug-2015	19-Aug-2015	0	0	42,752	0	0	24	Atlas	11,970
CSO121	19-Aug-2015	19-Aug-2015	0	0	96,439	0	0	24	Atlas	27,003
CSO121	5-Sep-2015	5-Sep-2015	0	0	50,596	0	0	1	Atlas	6,072
CSO121	7-Sep-2015	7-Sep-2015	0	1	22,094	1	1	1	Atlas	13,257

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO121	9-Sep-2015	9-Sep-2015	0	0	66,665	1	0	1	Atlas	18,000
CSO121	11-Sep-2015	11-Sep-2015	0	0	201,800	1	0	1	Atlas	38,342
CSO121	29-Sep-2015	29-Sep-2015	0	1	7,974	1	0	48	Atlas	6,619
CSO121	2-Oct-2015	2-Oct-2015	0	1	906	1	0	6	Atlas	544
CSO121	12-Oct-2015	12-Oct-2015	0	0	48,394	0	0	3	Atlas	13,066
CSO121	27-Oct-2015	28-Oct-2015	1	3	31,588	3	1	48	Atlas	79,285
CSO121	6-Nov-2015	6-Nov-2015	0	1	82,085	1	0	3	Atlas	69,772
CSO121	12-Nov-2015	12-Nov-2015	0	0	38,261	2	0	3	Atlas	10,713
CSO121	18-Nov-2015	18-Nov-2015	0	1	108,919	2	1	6	Atlas	152,487
CSO121	30-Nov-2015	1-Dec-2015	0	1	103,744	2	0	12	Atlas	66,396
CSO121	22-Dec-2015	22-Dec-2015	0	1	8,289	1	0	1	Atlas	6,134
CSO121	23-Dec-2015	23-Dec-2015	0	1	295,625	1	1	1	Atlas	212,850
CSO121	25-Dec-2015	25-Dec-2015	0	0	56,053	2	0	3	Atlas	6,726
CSO121	26-Dec-2015	26-Dec-2015	0	0	75,435	2	0	12	Atlas	27,157
CSO121	27-Dec-2015	28-Dec-2015	1	2	247,623	3	1	3	Atlas	487,816
CSO121	28-Dec-2015	28-Dec-2015	0	2	2,667	4	1	3	Atlas	5,255
CSO121	1-Feb-2016	1-Feb-2016	0	0	3,148	0	0	3	Atlas	220
CSO121	2-Feb-2016	3-Feb-2016	0	1	83,445	1	1	6	Atlas	111,817
CSO121	21-Feb-2016	21-Feb-2016	0	1	21,505	1	1	12	Atlas	23,656
CSO121	23-Feb-2016	24-Feb-2016	1	2	65,231	3	1	12	Atlas	133,070
CSO121	1-Mar-2016	1-Mar-2016	0	0	30,730	2	0	3	Atlas	8,912
CSO121	10-Mar-2016	10-Mar-2016	0	1	29,688	1	0	48	Atlas	32,954
CSO121	12-Mar-2016	12-Mar-2016	0	1	32,723	2	0	6	Atlas	26,179
CSO121	13-Mar-2016	13-Mar-2016	0	1	160,311	2	0	6	Atlas	128,249
CSO121	24-Mar-2016	24-Mar-2016	0	1	6,156	1	0	1	Atlas	3,139
CSO121	27-Mar-2016	27-Mar-2016	0	1	66,798	1	1	1	Atlas	50,098
CSO121	31-Mar-2016	31-Mar-2016	0	1	243	2	0	24	Atlas	252
CSO121	31-Mar-2016	31-Mar-2016	0	1	243	2	0	24	Atlas	252
CSO121	31-Mar-2016	31-Mar-2016	0	1	59,617	2	0	24	Atlas	62,001
CSO121	31-Mar-2016	31-Mar-2016	0	1	59,617	2	0	24	Atlas	62,001
CSO121	11-Apr-2016	11-Apr-2016	0	1	137,720	1	0	6	Atlas	143,229
CSO121	21-Apr-2016	21-Apr-2016	0	0	8,662	0	0	3	Atlas	2,685
CSO121	26-Apr-2016	26-Apr-2016	0	0	3,881	1	0	6	Atlas	1,669
CSO121	27-Apr-2016	27-Apr-2016	0	1	261,129	1	0	12	Atlas	151,455
CSO121	30-Apr-2016	30-Apr-2016	0	1	141,376	1	0	6	Atlas	74,929
CSO121	1-May-2016	1-May-2016	0	0	62	2	0	3	Atlas	16

There are known issues with the flow monitoring data quality.
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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO121	7-May-2016	7-May-2016	0	0	3,771	1	0	6	Atlas	1,885
CSO121	10-May-2016	10-May-2016	0	1	25,349	1	0	24	Atlas	17,744
CSO121	11-May-2016	11-May-2016	0	0	2,806	1	0	3	Atlas	589
CSO121	12-May-2016	12-May-2016	0	0	11,961	2	0	3	Atlas	2,512
CSO121	20-May-2016	20-May-2016	0	1	142,545	1	0	3	Atlas	75,549
CSO121	25-May-2016	25-May-2016	0	0	103,333	1	0	1	Atlas	3,100
CSO121	26-May-2016	26-May-2016	0	0	65,194	1	0	3	Atlas	14,995
CSO121	2-Jun-2016	2-Jun-2016	0	0	31,030	0	0	1	Atlas	10,550
CSO121	4-Jun-2016	4-Jun-2016	0	0	287,685	1	0	1	Atlas	63,291
CSO121	14-Jun-2016	14-Jun-2016	0	1	157,587	1	1	3	Atlas	129,222
CSO121	22-Jun-2016	22-Jun-2016	0	0	3,944	0	0	3	Atlas	1,026
CSO121	23-Jun-2016	23-Jun-2016	0	2	684	2	2	6	Cloudburst	1,470
CSO121 Count										68
CSO121 Total										3,925,505
CSO125	2-Jul-2015	2-Jul-2015	0	2	12,692	2	1	24	Atlas	20,815
CSO125	2-Jul-2015	2-Jul-2015	0	2	405,509	3	1	24	Atlas	665,035
CSO125	3-Jul-2015	3-Jul-2015	0	0	119,240	3	0	1	Atlas	41,734
CSO125	7-Jul-2015	7-Jul-2015	0	1	360,432	2	0	6	Atlas	277,533
CSO125	8-Jul-2015	8-Jul-2015	0	1	62,242	3	0	6	Atlas	47,927
CSO125	9-Jul-2015	9-Jul-2015	0	0	51,051	2	0	12	Atlas	15,315
CSO125	10-Jul-2015	10-Jul-2015	0	0	186,803	2	0	6	Atlas	78,457
CSO125	12-Jul-2015	12-Jul-2015	0	2	399,024	3	2	3	Atlas	718,242
CSO125	5-Aug-2015	5-Aug-2015	0	1	3,501	1	0	24	Atlas	3,606
CSO125	6-Aug-2015	6-Aug-2015	0	1	22,969	1	0	24	Atlas	23,658
CSO125	19-Aug-2015	19-Aug-2015	0	1	526,536	1	0	1	Atlas	326,452
CSO125	1-Sep-2015	1-Sep-2015	0			0			#N/A	7,240
CSO125	10-Sep-2015	10-Sep-2015	0	0	332,089	1	0	1	Atlas	112,910
CSO125	29-Sep-2015	29-Sep-2015	0	1	210,225	1	0	48	Atlas	218,634
CSO125	12-Oct-2015	12-Oct-2015	0	0	438,564	0	0	3	Atlas	114,027
CSO125	16-Oct-2015	16-Oct-2015	0			0				188,843
CSO125	27-Oct-2015	28-Oct-2015	1	3	430,646	3	1	48	Atlas	1,175,662
CSO125	6-Nov-2015	6-Nov-2015	0	1	879,498	1	1	3	Atlas	879,498
CSO125	12-Nov-2015	12-Nov-2015	0	0	891,990	2	0	3	Atlas	267,597
CSO125	18-Nov-2015	18-Nov-2015	0	2	195,944	2	1	6	Cloudburst	384,051
CSO125	28-Nov-2015	28-Nov-2015	0	1	95,485	1	0	12	Atlas	56,336
CSO125	30-Nov-2015	1-Dec-2015	0	1	336,158	1	0	12	Atlas	231,949

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO125	22-Dec-2015	22-Dec-2015	0	1	764,366	1	0	6	Atlas	611,493
CSO125	23-Dec-2015	24-Dec-2015	0	1	768,705	2	1	1	Atlas	661,086
CSO125	27-Dec-2015	28-Dec-2015	1	2	12,029,893	4	1	3	Atlas	26,104,868
CSO125	28-Dec-2015	28-Dec-2015	0	2	12,339	4	1	3	Atlas	26,776
CSO125	2-Feb-2016	3-Feb-2016	0	2	51,969	2	1	6	Atlas	83,670
CSO125	21-Feb-2016	21-Feb-2016	0	1	20,327	1	0	12	Atlas	16,871
CSO125	23-Feb-2016	24-Feb-2016	0	2	147,597	3	1	12	Atlas	299,621
CSO125	1-Mar-2016	1-Mar-2016	0	0	58,261	2	0	3	Atlas	21,556
CSO125	10-Mar-2016	10-Mar-2016	0	1	77,750	1	0	48	Atlas	91,744
CSO125	12-Mar-2016	12-Mar-2016	0	1	63,558	2	0	24	Atlas	56,567
CSO125	13-Mar-2016	13-Mar-2016	0	1	58,635	2	0	24	Atlas	52,185
CSO125	24-Mar-2016	24-Mar-2016	0	0	401,555	1	0	1	Atlas	188,731
CSO125	27-Mar-2016	27-Mar-2016	0	1	180,301	1	1	3	Atlas	155,059
CSO125	31-Mar-2016	31-Mar-2016	0	1	49,586	2	0	24	Atlas	54,544
CSO125	31-Mar-2016	31-Mar-2016	0	1	49,586	2	0	24	Atlas	54,544
CSO125	31-Mar-2016	1-Apr-2016	0	1	90,692	2	0	24	Atlas	99,761
CSO125	31-Mar-2016	1-Apr-2016	0	1	90,692	2	0	24	Atlas	99,761
CSO125	11-Apr-2016	11-Apr-2016	0	1	155,819	1	0	12	Atlas	132,446
CSO125	26-Apr-2016	26-Apr-2016	0	0	53,348	1	0	6	Atlas	20,272
CSO125	27-Apr-2016	27-Apr-2016	0	1	32,588	1	0	3	Atlas	20,205
CSO125	1-May-2016	1-May-2016	0	0	114,932	2	0	3	Atlas	18,389
CSO125	7-May-2016	7-May-2016	0	0	14,439	1	0	6	Atlas	7,075
CSO125	10-May-2016	10-May-2016	0	1	502,956	2	0	24	Atlas	513,015
CSO125	11-May-2016	11-May-2016	0	0	22,962	2	0	3	Atlas	5,052
CSO125	20-May-2016	20-May-2016	0	1	155,845	1	1	3	Atlas	132,468
CSO125	12-Jun-2016	12-Jun-2016	0	0	309,000	0	0	1	Atlas	83,430
CSO125	14-Jun-2016	14-Jun-2016	0	1	133,422	1	1	3	Atlas	113,409
CSO125	22-Jun-2016	22-Jun-2016	0	0	894,415	0	0	3	Atlas	259,380
CSO125	23-Jun-2016	23-Jun-2016	0	2	1,007,384	2	1	6	Cloudburst	1,893,882
CSO125 Count										51
CSO125 Total										37,733,381
CSO126	2-Jul-2015	2-Jul-2015	0	2	22,245	2	1	24	Atlas	36,481
CSO126	7-Jul-2015	8-Jul-2015	1	1	545,311	3	0	6	Atlas	419,889
CSO126	12-Jul-2015	13-Jul-2015	1	2	19,326,900	4	2	3	Atlas	34,788,419
CSO126	14-Jul-2015	14-Jul-2015	1	1	6,126,162	5	0	1	Atlas	3,675,697
CSO126	17-Jul-2015	19-Jul-2015	1	1	1,729,526	5	1	3	Atlas	2,525,108

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO126	4-Aug-2015	4-Aug-2015	0	0	65,671	0	0	1	Atlas	22,328
CSO126	19-Aug-2015	19-Aug-2015	0	1	19,219	0	0	1	Atlas	11,916
CSO126	27-Oct-2015	27-Oct-2015	0	3	786	2	1	48	Atlas	2,146
CSO126	6-Nov-2015	6-Nov-2015	0	1	33,280	1	1	3	Atlas	33,280
CSO126	18-Nov-2015	18-Nov-2015	0	2	276,190	2	1	6	Cloudburst	541,331
CSO126	22-Dec-2015	22-Dec-2015	0	1	12,982	1	0	6	Atlas	10,385
CSO126	23-Dec-2015	23-Dec-2015	0	1	805,131	2	1	1	Atlas	692,413
CSO126	27-Dec-2015	28-Dec-2015	1	2	2,565,152	4	1	3	Atlas	5,566,380
CSO126	2-Feb-2016	3-Feb-2016	0	2	189,274	2	1	6	Atlas	304,730
CSO126	21-Feb-2016	21-Feb-2016	0	1	9,288	1	0	12	Atlas	7,709
CSO126	24-Feb-2016	25-Feb-2016	1	2	1,171,838	3	1	12	Atlas	2,378,831
CSO126	10-Mar-2016	10-Mar-2016	0	1	4,548	1	0	48	Atlas	5,367
CSO126	12-Mar-2016	12-Mar-2016	0	1	7,101	2	0	24	Atlas	6,320
CSO126	13-Mar-2016	13-Mar-2016	0	1	14,713	2	0	24	Atlas	13,095
CSO126	24-Mar-2016	24-Mar-2016	0	0	12,508	1	0	1	Atlas	5,879
CSO126	27-Mar-2016	27-Mar-2016	0	1	91,263	1	1	3	Atlas	78,486
CSO126	31-Mar-2016	1-Apr-2016	0	1	18,944	2	0	24	Atlas	20,839
CSO126	31-Mar-2016	31-Mar-2016	0	1	14,147	2	0	24	Atlas	15,561
CSO126 Count										23
CSO126 Total										51,162,590
CSO127	2-Jul-2015	2-Jul-2015	0	2	183,807	2	1	24	Atlas	308,796
CSO127	2-Jul-2015	2-Jul-2015	0	2	415,644	3	1	24	Atlas	698,281
CSO127	3-Jul-2015	3-Jul-2015	0	1	337,161	3	0	1	Atlas	212,411
CSO127	7-Jul-2015	8-Jul-2015	1	1	406,116	3	0	6	Atlas	296,464
CSO127	8-Jul-2015	8-Jul-2015	0	1	145,684	3	0	6	Atlas	106,350
CSO127	9-Jul-2015	9-Jul-2015	0	0	839,560	3	0	3	Atlas	251,868
CSO127	10-Jul-2015	10-Jul-2015	0	0	433,405	2	0	6	Atlas	216,702
CSO127	12-Jul-2015	12-Jul-2015	0	2	1,457,278	3	4	3	Atlas	2,972,848
CSO127	29-Jul-2015	29-Jul-2015	0	0	622,882	0	0	1	Atlas	43,602
CSO127	4-Aug-2015	4-Aug-2015	0	0	557,777	0	0	1	Atlas	128,289
CSO127	5-Aug-2015	5-Aug-2015	0	1	103,423	1	0	24	Atlas	117,902
CSO127	6-Aug-2015	7-Aug-2015	2	1	402,470	1	0	24	Atlas	458,815
CSO127	19-Aug-2015	19-Aug-2015	0	1	113,890	0	0	1	Atlas	70,612
CSO127	19-Aug-2015	19-Aug-2015	0	1	28,281	1	0	1	Atlas	17,534
CSO127	5-Sep-2015	5-Sep-2015	0	0	12,510	0	0	1	Atlas	3,127
CSO127	7-Sep-2015	7-Sep-2015	0	1	95,704	1	1	1	Atlas	61,251

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO127	9-Sep-2015	9-Sep-2015	0	0	18,929	1	0	1	Atlas	3,218
CSO127	10-Sep-2015	10-Sep-2015	0	0	12,556	1	0	1	Atlas	2,135
CSO127	29-Sep-2015	29-Sep-2015	0	1	43,844	1	0	48	Atlas	46,913
CSO127	2-Oct-2015	2-Oct-2015	0	1	57,298	2	0	6	Atlas	29,795
CSO127	12-Oct-2015	12-Oct-2015	0	0	58,889	0	0	3	Atlas	17,078
CSO127	24-Oct-2015	24-Oct-2015	0	0	12,144	0	0	12	Atlas	3,765
CSO127	27-Oct-2015	28-Oct-2015	1	3	187,393	3	1	48	Atlas	496,591
CSO127	28-Oct-2015	28-Oct-2015	0	0	102,391	3	0	1	Atlas	18,430
CSO127	31-Oct-2015	31-Oct-2015	0	0	35,634	3	0	3	Atlas	6,414
CSO127	6-Nov-2015	6-Nov-2015	0	1	124,663	1	1	3	Atlas	129,650
CSO127	9-Nov-2015	9-Nov-2015	0	1	65,551	2	0	12	Atlas	33,431
CSO127	12-Nov-2015	12-Nov-2015	0	0	189,979	2	0	3	Atlas	66,493
CSO127	18-Nov-2015	18-Nov-2015	0	2	140,848	2	1	6	Atlas	271,836
CSO127	21-Nov-2015	21-Nov-2015	0	0	58,184	2	0	1	Atlas	8,146
CSO127	28-Nov-2015	28-Nov-2015	0	1	76,761	1	0	12	Atlas	49,895
CSO127	30-Nov-2015	1-Dec-2015	0	1	182,969	1	0	12	Atlas	115,271
CSO127	14-Dec-2015	14-Dec-2015	0	0	55,869	0	0	6	Atlas	15,643
CSO127	21-Dec-2015	21-Dec-2015	0	0	70,432	0	0	6	Atlas	12,678
CSO127	21-Dec-2015	22-Dec-2015	0	1	341,277	1	0	1	Atlas	177,464
CSO127	23-Dec-2015	23-Dec-2015	0	1	1,654,845	2	1	1	Atlas	1,406,618
CSO127	25-Dec-2015	25-Dec-2015	0	0	69,139	2	0	6	Atlas	7,605
CSO127	26-Dec-2015	26-Dec-2015	0	0	153,660	2	0	3	Atlas	43,025
CSO127	27-Dec-2015	28-Dec-2015	1	2	1,504,922	4	1	3	Atlas	3,355,977
CSO127	28-Dec-2015	28-Dec-2015	0	2	155,807	4	1	3	Atlas	347,449
CSO127	2-Feb-2016	3-Feb-2016	0	2	421,157	2	1	6	Atlas	686,485
CSO127	21-Feb-2016	21-Feb-2016	0	1	408,787	1	0	12	Atlas	416,963
CSO127	23-Feb-2016	24-Feb-2016	0	2	346,906	3	1	12	Atlas	711,156
CSO127	1-Mar-2016	1-Mar-2016	0	0	296,330	2	0	6	Atlas	97,789
CSO127	9-Mar-2016	9-Mar-2016	0	1	24,992	0	0	12	Atlas	30,990
CSO127	10-Mar-2016	10-Mar-2016	0	1	349,940	1	0	12	Atlas	433,926
CSO127	12-Mar-2016	13-Mar-2016	0	1	136,902	2	0	24	Atlas	120,474
CSO127	13-Mar-2016	13-Mar-2016	0	1	325,338	2	0	24	Atlas	286,298
CSO127	24-Mar-2016	24-Mar-2016	0	0	54,812	1	0	1	Atlas	25,213
CSO127	27-Mar-2016	27-Mar-2016	0	1	1,342,145	1	1	3	Atlas	1,140,823
CSO127	31-Mar-2016	1-Apr-2016	1	1	436,637	2	0	24	Atlas	502,133
CSO127	31-Mar-2016	1-Apr-2016	1	1	436,637	2	0	24	Atlas	502,133

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO127	11-Apr-2016	11-Apr-2016	0	1	214,325	1	0	6	Atlas	180,033
CSO127	21-Apr-2016	21-Apr-2016	0	0	204,925	0	0	3	Atlas	65,576
CSO127	26-Apr-2016	26-Apr-2016	0	0	146,534	1	0	6	Atlas	49,822
CSO127	27-Apr-2016	27-Apr-2016	0	1	401,817	1	0	3	Atlas	265,199
CSO127	30-Apr-2016	30-Apr-2016	0	1	118,088	1	0	24	Atlas	63,768
CSO127	30-Apr-2016	30-Apr-2016	0	1	5,946	2	0	24	Atlas	3,211
CSO127	1-May-2016	1-May-2016	0	0	1,247,151	2	0	1	Atlas	411,560
CSO127	4-May-2016	4-May-2016	0	0	181,857	2	0	1	Atlas	34,553
CSO127	7-May-2016	7-May-2016	0	1	74,002	1	0	6	Atlas	42,921
CSO127	10-May-2016	10-May-2016	1	1	489,525	2	0	24	Atlas	509,106
CSO127	11-May-2016	11-May-2016	0	0	521,474	2	0	3	Atlas	109,509
CSO127	17-May-2016	17-May-2016	0	1	63,700	2	0	24	Atlas	35,035
CSO127	17-May-2016	17-May-2016	0	1	63,378	1	0	24	Atlas	34,858
CSO127	20-May-2016	20-May-2016	0	1	559,774	2	1	3	Atlas	526,188
CSO127	26-May-2016	26-May-2016	0	0	357,158	1	0	3	Atlas	75,003
CSO127	2-Jun-2016	2-Jun-2016	0	1	151,073	1	0	1	Atlas	77,047
CSO127	4-Jun-2016	4-Jun-2016	0	0	235,572	1	0	1	Atlas	35,336
CSO127	12-Jun-2016	12-Jun-2016	0	1	1,419,640	1	1	1	Atlas	851,784
CSO127	14-Jun-2016	14-Jun-2016	0	1	178,350	1	0	3	Atlas	121,278
CSO127	22-Jun-2016	22-Jun-2016	0	0	425,560	0	0	3	Atlas	127,668
CSO127	23-Jun-2016	23-Jun-2016	0	2	1,216,303	2	1	6	Atlas	2,055,552
CSO127 Count										73
CSO127 Total										23,259,762
CSO130	2-Jul-2015	2-Jul-2015	0	2	562	3	1	24	Atlas	938
CSO130	12-Jul-2015	12-Jul-2015	0	2	67,316	3	2	1	Atlas	117,802
CSO130	14-Jul-2015	14-Jul-2015	0	1	116,946	5	1	1	Atlas	79,523
CSO130	18-Jul-2015	18-Jul-2015	0	2	3,919	5	1	3	Atlas	6,035
CSO130	4-Aug-2015	4-Aug-2015	0	1	43,483	1	0	1	Atlas	22,611
CSO130	19-Aug-2015	19-Aug-2015	0	0	651	0	0	12	Atlas	221
CSO130	13-Oct-2015	13-Oct-2015	0	0	6,489	0	0	1	Atlas	2,076
CSO130	6-Nov-2015	6-Nov-2015	0	1	5,826	1	0	3	Atlas	4,311
CSO130	23-Dec-2015	23-Dec-2015	0	1	11,121	1	1	1	Atlas	9,230
CSO130	3-Feb-2016	3-Feb-2016	0	1	6,523	1	1	12	Atlas	9,720
CSO130	26-Apr-2016	26-Apr-2016	0	0	3,684	0	0	3	Atlas	958
CSO130	4-Jun-2016	4-Jun-2016	0	0	1,756	1	0	1	Atlas	544
CSO130	14-Jun-2016	14-Jun-2016	0	1	42,952	1	1	3	Atlas	34,791

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO130	23-Jun-2016	23-Jun-2016	0	2	21,051	2	2	6	Cloudburst	42,943
CSO130 Count										14
CSO130 Total										331,703
CSO131	2-Jul-2015	2-Jul-2015	0	2	63,997	3	1	24	Atlas	106,875
CSO131	12-Jul-2015	12-Jul-2015	0	2	117,342	3	2	1	Atlas	205,349
CSO131	14-Jul-2015	14-Jul-2015	0	1	104,779	5	1	1	Atlas	71,250
CSO131	17-Jul-2015	18-Jul-2015	0	2	99,083	5	1	3	Atlas	152,589
CSO131	4-Aug-2015	4-Aug-2015	0	1	126,971	1	0	1	Atlas	66,025
CSO131	5-Aug-2015	5-Aug-2015	0	0	17,800	1	0	1	Atlas	5,162
CSO131	19-Aug-2015	19-Aug-2015	0	0	9,580	0	0	12	Atlas	3,257
CSO131	5-Sep-2015	5-Sep-2015	0	0	31,419	0	0	1	Atlas	7,226
CSO131	9-Sep-2015	9-Sep-2015	0	0	99,982	1	0	1	Atlas	32,994
CSO131	6-Nov-2015	6-Nov-2015	0	1	48,142	1	0	3	Atlas	35,625
CSO131	18-Nov-2015	18-Nov-2015	0	1	33,920	2	1	6	Atlas	46,809
CSO131	23-Dec-2015	23-Dec-2015	0	1	128,765	1	1	1	Atlas	106,875
CSO131	27-Dec-2015	27-Dec-2015	0	2	50,052	3	1	3	Atlas	99,103
CSO131	2-Feb-2016	2-Feb-2016	0	1	23,909	1	1	12	Atlas	35,625
CSO131	24-Mar-2016	24-Mar-2016	0	0	75,174	0	0	1	Atlas	20,297
CSO131	27-Mar-2016	27-Mar-2016	0	1	86,520	1	1	3	Atlas	64,890
CSO131	27-Apr-2016	27-Apr-2016	0	1	12,468	1	0	12	Atlas	8,229
CSO131	10-May-2016	10-May-2016	0	1	62,880	1	0	24	Atlas	40,872
CSO131	2-Jun-2016	2-Jun-2016	0	0	60,009	0	0	1	Atlas	15,002
CSO131	4-Jun-2016	4-Jun-2016	0	0	39,014	1	0	1	Atlas	12,094
CSO131	12-Jun-2016	12-Jun-2016	0	0	221,462	0	0	1	Atlas	37,648
CSO131	14-Jun-2016	14-Jun-2016	0	1	87,963	1	1	3	Atlas	71,250
CSO131	22-Jun-2016	22-Jun-2016	0	0	39,661	0	0	3	Atlas	16,261
CSO131	23-Jun-2016	23-Jun-2016	0	2	82,120	2	2	6	Cloudburst	167,525
CSO131 Count										24
CSO131 Total										1,428,832
CSO132	2-Jul-2015	2-Jul-2015	0	2	114,885	2	1	24	Atlas	203,346
CSO132	2-Jul-2015	2-Jul-2015	0	2	4,058,979	3	1	24	Atlas	7,184,394
CSO132	3-Jul-2015	3-Jul-2015	0	0	237,242	3	0	6	Atlas	59,311
CSO132	7-Jul-2015	7-Jul-2015	0	1	987,027	3	0	6	Atlas	710,659
CSO132	8-Jul-2015	8-Jul-2015	0	1	378,473	3	0	6	Atlas	272,500
CSO132	8-Jul-2015	8-Jul-2015	0	1	503,885	3	0	6	Atlas	362,797
CSO132	9-Jul-2015	9-Jul-2015	0	0	1,478,722	2	0	1	Atlas	502,766

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO132	10-Jul-2015	10-Jul-2015	0	0	1,132,793	2	0	6	Atlas	407,805
CSO132	12-Jul-2015	12-Jul-2015	0	2	51,594	3	3	1	Atlas	95,964
CSO132	6-Nov-2015	6-Nov-2015	0	1	206,918	1	0	3	Atlas	163,465
CSO132	9-Nov-2015	9-Nov-2015	0	1	816,410	1	0	12	Atlas	449,025
CSO132	12-Nov-2015	12-Nov-2015	0	0	849,606	2	0	3	Atlas	263,378
CSO132	18-Nov-2015	18-Nov-2015	0	2	883,521	2	1	6	Atlas	1,334,117
CSO132	21-Nov-2015	21-Nov-2015	0	0	487,162	2	0	1	Atlas	43,845
CSO132	28-Nov-2015	28-Nov-2015	0	1	948,212	1	0	12	Atlas	597,374
CSO132	30-Nov-2015	1-Dec-2015	0	1	1,079,667	1	0	12	Atlas	734,174
CSO132	14-Dec-2015	14-Dec-2015	0	0	636,036	0	0	3	Atlas	152,649
CSO132	21-Dec-2015	21-Dec-2015	0	1	78,380	0	0	1	Atlas	52,514
CSO132	21-Dec-2015	22-Dec-2015	0	1	403,933	1	0	1	Atlas	270,635
CSO132	23-Dec-2015	24-Dec-2015	0	1	827,792	2	1	1	Atlas	670,512
CSO132	25-Dec-2015	25-Dec-2015	0	0	519,761	2	0	3	Atlas	57,174
CSO132	26-Dec-2015	26-Dec-2015	0	0	977,966	2	0	12	Atlas	332,509
CSO132	27-Dec-2015	31-Dec-2015	3	2	11,951,983	4	1	3	Atlas	23,425,887
CSO132	2-Feb-2016	3-Feb-2016	1	2	1,564,894	2	1	12	Atlas	2,362,990
CSO132	21-Feb-2016	21-Feb-2016	0	1	1,089,737	1	0	12	Atlas	1,024,353
CSO132	23-Feb-2016	25-Feb-2016	1	2	7,034,631	3	1	12	Atlas	13,998,916
CSO132	1-Mar-2016	1-Mar-2016	0	0	4,155,814	2	0	3	Atlas	1,412,977
CSO132	9-Mar-2016	9-Mar-2016	0	1	291,392	0	0	48	Atlas	326,359
CSO132	10-Mar-2016	10-Mar-2016	0	1	2,583,145	1	0	48	Atlas	2,893,123
CSO132	12-Mar-2016	13-Mar-2016	0	1	1,001,465	2	0	24	Atlas	811,187
CSO132	13-Mar-2016	13-Mar-2016	0	1	2,904,440	2	0	24	Atlas	2,352,596
CSO132	24-Mar-2016	24-Mar-2016	0	0	5,600,741	0	0	1	Atlas	1,624,215
CSO132	27-Mar-2016	27-Mar-2016	0	1	305,650	1	0	3	Atlas	223,124
CSO132	31-Mar-2016	1-Apr-2016	1	1	706,575	2	0	24	Atlas	699,509
CSO132	31-Mar-2016	1-Apr-2016	1	1	706,575	2	0	24	Atlas	699,509
CSO132	11-Apr-2016	11-Apr-2016	0	1	854,707	1	0	6	Atlas	735,048
CSO132	21-Apr-2016	21-Apr-2016	0	0	346,794	0	0	3	Atlas	104,038
CSO132	22-Apr-2016	22-Apr-2016	0	0	24,804	0	0	3	Atlas	7,441
CSO132	26-Apr-2016	26-Apr-2016	0	0	142,640	1	0	6	Atlas	48,497
CSO132	27-Apr-2016	27-Apr-2016	0	1	253,919	1	0	3	Atlas	159,969
CSO132	30-Apr-2016	30-Apr-2016	0	0	239,550	1	0	6	Atlas	119,775
CSO132	30-Apr-2016	30-Apr-2016	0	0	45,952	1	0	6	Atlas	22,976
CSO132	1-May-2016	1-May-2016	0	0	88,363	2	0	3	Atlas	17,673

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO132	4-May-2016	4-May-2016	0	0	246,310	1	0	3	Atlas	41,873
CSO132	7-May-2016	7-May-2016	0	1	316,993	1	0	6	Atlas	161,666
CSO132	10-May-2016	10-May-2016	1	1	763,291	1	0	24	Atlas	572,468
CSO132	11-May-2016	11-May-2016	0	0	470,473	1	0	3	Atlas	89,390
CSO132	17-May-2016	17-May-2016	0	1	54,006	1	0	24	Atlas	32,944
CSO132	17-May-2016	17-May-2016	0	1	87,259	1	0	24	Atlas	53,228
CSO132	20-May-2016	20-May-2016	0	1	1,002,517	1	0	3	Atlas	661,661
CSO132	26-May-2016	26-May-2016	0	0	855,653	1	0	3	Atlas	188,244
CSO132	2-Jun-2016	2-Jun-2016	0	0	300,565	0	0	1	Atlas	84,158
CSO132	4-Jun-2016	4-Jun-2016	0	0	792,711	1	0	3	Atlas	214,032
CSO132	12-Jun-2016	12-Jun-2016	0	0	7,940,635	0	0	1	Atlas	1,429,314
CSO132	14-Jun-2016	14-Jun-2016	0	1	1,208,702	1	1	3	Atlas	1,087,832
CSO132	15-Jun-2016	15-Jun-2016	0	0	245,943	1	0	1	Atlas	31,973
CSO132	22-Jun-2016	22-Jun-2016	0	0	89,701	1	0	3	Atlas	34,983
CSO132	23-Jun-2016	23-Jun-2016	0	2	1,990,557	2	1	6	Cloudburst	3,722,342
CSO132 Count										58
CSO132 Total										76,397,183
CSO137	2-Jul-2015	2-Jul-2015	0	1	4,888	2	0	3	Atlas	3,617
CSO137	2-Jul-2015	2-Jul-2015	0	1	78,340	2	0	3	Atlas	57,972
CSO137	3-Jul-2015	3-Jul-2015	0	0	80,489	2	0	1	Atlas	24,147
CSO137	7-Jul-2015	7-Jul-2015	0	1	82,162	2	0	6	Atlas	55,870
CSO137	9-Jul-2015	9-Jul-2015	0	0	52,055	1	0	3	Atlas	10,932
CSO137	10-Jul-2015	10-Jul-2015	0	1	198,956	2	0	6	Atlas	133,300
CSO137	12-Jul-2015	12-Jul-2015	0	1	352,000	3	1	1	Atlas	316,800
CSO137	13-Jul-2015	13-Jul-2015	0	0	120,877	3	0	1	Atlas	48,351
CSO137	14-Jul-2015	14-Jul-2015	0	0	247,660	3	0	1	Atlas	123,830
CSO137	17-Jul-2015	18-Jul-2015	0	1	134,808	3	1	3	Atlas	117,283
CSO137	6-Aug-2015	6-Aug-2015	0	1	74,422	1	0	24	Atlas	80,375
CSO137	19-Aug-2015	19-Aug-2015	0	1	4,921	0	0	1	Atlas	3,199
CSO137	19-Aug-2015	19-Aug-2015	0	1	52,706	1	0	1	Atlas	34,259
CSO137	7-Sep-2015	7-Sep-2015	0	1	60,442	1	1	1	Atlas	63,464
CSO137	9-Sep-2015	9-Sep-2015	0	0	21,718	1	0	1	Atlas	2,172
CSO137	29-Sep-2015	29-Sep-2015	0	1	353	1	0	48	Atlas	360
CSO137	12-Oct-2015	12-Oct-2015	0	0	97,478	0	0	3	Atlas	28,268
CSO137	27-Oct-2015	28-Oct-2015	1	3	56,556	3	1	48	Atlas	151,571
CSO137	28-Oct-2015	28-Oct-2015	0	0	6,232	3	0	6	Atlas	935

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO137	6-Nov-2015	6-Nov-2015	0	1	376,548	1	0	3	Atlas	248,522
CSO137 Count										20
CSO137 Total										1,505,227
CSO140	2-Jul-2015	2-Jul-2015	0	2	270	2	1	24	Atlas	413
CSO140	2-Jul-2015	2-Jul-2015	0	2	270,597	3	1	24	Atlas	414,013
CSO140	7-Jul-2015	7-Jul-2015	0	1	22,407	2	0	6	Atlas	16,133
CSO140	8-Jul-2015	8-Jul-2015	0	0	116,074	3	0	1	Atlas	11,607
CSO140	9-Jul-2015	9-Jul-2015	0	0	57,137	2	0	12	Atlas	16,570
CSO140	10-Jul-2015	10-Jul-2015	0	0	43,004	2	0	6	Atlas	19,352
CSO140	12-Jul-2015	12-Jul-2015	0	1	934,860	3	1	1	Atlas	1,271,409
CSO140	13-Jul-2015	14-Jul-2015	1	0	1,614,815	4	0	1	Atlas	791,259
CSO140	14-Jul-2015	14-Jul-2015	0	0	1,314,715	4	0	1	Atlas	236,649
CSO140	17-Jul-2015	18-Jul-2015	0	1	599,306	4	1	3	Atlas	839,028
CSO140	4-Aug-2015	4-Aug-2015	0	0	613,040	0	0	1	Atlas	214,564
CSO140	5-Aug-2015	5-Aug-2015	0	1	22,090	1	0	24	Atlas	19,881
CSO140	6-Aug-2015	6-Aug-2015	1	1	96,716	1	0	24	Atlas	87,044
CSO140	19-Aug-2015	19-Aug-2015	0	0	230,870	0	0	12	Atlas	87,731
CSO140	19-Aug-2015	19-Aug-2015	0	0	34,408	1	0	12	Atlas	13,075
CSO140	5-Sep-2015	5-Sep-2015	0	0	107,547	0	0	1	Atlas	30,113
CSO140	9-Sep-2015	9-Sep-2015	0	0	182,214	1	0	1	Atlas	47,376
CSO140	11-Sep-2015	11-Sep-2015	0	0	487	1	0	3	Atlas	93
CSO140	12-Oct-2015	12-Oct-2015	0	0	21,957	0	0	3	Atlas	6,148
CSO140	27-Oct-2015	28-Oct-2015	0	3	135,208	3	1	24	Atlas	339,373
CSO140	28-Oct-2015	28-Oct-2015	0	0	43,272	3	0	6	Atlas	7,356
CSO140	6-Nov-2015	6-Nov-2015	0	1	77,228	1	1	3	Atlas	65,643
CSO140	18-Nov-2015	18-Nov-2015	0	2	126,660	2	1	6	Atlas	191,257
CSO140	21-Dec-2015	22-Dec-2015	0	1	124,831	1	0	1	Atlas	73,650
CSO140	23-Dec-2015	23-Dec-2015	0	1	445,055	2	1	1	Atlas	387,198
CSO140	26-Dec-2015	26-Dec-2015	0	0	64,895	2	0	12	Atlas	18,171
CSO140	27-Dec-2015	28-Dec-2015	1	2	475,354	3	1	3	Atlas	979,230
CSO140	28-Dec-2015	28-Dec-2015	0	2	13,879	4	1	3	Atlas	28,591
CSO140	2-Feb-2016	3-Feb-2016	0	1	221,910	2	1	6	Atlas	321,769
CSO140	21-Feb-2016	21-Feb-2016	0	1	69,656	1	0	12	Atlas	74,532
CSO140	23-Feb-2016	24-Feb-2016	0	2	176,216	3	1	12	Atlas	368,290
CSO140	1-Mar-2016	1-Mar-2016	0	0	40,033	2	0	3	Atlas	11,610
CSO140	10-Mar-2016	10-Mar-2016	0	1	47,792	1	0	12	Atlas	52,571

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO140	12-Mar-2016	12-Mar-2016	0	1	54,114	2	0	24	Atlas	46,538
CSO140	13-Mar-2016	13-Mar-2016	0	1	62,866	2	0	24	Atlas	54,065
CSO140	24-Mar-2016	24-Mar-2016	0	0	80,084	1	0	1	Atlas	36,838
CSO140	27-Mar-2016	27-Mar-2016	0	1	352,860	1	1	1	Atlas	289,345
CSO140	31-Mar-2016	31-Mar-2016	0	1	5,080	2	0	24	Atlas	5,131
CSO140	31-Mar-2016	31-Mar-2016	0	1	5,080	2	0	24	Atlas	5,131
CSO140	31-Mar-2016	31-Mar-2016	0	1	25,845	2	0	24	Atlas	26,103
CSO140	31-Mar-2016	31-Mar-2016	0	1	25,845	2	0	24	Atlas	26,103
CSO140	11-Apr-2016	11-Apr-2016	0	1	68,639	1	0	12	Atlas	65,894
CSO140	26-Apr-2016	26-Apr-2016	0	0	56,954	1	0	6	Atlas	26,768
CSO140	27-Apr-2016	27-Apr-2016	0	1	202,327	1	0	12	Atlas	115,327
CSO140	30-Apr-2016	30-Apr-2016	0	0	12,696	1	0	6	Atlas	6,348
CSO140	1-May-2016	1-May-2016	0	0	5,287	2	0	3	Atlas	1,269
CSO140	10-May-2016	10-May-2016	0	1	241,861	2	0	24	Atlas	154,791
CSO140	20-May-2016	20-May-2016	0	1	96,239	1	0	3	Atlas	55,819
CSO140	26-May-2016	26-May-2016	0	0	30,715	1	0	3	Atlas	6,143
CSO140	2-Jun-2016	2-Jun-2016	0	0	107,624	0	0	1	Atlas	38,745
CSO140	4-Jun-2016	4-Jun-2016	0	0	703,309	1	0	3	Atlas	133,629
CSO140	12-Jun-2016	12-Jun-2016	0	0	1,348,230	0	0	1	Atlas	202,235
CSO140	14-Jun-2016	14-Jun-2016	0	1	199,646	1	0	3	Atlas	147,738
CSO140	22-Jun-2016	22-Jun-2016	0	0	62,294	0	0	3	Atlas	16,197
CSO140	23-Jun-2016	23-Jun-2016	0	2	445,141	2	1	6	Cloudburst	863,573
CSO140 Count										55
CSO140 Total										9,365,429
CSO141	2-Jul-2015	2-Jul-2015	0	2	82,477	3	1	24	Atlas	136,912
CSO141	7-Jul-2015	7-Jul-2015	0	1	137,785	3	0	6	Atlas	119,873
CSO141	12-Jul-2015	12-Jul-2015	0	1	137,084	3	1	1	Atlas	185,063
CSO141	14-Jul-2015	14-Jul-2015	0	1	68,936	4	1	1	Atlas	50,323
CSO141	17-Jul-2015	18-Jul-2015	0	2	111,374	4	1	3	Atlas	178,199
CSO141	4-Aug-2015	4-Aug-2015	0	0	69,296	1	0	1	Atlas	30,490
CSO141	5-Aug-2015	6-Aug-2015	1	1	161,456	1	0	24	Atlas	124,321
CSO141	19-Aug-2015	19-Aug-2015	0	0	47,677	0	0	24	Atlas	13,350
CSO141	5-Sep-2015	5-Sep-2015	0	0	7,383	0	0	1	Atlas	886
CSO141	9-Sep-2015	9-Sep-2015	0	0	96,458	1	0	1	Atlas	26,044
CSO141	11-Sep-2015	11-Sep-2015	0	0	7,346	1	0	1	Atlas	1,396
CSO141 Count										11

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO141 Total										866,857
CSO142	2-Jul-2015	2-Jul-2015	0	1	36,745	3	0	3	Atlas	34,173
CSO142	3-Jul-2015	3-Jul-2015	0	0	119,322	2	0	1	Atlas	39,376
CSO142	7-Jul-2015	7-Jul-2015	0	1	15,896	2	0	6	Atlas	11,445
CSO142	12-Jul-2015	12-Jul-2015	0	1	141,384	2	1	1	Atlas	118,763
CSO142	13-Jul-2015	13-Jul-2015	0	0	69,906	3	0	1	Atlas	17,477
CSO142	14-Jul-2015	14-Jul-2015	0	1	204,624	3	0	1	Atlas	108,451
CSO142	17-Jul-2015	18-Jul-2015	0	1	51,267	3	1	3	Atlas	48,191
CSO142	6-Aug-2015	6-Aug-2015	1	1	16,156	1	0	24	Atlas	11,471
CSO142	19-Aug-2015	19-Aug-2015	0	1	3,403	0	0	1	Atlas	1,838
CSO142	19-Aug-2015	19-Aug-2015	0	1	1,702	1	0	1	Atlas	919
CSO142	9-Sep-2015	9-Sep-2015	0	0	5,577	0	0	1	Atlas	1,171
CSO142	12-Oct-2015	12-Oct-2015	0	0	4,084	0	0	3	Atlas	1,021
CSO142	6-Nov-2015	6-Nov-2015	0	1	47,514	1	0	3	Atlas	36,586
CSO142	12-Nov-2015	12-Nov-2015	0	0	8,574	1	0	3	Atlas	2,486
CSO142	18-Nov-2015	18-Nov-2015	0	1	18,437	2	1	6	Atlas	26,180
CSO142	1-Dec-2015	1-Dec-2015	0	1	3,725	2	0	12	Atlas	2,757
CSO142	22-Dec-2015	22-Dec-2015	0	1	7,766	1	0	6	Atlas	3,960
CSO142	23-Dec-2015	23-Dec-2015	0	1	62,644	1	1	1	Atlas	47,610
CSO142	27-Dec-2015	27-Dec-2015	0	2	27,029	3	1	3	Atlas	50,004
CSO142	2-Feb-2016	3-Feb-2016	0	1	29,621	1	1	6	Atlas	35,842
CSO142	21-Feb-2016	21-Feb-2016	0	1	16,470	1	1	12	Atlas	17,953
CSO142	12-Mar-2016	12-Mar-2016	0	1	32,411	2	0	24	Atlas	27,549
CSO142	24-Mar-2016	24-Mar-2016	0	1	8,835	1	0	1	Atlas	5,301
CSO142	27-Mar-2016	27-Mar-2016	0	1	62,218	1	1	1	Atlas	52,885
CSO142	11-Apr-2016	11-Apr-2016	0	1	1,722	1	0	6	Atlas	1,567
CSO142	21-Apr-2016	21-Apr-2016	0	0	8,221	0	0	3	Atlas	2,384
CSO142	27-Apr-2016	27-Apr-2016	0	1	14,691	1	0	1	Atlas	9,402
CSO142	1-May-2016	1-May-2016	0	0	9,588	2	0	3	Atlas	2,685
CSO142	7-May-2016	7-May-2016	0	1	1,559	1	0	6	Atlas	1,309
CSO142	20-May-2016	20-May-2016	0	1	1,823	1	0	3	Atlas	1,039
CSO142	2-Jun-2016	2-Jun-2016	0	0	43,531	1	0	1	Atlas	20,024
CSO142	4-Jun-2016	4-Jun-2016	0	0	127,388	1	0	1	Atlas	15,287
CSO142	12-Jun-2016	12-Jun-2016	0	0	65,172	0	0	1	Atlas	16,945
CSO142	14-Jun-2016	14-Jun-2016	0	1	18,173	1	0	3	Atlas	11,631
CSO142	23-Jun-2016	23-Jun-2016	0	2	73,486	2	1	6	Atlas	117,578

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO142 Count										35
CSO142 Total										903,260
CSO144	2-Jul-2015	2-Jul-2015	0	2	1,245	3	1	24	Atlas	1,929
CSO144	12-Jul-2015	12-Jul-2015	0	1	4,680	3	1	1	Atlas	6,879
CSO144	14-Jul-2015	14-Jul-2015	0	1	2,517	4	0	1	Atlas	1,435
CSO144	14-Jul-2015	14-Jul-2015	0	0	4,595	4	0	1	Atlas	827
CSO144	18-Jul-2015	18-Jul-2015	0	1	3,707	4	1	3	Atlas	5,375
CSO144	4-Aug-2015	4-Aug-2015	0	0	6,799	0	0	1	Atlas	2,312
CSO144	5-Aug-2015	5-Aug-2015	0	1	1,450	1	0	24	Atlas	1,392
CSO144	19-Aug-2015	19-Aug-2015	0	1	3,672	0	0	1	Atlas	1,946
CSO144	23-Dec-2015	23-Dec-2015	0	1	4,151	1	1	1	Atlas	3,778
CSO144	27-Dec-2015	27-Dec-2015	0	2	382	3	1	3	Atlas	814
CSO144	27-Dec-2015	27-Dec-2015	0	2	1	3	1	3	Atlas	1
CSO144	27-Mar-2016	27-Mar-2016	0	1	1,954	1	1	3	Atlas	1,641
CSO144	10-May-2016	10-May-2016	0	1	58	2	0	24	Atlas	41
CSO144	12-Jun-2016	12-Jun-2016	0	0	10,679	0	0	1	Atlas	2,029
CSO144	23-Jun-2016	23-Jun-2016	0	2	2,119	2	1	6	Cloudburst	4,174
CSO144 Count										15
CSO144 Total										34,573
CSO146	1-Jul-2015	1-Jul-2015	0	0	1,696,281	2	0	1	Atlas	84,814
CSO146	2-Jul-2015	2-Jul-2015	0	1	1,275,534	2	0	3	Atlas	1,186,247
CSO146	2-Jul-2015	2-Jul-2015	0	1	594,156	3	0	3	Atlas	552,565
CSO146	3-Jul-2015	3-Jul-2015	0	0	1,995,022	2	0	1	Atlas	658,357
CSO146	7-Jul-2015	7-Jul-2015	0	1	1,778,660	2	0	6	Atlas	1,280,635
CSO146	9-Jul-2015	9-Jul-2015	0	0	1,023,548	2	0	3	Atlas	378,713
CSO146	10-Jul-2015	10-Jul-2015	0	0	2,445,977	2	0	6	Atlas	1,125,150
CSO146	12-Jul-2015	12-Jul-2015	0	1	3,802,269	2	1	1	Atlas	3,193,906
CSO146	13-Jul-2015	13-Jul-2015	0	0	3,271,665	3	0	1	Atlas	817,916
CSO146	14-Jul-2015	14-Jul-2015	0	1	3,368,518	3	0	1	Atlas	1,785,315
CSO146	14-Jul-2015	14-Jul-2015	0	0	11,664,085	3	0	1	Atlas	349,923
CSO146	17-Jul-2015	18-Jul-2015	0	1	4,619,322	3	1	3	Atlas	4,342,163
CSO146	6-Aug-2015	6-Aug-2015	1	1	2,051,219	1	0	24	Atlas	1,456,366
CSO146	10-Aug-2015	10-Aug-2015	0	0	880,634	1	0	1	Atlas	52,838
CSO146	19-Aug-2015	19-Aug-2015	0	1	2,466,296	0	0	1	Atlas	1,331,800
CSO146	19-Aug-2015	19-Aug-2015	0	1	204,990	1	0	1	Atlas	110,694
CSO146	29-Sep-2015	29-Sep-2015	0	1	62,594	1	0	48	Atlas	50,701

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO146	2-Oct-2015	2-Oct-2015	0	1	690,088	1	0	6	Atlas	441,656
CSO146	12-Oct-2015	12-Oct-2015	0	0	837,548	0	0	3	Atlas	209,387
CSO146	24-Oct-2015	24-Oct-2015	0	0	86,608	0	0	3	Atlas	27,715
CSO146	27-Oct-2015	28-Oct-2015	1	2	1,783,549	3	1	24	Atlas	4,155,669
CSO146	28-Oct-2015	28-Oct-2015	0	0	844,234	3	0	6	Atlas	143,520
CSO146	31-Oct-2015	1-Nov-2015	0	0	122,910	3	0	3	Atlas	20,895
CSO146	6-Nov-2015	6-Nov-2015	0	1	2,775,378	1	0	3	Atlas	2,137,041
CSO146	9-Nov-2015	9-Nov-2015	0	0	254,931	1	0	12	Atlas	127,466
CSO146	12-Nov-2015	12-Nov-2015	0	0	1,773,594	2	0	3	Atlas	514,342
CSO146	18-Nov-2015	18-Nov-2015	0	1	1,948,079	2	1	6	Atlas	2,766,272
CSO146	28-Nov-2015	28-Nov-2015	0	1	434,408	1	0	12	Atlas	321,462
CSO146	30-Nov-2015	1-Dec-2015	0	1	1,009,599	2	0	12	Atlas	747,103
CSO146	14-Dec-2015	14-Dec-2015	0	0	240,192	0	0	6	Atlas	57,646
CSO146	21-Dec-2015	21-Dec-2015	0	0	90,565	0	0	6	Atlas	16,302
CSO146	21-Dec-2015	22-Dec-2015	0	1	1,402,117	1	0	6	Atlas	715,080
CSO146	23-Dec-2015	23-Dec-2015	0	1	3,956,696	2	1	1	Atlas	3,007,089
CSO146	25-Dec-2015	25-Dec-2015	0	0	398,160	2	0	6	Atlas	43,798
CSO146	26-Dec-2015	26-Dec-2015	0	0	1,579,650	2	0	12	Atlas	537,081
CSO146	27-Dec-2015	28-Dec-2015	1	2	5,130,133	4	1	3	Atlas	9,490,746
CSO146	2-Feb-2016	3-Feb-2016	0	1	2,378,421	1	1	6	Atlas	2,877,889
CSO146 Count										37
CSO146 Total										47,116,262
CSO148	1-Jul-2015	1-Jul-2015	0	0	2,933	2	0	1	Atlas	176
CSO148	2-Jul-2015	2-Jul-2015	0	1	52,112	2	0	3	Atlas	38,563
CSO148	2-Jul-2015	2-Jul-2015	0	1	32,170	2	0	3	Atlas	23,806
CSO148	3-Jul-2015	3-Jul-2015	0	0	71,645	2	0	1	Atlas	21,493
CSO148	7-Jul-2015	7-Jul-2015	0	1	76,668	2	0	6	Atlas	52,134
CSO148	9-Jul-2015	9-Jul-2015	0	0	54,674	1	0	3	Atlas	11,481
CSO148	10-Jul-2015	10-Jul-2015	0	1	59,958	2	0	6	Atlas	40,172
CSO148	12-Jul-2015	12-Jul-2015	0	1	203,746	3	1	1	Atlas	183,371
CSO148	13-Jul-2015	13-Jul-2015	0	0	37,730	3	0	1	Atlas	15,092
CSO148	14-Jul-2015	14-Jul-2015	0	0	151,286	3	0	1	Atlas	75,643
CSO148	17-Jul-2015	18-Jul-2015	0	1	137,473	3	1	3	Atlas	119,601
CSO148	23-Jul-2015	23-Jul-2015	0			1				3,725
CSO148	28-Jul-2015	28-Jul-2015	0	0	7,930	0	0	1	Atlas	238
CSO148	29-Jul-2015	29-Jul-2015	0	0	32,565	0	0	1	Atlas	1,954

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO148	4-Aug-2015	4-Aug-2015	0	0	22,270	0	0	1	Atlas	4,009
CSO148	5-Aug-2015	5-Aug-2015	0	1	763	0	0	24	Atlas	824
CSO148	6-Aug-2015	6-Aug-2015	1	1	68,496	1	0	24	Atlas	73,976
CSO148	10-Aug-2015	10-Aug-2015	0	0	21,522	1	0	1	Atlas	1,937
CSO148	19-Aug-2015	19-Aug-2015	0	1	28,702	0	0	1	Atlas	18,656
CSO148	19-Aug-2015	19-Aug-2015	0	1	13,126	1	0	1	Atlas	8,532
CSO148	7-Sep-2015	7-Sep-2015	0	1	18,439	1	1	1	Atlas	19,361
CSO148	9-Sep-2015	9-Sep-2015	0	0	19,334	1	0	1	Atlas	1,933
CSO148	29-Sep-2015	29-Sep-2015	0	1	974	1	0	48	Atlas	993
CSO148	2-Oct-2015	2-Oct-2015	0	1	7,277	2	0	6	Atlas	4,366
CSO148	6-Nov-2015	6-Nov-2015	0	1	116,801	1	0	3	Atlas	77,089
CSO148	12-Nov-2015	12-Nov-2015	0	0	110,641	1	0	3	Atlas	34,299
CSO148	18-Nov-2015	18-Nov-2015	0	2	48,101	2	1	6	Atlas	91,873
CSO148	30-Nov-2015	1-Dec-2015	0	1	14,704	2	0	12	Atlas	10,881
CSO148	21-Dec-2015	22-Dec-2015	0	1	36,454	1	0	6	Atlas	28,434
CSO148	23-Dec-2015	23-Dec-2015	0	1	233,953	2	1	1	Atlas	222,255
CSO148	27-Dec-2015	27-Dec-2015	0	2	102,948	4	1	48	Atlas	228,544
CSO148	28-Dec-2015	28-Dec-2015	0	2	1,040	4	1	48	Atlas	2,308
CSO148	21-Feb-2016	21-Feb-2016	0	1	57,165	1	0	12	Atlas	48,018
CSO148	23-Feb-2016	24-Feb-2016	0	2	40,194	3	1	12	Atlas	84,407
CSO148	1-Mar-2016	1-Mar-2016	0	0	7,492	2	0	3	Atlas	2,697
CSO148	10-Mar-2016	10-Mar-2016	0	1	5,431	1	0	12	Atlas	6,083
CSO148	12-Mar-2016	12-Mar-2016	0	1	1,052	2	0	24	Atlas	947
CSO148	13-Mar-2016	13-Mar-2016	0	1	11,024	2	0	24	Atlas	9,921
CSO148	24-Mar-2016	24-Mar-2016	0	0	83,962	1	0	1	Atlas	36,943
CSO148	27-Mar-2016	27-Mar-2016	0	1	97,679	1	1	3	Atlas	84,004
CSO148	31-Mar-2016	31-Mar-2016	0	1	1,833	2	0	24	Atlas	2,108
CSO148	31-Mar-2016	31-Mar-2016	0	1	1,833	2	0	24	Atlas	2,108
CSO148	31-Mar-2016	31-Mar-2016	0	1	15,391	2	0	24	Atlas	17,699
CSO148	31-Mar-2016	31-Mar-2016	0	1	15,391	2	0	24	Atlas	17,699
CSO148	11-Apr-2016	11-Apr-2016	0	1	15,849	1	0	6	Atlas	12,838
CSO148	21-Apr-2016	21-Apr-2016	0	0	218	0	0	3	Atlas	76
CSO148	27-Apr-2016	27-Apr-2016	0	1	14,373	1	0	3	Atlas	8,624
CSO148	30-Apr-2016	30-Apr-2016	0	0	88	1	0	24	Atlas	44
CSO148	1-May-2016	1-May-2016	0	0	42,421	2	0	1	Atlas	20,362
CSO148	7-May-2016	7-May-2016	0	1	826	1	0	6	Atlas	487

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO148	10-May-2016	10-May-2016	0	1	79,024	1	0	24	Atlas	53,736
CSO148	20-May-2016	20-May-2016	0	1	28,408	1	0	3	Atlas	22,442
CSO148	2-Jun-2016	2-Jun-2016	0	1	24,983	1	0	1	Atlas	12,991
CSO148	12-Jun-2016	12-Jun-2016	0	0	19,392	0	0	1	Atlas	9,308
CSO148	14-Jun-2016	14-Jun-2016	0	1	15,348	1	0	3	Atlas	9,669
CSO148	23-Jun-2016	23-Jun-2016	0	2	142,052	2	1	6	Atlas	242,909
CSO148 Count										56
CSO148 Total										2,123,839
CSO149	2-Jul-2015	2-Jul-2015	0	1	1,180,924	2	0	3	Atlas	1,098,259
CSO149	2-Jul-2015	2-Jul-2015	0	1	1,104,222	3	0	3	Atlas	1,026,927
CSO149	3-Jul-2015	3-Jul-2015	0	0	2,311,680	2	0	1	Atlas	762,854
CSO149	7-Jul-2015	7-Jul-2015	0	1	2,256,604	2	0	6	Atlas	1,624,755
CSO149	8-Jul-2015	8-Jul-2015	0	0	356,094	2	0	1	Atlas	32,049
CSO149	9-Jul-2015	9-Jul-2015	0	0	536,928	2	0	3	Atlas	198,663
CSO149	10-Jul-2015	10-Jul-2015	0	0	905,004	2	0	6	Atlas	416,302
CSO149	12-Jul-2015	12-Jul-2015	1	1	5,286,767	3	1	1	Atlas	4,440,884
CSO149	13-Jul-2015	13-Jul-2015	0	0	3,206,688	3	0	1	Atlas	801,672
CSO149	14-Jul-2015	14-Jul-2015	1	1	3,345,650	3	0	1	Atlas	1,773,194
CSO149	17-Jul-2015	18-Jul-2015	0	1	4,660,406	3	1	3	Atlas	4,380,781
CSO149	4-Aug-2015	4-Aug-2015	0	0	275,887	0	0	1	Atlas	27,589
CSO149	5-Aug-2015	5-Aug-2015	0	0	576,980	0	0	1	Atlas	51,928
CSO149	6-Aug-2015	6-Aug-2015	1	1	3,260,558	1	0	24	Atlas	2,314,996
CSO149	10-Aug-2015	10-Aug-2015	0	0	467,680	1	0	1	Atlas	28,061
CSO149	15-Aug-2015	15-Aug-2015	0	0	370,535	0	0	1	Atlas	48,170
CSO149	19-Aug-2015	19-Aug-2015	0	1	2,834,933	1	0	1	Atlas	1,530,864
CSO149	29-Sep-2015	29-Sep-2015	0	1	4,422	1	0	48	Atlas	3,582
CSO149	2-Oct-2015	2-Oct-2015	0	1	230,582	1	0	6	Atlas	147,572
CSO149	12-Oct-2015	12-Oct-2015	0	0	1,224,195	0	0	3	Atlas	306,049
CSO149	27-Oct-2015	28-Oct-2015	1	2	1,746,691	3	1	24	Atlas	4,069,790
CSO149	28-Oct-2015	28-Oct-2015	0	0	7,173	3	0	6	Atlas	1,219
CSO149	6-Nov-2015	6-Nov-2015	0	1	2,215,985	1	0	3	Atlas	1,706,309
CSO149	9-Nov-2015	9-Nov-2015	0	0	185,793	1	0	12	Atlas	92,897
CSO149	12-Nov-2015	12-Nov-2015	0	0	3,095,913	2	0	3	Atlas	897,815
CSO149	18-Nov-2015	18-Nov-2015	1	1	3,517,035	2	1	6	Atlas	4,994,189
CSO149	28-Nov-2015	28-Nov-2015	0	1	246,588	1	0	12	Atlas	182,475
CSO149	30-Nov-2015	1-Dec-2015	0	1	2,497,206	2	0	12	Atlas	1,847,933

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO149	14-Dec-2015	14-Dec-2015	0	0	245,534	0	0	6	Atlas	58,928
CSO149	21-Dec-2015	22-Dec-2015	0	1	2,486,210	1	0	6	Atlas	1,267,967
CSO149	23-Dec-2015	23-Dec-2015	0	1	2,506,250	2	1	1	Atlas	1,904,750
CSO149	27-Dec-2015	28-Dec-2015	1	2	296,699	3	1	3	Atlas	548,893
CSO149	28-Dec-2015	28-Dec-2015	0	2	1,302	4	1	3	Atlas	2,408
CSO149	2-Feb-2016	3-Feb-2016	0	1	211,674	1	1	6	Atlas	256,126
CSO149	21-Feb-2016	21-Feb-2016	0	1	13,017	1	1	12	Atlas	14,188
CSO149	23-Feb-2016	24-Feb-2016	1	2	133,599	3	1	12	Atlas	277,886
CSO149	1-Mar-2016	1-Mar-2016	0	0	10,864	2	0	3	Atlas	2,933
CSO149	9-Mar-2016	9-Mar-2016	0	1	56	0	0	48	Atlas	63
CSO149	10-Mar-2016	10-Mar-2016	0	1	47,653	1	0	48	Atlas	53,371
CSO149	12-Mar-2016	13-Mar-2016	0	1	39,817	2	0	24	Atlas	33,844
CSO149	13-Mar-2016	13-Mar-2016	0	1	13,833	2	0	24	Atlas	11,758
CSO149	24-Mar-2016	24-Mar-2016	0	1	12,670	1	0	1	Atlas	7,602
CSO149	27-Mar-2016	27-Mar-2016	0	1	47,948	1	1	1	Atlas	40,756
CSO149	31-Mar-2016	1-Apr-2016	0	1	6,797	2	0	24	Atlas	8,021
CSO149	31-Mar-2016	31-Mar-2016	0	1	6,518	2	0	24	Atlas	7,691
CSO149 Count										45
CSO149 Total										39,304,963
CSO150	2-Jul-2015	2-Jul-2015	0	3	18,419	4	1	1	Atlas	47,336
CSO150	10-Jul-2015	10-Jul-2015	0	0	20,530	2	0	6	Atlas	8,828
CSO150	12-Jul-2015	12-Jul-2015	0	1	121,817	3	1	1	Atlas	133,999
CSO150	13-Jul-2015	13-Jul-2015	0	0	54,571	3	0	1	Atlas	25,648
CSO150	14-Jul-2015	14-Jul-2015	0	1	71,599	4	1	1	Atlas	70,883
CSO150	17-Jul-2015	18-Jul-2015	0	2	131,419	4	2	3	Atlas	218,156
CSO150	4-Aug-2015	4-Aug-2015	0	1	13,691	1	0	1	Atlas	7,530
CSO150	5-Aug-2015	5-Aug-2015	0	0	1,272	1	0	1	Atlas	394
CSO150	24-Oct-2015	24-Oct-2015	0	0	24,859	0	0	6	Atlas	7,706
CSO150	27-Oct-2015	28-Oct-2015	1	3	217,404	3	1	24	Atlas	554,380
CSO150	6-Nov-2015	6-Nov-2015	0	1	97,025	1	1	3	Atlas	92,173
CSO150	18-Nov-2015	18-Nov-2015	0	1	236,242	2	1	6	Atlas	295,303
CSO150	1-Dec-2015	1-Dec-2015	0	1	26,477	2	0	12	Atlas	17,475
CSO150	14-Dec-2015	14-Dec-2015	0	0	2,907	0	0	6	Atlas	756
CSO150	23-Dec-2015	23-Dec-2015	0	1	149,459	1	1	1	Atlas	110,600
CSO150	26-Dec-2015	26-Dec-2015	0	1	18,407	2	0	3	Atlas	9,940
CSO150	27-Dec-2015	28-Dec-2015	1	2	190,980	4	1	6	Atlas	422,065

There are known issues with the flow monitoring data quality.
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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO150	28-Dec-2015	28-Dec-2015	0	2	40,637	4	1	6	Atlas	89,808
CSO150	2-Feb-2016	3-Feb-2016	0	1	166,454	2	1	6	Atlas	248,016
CSO150	21-Feb-2016	21-Feb-2016	0	1	53,085	1	0	12	Atlas	45,653
CSO150	24-Feb-2016	24-Feb-2016	0	2	252,482	2	1	24	Atlas	479,716
CSO150	10-Mar-2016	10-Mar-2016	0	1	94,480	1	0	12	Atlas	124,714
CSO150	12-Mar-2016	13-Mar-2016	0	1	57,799	2	0	6	Atlas	50,285
CSO150	27-Mar-2016	27-Mar-2016	0	1	105,483	1	0	3	Atlas	77,002
CSO150	31-Mar-2016	31-Mar-2016	0	1	45,271	2	1	24	Atlas	60,210
CSO150	31-Mar-2016	31-Mar-2016	0	1	45,271	2	1	24	Atlas	60,210
CSO150	31-Mar-2016	1-Apr-2016	0	1	32,925	2	1	24	Atlas	43,790
CSO150	31-Mar-2016	1-Apr-2016	0	1	32,925	2	1	24	Atlas	43,790
CSO150	11-Apr-2016	11-Apr-2016	0	1	113,716	1	0	6	Atlas	117,128
CSO150	26-Apr-2016	26-Apr-2016	0	0	8,126	0	0	1	Atlas	2,519
CSO150	27-Apr-2016	28-Apr-2016	0	1	64,710	2	0	12	Atlas	53,062
CSO150	30-Apr-2016	30-Apr-2016	0	1	52,307	2	0	24	Atlas	43,415
CSO150	7-May-2016	7-May-2016	0	1	1,213	1	0	6	Atlas	837
CSO150	10-May-2016	10-May-2016	0	1	208,969	2	0	24	Atlas	188,072
CSO150	20-May-2016	20-May-2016	0	1	86,813	1	0	3	Atlas	46,011
CSO150	2-Jun-2016	2-Jun-2016	0	1	29,738	1	1	1	Atlas	20,222
CSO150	4-Jun-2016	4-Jun-2016	0	1	39,740	1	0	1	Atlas	21,062
CSO150	14-Jun-2016	14-Jun-2016	0	1	140,199	1	1	3	Atlas	150,013
CSO150	23-Jun-2016	23-Jun-2016	0	2	79,653	3	3	6	Cloudburst	188,777
CSO150 Count										39
CSO150 Total										4,177,484
CSO151	1-Jul-2015	1-Jul-2015	0	0	33,441	2	0	1	Atlas	1,338
CSO151	2-Jul-2015	2-Jul-2015	0	1	186,706	3	0	3	Atlas	171,770
CSO151	3-Jul-2015	3-Jul-2015	0	0	721,585	2	0	1	Atlas	194,828
CSO151	7-Jul-2015	8-Jul-2015	1	1	118,866	2	0	6	Atlas	92,715
CSO151	8-Jul-2015	8-Jul-2015	0	0	459,667	2	0	1	Atlas	36,773
CSO151	9-Jul-2015	9-Jul-2015	0	0	640,588	2	0	3	Atlas	140,929
CSO151	10-Jul-2015	10-Jul-2015	0	1	557,213	2	0	6	Atlas	312,039
CSO151	12-Jul-2015	12-Jul-2015	0	1	283,323	3	1	3	Atlas	317,322
CSO151	14-Jul-2015	14-Jul-2015	0	1	54,468	4	0	1	Atlas	30,502
CSO151	17-Jul-2015	18-Jul-2015	1	1	481,472	3	1	3	Atlas	418,881
CSO151	29-Jul-2015	29-Jul-2015	0	0	35,652	0	0	1	Atlas	3,209
CSO151	4-Aug-2015	4-Aug-2015	0	0	372,742	0	0	1	Atlas	59,639

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO151	5-Aug-2015	5-Aug-2015	0	1	65,677	0	0	24	Atlas	63,707
CSO151	6-Aug-2015	6-Aug-2015	1	1	274,678	1	0	24	Atlas	266,437
CSO151	10-Aug-2015	10-Aug-2015	0	0	28,230	1	0	1	Atlas	1,694
CSO151	19-Aug-2015	19-Aug-2015	0	1	281,466	1	0	12	Atlas	174,509
CSO151	5-Sep-2015	5-Sep-2015	0	0	992	0	0	1	Atlas	129
CSO151	7-Sep-2015	7-Sep-2015	0	0	426,339	0	0	1	Atlas	132,165
CSO151	9-Sep-2015	9-Sep-2015	0	0	202,227	1	0	1	Atlas	30,334
CSO151	10-Sep-2015	10-Sep-2015	0	0	90,728	1	0	12	Atlas	12,702
CSO151	29-Sep-2015	29-Sep-2015	0	1	56,307	1	0	48	Atlas	56,307
CSO151	2-Oct-2015	2-Oct-2015	0	1	218,998	2	0	6	Atlas	129,209
CSO151	9-Oct-2015	9-Oct-2015	0	0	2,467	1	0	1	Atlas	271
CSO151	12-Oct-2015	12-Oct-2015	0	0	220,379	0	0	3	Atlas	63,910
CSO151	24-Oct-2015	24-Oct-2015	0	0	21,403	0	0	6	Atlas	6,849
CSO151	27-Oct-2015	28-Oct-2015	1	3	404,846	3	1	48	Atlas	1,076,891
CSO151	28-Oct-2015	29-Oct-2015	0	0	243,887	3	0	6	Atlas	41,461
CSO151	31-Oct-2015	1-Nov-2015	0	0	149,526	3	0	3	Atlas	25,419
CSO151	6-Nov-2015	6-Nov-2015	0	1	190,932	1	0	3	Atlas	147,018
CSO151	9-Nov-2015	9-Nov-2015	0	1	441,671	1	0	12	Atlas	225,252
CSO151	12-Nov-2015	12-Nov-2015	0	0	294,685	2	0	3	Atlas	88,406
CSO151	18-Nov-2015	18-Nov-2015	1	2	335,487	2	1	6	Atlas	607,232
CSO151	21-Nov-2015	21-Nov-2015	0	0	104,812	2	0	1	Atlas	13,626
CSO151	28-Nov-2015	29-Nov-2015	0	1	664,243	1	0	12	Atlas	458,327
CSO151	30-Nov-2015	1-Dec-2015	1	1	623,105	2	0	12	Atlas	429,943
CSO151	14-Dec-2015	14-Dec-2015	0	0	331,358	0	0	6	Atlas	82,839
CSO151	21-Dec-2015	21-Dec-2015	0	1	13,232	0	0	1	Atlas	9,262
CSO151	21-Dec-2015	22-Dec-2015	0	1	450,063	1	0	1	Atlas	315,044
CSO151	23-Dec-2015	24-Dec-2015	0	1	348,266	2	1	1	Atlas	299,508
CSO151	26-Dec-2015	26-Dec-2015	0	0	735,640	2	0	3	Atlas	191,266
CSO151	27-Dec-2015	27-Dec-2015	1	2	703,059	3	1	3	Atlas	1,581,883
CSO151	9-Jan-2016	9-Jan-2016	0	0	25,745	0	0	12	Atlas	5,664
CSO151	1-Feb-2016	1-Feb-2016	0	0	16,950	0	0	3	Atlas	1,186
CSO151	2-Feb-2016	3-Feb-2016	1	1	538,109	1	1	6	Atlas	742,590
CSO151	21-Feb-2016	21-Feb-2016	0	1	265,134	1	0	12	Atlas	262,483
CSO151	23-Feb-2016	26-Feb-2016	3	2	730,732	3	1	12	Atlas	1,490,693
CSO151	29-Feb-2016	29-Feb-2016	0	0	988,602	2	0	3	Atlas	19,772
CSO151	1-Mar-2016	1-Mar-2016	0	0	379,103	2	0	3	Atlas	144,059

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO151	3-Mar-2016	3-Mar-2016	0	0	74,000	0	0	1	Atlas	740
CSO151	9-Mar-2016	9-Mar-2016	0	1	67,560	0	0	12	Atlas	70,938
CSO151	10-Mar-2016	11-Mar-2016	1	1	590,591	1	0	12	Atlas	620,120
CSO151	12-Mar-2016	14-Mar-2016	1	1	662,526	2	0	24	Atlas	563,147
CSO151	19-Mar-2016	19-Mar-2016	0	0	120,167	1	0	1	Atlas	18,025
CSO151	24-Mar-2016	24-Mar-2016	0	1	94,617	1	0	1	Atlas	53,932
CSO151	27-Mar-2016	28-Mar-2016	0	1	295,798	1	1	3	Atlas	242,555
CSO151	31-Mar-2016	1-Apr-2016	2	1	698,709	2	0	24	Atlas	747,618
CSO151	31-Mar-2016	1-Apr-2016	1	1	692,274	2	0	24	Atlas	740,733
CSO151	11-Apr-2016	11-Apr-2016	0	1	386,604	1	0	6	Atlas	313,150
CSO151	21-Apr-2016	21-Apr-2016	0	0	249,355	0	0	3	Atlas	74,806
CSO151	26-Apr-2016	26-Apr-2016	0	0	275,748	1	0	6	Atlas	102,027
CSO151	27-Apr-2016	28-Apr-2016	0	1	558,076	1	0	3	Atlas	301,361
CSO151	30-Apr-2016	1-May-2016	1	0	487,767	1	0	6	Atlas	219,495
CSO151	1-May-2016	1-May-2016	0	0	736,335	2	0	3	Atlas	213,537
CSO151	4-May-2016	4-May-2016	0	0	344,656	1	0	1	Atlas	68,931
CSO151	7-May-2016	7-May-2016	0	1	330,166	1	0	6	Atlas	184,893
CSO151	10-May-2016	11-May-2016	1	1	715,761	2	0	24	Atlas	536,821
CSO151	11-May-2016	12-May-2016	0	0	568,250	2	0	3	Atlas	136,380
CSO151	17-May-2016	17-May-2016	0	1	176,179	1	0	24	Atlas	103,945
CSO151	17-May-2016	18-May-2016	0	1	201,400	1	0	24	Atlas	118,826
CSO151	20-May-2016	20-May-2016	0	1	452,557	1	0	3	Atlas	330,367
CSO151	26-May-2016	26-May-2016	0	0	716,070	1	0	3	Atlas	157,535
CSO151	2-Jun-2016	2-Jun-2016	0	0	214,689	1	0	1	Atlas	94,463
CSO151	4-Jun-2016	4-Jun-2016	0	0	213,065	1	0	12	Atlas	38,352
CSO151	12-Jun-2016	12-Jun-2016	0	0	119,282	0	0	1	Atlas	54,870
CSO151	14-Jun-2016	14-Jun-2016	0	1	400,708	1	0	3	Atlas	216,382
CSO151	22-Jun-2016	22-Jun-2016	0	0	240,901	0	0	3	Atlas	40,953
CSO151	23-Jun-2016	24-Jun-2016	0	2	262,054	2	1	6	Atlas	461,214
CSO151 Count										77
CSO151 Total										17,804,108
CSO152	2-Jul-2015	2-Jul-2015	0	1	427,179	2	0	3	Atlas	371,646
CSO152	2-Jul-2015	2-Jul-2015	0	1	184,770	3	0	3	Atlas	160,750
CSO152	3-Jul-2015	3-Jul-2015	0	0	736,636	2	0	1	Atlas	257,823
CSO152	7-Jul-2015	8-Jul-2015	1	1	945,556	2	0	6	Atlas	709,167
CSO152	8-Jul-2015	8-Jul-2015	0	0	1,075,220	2	0	1	Atlas	64,513

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO152	9-Jul-2015	9-Jul-2015	0	0	984,318	2	0	3	Atlas	275,609
CSO152	10-Jul-2015	10-Jul-2015	0	0	1,091,123	2	0	6	Atlas	425,538
CSO152	12-Jul-2015	12-Jul-2015	0	1	2,077,546	2	1	3	Atlas	1,745,139
CSO152	13-Jul-2015	13-Jul-2015	0	0	2,027,139	3	0	1	Atlas	648,685
CSO152	14-Jul-2015	14-Jul-2015	0	1	2,600,122	3	0	3	Atlas	1,456,069
CSO152	14-Jul-2015	14-Jul-2015	0	0	973,825	3	0	1	Atlas	19,476
CSO152	17-Jul-2015	18-Jul-2015	0	1	2,770,356	3	1	3	Atlas	2,410,210
CSO152	29-Jul-2015	29-Jul-2015	0	0	804,957	0	0	1	Atlas	64,397
CSO152	4-Aug-2015	4-Aug-2015	0	0	1,053,865	0	0	1	Atlas	115,925
CSO152	5-Aug-2015	5-Aug-2015	0	1	127,496	0	0	24	Atlas	116,021
CSO152	6-Aug-2015	6-Aug-2015	1	1	640,294	1	0	24	Atlas	582,668
CSO152	19-Aug-2015	19-Aug-2015	0	1	611,121	1	0	1	Atlas	348,339
CSO152	5-Sep-2015	5-Sep-2015	0	0	176,940	0	0	6	Atlas	14,155
CSO152	7-Sep-2015	7-Sep-2015	0	0	620,444	0	0	1	Atlas	55,840
CSO152	9-Sep-2015	9-Sep-2015	0	0	154,458	0	0	1	Atlas	32,436
CSO152	29-Sep-2015	29-Sep-2015	0	1	66,871	1	0	48	Atlas	59,515
CSO152	2-Oct-2015	2-Oct-2015	0	1	172,536	2	0	6	Atlas	105,247
CSO152	12-Oct-2015	12-Oct-2015	0	0	419,068	0	0	3	Atlas	104,767
CSO152	24-Oct-2015	24-Oct-2015	0	0	24,661	0	0	6	Atlas	7,892
CSO152	27-Oct-2015	28-Oct-2015	1	3	559,991	3	1	24	Atlas	1,427,976
CSO152	28-Oct-2015	28-Oct-2015	0	0	158,550	3	0	6	Atlas	26,954
CSO152	31-Oct-2015	1-Nov-2015	0	0	137,913	3	0	3	Atlas	22,066
CSO152	6-Nov-2015	6-Nov-2015	0	1	272,669	1	0	3	Atlas	204,502
CSO152	9-Nov-2015	9-Nov-2015	0	0	415,404	1	0	12	Atlas	203,548
CSO152	12-Nov-2015	12-Nov-2015	0	0	728,616	2	0	3	Atlas	211,299
CSO152	18-Nov-2015	18-Nov-2015	0	2	536,793	2	1	6	Atlas	896,445
CSO152	21-Nov-2015	21-Nov-2015	0	0	109,740	2	0	1	Atlas	13,169
CSO152	28-Nov-2015	28-Nov-2015	0	1	590,254	1	0	12	Atlas	413,178
CSO152	30-Nov-2015	1-Dec-2015	0	1	1,060,592	2	0	12	Atlas	731,809
CSO152	14-Dec-2015	14-Dec-2015	0	0	319,986	0	0	3	Atlas	76,797
CSO152	21-Dec-2015	21-Dec-2015	0	0	111,776	0	0	6	Atlas	16,766
CSO152	21-Dec-2015	22-Dec-2015	0	1	915,896	1	0	6	Atlas	503,743
CSO152	23-Dec-2015	23-Dec-2015	0	1	308,107	2	1	1	Atlas	255,729
CSO152	25-Dec-2015	25-Dec-2015	0	0	137,043	2	0	6	Atlas	15,075
CSO152	26-Dec-2015	26-Dec-2015	0	0	596,296	2	0	12	Atlas	166,963
CSO152	27-Dec-2015	28-Dec-2015	1	2	820,955	4	1	3	Atlas	1,658,329

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO152	2-Feb-2016	3-Feb-2016	0	1	808,963	1	1	6	Atlas	1,003,114
CSO152	21-Feb-2016	21-Feb-2016	0	1	741,834	1	0	12	Atlas	786,344
CSO152	23-Feb-2016	24-Feb-2016	1	2	1,231,605	3	1	12	Atlas	2,487,842
CSO152	29-Feb-2016	29-Feb-2016	0	0	241,640	2	0	3	Atlas	4,833
CSO152	1-Mar-2016	1-Mar-2016	0	0	1,308,739	2	0	3	Atlas	379,534
CSO152	9-Mar-2016	9-Mar-2016	0	1	85,682	0	0	12	Atlas	92,537
CSO152	10-Mar-2016	10-Mar-2016	0	1	730,866	1	0	12	Atlas	789,336
CSO152	12-Mar-2016	13-Mar-2016	0	1	368,930	2	0	24	Atlas	306,211
CSO152	13-Mar-2016	13-Mar-2016	0	1	410,648	2	0	24	Atlas	340,838
CSO152	24-Mar-2016	24-Mar-2016	0	1	125,680	1	0	1	Atlas	76,665
CSO152	27-Mar-2016	27-Mar-2016	0	1	279,079	1	1	1	Atlas	226,054
CSO152	31-Mar-2016	1-Apr-2016	1	1	847,588	2	0	24	Atlas	906,920
CSO152	31-Mar-2016	1-Apr-2016	1	1	53,264,735	2	0	24	Atlas	56,993,267
CSO152	11-Apr-2016	11-Apr-2016	0	1	398,379,994	1	0	6	Atlas	338,622,995
CSO152	21-Apr-2016	21-Apr-2016	0	0	132,730,392	0	0	3	Atlas	39,819,118
CSO152	22-Apr-2016	22-Apr-2016	0	0	31,472,177	0	0	3	Atlas	9,441,653
CSO152	26-Apr-2016	26-Apr-2016	0	0	259,734,078	1	0	6	Atlas	85,712,246
CSO152	27-Apr-2016	27-Apr-2016	0	1	907,352,531	1	0	1	Atlas	499,043,892
CSO152	30-Apr-2016	30-Apr-2016	0	0	265,087,526	1	0	6	Atlas	124,591,137
CSO152	30-Apr-2016	1-May-2016	0	0	31,845,866	1	0	6	Atlas	14,967,557
CSO152	1-May-2016	1-May-2016	0	0	872,961,109	2	0	1	Atlas	279,347,555
CSO152	4-May-2016	4-May-2016	0	0	175,186,160	2	0	1	Atlas	35,037,232
CSO152	7-May-2016	7-May-2016	0	1	285,942,575	1	0	6	Atlas	180,143,822
CSO152	10-May-2016	10-May-2016	1	1	228,128,293	2	0	24	Atlas	193,909,049
CSO152	11-May-2016	11-May-2016	0	0	245,338,040	2	0	3	Atlas	61,334,510
CSO152	12-May-2016	12-May-2016	0	0	34,560,350	2	0	1	Atlas	3,110,432
CSO152	17-May-2016	17-May-2016	0	1	101,132,494	2	0	24	Atlas	62,702,146
CSO152	17-May-2016	17-May-2016	0	1	63,016,298	1	0	24	Atlas	39,070,104
CSO152	20-May-2016	20-May-2016	0	1	636,722,497	1	0	3	Atlas	401,135,173
CSO152	26-May-2016	26-May-2016	0	0	242,931,938	1	0	3	Atlas	53,445,026
CSO152	2-Jun-2016	2-Jun-2016	0	0	23,698,715	1	0	1	Atlas	11,138,396
CSO152	4-Jun-2016	4-Jun-2016	0	0	476,962,527	1	0	1	Atlas	52,465,878
CSO152	12-Jun-2016	12-Jun-2016	0	0	152,648,374	0	0	1	Atlas	51,900,447
CSO152	14-Jun-2016	14-Jun-2016	0	1	257,243,145	1	0	3	Atlas	162,063,181
CSO152	22-Jun-2016	22-Jun-2016	0	0	83,887,757	0	0	3	Atlas	11,744,286
CSO152	23-Jun-2016	23-Jun-2016	0	2	84,707,948	2	1	6	Atlas	137,226,876

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO152 Count										77
CSO152 Total										2,929,362,381
CSO153	2-Jul-2015	2-Jul-2015	0	2	49,179	2	1	24	Atlas	81,636
CSO153	2-Jul-2015	2-Jul-2015	0	2	284,447	3	1	24	Atlas	472,182
CSO153	3-Jul-2015	3-Jul-2015	0	0	86,499	3	0	1	Atlas	30,275
CSO153	7-Jul-2015	8-Jul-2015	1	1	221,155	3	0	6	Atlas	192,405
CSO153	8-Jul-2015	8-Jul-2015	0	1	64,828	3	0	6	Atlas	56,401
CSO153	9-Jul-2015	9-Jul-2015	0	0	132,608	2	0	3	Atlas	41,108
CSO153	10-Jul-2015	10-Jul-2015	0	0	182,581	2	0	6	Atlas	78,510
CSO153	12-Jul-2015	12-Jul-2015	0	1	870,472	3	1	1	Atlas	1,175,138
CSO153	13-Jul-2015	13-Jul-2015	0	0	327,878	3	0	1	Atlas	163,939
CSO153	14-Jul-2015	14-Jul-2015	0	1	345,914	4	1	1	Atlas	252,517
CSO153	14-Jul-2015	14-Jul-2015	0	0	62,291	4	0	1	Atlas	8,721
CSO153	17-Jul-2015	18-Jul-2015	0	2	722,248	4	1	3	Atlas	1,155,596
CSO153	29-Jul-2015	29-Jul-2015	0	0	79,075	0	0	1	Atlas	6,326
CSO153	4-Aug-2015	4-Aug-2015	0	0	213,898	0	0	1	Atlas	94,115
CSO153	5-Aug-2015	5-Aug-2015	0	1	51,830	1	0	24	Atlas	39,909
CSO153	6-Aug-2015	6-Aug-2015	1	1	269,925	1	0	24	Atlas	207,842
CSO153	19-Aug-2015	19-Aug-2015	0	0	498,723	0	0	24	Atlas	139,642
CSO153	19-Aug-2015	19-Aug-2015	0	0	168,869	0	0	24	Atlas	47,283
CSO153	5-Sep-2015	5-Sep-2015	0	0	406,855	0	0	1	Atlas	48,823
CSO153	9-Sep-2015	9-Sep-2015	0	0	342,625	1	0	1	Atlas	92,509
CSO153	11-Sep-2015	11-Sep-2015	0	0	65,631	1	0	1	Atlas	12,470
CSO153	29-Sep-2015	29-Sep-2015	0	1	11,386	1	0	48	Atlas	9,451
CSO153	29-Sep-2015	29-Sep-2015	0	1	15,510	1	0	48	Atlas	12,874
CSO153	2-Oct-2015	2-Oct-2015	0	1	44,723	1	0	6	Atlas	26,834
CSO153	12-Oct-2015	12-Oct-2015	0	0	81,590	0	0	3	Atlas	22,029
CSO153	27-Oct-2015	28-Oct-2015	1	3	264,227	3	1	48	Atlas	663,211
CSO153	28-Oct-2015	28-Oct-2015	0	3	1,162	3	1	48	Atlas	2,916
CSO153	6-Nov-2015	6-Nov-2015	0	1	541,765	1	0	3	Atlas	460,501
CSO153	9-Nov-2015	9-Nov-2015	0	1	73,295	1	0	12	Atlas	40,312
CSO153	12-Nov-2015	12-Nov-2015	0	0	370,323	2	0	3	Atlas	103,690
CSO153	18-Nov-2015	18-Nov-2015	0	1	481,218	2	1	6	Atlas	673,705
CSO153	21-Nov-2015	21-Nov-2015	0	0	66,511	2	0	1	Atlas	5,321
CSO153	28-Nov-2015	28-Nov-2015	0	1	47,648	1	0	12	Atlas	32,877
CSO153	30-Nov-2015	1-Dec-2015	0	1	313,323	2	0	12	Atlas	200,527

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO153	14-Dec-2015	14-Dec-2015	0	0	9,964	0	0	6	Atlas	2,391
CSO153	21-Dec-2015	21-Dec-2015	0	1	7,775	0	0	1	Atlas	5,754
CSO153	21-Dec-2015	22-Dec-2015	0	1	285,935	1	0	1	Atlas	211,592
CSO153	23-Dec-2015	23-Dec-2015	0	1	675,579	1	1	1	Atlas	486,417
CSO153	25-Dec-2015	25-Dec-2015	0	0	26,132	2	0	3	Atlas	3,136
CSO153	26-Dec-2015	26-Dec-2015	0	0	155,562	2	0	12	Atlas	56,002
CSO153	27-Dec-2015	27-Dec-2015	0	2	525,072	3	1	3	Atlas	1,034,392
CSO153	28-Dec-2015	28-Dec-2015	0	2	51,193	3	1	3	Atlas	100,850
CSO153	28-Dec-2015	28-Dec-2015	0	2	48,605	4	1	3	Atlas	95,752
CSO153	9-Jan-2016	9-Jan-2016	0	0	13,558	0	0	12	Atlas	2,440
CSO153	2-Feb-2016	3-Feb-2016	0	1	516,115	1	1	6	Atlas	691,595
CSO153	21-Feb-2016	21-Feb-2016	0	1	327,117	1	1	12	Atlas	359,829
CSO153	23-Feb-2016	24-Feb-2016	0	2	310,142	3	1	12	Atlas	632,689
CSO153	1-Mar-2016	1-Mar-2016	0	0	295,061	2	0	3	Atlas	85,568
CSO153	9-Mar-2016	9-Mar-2016	0	1	3,720	0	0	48	Atlas	4,129
CSO153	10-Mar-2016	10-Mar-2016	0	1	181,372	1	0	48	Atlas	201,322
CSO153	12-Mar-2016	12-Mar-2016	0	1	208,658	2	0	6	Atlas	166,926
CSO153	13-Mar-2016	13-Mar-2016	0	1	158,990	2	0	6	Atlas	127,192
CSO153	24-Mar-2016	24-Mar-2016	0	1	161,004	1	0	1	Atlas	82,112
CSO153	27-Mar-2016	27-Mar-2016	0	1	490,332	1	1	1	Atlas	367,749
CSO153	31-Mar-2016	31-Mar-2016	0	1	75,709	2	0	24	Atlas	78,737
CSO153	31-Mar-2016	31-Mar-2016	0	1	75,709	2	0	24	Atlas	78,737
CSO153	31-Mar-2016	1-Apr-2016	0	1	90,903	2	0	24	Atlas	94,540
CSO153	31-Mar-2016	1-Apr-2016	0	1	90,903	2	0	24	Atlas	94,540
CSO153	11-Apr-2016	11-Apr-2016	0	1	155,667	1	0	6	Atlas	161,894
CSO153	21-Apr-2016	21-Apr-2016	0	0	51,128	0	0	3	Atlas	15,850
CSO153	26-Apr-2016	26-Apr-2016	0	0	112,562	1	0	6	Atlas	48,402
CSO153	27-Apr-2016	27-Apr-2016	0	1	415,690	1	0	12	Atlas	241,100
CSO153	30-Apr-2016	30-Apr-2016	0	1	73,668	1	0	6	Atlas	39,044
CSO153	1-May-2016	1-May-2016	0	0	40,795	2	0	3	Atlas	10,607
CSO153	4-May-2016	4-May-2016	0	0	29,443	2	0	1	Atlas	5,889
CSO153	7-May-2016	7-May-2016	0	0	20,330	1	0	6	Atlas	10,165
CSO153	10-May-2016	10-May-2016	1	1	394,419	1	0	24	Atlas	276,093
CSO153	11-May-2016	11-May-2016	0	0	100,679	1	0	3	Atlas	21,143
CSO153	17-May-2016	17-May-2016	0	1	12,710	1	0	24	Atlas	8,388
CSO153	17-May-2016	17-May-2016	0	1	74,595	1	0	24	Atlas	49,232

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO153	20-May-2016	20-May-2016	0	1	459,016	1	0	3	Atlas	243,278
CSO153	26-May-2016	26-May-2016	0	0	127,308	1	0	3	Atlas	29,281
CSO153	2-Jun-2016	2-Jun-2016	0	0	297,038	0	0	1	Atlas	100,993
CSO153	4-Jun-2016	4-Jun-2016	0	0	240,554	1	0	1	Atlas	52,922
CSO153	12-Jun-2016	12-Jun-2016	0	0	1,156,216	0	0	1	Atlas	104,059
CSO153	14-Jun-2016	14-Jun-2016	0	1	575,876	1	1	3	Atlas	472,218
CSO153	22-Jun-2016	22-Jun-2016	0	0	450,513	0	0	3	Atlas	117,133
CSO153	23-Jun-2016	24-Jun-2016	0	2	262,219	2	2	6	Cloudburst	563,771
CSO153 Count										78
CSO153 Total										14,287,448
CSO154	27-Oct-2015	27-Oct-2015	0	3	11,011	2	1	48	Atlas	29,949
CSO154	28-Oct-2015	28-Oct-2015	0	3	805	3	1	48	Atlas	2,189
CSO154	6-Nov-2015	6-Nov-2015	0	1	17,003	1	0	3	Atlas	13,433
CSO154	18-Nov-2015	18-Nov-2015	0	2	1,124,844	2	1	6	Atlas	1,698,515
CSO154	22-Dec-2015	22-Dec-2015	0	1	2,709	1	0	1	Atlas	1,815
CSO154	23-Dec-2015	24-Dec-2015	0	1	2,123,067	2	1	1	Atlas	1,719,684
CSO154	26-Dec-2015	29-Dec-2015	3	0	51,312,158	4	0	12	Atlas	17,446,134
CSO154	2-Feb-2016	3-Feb-2016	0	2	781,335	2	1	12	Atlas	1,179,816
CSO154	21-Feb-2016	21-Feb-2016	1	1	125,882	1	0	12	Atlas	118,329
CSO154	23-Feb-2016	26-Feb-2016	2	2	6,166,294	3	1	12	Atlas	12,270,925
CSO154	1-Mar-2016	1-Mar-2016	0	0	3,038,317	2	0	3	Atlas	1,033,028
CSO154	13-Mar-2016	13-Mar-2016	0	1	6,009	2	0	24	Atlas	4,867
CSO154	27-Mar-2016	27-Mar-2016	0	1	38,209	1	0	3	Atlas	27,893
CSO154	11-Apr-2016	11-Apr-2016	0	1	6,389	1	0	6	Atlas	5,495
CSO154	20-May-2016	20-May-2016	0	1	18,333	1	0	3	Atlas	12,100
CSO154	2-Jun-2016	2-Jun-2016	0	0	25,429	0	0	1	Atlas	7,120
CSO154	12-Jun-2016	12-Jun-2016	0	0	515,634	0	0	1	Atlas	92,814
CSO154	14-Jun-2016	14-Jun-2016	0	1	236,250	1	1	3	Atlas	212,625
CSO154	23-Jun-2016	24-Jun-2016	0	2	817,388	2	1	6	Cloudburst	1,528,515
CSO154 Count										19
CSO154 Total										37,405,246
CSO155	2-Jul-2015	2-Jul-2015	1	2	33,325	4	1	1	Atlas	80,648
CSO155	3-Jul-2015	3-Jul-2015	0	1	18,718	4	0	1	Atlas	10,669
CSO155	7-Jul-2015	7-Jul-2015	0	1	6,303	4	1	3	Atlas	6,744
CSO155	9-Jul-2015	9-Jul-2015	0	0	6,434	3	0	12	Atlas	2,188
CSO155	12-Jul-2015	12-Jul-2015	0	1	28,737	3	1	1	Atlas	30,748

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CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO155	13-Jul-2015	13-Jul-2015	0	0	2,547	3	0	1	Atlas	1,172
CSO155	14-Jul-2015	14-Jul-2015	0	1	18,595	4	1	1	Atlas	15,620
CSO155	17-Jul-2015	18-Jul-2015	0	2	78,203	4	1	3	Atlas	123,561
CSO155	29-Jul-2015	29-Jul-2015	0	0	42,190	0	0	1	Atlas	5,063
CSO155	4-Aug-2015	4-Aug-2015	0	1	43,750	1	0	1	Atlas	22,750
CSO155	5-Aug-2015	5-Aug-2015	0	1	14,614	1	1	1	Atlas	16,513
CSO155	6-Aug-2015	6-Aug-2015	0	1	635	2	1	1	Atlas	718
CSO155	5-Sep-2015	5-Sep-2015	0	0	77,089	0	0	1	Atlas	23,898
CSO155	9-Sep-2015	9-Sep-2015	0	0	91,681	1	0	1	Atlas	3,667
CSO155	12-Oct-2015	12-Oct-2015	0	0	158	0	0	1	Atlas	55
CSO155	27-Oct-2015	28-Oct-2015	0	3	7,528	2	1	24	Atlas	22,510
CSO155	6-Nov-2015	6-Nov-2015	0	1	14,719	1	0	3	Atlas	11,775
CSO155	9-Nov-2015	9-Nov-2015	0	1	1,599	1	0	12	Atlas	1,007
CSO155	12-Nov-2015	12-Nov-2015	0	0	386	2	0	3	Atlas	120
CSO155	18-Nov-2015	18-Nov-2015	0	1	28,402	2	1	6	Atlas	38,911
CSO155	30-Nov-2015	1-Dec-2015	0	1	10,057	1	0	12	Atlas	6,336
CSO155	21-Dec-2015	21-Dec-2015	0	1	1,770	0	0	24	Atlas	1,009
CSO155	23-Dec-2015	23-Dec-2015	0	1	40,498	1	1	1	Atlas	34,018
CSO155	26-Dec-2015	26-Dec-2015	0	1	91	2	0	3	Atlas	60
CSO155	27-Dec-2015	27-Dec-2015	0	2	9,948	3	1	48	Atlas	24,769
CSO155	2-Feb-2016	3-Feb-2016	0	2	19,021	1	1	6	Atlas	28,531
CSO155	21-Feb-2016	21-Feb-2016	0	1	6,413	1	0	12	Atlas	5,323
CSO155	24-Feb-2016	24-Feb-2016	0	2	6,674	2	1	24	Atlas	12,147
CSO155	10-Mar-2016	10-Mar-2016	0	1	148	1	0	12	Atlas	199
CSO155	12-Mar-2016	12-Mar-2016	0	1	86,490	2	0	6	Atlas	56,219
CSO155	24-Mar-2016	24-Mar-2016	0	0	13,088	0	0	1	Atlas	4,319
CSO155	27-Mar-2016	27-Mar-2016	0	1	16,322	1	1	3	Atlas	14,363
CSO155	31-Mar-2016	31-Mar-2016	0	1	1,930	2	1	24	Atlas	2,664
CSO155	31-Mar-2016	31-Mar-2016	0	1	1,930	2	1	24	Atlas	2,664
CSO155	11-Apr-2016	11-Apr-2016	0	1	2,519	1	1	6	Atlas	2,796
CSO155	21-Apr-2016	21-Apr-2016	0	0	108	0	0	24	Atlas	38
CSO155	27-Apr-2016	27-Apr-2016	0	1	11,714	1	0	1	Atlas	10,308
CSO155	30-Apr-2016	30-Apr-2016	0	1	10,929	2	0	24	Atlas	9,508
CSO155	10-May-2016	10-May-2016	0	1	39,993	2	0	12	Atlas	33,194
CSO155	20-May-2016	20-May-2016	0	1	8,733	1	0	6	Atlas	4,803
CSO155	25-May-2016	25-May-2016	0	0	10,548	1	0	1	Atlas	316

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CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO155	2-Jun-2016	2-Jun-2016	0	1	9,560	1	1	1	Atlas	10,707
CSO155	22-Jun-2016	22-Jun-2016	0	0	74,376	0	0	3	Atlas	25,288
CSO155	23-Jun-2016	23-Jun-2016	0	2	48,879	2	2	6	Cloudburst	103,623
CSO155 Count										44
CSO155 Total										811,539
CSO160	2-Jul-2015	2-Jul-2015	1	2	538	4	1	24	Atlas	1,087
CSO160	3-Jul-2015	3-Jul-2015	0	0	512	3	0	1	Atlas	210
CSO160	7-Jul-2015	7-Jul-2015	0	1	2,150	3	0	6	Atlas	2,236
CSO160	9-Jul-2015	9-Jul-2015	0	0	10,196	3	0	3	Atlas	3,671
CSO160	10-Jul-2015	10-Jul-2015	0	0	6,233	2	0	6	Atlas	2,743
CSO160	12-Jul-2015	12-Jul-2015	0	1	5,728	3	1	3	Atlas	7,274
CSO160	13-Jul-2015	13-Jul-2015	0	1	307	4	0	1	Atlas	163
CSO160	14-Jul-2015	14-Jul-2015	0	1	3,455	4	0	1	Atlas	2,142
CSO160	17-Jul-2015	18-Jul-2015	0	1	1,396	4	1	3	Atlas	1,829
CSO160	4-Aug-2015	4-Aug-2015	0	0	1,442	0	0	1	Atlas	620
CSO160	6-Aug-2015	6-Aug-2015	0	1	2,561	1	0	24	Atlas	1,793
CSO160 Count										11
CSO160 Total										23,768
CSO161	2-Jul-2015	2-Jul-2015	0	2	591	3	1	24	Atlas	1,193
CSO161	2-Jul-2015	2-Jul-2015	0	2	12,255	4	1	24	Atlas	24,755
CSO161	3-Jul-2015	3-Jul-2015	0	0	4,262	3	0	1	Atlas	1,747
CSO161	7-Jul-2015	7-Jul-2015	0	1	2,088	3	0	6	Atlas	2,172
CSO161	12-Jul-2015	12-Jul-2015	0	1	29,516	3	1	3	Atlas	37,486
CSO161	13-Jul-2015	13-Jul-2015	0	1	6,056	4	0	1	Atlas	3,210
CSO161	14-Jul-2015	14-Jul-2015	0	1	14,217	4	0	1	Atlas	8,815
CSO161	17-Jul-2015	18-Jul-2015	0	1	46,834	4	1	3	Atlas	61,352
CSO161	29-Jul-2015	29-Jul-2015	0	0	10,972	0	0	1	Atlas	549
CSO161	4-Aug-2015	4-Aug-2015	0	0	1,348	0	0	1	Atlas	580
CSO161	15-Aug-2015	15-Aug-2015	0	0	103,097	0	0	1	Atlas	4,124
CSO161	9-Sep-2015	9-Sep-2015	0	0	4,606	0	0	1	Atlas	1,290
CSO161	18-Nov-2015	18-Nov-2015	0	1	1,257	1	1	6	Atlas	1,622
CSO161	23-Dec-2015	23-Dec-2015	0	1	21,680	1	1	1	Atlas	15,609
CSO161	27-Dec-2015	27-Dec-2015	0	2	3,352	3	1	6	Atlas	7,039
CSO161	27-Mar-2016	27-Mar-2016	0	1	5,154	1	0	1	Atlas	3,659
CSO161	26-Apr-2016	26-Apr-2016	0	0	11,305	0	0	1	Atlas	3,504
CSO161	27-Apr-2016	27-Apr-2016	0	1	7,114	1	0	3	Atlas	5,193

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO161	2-Jun-2016	2-Jun-2016	0	0	5,899	0	0	1	Atlas	2,006
CSO161	4-Jun-2016	4-Jun-2016	0	0	94,181	1	0	1	Atlas	28,254
CSO161	14-Jun-2016	14-Jun-2016	0	1	15,393	1	1	3	Atlas	14,623
CSO161	23-Jun-2016	23-Jun-2016	0	2	4,066	3	4	6	Cloudburst	10,085
CSO161 Count										22
CSO161 Total										238,867
CSO166	2-Jul-2015	2-Jul-2015	0	2	156,084	2	1	24	Atlas	262,220
CSO166	2-Jul-2015	2-Jul-2015	0	2	1,432,208	3	1	24	Atlas	2,406,109
CSO166	3-Jul-2015	3-Jul-2015	0	1	1,595,031	3	0	1	Atlas	1,004,870
CSO166	7-Jul-2015	7-Jul-2015	0	1	1,295,220	3	0	6	Atlas	945,511
CSO166	8-Jul-2015	8-Jul-2015	0	1	292,680	3	0	6	Atlas	213,656
CSO166	9-Jul-2015	9-Jul-2015	0	0	782,984	3	0	3	Atlas	234,895
CSO166	10-Jul-2015	10-Jul-2015	0	0	2,270,709	2	0	6	Atlas	1,135,354
CSO166	12-Jul-2015	15-Jul-2015	3	2	25,778,115	5	4	3	Atlas	52,587,354
CSO166	17-Jul-2015	18-Jul-2015	1	1	10,840,044	5	1	3	Atlas	14,525,659
CSO166	4-Aug-2015	4-Aug-2015	0	0	2,223,849	0	0	1	Atlas	511,485
CSO166	5-Aug-2015	5-Aug-2015	0	1	717,718	1	0	24	Atlas	818,199
CSO166	6-Aug-2015	6-Aug-2015	0	1	904,598	1	0	24	Atlas	1,031,241
CSO166	19-Aug-2015	19-Aug-2015	0	1	1,396,483	1	0	1	Atlas	865,820
CSO166	1-Sep-2015	1-Sep-2015	0			0			#N/A	631,451
CSO166	10-Sep-2015	10-Sep-2015	0	0	552,734	1	0	1	Atlas	93,965
CSO166	29-Sep-2015	29-Sep-2015	0	1	349,494	1	0	48	Atlas	373,958
CSO166	12-Oct-2015	12-Oct-2015	0	0	219,622	0	0	3	Atlas	63,690
CSO166	27-Oct-2015	28-Oct-2015	1	3	1,364,421	3	1	48	Atlas	3,615,715
CSO166	6-Nov-2015	6-Nov-2015	0	1	711,406	1	1	3	Atlas	739,863
CSO166	12-Nov-2015	12-Nov-2015	0	0	1,711,257	2	0	3	Atlas	598,940
CSO166	18-Nov-2015	18-Nov-2015	0	2	1,165,210	2	1	6	Atlas	2,248,856
CSO166	28-Nov-2015	28-Nov-2015	0	1	188,256	1	0	12	Atlas	122,366
CSO166	30-Nov-2015	1-Dec-2015	0	1	3,099,010	1	0	12	Atlas	1,952,376
CSO166	22-Dec-2015	22-Dec-2015	0	1	2,123,344	1	0	1	Atlas	1,104,139
CSO166	23-Dec-2015	24-Dec-2015	0	1	5,419,489	2	1	1	Atlas	4,606,566
CSO166	26-Dec-2015	26-Dec-2015	0	0	369,269	2	0	3	Atlas	103,395
CSO166	27-Dec-2015	27-Dec-2015	0	2	1,066,714	3	1	3	Atlas	2,378,773
CSO166	28-Dec-2015	29-Dec-2015	1	2	1,581,465	4	1	3	Atlas	3,526,667
CSO166	2-Feb-2016	3-Feb-2016	0	2	1,602,176	2	1	6	Atlas	2,611,547
CSO166	21-Feb-2016	21-Feb-2016	0	1	703,758	1	0	12	Atlas	717,833

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO166	23-Feb-2016	24-Feb-2016	1	2	2,405,252	3	1	12	Atlas	4,930,767
CSO166	1-Mar-2016	1-Mar-2016	0	0	1,027,334	2	0	6	Atlas	339,020
CSO166	10-Mar-2016	10-Mar-2016	0	1	968,566	1	0	12	Atlas	1,201,022
CSO166	12-Mar-2016	13-Mar-2016	0	1	653,033	2	0	24	Atlas	574,669
CSO166	13-Mar-2016	13-Mar-2016	0	1	495,804	2	0	24	Atlas	436,308
CSO166	24-Mar-2016	24-Mar-2016	0	0	447,333	1	0	1	Atlas	205,773
CSO166	27-Mar-2016	27-Mar-2016	0	1	525,042	1	1	3	Atlas	446,286
CSO166	31-Mar-2016	31-Mar-2016	0	1	75,941	2	0	24	Atlas	87,332
CSO166	31-Mar-2016	31-Mar-2016	0	1	75,941	2	0	24	Atlas	87,332
CSO166	31-Mar-2016	1-Apr-2016	0	1	814,357	2	0	24	Atlas	936,511
CSO166	31-Mar-2016	1-Apr-2016	0	1	814,357	2	0	24	Atlas	936,511
CSO166	11-Apr-2016	11-Apr-2016	0	1	542,657	1	0	6	Atlas	455,832
CSO166	26-Apr-2016	26-Apr-2016	0	0	120,020	1	0	6	Atlas	40,807
CSO166	27-Apr-2016	27-Apr-2016	0	1	552,058	1	0	3	Atlas	364,358
CSO166	1-May-2016	1-May-2016	0	0	472,179	2	0	1	Atlas	155,819
CSO166	7-May-2016	7-May-2016	0	1	53,404	1	0	6	Atlas	30,975
CSO166	10-May-2016	10-May-2016	0	1	846,021	2	0	24	Atlas	879,862
CSO166	11-May-2016	11-May-2016	0	0	120,995	2	0	3	Atlas	25,409
CSO166	20-May-2016	20-May-2016	0	1	890,228	2	1	3	Atlas	836,815
CSO166	2-Jun-2016	2-Jun-2016	0	1	358,009	1	0	1	Atlas	182,585
CSO166	12-Jun-2016	12-Jun-2016	0	1	3,027,673	1	1	1	Atlas	1,816,604
CSO166	14-Jun-2016	14-Jun-2016	0	1	1,568,166	1	0	3	Atlas	1,066,353
CSO166	22-Jun-2016	22-Jun-2016	0	0	3,509,149	0	0	3	Atlas	1,052,745
CSO166	23-Jun-2016	23-Jun-2016	0	2	2,932,699	2	1	6	Atlas	4,956,261
CSO166 Count										54
CSO166 Total										124,078,429
CSO167	2-Jul-2015	2-Jul-2015	0	2	57,996	2	0	3	Atlas	102,653
CSO167	2-Jul-2015	2-Jul-2015	0	2	324,888	3	0	3	Atlas	575,051
CSO167	3-Jul-2015	3-Jul-2015	0	0	26,256	2	0	6	Atlas	6,564
CSO167	7-Jul-2015	7-Jul-2015	0	1	240,656	3	0	6	Atlas	173,272
CSO167	8-Jul-2015	8-Jul-2015	0	1	34,494	3	0	6	Atlas	24,836
CSO167	8-Jul-2015	8-Jul-2015	0	1	121,689	3	0	6	Atlas	87,616
CSO167	9-Jul-2015	9-Jul-2015	0	0	210,594	2	0	1	Atlas	71,602
CSO167	10-Jul-2015	10-Jul-2015	0	0	313,087	2	0	6	Atlas	112,711
CSO167	12-Jul-2015	12-Jul-2015	1	2	662,170	3	3	1	Atlas	1,231,636
CSO167	13-Jul-2015	13-Jul-2015	0	1	372,423	4	1	1	Atlas	260,696

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO167	14-Jul-2015	14-Jul-2015	1	1	1,327,014	5	0	1	Atlas	716,588
CSO167	17-Jul-2015	18-Jul-2015	1	1	777,546	5	1	3	Atlas	1,018,585
CSO167	4-Aug-2015	4-Aug-2015	0	1	348,598	1	0	1	Atlas	177,785
CSO167	5-Aug-2015	5-Aug-2015	0	1	239,525	1	0	24	Atlas	215,572
CSO167	6-Aug-2015	6-Aug-2015	0	1	210,637	1	0	24	Atlas	189,573
CSO167	19-Aug-2015	19-Aug-2015	0	0	541,830	0	0	12	Atlas	222,150
CSO167	5-Sep-2015	5-Sep-2015	0	0	117,404	0	0	1	Atlas	29,351
CSO167	9-Sep-2015	9-Sep-2015	0	0	191,395	1	0	1	Atlas	68,902
CSO167	10-Sep-2015	10-Sep-2015	0	0	33,422	1	0	12	Atlas	2,005
CSO167	11-Sep-2015	11-Sep-2015	0	0	20,201	1	0	1	Atlas	2,828
CSO167	29-Sep-2015	29-Sep-2015	0	1	97,046	1	0	48	Atlas	83,459
CSO167	2-Oct-2015	2-Oct-2015	0	1	19,261	1	0	6	Atlas	9,823
CSO167	12-Oct-2015	12-Oct-2015	0	0	149,750	0	0	3	Atlas	44,925
CSO167	27-Oct-2015	28-Oct-2015	1	3	310,313	3	1	48	Atlas	844,051
CSO167	28-Oct-2015	28-Oct-2015	0	3	1,015	3	1	48	Atlas	2,760
CSO167	6-Nov-2015	6-Nov-2015	0	1	534,336	1	0	3	Atlas	422,125
CSO167	9-Nov-2015	9-Nov-2015	0	1	67,880	1	0	12	Atlas	37,334
CSO167	12-Nov-2015	12-Nov-2015	0	0	632,676	2	0	3	Atlas	196,130
CSO167	18-Nov-2015	18-Nov-2015	0	2	690,135	2	1	6	Atlas	1,042,103
CSO167	21-Nov-2015	21-Nov-2015	0	0	5,685	2	0	1	Atlas	512
CSO167	28-Nov-2015	28-Nov-2015	0	1	58,517	1	0	12	Atlas	36,866
CSO167	30-Nov-2015	1-Dec-2015	0	1	377,405	1	0	12	Atlas	256,635
CSO167	21-Dec-2015	21-Dec-2015	0	1	3,317	0	0	1	Atlas	2,222
CSO167	21-Dec-2015	22-Dec-2015	0	1	550,652	1	0	1	Atlas	368,937
CSO167	23-Dec-2015	23-Dec-2015	0	1	575,267	2	1	1	Atlas	465,966
CSO167	26-Dec-2015	26-Dec-2015	0	0	100,854	2	0	12	Atlas	34,290
CSO167	27-Dec-2015	29-Dec-2015	2	2	918,522	4	1	3	Atlas	1,800,303
CSO167	2-Feb-2016	3-Feb-2016	1	2	508,642	2	1	12	Atlas	768,049
CSO167	21-Feb-2016	21-Feb-2016	0	1	301,363	1	0	12	Atlas	283,281
CSO167	23-Feb-2016	24-Feb-2016	1	2	681,493	3	1	12	Atlas	1,356,171
CSO167	1-Mar-2016	1-Mar-2016	0	0	370,866	2	0	3	Atlas	126,095
CSO167	9-Mar-2016	9-Mar-2016	0	1	2,357	0	0	48	Atlas	2,640
CSO167	10-Mar-2016	10-Mar-2016	0	1	271,620	1	0	48	Atlas	304,215
CSO167	12-Mar-2016	13-Mar-2016	0	1	210,423	2	0	24	Atlas	170,443
CSO167	13-Mar-2016	13-Mar-2016	0	1	271,807	2	0	24	Atlas	220,164
CSO167	24-Mar-2016	24-Mar-2016	0	0	424,756	0	0	1	Atlas	123,179

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CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO167	27-Mar-2016	27-Mar-2016	0	1	373,716	1	0	3	Atlas	272,813
CSO167	31-Mar-2016	1-Apr-2016	1	1	304,590	2	0	24	Atlas	301,544
CSO167	31-Mar-2016	1-Apr-2016	1	1	304,590	2	0	24	Atlas	301,544
CSO167	11-Apr-2016	11-Apr-2016	0	1	346,388	1	0	6	Atlas	297,894
CSO167	21-Apr-2016	21-Apr-2016	0	0	27,459	0	0	3	Atlas	8,238
CSO167	26-Apr-2016	26-Apr-2016	0	0	415,422	1	0	6	Atlas	141,243
CSO167	27-Apr-2016	27-Apr-2016	0	1	410,499	1	0	3	Atlas	258,614
CSO167	30-Apr-2016	30-Apr-2016	0	0	45,296	1	0	6	Atlas	22,648
CSO167	30-Apr-2016	30-Apr-2016	0	0	157	1	0	6	Atlas	79
CSO167	4-May-2016	4-May-2016	0	0	10,254	1	0	3	Atlas	1,743
CSO167	7-May-2016	7-May-2016	0	1	26,084	1	0	6	Atlas	13,303
CSO167	10-May-2016	10-May-2016	1	1	465,758	1	0	24	Atlas	349,319
CSO167	11-May-2016	11-May-2016	0	0	143,450	1	0	3	Atlas	27,256
CSO167	17-May-2016	17-May-2016	0	1	5,965	1	0	24	Atlas	3,639
CSO167	20-May-2016	20-May-2016	0	1	567,065	1	0	3	Atlas	374,263
CSO167	26-May-2016	26-May-2016	0	0	52,795	1	0	3	Atlas	11,615
CSO167	2-Jun-2016	2-Jun-2016	0	0	437,879	0	0	1	Atlas	122,606
CSO167	4-Jun-2016	4-Jun-2016	0	0	366,854	1	0	3	Atlas	99,051
CSO167	12-Jun-2016	12-Jun-2016	0	0	750,382	0	0	1	Atlas	135,069
CSO167	14-Jun-2016	14-Jun-2016	0	1	267,421	1	1	3	Atlas	240,679
CSO167	15-Jun-2016	15-Jun-2016	0	0	1,810	1	0	1	Atlas	235
CSO167	22-Jun-2016	22-Jun-2016	0	0	226,448	0	0	3	Atlas	88,315
CSO167	23-Jun-2016	23-Jun-2016	0	2	448,344	2	1	6	Cloudburst	838,404
CSO167 Count										69
CSO167 Total										18,202,768
CSO174	27-Oct-2015	28-Oct-2015	0	2	21,961	2	1	24	Atlas	51,170
CSO174	6-Nov-2015	6-Nov-2015	0	1	714,370	1	0	3	Atlas	550,065
CSO174	12-Nov-2015	12-Nov-2015	0	0	350,701	2	0	3	Atlas	101,703
CSO174	18-Nov-2015	18-Nov-2015	0	1	583,629	2	1	6	Atlas	828,753
CSO174	30-Nov-2015	1-Dec-2015	0	1	80,807	2	0	12	Atlas	59,798
CSO174	22-Dec-2015	22-Dec-2015	0	1	405,945	1	0	6	Atlas	207,032
CSO174	23-Dec-2015	23-Dec-2015	0	1	2,327,292	2	1	1	Atlas	1,768,742
CSO174	27-Dec-2015	27-Dec-2015	0	2	1,046,425	3	1	3	Atlas	1,935,886
CSO174	28-Dec-2015	28-Dec-2015	0	2	1,468	4	1	3	Atlas	2,715
CSO174	2-Feb-2016	3-Feb-2016	0	1	661,432	1	1	6	Atlas	800,333
CSO174	21-Feb-2016	21-Feb-2016	0	1	79,213	1	1	12	Atlas	86,342

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CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO174	24-Feb-2016	24-Feb-2016	0	2	442,425	3	1	12	Atlas	920,244
CSO174	1-Mar-2016	1-Mar-2016	0	0	57,533	2	0	3	Atlas	15,534
CSO174	10-Mar-2016	10-Mar-2016	0	1	28,102	1	0	48	Atlas	31,474
CSO174	12-Mar-2016	12-Mar-2016	0	1	144,000	2	0	24	Atlas	122,400
CSO174	13-Mar-2016	13-Mar-2016	0	1	272,920	2	0	24	Atlas	231,982
CSO174	24-Mar-2016	24-Mar-2016	0	1	562,734	1	0	1	Atlas	337,641
CSO174	27-Mar-2016	27-Mar-2016	0	1	1,638,145	1	1	1	Atlas	1,392,424
CSO174	31-Mar-2016	31-Mar-2016	0	1	168,173	2	0	24	Atlas	198,444
CSO174	31-Mar-2016	31-Mar-2016	0	1	168,173	2	0	24	Atlas	198,444
CSO174	11-Apr-2016	11-Apr-2016	0	1	161,943	1	0	6	Atlas	147,368
CSO174	27-Apr-2016	27-Apr-2016	0	1	322,639	1	0	1	Atlas	206,489
CSO174	1-May-2016	1-May-2016	0	0	2,465,820	2	0	3	Atlas	690,430
CSO174	7-May-2016	7-May-2016	0	1	94,380	1	0	6	Atlas	79,280
CSO174	10-May-2016	10-May-2016	0	1	484,726	2	0	12	Atlas	436,254
CSO174	20-May-2016	20-May-2016	0	1	974,742	1	0	3	Atlas	555,603
CSO174	2-Jun-2016	2-Jun-2016	0	0	741,277	1	0	1	Atlas	340,987
CSO174	14-Jun-2016	14-Jun-2016	0	1	369,821	1	0	3	Atlas	236,686
CSO174	23-Jun-2016	23-Jun-2016	0	2	1,186,632	2	1	6	Atlas	1,898,612
CSO174 Count										29
CSO174 Total										14,432,835
CSO179	12-Jul-2015	12-Jul-2015	0	1	64,738	2	1	1	Atlas	54,380
CSO179	23-Dec-2015	23-Dec-2015	0	1	46,268	1	1	1	Atlas	35,164
CSO179	27-Dec-2015	27-Dec-2015	0	2	25,463	3	1	3	Atlas	47,107
CSO179	27-Mar-2016	27-Mar-2016	0	1	10,528	1	1	1	Atlas	8,949
CSO179	14-Jun-2016	14-Jun-2016	0	1	17,007	1	0	3	Atlas	10,885
CSO179	23-Jun-2016	23-Jun-2016	0	2	60,448	2	1	6	Atlas	96,716
CSO179 Count										6
CSO179 Total										253,201
CSO180	2-Jul-2015	2-Jul-2015	0	1	40,301	3	0	3	Atlas	37,480
CSO180	3-Jul-2015	3-Jul-2015	0	0	93,541	2	0	1	Atlas	30,868
CSO180	7-Jul-2015	7-Jul-2015	0	1	37,961	2	0	6	Atlas	27,332
CSO180	10-Jul-2015	10-Jul-2015	0	0	31,759	2	0	6	Atlas	14,609
CSO180	12-Jul-2015	12-Jul-2015	0	1	409,276	2	1	1	Atlas	343,792
CSO180	13-Jul-2015	13-Jul-2015	0	0	55,575	3	0	1	Atlas	13,894
CSO180	14-Jul-2015	14-Jul-2015	0	1	81,660	3	0	1	Atlas	43,280
CSO180	17-Jul-2015	18-Jul-2015	0	1	128,777	3	1	3	Atlas	121,050

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO180	6-Aug-2015	6-Aug-2015	0	1	70,809	1	0	24	Atlas	50,274
CSO180	19-Aug-2015	19-Aug-2015	0	1	128,950	0	0	1	Atlas	69,633
CSO180	9-Sep-2015	9-Sep-2015	0	0	50,786	0	0	1	Atlas	10,665
CSO180	12-Oct-2015	12-Oct-2015	0	0	1,939	0	0	3	Atlas	485
CSO180	28-Oct-2015	28-Oct-2015	0	2	394	2	1	24	Atlas	918
CSO180	6-Nov-2015	6-Nov-2015	0	1	80,143	1	0	3	Atlas	61,710
CSO180	12-Nov-2015	12-Nov-2015	0	0	35,965	2	0	3	Atlas	10,430
CSO180	18-Nov-2015	18-Nov-2015	0	1	104,910	2	1	6	Atlas	148,972
CSO180	30-Nov-2015	30-Nov-2015	0	1	11,458	1	0	12	Atlas	8,479
CSO180	22-Dec-2015	22-Dec-2015	0	1	114,487	1	0	6	Atlas	58,388
CSO180	23-Dec-2015	23-Dec-2015	0	1	305,888	1	1	1	Atlas	232,475
CSO180	27-Dec-2015	27-Dec-2015	0	2	124,058	3	1	3	Atlas	229,508
CSO180	2-Feb-2016	3-Feb-2016	0	1	71,253	1	1	6	Atlas	86,216
CSO180	21-Feb-2016	21-Feb-2016	0	1	26,091	1	1	12	Atlas	28,439
CSO180	24-Feb-2016	24-Feb-2016	0	2	18,883	3	1	12	Atlas	39,277
CSO180	1-Mar-2016	1-Mar-2016	0	0	20,202	2	0	3	Atlas	5,454
CSO180	12-Mar-2016	12-Mar-2016	0	1	11,147	2	0	24	Atlas	9,475
CSO180	13-Mar-2016	13-Mar-2016	0	1	8,058	2	0	24	Atlas	6,849
CSO180	24-Mar-2016	24-Mar-2016	0	1	39,951	1	0	1	Atlas	23,970
CSO180	27-Mar-2016	27-Mar-2016	0	1	198,062	1	1	1	Atlas	168,353
CSO180	31-Mar-2016	31-Mar-2016	0	1	5,721	2	0	24	Atlas	6,750
CSO180	31-Mar-2016	31-Mar-2016	0	1	5,721	2	0	24	Atlas	6,750
CSO180	11-Apr-2016	11-Apr-2016	0	1	14,940	1	0	6	Atlas	13,596
CSO180	27-Apr-2016	27-Apr-2016	0	1	58,332	1	0	1	Atlas	37,332
CSO180	1-May-2016	1-May-2016	0	0	154,430	2	0	3	Atlas	43,240
CSO180	7-May-2016	7-May-2016	0	1	7,372	1	0	6	Atlas	6,193
CSO180	10-May-2016	10-May-2016	0	1	31,594	2	0	12	Atlas	28,435
CSO180	20-May-2016	20-May-2016	0	1	84,010	1	0	3	Atlas	47,886
CSO180	12-Jun-2016	12-Jun-2016	0	0	44,692	0	0	1	Atlas	11,620
CSO180	14-Jun-2016	14-Jun-2016	0	1	13,692	1	0	3	Atlas	8,763
CSO180	23-Jun-2016	23-Jun-2016	0	2	189,458	2	1	6	Atlas	303,133
CSO180 Count										39
CSO180 Total										2,395,973
CSO181	2-Jul-2015	2-Jul-2015	0	1	116,578	3	0	24	Atlas	138,727
CSO181	12-Jul-2015	12-Jul-2015	1	1	520,799	3	1	1	Atlas	604,127
CSO181	13-Jul-2015	14-Jul-2015	1	0	2,163,460	4	0	1	Atlas	713,942

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO181	14-Jul-2015	15-Jul-2015	0	0	1,407,769	3	0	1	Atlas	28,155
CSO181	17-Jul-2015	18-Jul-2015	0	1	216,054	3	1	3	Atlas	244,141
CSO181	6-Aug-2015	6-Aug-2015	0	0	16,361	0	0	1	Atlas	8,017
CSO181	15-Aug-2015	15-Aug-2015	0	0	114,766	0	0	1	Atlas	19,510
CSO181	9-Sep-2015	9-Sep-2015	0	0	135,593	0	0	1	Atlas	28,475
CSO181	6-Nov-2015	6-Nov-2015	0	1	122,595	1	0	3	Atlas	93,172
CSO181	18-Nov-2015	18-Nov-2015	0	1	110,044	1	1	6	Atlas	144,157
CSO181	23-Dec-2015	23-Dec-2015	0	1	94,596	2	1	1	Atlas	90,812
CSO181	27-Dec-2015	27-Dec-2015	0	2	93,100	3	1	3	Atlas	176,891
CSO181	3-Feb-2016	3-Feb-2016	0	1	79,190	1	1	6	Atlas	95,820
CSO181	12-Mar-2016	12-Mar-2016	0	1	6,955	2	0	24	Atlas	5,356
CSO181	27-Mar-2016	27-Mar-2016	0	1	77,763	1	0	1	Atlas	55,989
CSO181	26-Apr-2016	26-Apr-2016	0	0	1,301,847	0	0	6	Atlas	429,609
CSO181	10-May-2016	10-May-2016	0	1	16,735,872	2	0	12	Atlas	15,731,720
CSO181	2-Jun-2016	2-Jun-2016	0	0	57,007,706	0	0	1	Atlas	19,382,620
CSO181	4-Jun-2016	4-Jun-2016	0	0	386,660,426	1	0	1	Atlas	88,931,898
CSO181	14-Jun-2016	14-Jun-2016	0	1	26,028,719	1	1	3	Atlas	21,864,124
CSO181	23-Jun-2016	23-Jun-2016	0	2	157,915,688	2	1	6	Cloudburst	296,881,494
CSO181 Count										21
CSO181 Total										445,668,756
CSO182	27-Jul-2015	27-Jul-2015	0	0	58,694	0	0	1	Atlas	5,869
CSO182	29-Jul-2015	29-Jul-2015	0	0	1,202,481	0	0	1	Atlas	96,198
CSO182	4-Aug-2015	4-Aug-2015	0	0	54,640	0	0	1	Atlas	7,650
CSO182	6-Aug-2015	6-Aug-2015	1	1	21,294	1	0	24	Atlas	19,591
CSO182	10-Aug-2015	10-Aug-2015	0	0	173,500	1	0	1	Atlas	17,350
CSO182	15-Aug-2015	15-Aug-2015	0	0	34,104	0	0	1	Atlas	2,387
CSO182	19-Aug-2015	19-Aug-2015	0	1	52,750	1	0	1	Atlas	39,563
CSO182	29-Sep-2015	29-Sep-2015	0	1	36,335	1	0	48	Atlas	31,975
CSO182	2-Oct-2015	2-Oct-2015	0	1	77,234	2	0	6	Atlas	48,657
CSO182	9-Oct-2015	9-Oct-2015	0	0	5,543	1	0	3	Atlas	721
CSO182	12-Oct-2015	12-Oct-2015	0	0	80,747	0	0	3	Atlas	22,609
CSO182	24-Oct-2015	24-Oct-2015	0	0	10,488	0	0	3	Atlas	4,090
CSO182	27-Oct-2015	28-Oct-2015	1	2	76,474	3	1	24	Atlas	185,066
CSO182	28-Oct-2015	28-Oct-2015	0	0	54,911	3	0	6	Atlas	9,335
CSO182	31-Oct-2015	1-Nov-2015	0	0	22,657	3	0	3	Atlas	4,758
CSO182	6-Nov-2015	6-Nov-2015	0	1	16,890	1	0	3	Atlas	11,992

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO182	9-Nov-2015	9-Nov-2015	0	1	104,190	1	0	12	Atlas	55,221
CSO182	12-Nov-2015	12-Nov-2015	0	0	31,509	2	0	3	Atlas	9,138
CSO182	18-Nov-2015	18-Nov-2015	0	1	54,405	2	1	6	Atlas	80,519
CSO182	21-Nov-2015	21-Nov-2015	0	0	14,336	2	0	1	Atlas	1,577
CSO182	28-Nov-2015	28-Nov-2015	0	1	60,968	1	0	12	Atlas	43,288
CSO182	30-Nov-2015	30-Nov-2015	0	0	854,116	1	0	12	Atlas	42,706
CSO182	30-Nov-2015	1-Dec-2015	0	1	75,456	2	0	12	Atlas	53,574
CSO182	14-Dec-2015	14-Dec-2015	0	0	165,298	0	0	6	Atlas	39,671
CSO182	21-Dec-2015	21-Dec-2015	0	0	30,998	0	0	6	Atlas	6,200
CSO182	21-Dec-2015	22-Dec-2015	0	1	23,290	1	0	6	Atlas	13,042
CSO182	23-Dec-2015	23-Dec-2015	0	1	129,672	2	1	1	Atlas	108,924
CSO182	25-Dec-2015	25-Dec-2015	0	0	72,334	2	0	3	Atlas	8,680
CSO182	26-Dec-2015	26-Dec-2015	0	0	129,220	2	0	12	Atlas	42,642
CSO182	27-Dec-2015	28-Dec-2015	1	2	127,321	4	1	3	Atlas	240,636
CSO182	9-Jan-2016	9-Jan-2016	0	0	36,168	0	0	12	Atlas	7,234
CSO182	1-Feb-2016	1-Feb-2016	0	0	23,347	0	0	3	Atlas	2,335
CSO182	2-Feb-2016	3-Feb-2016	1	1	52,299	1	1	6	Atlas	61,713
CSO182	21-Feb-2016	21-Feb-2016	0	1	57,437	1	0	12	Atlas	54,565
CSO182	23-Feb-2016	24-Feb-2016	1	2	59,612	3	1	12	Atlas	125,781
CSO182	29-Feb-2016	29-Feb-2016	0	0	431,720	2	0	3	Atlas	8,634
CSO182	1-Mar-2016	1-Mar-2016	0	0	138,286	2	0	3	Atlas	35,954
CSO182	9-Mar-2016	9-Mar-2016	0	1	20,751	0	0	48	Atlas	23,034
CSO182	10-Mar-2016	10-Mar-2016	0	1	101,281	1	0	48	Atlas	112,421
CSO182	12-Mar-2016	13-Mar-2016	0	1	45,512	2	0	24	Atlas	39,141
CSO182	13-Mar-2016	13-Mar-2016	0	1	24,872	2	0	24	Atlas	21,390
CSO182	19-Mar-2016	19-Mar-2016	0	0	95,313	1	0	1	Atlas	17,156
CSO182	24-Mar-2016	24-Mar-2016	0	1	16,164	1	0	1	Atlas	8,567
CSO182	27-Mar-2016	27-Mar-2016	0	1	65,054	1	1	1	Atlas	53,995
CSO182	31-Mar-2016	1-Apr-2016	1	1	70,534	3	0	24	Atlas	82,525
CSO182	31-Mar-2016	1-Apr-2016	1	1	70,534	3	0	24	Atlas	82,525
CSO182	11-Apr-2016	11-Apr-2016	0	1	55,116	1	0	12	Atlas	56,769
CSO182	21-Apr-2016	21-Apr-2016	0	0	38,819	0	0	3	Atlas	12,034
CSO182	22-Apr-2016	22-Apr-2016	0	0	15,246	0	0	3	Atlas	4,726
CSO182	26-Apr-2016	26-Apr-2016	0	0	87,443	1	0	6	Atlas	27,107
CSO182	27-Apr-2016	27-Apr-2016	0	1	24,092	1	0	3	Atlas	14,455
CSO182	30-Apr-2016	30-Apr-2016	0	0	51,266	1	0	24	Atlas	25,633

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO182	1-May-2016	1-May-2016	0	0	36,870	2	0	1	Atlas	15,854
CSO182	4-May-2016	4-May-2016	0	0	83,390	2	0	1	Atlas	15,844
CSO182	7-May-2016	7-May-2016	0	1	42,374	1	0	6	Atlas	27,543
CSO182	10-May-2016	10-May-2016	1	1	56,037	2	0	24	Atlas	50,994
CSO182	11-May-2016	11-May-2016	0	0	85,443	2	0	3	Atlas	27,342
CSO182	12-May-2016	12-May-2016	0	0	5,992	2	0	1	Atlas	479
CSO182	17-May-2016	17-May-2016	0	0	118,606	2	0	12	Atlas	43,884
CSO182	17-May-2016	17-May-2016	0	0	106,896	1	0	3	Atlas	28,862
CSO182	20-May-2016	20-May-2016	0	1	76,523	1	0	3	Atlas	47,444
CSO182	26-May-2016	26-May-2016	0	0	56,554	1	0	3	Atlas	14,704
CSO182	2-Jun-2016	2-Jun-2016	0	1	14,158	1	0	1	Atlas	7,221
CSO182	4-Jun-2016	4-Jun-2016	0	0	38,094	1	0	1	Atlas	5,714
CSO182	7-Jun-2016	7-Jun-2016	0	0	9,104	1	0	1	Atlas	546
CSO182	12-Jun-2016	12-Jun-2016	0	0	61,971	0	0	1	Atlas	17,972
CSO182	14-Jun-2016	14-Jun-2016	0	1	20,393	1	0	3	Atlas	13,052
CSO182	15-Jun-2016	15-Jun-2016	0	0	11,900	1	0	1	Atlas	2,618
CSO182	23-Jun-2016	23-Jun-2016	0	2	10,704	2	1	6	Atlas	16,913
CSO182 Count										69
CSO182 Total										2,468,309
CSO183	12-Jul-2015	12-Jul-2015	0	1	351	2	1	3	Atlas	333
CSO183	14-Jul-2015	14-Jul-2015	0	0	648	3	0	1	Atlas	253
CSO183	2-Oct-2015	2-Oct-2015	0	1	247,829	2	0	6	Atlas	148,698
CSO183	12-Oct-2015	13-Oct-2015	0	0	179,349	0	0	3	Atlas	68,153
CSO183	6-Nov-2015	6-Nov-2015	0	1	207	1	0	3	Atlas	151
CSO183	23-Dec-2015	23-Dec-2015	0	1	1,245	1	1	1	Atlas	1,183
CSO183	3-Feb-2016	3-Feb-2016	0	1	551	1	1	6	Atlas	678
CSO183	27-Mar-2016	27-Mar-2016	0	1	941	1	1	1	Atlas	791
CSO183 Count										8
CSO183 Total										220,240
CSO184	10-Jul-2015	10-Jul-2015	0	1	27,064	2	0	12	Atlas	21,110
CSO184	12-Jul-2015	12-Jul-2015	0	1	159,013	2	1	3	Atlas	151,062
CSO184	13-Jul-2015	13-Jul-2015	0	0	7,979	3	0	1	Atlas	2,713
CSO184	14-Jul-2015	14-Jul-2015	0	0	34,129	3	0	1	Atlas	13,310
CSO184	14-Jul-2015	14-Jul-2015	0	0	48,760	3	0	1	Atlas	4,388
CSO184	17-Jul-2015	18-Jul-2015	0	1	62,614	3	1	3	Atlas	56,353
CSO184	4-Aug-2015	4-Aug-2015	0	0	5,800	0	0	1	Atlas	1,392

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CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO184	6-Aug-2015	6-Aug-2015	0	1	14,506	1	0	24	Atlas	14,651
CSO184	19-Aug-2015	19-Aug-2015	0	1	4,135	0	0	1	Atlas	2,192
CSO184	6-Nov-2015	6-Nov-2015	0	1	20,591	1	0	3	Atlas	15,031
CSO184	18-Nov-2015	18-Nov-2015	0	2	44,687	2	1	6	Atlas	68,819
CSO184	30-Nov-2015	30-Nov-2015	0	1	2,170	1	0	12	Atlas	1,498
CSO184	22-Dec-2015	22-Dec-2015	0	1	42,162	1	0	6	Atlas	23,611
CSO184	23-Dec-2015	23-Dec-2015	0	1	239,362	2	1	1	Atlas	227,394
CSO184	27-Dec-2015	27-Dec-2015	0	2	55,279	3	1	3	Atlas	110,557
CSO184	10-Jan-2016	10-Jan-2016	0	0	3,193,590	0	0	12	Atlas	542,910
CSO184	3-Feb-2016	3-Feb-2016	0	1	630	1	1	6	Atlas	775
CSO184	8-Feb-2016	8-Feb-2016	0	0	46,518	1	0	24	Atlas	5,582
CSO184	24-Feb-2016	25-Feb-2016	0	2	246,798	3	1	12	Atlas	525,679
CSO184	12-Mar-2016	12-Mar-2016	0	1	3,538	2	0	6	Atlas	3,291
CSO184	13-Mar-2016	13-Mar-2016	0	1	1,286	2	0	6	Atlas	1,196
CSO184	24-Mar-2016	24-Mar-2016	0	0	25,467	1	0	1	Atlas	12,224
CSO184	27-Mar-2016	27-Mar-2016	0	1	130,503	1	1	1	Atlas	109,623
CSO184	31-Mar-2016	31-Mar-2016	0	1	1,545	2	0	24	Atlas	1,838
CSO184	31-Mar-2016	31-Mar-2016	0	1	1,545	2	0	24	Atlas	1,838
CSO184	27-Apr-2016	27-Apr-2016	0	1	34,118	1	0	3	Atlas	18,424
CSO184	1-May-2016	1-May-2016	0	0	378,779	2	0	3	Atlas	147,724
CSO184	8-May-2016	8-May-2016	0	0	2,843	1	0	6	Atlas	1,365
CSO184	10-May-2016	10-May-2016	0	1	33,202	1	0	24	Atlas	21,913
CSO184 Count										29
CSO184 Total										2,108,463
CSO185	2-Jul-2015	2-Jul-2015	0	1	4,116	2	0	3	Atlas	3,087
CSO185	9-Jul-2015	9-Jul-2015	0	0	17,745	1	0	1	Atlas	5,323
CSO185	10-Jul-2015	10-Jul-2015	0	1	71,671	2	0	12	Atlas	55,904
CSO185	12-Jul-2015	12-Jul-2015	0	1	284,560	2	1	3	Atlas	270,332
CSO185	13-Jul-2015	13-Jul-2015	0	0	51,394	3	0	1	Atlas	17,474
CSO185	14-Jul-2015	14-Jul-2015	0	0	130,409	3	0	1	Atlas	50,859
CSO185	14-Jul-2015	14-Jul-2015	0	0	189,032	3	0	1	Atlas	17,013
CSO185	17-Jul-2015	18-Jul-2015	0	1	115,754	3	1	3	Atlas	104,179
CSO185	29-Jul-2015	29-Jul-2015	0	0	31,220	0	0	1	Atlas	2,498
CSO185	4-Aug-2015	4-Aug-2015	0	0	36,620	0	0	1	Atlas	8,789
CSO185	6-Aug-2015	6-Aug-2015	0	1	23,476	1	0	24	Atlas	23,711
CSO185	10-Aug-2015	10-Aug-2015	0	0	33,603	1	0	1	Atlas	4,032

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO185	19-Aug-2015	19-Aug-2015	0	1	12,956	0	0	1	Atlas	6,867
CSO185	13-Oct-2015	13-Oct-2015	0	0	3,268	0	0	3	Atlas	1,242
CSO185	6-Nov-2015	6-Nov-2015	0	1	79,872	1	0	3	Atlas	58,307
CSO185	12-Nov-2015	12-Nov-2015	0	0	14,866	2	0	3	Atlas	4,757
CSO185	18-Nov-2015	18-Nov-2015	0	2	89,198	2	1	6	Atlas	137,366
CSO185	30-Nov-2015	30-Nov-2015	0	1	892	1	0	12	Atlas	616
CSO185	22-Dec-2015	22-Dec-2015	0	1	100,402	1	0	6	Atlas	56,225
CSO185	23-Dec-2015	23-Dec-2015	0	1	374,600	2	1	1	Atlas	355,870
CSO185	27-Dec-2015	27-Dec-2015	0	2	111,648	3	1	3	Atlas	223,296
CSO185	17-Jan-2016	19-Jan-2016	2	0	276,238,507	0	0	1	Atlas	2,762,385
CSO185	1-Feb-2016	1-Feb-2016	0	0	222,726	0	0	3	Atlas	22,273
CSO185	2-Feb-2016	3-Feb-2016	0	1	34,429	1	1	6	Atlas	42,348
CSO185	21-Feb-2016	21-Feb-2016	0	1	5,682	1	0	12	Atlas	4,375
CSO185	24-Feb-2016	25-Feb-2016	1	2	1,624,780	3	1	12	Atlas	3,460,781
CSO185	12-Mar-2016	12-Mar-2016	0	1	15,342	2	0	6	Atlas	14,268
CSO185	13-Mar-2016	13-Mar-2016	0	1	2,356	2	0	6	Atlas	2,191
CSO185	24-Mar-2016	24-Mar-2016	0	0	78,988	1	0	1	Atlas	37,914
CSO185	27-Mar-2016	27-Mar-2016	0	1	231,201	1	1	1	Atlas	194,209
CSO185	31-Mar-2016	31-Mar-2016	0	1	13,072	2	0	24	Atlas	15,555
CSO185	31-Mar-2016	31-Mar-2016	0	1	13,072	2	0	24	Atlas	15,555
CSO185	11-Apr-2016	11-Apr-2016	0	1	4,091	1	0	12	Atlas	3,927
CSO185	27-Apr-2016	27-Apr-2016	0	1	61,159	1	0	3	Atlas	33,026
CSO185	1-May-2016	1-May-2016	0	0	558,293	2	0	3	Atlas	217,734
CSO185	7-May-2016	7-May-2016	0	0	1,052	1	0	6	Atlas	505
CSO185	10-May-2016	10-May-2016	0	1	79,062	1	0	24	Atlas	52,181
CSO185	20-May-2016	20-May-2016	0	1	30,778	1	0	3	Atlas	21,545
CSO185	2-Jun-2016	2-Jun-2016	0	0	41,541	1	0	1	Atlas	20,355
CSO185	4-Jun-2016	4-Jun-2016	0	0	6,822	1	0	1	Atlas	614
CSO185	14-Jun-2016	14-Jun-2016	0	1	61,607	1	0	3	Atlas	38,197
CSO185	15-Jun-2016	15-Jun-2016	0	0	2,551	1	0	1	Atlas	816
CSO185	23-Jun-2016	23-Jun-2016	0	2	29,047	2	1	6	Atlas	45,603
CSO185 Count										43
CSO185 Total										8,414,104
CSO186	27-Dec-2015	27-Dec-2015	0	2	64,618	2	1	3	Atlas	119,543
CSO186	28-Dec-2015	28-Dec-2015	0	2	271,616	4	1	3	Atlas	502,491
CSO186	23-Jun-2016	23-Jun-2016	0	2	23,261	1	1	6	Atlas	37,217

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO186 Count										3
CSO186 Total										659,251
CSO187	6-Nov-2015	6-Nov-2015	0	1	33,441	1	0	3	Atlas	25,750
CSO187	18-Nov-2015	18-Nov-2015	0	1	688	1	1	6	Atlas	977
CSO187	23-Dec-2015	23-Dec-2015	0	1	81,434	1	1	1	Atlas	61,890
CSO187	27-Dec-2015	27-Dec-2015	0	2	257	2	1	3	Atlas	476
CSO187	3-Feb-2016	3-Feb-2016	0	1	27,363	1	1	6	Atlas	33,110
CSO187	12-Mar-2016	12-Mar-2016	0	1	33,650	2	0	24	Atlas	28,602
CSO187	27-Mar-2016	27-Mar-2016	0	1	59,486	1	1	1	Atlas	50,563
CSO187	4-Jun-2016	4-Jun-2016	0	0	32,291	1	0	1	Atlas	3,875
CSO187	12-Jun-2016	12-Jun-2016	0	0	988	0	0	1	Atlas	257
CSO187	23-Jun-2016	23-Jun-2016	0	2	55,401	2	1	6	Atlas	88,642
CSO187 Count										10
CSO187 Total										294,142
CSO188	12-Jul-2015	12-Jul-2015	0	1	2,138	2	1	1	Atlas	1,796
CSO188 Count										1
CSO188 Total										1,796
CSO189	2-Jul-2015	2-Jul-2015	0	1	1,058,040	3	1	3	Atlas	1,047,460
CSO189	2-Jul-2015	2-Jul-2015	0	1	7,060,091	3	1	3	Atlas	6,989,490
CSO189	3-Jul-2015	3-Jul-2015	0	2	4,641,743	4	3	1	Atlas	7,009,033
CSO189	7-Jul-2015	7-Jul-2015	0	1	2,380,278	3	1	3	Atlas	2,546,898
CSO189	9-Jul-2015	9-Jul-2015	0	0	1,444,949	3	0	1	Atlas	404,586
CSO189	10-Jul-2015	10-Jul-2015	0	0	1,414,428	2	0	6	Atlas	650,637
CSO189	12-Jul-2015	12-Jul-2015	0	1	9,223,237	3	0	3	Atlas	6,456,266
CSO189	13-Jul-2015	13-Jul-2015	0	0	4,895,261	3	0	1	Atlas	1,860,199
CSO189	14-Jul-2015	14-Jul-2015	0	0	8,973,741	3	0	1	Atlas	2,422,910
CSO189	14-Jul-2015	14-Jul-2015	0	0	9,027,822	2	0	1	Atlas	1,263,895
CSO189	17-Jul-2015	18-Jul-2015	0	1	15,503,037	3	1	3	Atlas	17,983,523
CSO189	29-Jul-2015	29-Jul-2015	0	0	2,661,847	0	0	1	Atlas	878,410
CSO189	4-Aug-2015	4-Aug-2015	0	0	6,397,256	1	0	1	Atlas	1,791,232
CSO189	5-Aug-2015	5-Aug-2015	0	1	1,455,165	1	1	1	Atlas	1,804,404
CSO189	6-Aug-2015	6-Aug-2015	0	1	820,359	1	1	1	Atlas	1,017,245
CSO189	19-Aug-2015	19-Aug-2015	0	1	5,115,458	1	0	1	Atlas	4,092,366
CSO189	9-Sep-2015	9-Sep-2015	0	1	3,842,694	1	1	1	Atlas	3,266,290
CSO189	27-Oct-2015	28-Oct-2015	1	3	5,720,326	4	1	24	Cloudburst	19,334,701
CSO189	6-Nov-2015	6-Nov-2015	0	1	7,367,401	1	1	3	Atlas	6,704,335

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO189	9-Nov-2015	9-Nov-2015	0	1	41,181	2	0	12	Atlas	26,768
CSO189	12-Nov-2015	12-Nov-2015	0	0	1,349,836	2	0	3	Atlas	391,452
CSO189	18-Nov-2015	18-Nov-2015	0	2	7,862,251	2	1	6	Atlas	13,758,940
CSO189	1-Dec-2015	1-Dec-2015	0	1	1,885,227	1	0	12	Atlas	961,466
CSO189	22-Dec-2015	22-Dec-2015	0	0	333,353	1	0	24	Atlas	166,676
CSO189	23-Dec-2015	24-Dec-2015	0	1	13,697,122	2	1	1	Atlas	17,532,317
CSO189	26-Dec-2015	26-Dec-2015	0	0	2,121,028	2	0	12	Atlas	890,832
CSO189	27-Dec-2015	27-Dec-2015	0	3	8,205,679	4	1	48	Atlas	21,745,051
CSO189	28-Dec-2015	28-Dec-2015	0	3	85,391	4	1	48	Atlas	226,287
CSO189	28-Dec-2015	28-Dec-2015	0	3	1,094,237	5	1	48	Atlas	2,899,727
CSO189	2-Feb-2016	3-Feb-2016	0	1	14,344,050	1	1	6	Atlas	19,221,027
CSO189	21-Feb-2016	21-Feb-2016	0	1	5,417,970	1	0	12	Atlas	4,334,376
CSO189	23-Feb-2016	24-Feb-2016	1	2	11,139,345	3	1	12	Atlas	25,843,280
CSO189	1-Mar-2016	1-Mar-2016	0	1	1,904,824	3	0	6	Atlas	1,352,425
CSO189	9-Mar-2016	9-Mar-2016	0	1	7,652	0	0	48	Atlas	10,025
CSO189	10-Mar-2016	10-Mar-2016	0	1	3,323,424	1	0	48	Atlas	4,353,685
CSO189	12-Mar-2016	13-Mar-2016	0	0	1,699,517	2	0	24	Atlas	815,768
CSO189	13-Mar-2016	13-Mar-2016	0	0	1,032,850	2	0	24	Atlas	495,768
CSO189	24-Mar-2016	24-Mar-2016	0	1	3,403,745	1	0	1	Atlas	1,735,910
CSO189	27-Mar-2016	27-Mar-2016	0	1	4,276,835	1	1	1	Atlas	3,122,089
CSO189	31-Mar-2016	31-Mar-2016	0	1	1,281,376	2	1	24	Atlas	1,768,299
CSO189	31-Mar-2016	31-Mar-2016	0	1	1,281,376	2	1	24	Atlas	1,768,299
CSO189	31-Mar-2016	1-Apr-2016	0	1	1,620,846	2	1	24	Atlas	2,236,768
CSO189	31-Mar-2016	1-Apr-2016	0	1	1,620,846	2	1	24	Atlas	2,236,768
CSO189	11-Apr-2016	11-Apr-2016	0	1	3,789,058	1	1	6	Atlas	4,319,527
CSO189	27-Apr-2016	27-Apr-2016	0	1	3,514,857	2	0	3	Atlas	3,198,520
CSO189	30-Apr-2016	30-Apr-2016	0	1	1,643,934	2	0	24	Atlas	1,298,707
CSO189	1-May-2016	1-May-2016	0	1	19,578	3	0	3	Atlas	12,726
CSO189	7-May-2016	7-May-2016	0	1	1,332,334	2	0	3	Atlas	692,814
CSO189	10-May-2016	10-May-2016	0	1	2,521,457	2	0	3	Atlas	1,815,449
CSO189	11-May-2016	11-May-2016	0	0	11,169	2	0	3	Atlas	3,351
CSO189	20-May-2016	20-May-2016	0	1	5,652,908	1	0	3	Atlas	3,561,332
CSO189	26-May-2016	26-May-2016	0	0	30,973	1	0	3	Atlas	11,150
CSO189	28-May-2016	28-May-2016	0	0	367,852	1	0	6	Atlas	66,213
CSO189	2-Jun-2016	2-Jun-2016	0	1	7,464,504	2	3	1	Atlas	11,122,112
CSO189	4-Jun-2016	4-Jun-2016	0	0	331,374	2	0	12	Atlas	59,647

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO189	12-Jun-2016	12-Jun-2016	0	1	1,650,742	1	1	1	Atlas	973,938
CSO189	14-Jun-2016	14-Jun-2016	0	1	9,207,723	2	1	1	Atlas	13,443,276
CSO189	23-Jun-2016	23-Jun-2016	0	2	7,865,254	2	1	6	Cloudburst	16,674,338
CSO189 Count										58
CSO189 Total										272,670,983
CSO190	2-Jul-2015	2-Jul-2015	1	2	1,036,203	4	1	1	Atlas	2,507,611
CSO190	3-Jul-2015	3-Jul-2015	0	1	465,057	4	0	1	Atlas	265,082
CSO190	7-Jul-2015	7-Jul-2015	0	1	390,844	4	1	3	Atlas	418,203
CSO190	8-Jul-2015	8-Jul-2015	0	1	11,509	4	1	3	Atlas	12,315
CSO190	9-Jul-2015	9-Jul-2015	0	0	472,653	3	0	12	Atlas	160,702
CSO190	10-Jul-2015	10-Jul-2015	0	0	135,324	2	0	6	Atlas	67,662
CSO190	12-Jul-2015	12-Jul-2015	0	1	1,298,510	3	1	1	Atlas	1,389,406
CSO190	13-Jul-2015	13-Jul-2015	0	0	619,916	3	0	1	Atlas	285,161
CSO190	17-Jul-2015	18-Jul-2015	0	2	2,263,847	4	1	3	Atlas	3,576,878
CSO190	29-Jul-2015	29-Jul-2015	0	0	652,164	0	0	1	Atlas	78,260
CSO190	4-Aug-2015	4-Aug-2015	0	1	1,433,957	1	0	1	Atlas	745,658
CSO190	5-Aug-2015	5-Aug-2015	0	1	361,360	1	1	1	Atlas	408,336
CSO190	6-Aug-2015	6-Aug-2015	0	1	131,503	2	1	1	Atlas	148,598
CSO190	10-Aug-2015	10-Aug-2015	0	0	13,578	2	0	1	Atlas	815
CSO190	15-Aug-2015	15-Aug-2015	0	0	1,189,364	0	0	1	Atlas	23,787
CSO190	19-Aug-2015	19-Aug-2015	0	1	155,869	1	0	12	Atlas	118,460
CSO190	5-Sep-2015	5-Sep-2015	0	0	1,215,331	0	0	1	Atlas	376,753
CSO190	9-Sep-2015	9-Sep-2015	0	0	16,445,704	1	0	1	Atlas	328,914
CSO190	11-Sep-2015	11-Sep-2015	0	0	11,739	1	0	6	Atlas	3,170
CSO190	29-Sep-2015	29-Sep-2015	0	1	64	0	0	48	Atlas	50
CSO190	29-Sep-2015	29-Sep-2015	0	1	13	1	0	48	Atlas	10
CSO190	30-Sep-2015	30-Sep-2015	0	1	33	1	0	48	Atlas	26
CSO190	2-Oct-2015	2-Oct-2015	0	1	45,220	1	0	6	Atlas	24,419
CSO190	12-Oct-2015	12-Oct-2015	0	0	61,460	0	0	1	Atlas	21,511
CSO190	24-Oct-2015	24-Oct-2015	0	0	22,235	0	0	6	Atlas	6,893
CSO190	27-Oct-2015	28-Oct-2015	2	3	685,785	3	1	24	Atlas	2,050,496
CSO190	6-Nov-2015	6-Nov-2015	0	1	1,336,137	1	0	3	Atlas	1,068,910
CSO190	9-Nov-2015	9-Nov-2015	0	1	47,863	1	0	12	Atlas	30,154
CSO190	11-Nov-2015	12-Nov-2015	0	0	485,368	2	0	3	Atlas	150,464
CSO190	18-Nov-2015	18-Nov-2015	0	1	1,274,600	2	1	6	Atlas	1,746,202
CSO190	28-Nov-2015	28-Nov-2015	0	1	9,061	1	0	12	Atlas	5,980

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO190	30-Nov-2015	1-Dec-2015	0	1	399,488	2	0	12	Atlas	251,677
CSO190	14-Dec-2015	14-Dec-2015	0	0	6,517	0	0	6	Atlas	1,760
CSO190	21-Dec-2015	21-Dec-2015	0	1	12,850	0	0	24	Atlas	7,325
CSO190	21-Dec-2015	22-Dec-2015	0	1	272,580	1	0	24	Atlas	155,371
CSO190	23-Dec-2015	23-Dec-2015	0	1	2,120,795	1	1	1	Atlas	1,781,468
CSO190	25-Dec-2015	25-Dec-2015	0	0	27	2	0	6	Atlas	4
CSO190	26-Dec-2015	26-Dec-2015	0	1	391,137	2	0	3	Atlas	258,151
CSO190	27-Dec-2015	28-Dec-2015	1	2	968,645	4	1	48	Atlas	2,411,927
CSO190	28-Dec-2015	28-Dec-2015	0	2	56,177	4	1	48	Atlas	139,881
CSO190	2-Feb-2016	3-Feb-2016	0	2	1,251,134	2	1	6	Atlas	1,876,701
CSO190	21-Feb-2016	21-Feb-2016	0	1	554,036	1	0	12	Atlas	459,850
CSO190	23-Feb-2016	24-Feb-2016	1	2	1,010,910	2	1	24	Atlas	1,839,856
CSO190	29-Feb-2016	29-Feb-2016	0	0	82,687	2	0	1	Atlas	2,481
CSO190	1-Mar-2016	1-Mar-2016	0	0	301,218	2	0	6	Atlas	144,585
CSO190	9-Mar-2016	9-Mar-2016	0	1	9,412	0	0	12	Atlas	12,613
CSO190	10-Mar-2016	10-Mar-2016	0	1	233,037	1	0	12	Atlas	312,270
CSO190	12-Mar-2016	12-Mar-2016	0	1	1,047,100	2	0	6	Atlas	680,615
CSO190	13-Mar-2016	13-Mar-2016	0	1	222,972	2	0	6	Atlas	144,932
CSO190	24-Mar-2016	24-Mar-2016	0	0	735,778	0	0	1	Atlas	242,807
CSO190	27-Mar-2016	27-Mar-2016	0	1	916,007	1	1	3	Atlas	806,086
CSO190	31-Mar-2016	1-Apr-2016	1	1	285,165	3	1	24	Atlas	393,528
CSO190	31-Mar-2016	1-Apr-2016	1	1	285,165	3	1	24	Atlas	393,528
CSO190	11-Apr-2016	11-Apr-2016	0	1	514,513	1	1	6	Atlas	571,109
CSO190	26-Apr-2016	26-Apr-2016	0	0	40,650	1	0	1	Atlas	12,602
CSO190	27-Apr-2016	27-Apr-2016	0	1	552,449	2	0	1	Atlas	486,155
CSO190	30-Apr-2016	30-Apr-2016	0	1	366,875	2	0	24	Atlas	319,181
CSO190	30-Apr-2016	1-May-2016	0	1	34	2	0	24	Atlas	30
CSO190	1-May-2016	1-May-2016	0	0	41,521	2	0	3	Atlas	13,702
CSO190	4-May-2016	4-May-2016	0	0	3,779	2	0	3	Atlas	794
CSO190	7-May-2016	7-May-2016	0	1	89,294	2	0	6	Atlas	71,435
CSO190	10-May-2016	10-May-2016	0	1	487,006	2	0	12	Atlas	404,215
CSO190	11-May-2016	11-May-2016	0	0	33,979	2	0	3	Atlas	7,815
CSO190	12-May-2016	12-May-2016	0	0	3,837	2	0	3	Atlas	614
CSO190	17-May-2016	18-May-2016	2	0	36,379	2	0	12	Atlas	11,641
CSO190	20-May-2016	20-May-2016	0	1	778,730	1	0	6	Atlas	428,302
CSO190	25-May-2016	25-May-2016	0	0	1,346,512	1	0	1	Atlas	40,395

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO190	26-May-2016	26-May-2016	0	0	8,137	1	0	3	Atlas	3,011
CSO190	30-May-2016	30-May-2016	0	0	82,320	1	0	1	Atlas	823
CSO190	2-Jun-2016	2-Jun-2016	0	1	1,035,057	1	1	1	Atlas	1,159,264
CSO190	4-Jun-2016	4-Jun-2016	0	0	179,671	1	0	3	Atlas	59,292
CSO190	14-Jun-2016	14-Jun-2016	0	1	1,587,752	1	1	3	Atlas	1,810,037
CSO190	22-Jun-2016	22-Jun-2016	0	0	329,844	0	0	3	Atlas	112,147
CSO190	23-Jun-2016	23-Jun-2016	0	2	1,163,119	2	2	6	Cloudburst	2,465,812
CSO190 Count										74
CSO190 Total										36,316,678
CSO191	3-Jul-2015	3-Jul-2015	0	1	933	3	1	1	Atlas	970
CSO191	7-Jul-2015	7-Jul-2015	0	1	23,819	3	0	6	Atlas	22,389
CSO191	10-Jul-2015	10-Jul-2015	0	1	48,510	2	0	6	Atlas	25,225
CSO191	12-Jul-2015	12-Jul-2015	0	1	139,406	3	0	1	Atlas	93,402
CSO191	13-Jul-2015	13-Jul-2015	0	1	167,170	3	0	1	Atlas	90,272
CSO191	14-Jul-2015	14-Jul-2015	0	0	212,458	3	0	1	Atlas	40,367
CSO191	14-Jul-2015	14-Jul-2015	0	0	206,123	3	0	1	Atlas	55,653
CSO191	27-Oct-2015	28-Oct-2015	1	3	202,804	4	2	24	Cloudburst	695,618
CSO191	6-Nov-2015	6-Nov-2015	0	1	69,603	1	1	3	Atlas	70,299
CSO191	18-Nov-2015	18-Nov-2015	0	2	2,161	1	1	6	Atlas	3,954
CSO191	23-Dec-2015	23-Dec-2015	0	1	785,672	2	1	1	Atlas	714,961
CSO191	27-Dec-2015	27-Dec-2015	0	3	143,775	3	1	48	Atlas	402,571
CSO191	2-Feb-2016	3-Feb-2016	0	2	70,528	2	1	6	Atlas	108,614
CSO191	3-Feb-2016	3-Feb-2016	0	0	3,240,285	2	0	48	Atlas	777,668
CSO191	21-Feb-2016	21-Feb-2016	0	1	150,546	1	0	12	Atlas	109,899
CSO191	24-Feb-2016	24-Feb-2016	0	2	659,455	2	1	24	Atlas	1,411,234
CSO191	10-Mar-2016	10-Mar-2016	0	1	56,394	1	0	12	Atlas	75,004
CSO191	27-Mar-2016	27-Mar-2016	0	1	27,973	1	1	3	Atlas	20,980
CSO191	11-Apr-2016	11-Apr-2016	0	1	59,436	1	0	12	Atlas	57,059
CSO191	27-Apr-2016	27-Apr-2016	0	1	130,101	2	1	3	Atlas	153,519
CSO191	11-May-2016	11-May-2016	0	0	14,742	2	0	6	Atlas	5,602
CSO191	20-May-2016	20-May-2016	0	1	173,523	2	0	3	Atlas	137,083
CSO191	2-Jun-2016	2-Jun-2016	0	1	611,706	1	1	1	Atlas	532,184
CSO191	14-Jun-2016	14-Jun-2016	0	1	1,197,370	2	1	6	Atlas	1,293,160
CSO191	23-Jun-2016	23-Jun-2016	0	2	588,022	2	1	12	Atlas	1,264,248
CSO191 Count										25
CSO191 Total										8,161,935

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO193	2-Jul-2015	2-Jul-2015	0	1	20,670	3	0	3	Atlas	23,564
CSO193	7-Jul-2015	7-Jul-2015	0	1	1,442	2	0	6	Atlas	1,196
CSO193	9-Sep-2015	9-Sep-2015	0	0	10,000	0	0	1	Atlas	2,800
CSO193	6-Nov-2015	6-Nov-2015	0	1	3,619	1	1	3	Atlas	3,402
CSO193	18-Nov-2015	18-Nov-2015	0	1	3,769	1	1	6	Atlas	4,598
CSO193	23-Dec-2015	23-Dec-2015	0	1	38,331	1	1	1	Atlas	30,282
CSO193	27-Dec-2015	27-Dec-2015	0	2	5,689	3	1	3	Atlas	12,117
CSO193	3-Feb-2016	3-Feb-2016	0	1	2,560	1	1	6	Atlas	3,302
CSO193	21-Feb-2016	21-Feb-2016	0	1	2,439	1	1	12	Atlas	2,732
CSO193	27-Mar-2016	27-Mar-2016	0	1	2,914	1	0	1	Atlas	1,982
CSO193	10-May-2016	10-May-2016	0	1	2,329	2	0	24	Atlas	2,073
CSO193	2-Jun-2016	2-Jun-2016	0	0	21,013	0	0	1	Atlas	5,463
CSO193	4-Jun-2016	4-Jun-2016	0	0	44,578	1	0	3	Atlas	14,265
CSO193	14-Jun-2016	14-Jun-2016	0	1	11,139	1	1	3	Atlas	9,803
CSO193	23-Jun-2016	23-Jun-2016	0	2	31,981	2	2	6	Cloudburst	64,603
CSO193 Count										15
CSO193 Total										182,182
CSO195	12-Oct-2015	12-Oct-2015	0	0	555	0	0	3	Atlas	144
CSO195	6-Nov-2015	6-Nov-2015	0	1	8,807	1	0	3	Atlas	6,605
CSO195	12-Nov-2015	12-Nov-2015	0	0	124	2	0	3	Atlas	36
CSO195	18-Nov-2015	18-Nov-2015	0	1	5,532	2	1	6	Atlas	6,750
CSO195	22-Dec-2015	22-Dec-2015	0	0	1,011	1	0	1	Atlas	505
CSO195	23-Dec-2015	23-Dec-2015	0	1	4,875	1	1	1	Atlas	3,754
CSO195	27-Dec-2015	27-Dec-2015	0	2	5,367	3	1	3	Atlas	10,251
CSO195 Count										7
CSO195 Total										28,045
CSO196	2-Jul-2015	2-Jul-2015	0	1	6,348	3	1	3	Atlas	6,285
CSO196	3-Jul-2015	3-Jul-2015	0	0	17,368	3	0	1	Atlas	6,079
CSO196	7-Jul-2015	7-Jul-2015	0	1	21,386	2	0	6	Atlas	18,178
CSO196	12-Jul-2015	12-Jul-2015	0	1	34,229	3	1	1	Atlas	30,806
CSO196	13-Jul-2015	13-Jul-2015	0	0	44,165	3	0	1	Atlas	10,158
CSO196	14-Jul-2015	14-Jul-2015	0	0	53,311	4	0	1	Atlas	20,258
CSO196	17-Jul-2015	18-Jul-2015	0	1	38,206	3	1	3	Atlas	37,442
CSO196	6-Aug-2015	6-Aug-2015	1	1	13,353	1	0	24	Atlas	8,813
CSO196	19-Aug-2015	19-Aug-2015	0	0	3,495	0	0	24	Atlas	1,293
CSO196	19-Aug-2015	19-Aug-2015	0	0	17,039	0	0	24	Atlas	6,304

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO196	9-Sep-2015	9-Sep-2015	0	0	16,527	0	0	1	Atlas	5,454
CSO196	12-Oct-2015	12-Oct-2015	0	0	2,548	0	0	3	Atlas	662
CSO196	27-Oct-2015	27-Oct-2015	0	2	1,225	2	1	24	Atlas	2,781
CSO196	6-Nov-2015	6-Nov-2015	0	1	41,049	1	0	3	Atlas	30,787
CSO196	12-Nov-2015	12-Nov-2015	0	0	5,473	2	0	3	Atlas	1,587
CSO196	18-Nov-2015	18-Nov-2015	0	1	29,495	2	1	6	Atlas	35,984
CSO196	30-Nov-2015	1-Dec-2015	0	1	4,901	2	0	12	Atlas	3,774
CSO196	22-Dec-2015	22-Dec-2015	0	0	4,852	1	0	1	Atlas	2,426
CSO196	23-Dec-2015	23-Dec-2015	0	1	73,560	2	1	1	Atlas	56,642
CSO196	26-Dec-2015	26-Dec-2015	0	0	2,654	2	0	12	Atlas	982
CSO196	27-Dec-2015	27-Dec-2015	0	2	40,456	3	1	3	Atlas	77,271
CSO196	2-Feb-2016	3-Feb-2016	0	1	30,003	1	1	6	Atlas	37,804
CSO196	15-Feb-2016	15-Feb-2016	0	0	10,256	0	0	3	Atlas	2,154
CSO196	21-Feb-2016	21-Feb-2016	0	1	19,255	1	0	12	Atlas	20,025
CSO196	24-Feb-2016	24-Feb-2016	0	2	3,294	3	1	12	Atlas	7,049
CSO196	12-Mar-2016	12-Mar-2016	0	1	9,040	2	0	6	Atlas	6,961
CSO196	13-Mar-2016	13-Mar-2016	0	1	1,854	2	0	6	Atlas	1,427
CSO196	24-Mar-2016	24-Mar-2016	0	0	26,978	1	0	1	Atlas	13,489
CSO196	27-Mar-2016	27-Mar-2016	0	1	33,159	1	1	1	Atlas	31,169
CSO196	31-Mar-2016	31-Mar-2016	0	1	4,048	2	0	24	Atlas	4,939
CSO196	31-Mar-2016	31-Mar-2016	0	1	4,048	2	0	24	Atlas	4,939
CSO196	11-Apr-2016	11-Apr-2016	0	1	3,399	1	0	6	Atlas	3,162
CSO196	21-Apr-2016	21-Apr-2016	0	0	6,584	0	0	3	Atlas	2,173
CSO196	27-Apr-2016	27-Apr-2016	0	1	5,329	1	0	3	Atlas	3,783
CSO196	30-Apr-2016	30-Apr-2016	0	1	3,638	1	0	24	Atlas	2,001
CSO196	1-May-2016	1-May-2016	0	0	13,249	2	0	3	Atlas	3,312
CSO196	7-May-2016	7-May-2016	0	1	1,898	1	0	6	Atlas	1,424
CSO196	10-May-2016	10-May-2016	0	1	23,066	2	0	24	Atlas	19,606
CSO196	12-May-2016	12-May-2016	0	0	4,228	2	0	3	Atlas	634
CSO196	20-May-2016	20-May-2016	0	1	15,783	1	0	3	Atlas	8,365
CSO196	2-Jun-2016	2-Jun-2016	0	0	41,445	0	0	1	Atlas	12,848
CSO196	4-Jun-2016	4-Jun-2016	0	0	78,723	0	0	3	Atlas	14,170
CSO196	14-Jun-2016	14-Jun-2016	0	1	6,937	1	1	3	Atlas	5,619
CSO196	23-Jun-2016	23-Jun-2016	0	2	26,502	2	1	6	Cloudburst	49,293
CSO196 Count										44
CSO196 Total										620,312

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO197	12-Oct-2015	12-Oct-2015	0	0	8,079	0	0	3	Atlas	2,101
CSO197	27-Oct-2015	28-Oct-2015	0	2	3,315	2	1	24	Atlas	7,524
CSO197	6-Nov-2015	6-Nov-2015	0	1	68,115	1	0	3	Atlas	51,086
CSO197	12-Nov-2015	12-Nov-2015	0	0	7,527	2	0	3	Atlas	2,183
CSO197	18-Nov-2015	18-Nov-2015	0	1	63,799	2	1	6	Atlas	77,835
CSO197	30-Nov-2015	1-Dec-2015	0	1	1,610	2	0	12	Atlas	1,239
CSO197	22-Dec-2015	22-Dec-2015	0	0	36,378	1	0	1	Atlas	18,189
CSO197	23-Dec-2015	23-Dec-2015	0	1	239,837	2	1	1	Atlas	184,674
CSO197	25-Dec-2015	25-Dec-2015	0	0	10,146	2	0	3	Atlas	1,116
CSO197	26-Dec-2015	26-Dec-2015	0	0	69,957	2	0	12	Atlas	25,884
CSO197	27-Dec-2015	28-Dec-2015	1	2	218,295	4	1	3	Atlas	416,943
CSO197	8-Jan-2016	8-Jan-2016	0	0	1,246	0	0	12	Atlas	125
CSO197	9-Jan-2016	9-Jan-2016	0	0	22,546	0	0	12	Atlas	4,058
CSO197	15-Jan-2016	15-Jan-2016	0	0	1,384	0	0	3	Atlas	83
CSO197	22-Jan-2016	22-Jan-2016	0	0	4,153	0	0	6	Atlas	83
CSO197	24-Jan-2016	24-Jan-2016	0	0	111,001	0	0	1	Atlas	2,220
CSO197	2-Feb-2016	3-Feb-2016	0	1	175,577	1	1	6	Atlas	221,227
CSO197	8-Feb-2016	8-Feb-2016	0	0	24,236	1	0	12	Atlas	3,393
CSO197	15-Feb-2016	15-Feb-2016	0	0	142,399	0	0	1	Atlas	32,752
CSO197	21-Feb-2016	21-Feb-2016	0	1	124,723	1	0	12	Atlas	129,712
CSO197	23-Feb-2016	24-Feb-2016	1	2	74,155	3	1	12	Atlas	158,691
CSO197	29-Feb-2016	29-Feb-2016	0	0	66,959	2	0	3	Atlas	1,339
CSO197	1-Mar-2016	1-Mar-2016	0	0	103,223	2	0	6	Atlas	30,967
CSO197	9-Mar-2016	9-Mar-2016	0	1	7,944	0	0	12	Atlas	9,532
CSO197	10-Mar-2016	10-Mar-2016	0	1	74,227	1	0	12	Atlas	89,073
CSO197	12-Mar-2016	13-Mar-2016	0	1	76,889	2	0	6	Atlas	59,205
CSO197	13-Mar-2016	13-Mar-2016	0	1	55,534	2	0	6	Atlas	42,761
CSO197	19-Mar-2016	19-Mar-2016	0	0	1,550	1	0	1	Atlas	264
CSO197	24-Mar-2016	24-Mar-2016	0	0	51,164	1	0	1	Atlas	25,582
CSO197	27-Mar-2016	27-Mar-2016	0	1	148,909	1	1	1	Atlas	139,974
CSO197	31-Mar-2016	31-Mar-2016	0	1	14,077	2	0	24	Atlas	17,174
CSO197	31-Mar-2016	31-Mar-2016	0	1	14,077	2	0	24	Atlas	17,174
CSO197	31-Mar-2016	31-Mar-2016	0	1	9,826	3	0	24	Atlas	11,988
CSO197	31-Mar-2016	31-Mar-2016	0	1	6,598	2	0	24	Atlas	8,050
CSO197	11-Apr-2016	11-Apr-2016	0	1	47,940	1	0	6	Atlas	44,584
CSO197	21-Apr-2016	21-Apr-2016	0	0	78,811	0	0	3	Atlas	26,008

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO197	22-Apr-2016	22-Apr-2016	0	0	1,218	0	0	3	Atlas	402
CSO197	26-Apr-2016	26-Apr-2016	0	0	31,729	1	0	3	Atlas	9,519
CSO197	27-Apr-2016	27-Apr-2016	0	1	79,060	1	0	3	Atlas	56,133
CSO197	30-Apr-2016	30-Apr-2016	0	1	44,215	1	0	24	Atlas	24,318
CSO197	1-May-2016	1-May-2016	0	0	88,574	2	0	3	Atlas	22,143
CSO197	4-May-2016	4-May-2016	0	0	13,801	2	0	1	Atlas	3,036
CSO197	7-May-2016	7-May-2016	0	1	45,420	1	0	6	Atlas	34,065
CSO197	10-May-2016	10-May-2016	1	1	73,365	2	0	24	Atlas	62,361
CSO197	11-May-2016	11-May-2016	0	0	42,694	2	0	3	Atlas	12,808
CSO197	12-May-2016	12-May-2016	0	0	102,010	2	0	3	Atlas	15,302
CSO197	17-May-2016	17-May-2016	0	1	5,261	2	0	24	Atlas	3,840
CSO197	17-May-2016	17-May-2016	0	1	6,193	1	0	24	Atlas	4,521
CSO197	20-May-2016	20-May-2016	0	1	163,385	1	0	3	Atlas	86,594
CSO197	26-May-2016	26-May-2016	0	0	1,562	1	0	3	Atlas	484
CSO197	2-Jun-2016	2-Jun-2016	0	0	58,302	0	0	1	Atlas	18,074
CSO197	4-Jun-2016	4-Jun-2016	0	0	184,222	1	0	3	Atlas	33,160
CSO197	14-Jun-2016	14-Jun-2016	0	1	36,939	1	1	3	Atlas	29,921
CSO197	22-Jun-2016	22-Jun-2016	0	0	37,073	0	0	3	Atlas	5,932
CSO197	23-Jun-2016	23-Jun-2016	0	2	99,232	2	1	6	Cloudburst	184,572
CSO197 Count										55
CSO197 Total										2,471,978
CSO198	9-Jan-2016	9-Jan-2016	0	0	20,697	0	0	12	Atlas	3,725
CSO198	17-Jan-2016	17-Jan-2016	0	0	1,644,648	0	0	1	Atlas	16,446
CSO198	1-Feb-2016	1-Feb-2016	0	0	1,376	0	0	3	Atlas	124
CSO198	2-Feb-2016	3-Feb-2016	0	1	17,498	1	1	6	Atlas	22,047
CSO198	8-Feb-2016	8-Feb-2016	0	0	884	1	0	12	Atlas	124
CSO198	15-Feb-2016	15-Feb-2016	0	0	125,575	0	0	1	Atlas	28,882
CSO198	21-Feb-2016	21-Feb-2016	0	1	102,244	1	0	12	Atlas	106,334
CSO198	23-Feb-2016	24-Feb-2016	0	2	72,376	3	1	12	Atlas	154,884
CSO198	24-Feb-2016	25-Feb-2016	0	2	2,697	3	1	12	Atlas	5,771
CSO198	29-Feb-2016	29-Feb-2016	0	0	46,797	2	0	3	Atlas	936
CSO198	1-Mar-2016	1-Mar-2016	0	0	128,552	2	0	6	Atlas	38,566
CSO198	9-Mar-2016	9-Mar-2016	0	1	8,843	0	0	12	Atlas	10,612
CSO198	10-Mar-2016	10-Mar-2016	0	1	74,363	1	0	12	Atlas	89,235
CSO198	12-Mar-2016	13-Mar-2016	0	1	43,554	2	0	6	Atlas	33,537
CSO198	13-Mar-2016	13-Mar-2016	0	1	32,311	2	0	6	Atlas	24,879

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO198	16-Mar-2016	16-Mar-2016	0	0	330,311	2	0	1	Atlas	3,303
CSO198	24-Mar-2016	24-Mar-2016	0	0	82,673	1	0	1	Atlas	41,337
CSO198	27-Mar-2016	27-Mar-2016	0	1	112,596	1	1	1	Atlas	105,840
CSO198	31-Mar-2016	1-Apr-2016	1	1	127,824	3	0	24	Atlas	155,945
CSO198	31-Mar-2016	1-Apr-2016	1	1	127,824	3	0	24	Atlas	155,945
CSO198	11-Apr-2016	11-Apr-2016	0	1	91,558	1	0	6	Atlas	85,149
CSO198	21-Apr-2016	21-Apr-2016	0	0	153,733	0	0	3	Atlas	50,732
CSO198	22-Apr-2016	22-Apr-2016	0	0	3,211	0	0	3	Atlas	1,060
CSO198	26-Apr-2016	26-Apr-2016	0	0	123,270	1	0	3	Atlas	36,981
CSO198	27-Apr-2016	27-Apr-2016	0	1	118,144	1	0	3	Atlas	83,882
CSO198	30-Apr-2016	30-Apr-2016	0	1	133,972	1	0	24	Atlas	73,685
CSO198	1-May-2016	1-May-2016	0	0	158,522	2	0	3	Atlas	39,631
CSO198	4-May-2016	4-May-2016	0	0	61,806	2	0	1	Atlas	13,597
CSO198	7-May-2016	7-May-2016	0	1	108,472	1	0	6	Atlas	81,354
CSO198	10-May-2016	10-May-2016	1	1	105,232	2	0	24	Atlas	89,447
CSO198	11-May-2016	11-May-2016	0	0	77,517	2	0	3	Atlas	23,255
CSO198	12-May-2016	12-May-2016	0	0	139,442	2	0	3	Atlas	20,916
CSO198	17-May-2016	17-May-2016	0	1	19,054	2	0	24	Atlas	13,909
CSO198	17-May-2016	17-May-2016	0	1	15,670	1	0	24	Atlas	11,439
CSO198	20-May-2016	20-May-2016	0	1	194,132	1	0	3	Atlas	102,890
CSO198	26-May-2016	26-May-2016	0	0	36,453	1	0	3	Atlas	11,300
CSO198	2-Jun-2016	2-Jun-2016	0	0	141,312	0	0	1	Atlas	43,807
CSO198	4-Jun-2016	4-Jun-2016	0	0	328,100	1	0	3	Atlas	59,058
CSO198	14-Jun-2016	14-Jun-2016	0	1	83,183	1	1	3	Atlas	67,379
CSO198	22-Jun-2016	22-Jun-2016	0	0	54,722	0	0	3	Atlas	8,755
CSO198	23-Jun-2016	23-Jun-2016	0	2	185,358	2	1	6	Cloudburst	344,766
CSO198 Count										41
CSO198 Total										2,261,464
CSO199	3-Jul-2015	3-Jul-2015	0	0	793	2	0	1	Atlas	278
CSO199	7-Jul-2015	7-Jul-2015	0	1	3,253	2	0	6	Atlas	2,765
CSO199	8-Jul-2015	8-Jul-2015	0	0	118,000	2	0	1	Atlas	11,800
CSO199	10-Jul-2015	11-Jul-2015	1	1	257,574	2	0	6	Atlas	146,817
CSO199	17-Jul-2015	18-Jul-2015	0	1		3	1	3	Atlas	17,812
CSO199	6-Aug-2015	6-Aug-2015	0	1	3,000	0	0	24	Atlas	1,980
CSO199	6-Aug-2015	6-Aug-2015	0	1	732	1	0	24	Atlas	483
CSO199	27-Oct-2015	27-Oct-2015	0	2	2,661	1	1	24	Atlas	6,040

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO199	6-Nov-2015	6-Nov-2015	0	1	15,087	1	0	3	Atlas	11,315
CSO199	18-Nov-2015	18-Nov-2015	0	1	7,016	2	1	6	Atlas	8,560
CSO199	22-Dec-2015	22-Dec-2015	0	0	1,578	1	0	1	Atlas	789
CSO199	23-Dec-2015	23-Dec-2015	0	1	30,226	2	1	1	Atlas	23,274
CSO199	25-Dec-2015	25-Dec-2015	0	0	66,416	2	0	3	Atlas	7,306
CSO199	27-Dec-2015	27-Dec-2015	0	2	12,697	3	1	3	Atlas	24,250
CSO199	2-Feb-2016	3-Feb-2016	0	1	13,737	1	1	6	Atlas	17,309
CSO199	21-Feb-2016	21-Feb-2016	0	1	4,012	1	0	12	Atlas	4,172
CSO199	24-Feb-2016	24-Feb-2016	0	2	3,157	3	1	12	Atlas	6,756
CSO199	10-Mar-2016	10-Mar-2016	0	1	329	1	0	12	Atlas	395
CSO199	12-Mar-2016	12-Mar-2016	0	1	7,420	2	0	6	Atlas	5,714
CSO199	13-Mar-2016	13-Mar-2016	0	1	1,640	2	0	6	Atlas	1,263
CSO199	24-Mar-2016	24-Mar-2016	0	0	19,217	1	0	1	Atlas	9,609
CSO199	27-Mar-2016	27-Mar-2016	0	1	19,798	1	1	1	Atlas	18,610
CSO199	31-Mar-2016	1-Apr-2016	0	1	11,449	2	0	24	Atlas	13,968
CSO199	31-Mar-2016	31-Mar-2016	0	1	3,996	2	0	24	Atlas	4,875
CSO199	11-Apr-2016	11-Apr-2016	0	1	1,188	1	0	6	Atlas	1,105
CSO199	21-Apr-2016	21-Apr-2016	0	0	2,158	0	0	3	Atlas	712
CSO199	27-Apr-2016	27-Apr-2016	0	1	840	1	0	3	Atlas	597
CSO199	1-May-2016	1-May-2016	0	0	16,459	2	0	3	Atlas	4,115
CSO199	7-May-2016	7-May-2016	0	1	3,873	1	0	6	Atlas	2,904
CSO199	10-May-2016	10-May-2016	0	1	17,731	2	0	24	Atlas	15,072
CSO199	20-May-2016	20-May-2016	0	1	12,774	1	0	3	Atlas	6,770
CSO199	26-May-2016	26-May-2016	0	0	5,957	1	0	3	Atlas	1,847
CSO199	2-Jun-2016	2-Jun-2016	0	0	5,721	0	0	1	Atlas	1,773
CSO199	4-Jun-2016	4-Jun-2016	0	0	809	0	0	3	Atlas	146
CSO199	14-Jun-2016	14-Jun-2016	0	1	19,432	1	1	3	Atlas	15,740
CSO199	23-Jun-2016	23-Jun-2016	0	2	81,630	2	1	6	Cloudburst	151,832
CSO199 Count										36
CSO199 Total										548,753
CSO200	1-Jul-2015	1-Jul-2015	0	1	253	2	1	3	Atlas	250
CSO200	3-Jul-2015	3-Jul-2015	0	0	1,242	3	0	1	Atlas	435
CSO200	7-Jul-2015	7-Jul-2015	0	1	2,302	2	0	6	Atlas	1,957
CSO200	10-Jul-2015	10-Jul-2015	0	1	218	2	0	6	Atlas	124
CSO200	12-Jul-2015	12-Jul-2015	0	1	43,014	3	1	1	Atlas	38,713
CSO200	13-Jul-2015	13-Jul-2015	0	0	858	3	0	1	Atlas	197

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CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO200	14-Jul-2015	14-Jul-2015	0	0	4,595	4	0	1	Atlas	1,746
CSO200	14-Jul-2015	14-Jul-2015	0	0	806	3	0	1	Atlas	40
CSO200	17-Jul-2015	18-Jul-2015	0	1	12,346	3	1	3	Atlas	12,099
CSO200	6-Aug-2015	6-Aug-2015	0	1	1,499	0	0	24	Atlas	990
CSO200	6-Aug-2015	6-Aug-2015	0	1	1,770	1	0	24	Atlas	1,168
CSO200	19-Aug-2015	19-Aug-2015	0	0	2,099	0	0	24	Atlas	777
CSO200	19-Aug-2015	19-Aug-2015	0	0	788	0	0	24	Atlas	292
CSO200	9-Sep-2015	9-Sep-2015	0	0	5,059	0	0	1	Atlas	1,670
CSO200	27-Oct-2015	27-Oct-2015	0	2	80	2	1	24	Atlas	181
CSO200	6-Nov-2015	6-Nov-2015	0	1	14,058	1	0	3	Atlas	10,543
CSO200	18-Nov-2015	18-Nov-2015	0	1	12,969	2	1	6	Atlas	15,823
CSO200	30-Nov-2015	30-Nov-2015	0	1	14	1	0	12	Atlas	11
CSO200	22-Dec-2015	22-Dec-2015	0	0	1,718	1	0	1	Atlas	859
CSO200	23-Dec-2015	23-Dec-2015	0	1	106,202	1	1	1	Atlas	81,776
CSO200	27-Dec-2015	27-Dec-2015	0	2	17,884	3	1	3	Atlas	34,159
CSO200	2-Feb-2016	3-Feb-2016	0	1	28,933	1	1	6	Atlas	36,456
CSO200	21-Feb-2016	21-Feb-2016	0	1	1,024	1	0	12	Atlas	1,065
CSO200	24-Feb-2016	24-Feb-2016	0	2	1,157	3	1	12	Atlas	2,475
CSO200	12-Mar-2016	12-Mar-2016	0	1	2,286	2	0	6	Atlas	1,760
CSO200	13-Mar-2016	13-Mar-2016	0	1	36	2	0	6	Atlas	27
CSO200	24-Mar-2016	24-Mar-2016	0	0	14,248	1	0	1	Atlas	7,124
CSO200	27-Mar-2016	27-Mar-2016	0	1	28,166	1	1	1	Atlas	26,476
CSO200	11-Apr-2016	11-Apr-2016	0	1	2,699	1	0	6	Atlas	2,510
CSO200	21-Apr-2016	21-Apr-2016	0	0	2,095	0	0	3	Atlas	691
CSO200	27-Apr-2016	27-Apr-2016	0	1	444	1	0	3	Atlas	315
CSO200	1-May-2016	1-May-2016	0	0	154	2	0	3	Atlas	39
CSO200	7-May-2016	7-May-2016	0	1	423	1	0	6	Atlas	317
CSO200	10-May-2016	10-May-2016	0	1	7,222	2	0	24	Atlas	6,138
CSO200	20-May-2016	20-May-2016	0	1	1,026	1	0	3	Atlas	544
CSO200	2-Jun-2016	2-Jun-2016	0	0	2,543	0	0	1	Atlas	788
CSO200	4-Jun-2016	4-Jun-2016	0	0	6,453	0	0	3	Atlas	1,162
CSO200	14-Jun-2016	14-Jun-2016	0	1	4,654	1	1	3	Atlas	3,770
CSO200	23-Jun-2016	23-Jun-2016	0	2	48,641	2	1	6	Cloudburst	90,472
CSO200 Count										39
CSO200 Total										385,939
CSO202	3-Jul-2015	3-Jul-2015	0	0	16,526	3	0	1	Atlas	5,784

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CSO202	7-Jul-2015	7-Jul-2015	0	1	1,811	2	0	6	Atlas	1,539
CSO202	10-Jul-2015	10-Jul-2015	0	1	7,991	2	0	6	Atlas	4,555
CSO202	12-Jul-2015	12-Jul-2015	0	1	19,530	3	1	1	Atlas	17,577
CSO202	13-Jul-2015	13-Jul-2015	0	0	13,191	3	0	1	Atlas	3,034
CSO202	14-Jul-2015	14-Jul-2015	0	0	8,204	4	0	1	Atlas	3,118
CSO202	17-Jul-2015	18-Jul-2015	0	1	11,669	3	1	3	Atlas	11,435
CSO202	6-Aug-2015	6-Aug-2015	0	1	1,764	1	0	24	Atlas	1,164
CSO202	19-Aug-2015	19-Aug-2015	0	0	9,140	0	0	24	Atlas	3,382
CSO202	9-Sep-2015	9-Sep-2015	0	0	11,951	0	0	1	Atlas	3,944
CSO202	6-Nov-2015	6-Nov-2015	0	1	6,441	1	0	3	Atlas	4,831
CSO202	18-Nov-2015	18-Nov-2015	0	1	4,376	2	1	6	Atlas	5,339
CSO202	23-Dec-2015	23-Dec-2015	0	1	13,731	1	1	1	Atlas	10,573
CSO202	27-Dec-2015	27-Dec-2015	0	2	1,076	3	1	3	Atlas	2,056
CSO202	3-Feb-2016	3-Feb-2016	0	1	4,544	1	1	6	Atlas	5,726
CSO202	21-Feb-2016	21-Feb-2016	0	1	1,252	1	0	12	Atlas	1,302
CSO202	12-Mar-2016	12-Mar-2016	0	1	4,214	2	0	6	Atlas	3,244
CSO202	24-Mar-2016	24-Mar-2016	0	0	10,442	1	0	1	Atlas	5,221
CSO202	27-Mar-2016	27-Mar-2016	0	1	13,561	1	1	1	Atlas	12,747
CSO202	31-Mar-2016	31-Mar-2016	0	1	1,207	2	0	24	Atlas	1,472
CSO202	31-Mar-2016	31-Mar-2016	0	1	1,207	2	0	24	Atlas	1,472
CSO202	11-Apr-2016	11-Apr-2016	0	1	5,148	1	0	6	Atlas	4,788
CSO202	21-Apr-2016	21-Apr-2016	0	0	6,054	0	0	3	Atlas	1,998
CSO202	27-Apr-2016	27-Apr-2016	0	1	2,703	1	0	3	Atlas	1,919
CSO202	10-May-2016	10-May-2016	0	1	2,854	2	0	24	Atlas	2,426
CSO202	2-Jun-2016	2-Jun-2016	0	0	23,356	0	0	1	Atlas	7,240
CSO202	4-Jun-2016	4-Jun-2016	0	0	38,789	0	0	3	Atlas	6,982
CSO202	14-Jun-2016	14-Jun-2016	0	1	5,746	1	1	3	Atlas	4,654
CSO202	23-Jun-2016	23-Jun-2016	0	2	50,190	2	1	6	Cloudburst	93,353
CSO202 Count										29
CSO202 Total										232,875
CSO203	1-Jul-2015	1-Jul-2015	0	1	188	2	1	3	Atlas	186
CSO203	2-Jul-2015	2-Jul-2015	0	1	361	3	1	3	Atlas	357
CSO203	7-Jul-2015	7-Jul-2015	0	1	4,597	2	0	6	Atlas	3,907
CSO203	8-Jul-2015	8-Jul-2015	0	0	12,511	2	0	1	Atlas	1,251
CSO203	9-Jul-2015	9-Jul-2015	0	0	1,703	2	0	3	Atlas	835
CSO203	12-Jul-2015	12-Jul-2015	0	1	57,364	3	1	1	Atlas	51,628

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO203	14-Jul-2015	14-Jul-2015	0	0	14,632	4	0	1	Atlas	5,560
CSO203	18-Jul-2015	18-Jul-2015	0	1	24,943	3	1	3	Atlas	24,444
CSO203	29-Jul-2015	29-Jul-2015	0	0	28,709	0	0	1	Atlas	1,435
CSO203	6-Aug-2015	6-Aug-2015	0	1	3,197	1	0	24	Atlas	2,110
CSO203	19-Aug-2015	19-Aug-2015	0	0	5,580	0	0	24	Atlas	2,065
CSO203	9-Sep-2015	9-Sep-2015	0	0	7,565	0	0	1	Atlas	2,496
CSO203	2-Oct-2015	2-Oct-2015	0	1	5,141	2	0	6	Atlas	3,290
CSO203	27-Oct-2015	27-Oct-2015	0	2	319	2	1	24	Atlas	725
CSO203	6-Nov-2015	6-Nov-2015	0	1	9,051	1	0	3	Atlas	6,788
CSO203	18-Nov-2015	18-Nov-2015	0	1	1,427	1	1	6	Atlas	1,741
CSO203	28-Nov-2015	29-Nov-2015	1	1	42,301	1	0	12	Atlas	30,034
CSO203	23-Dec-2015	23-Dec-2015	0	1	25,623	1	1	1	Atlas	19,730
CSO203	27-Dec-2015	27-Dec-2015	0	2	2,679	3	1	3	Atlas	5,117
CSO203	3-Feb-2016	3-Feb-2016	0	1	18,578	1	1	6	Atlas	23,408
CSO203	27-Mar-2016	27-Mar-2016	0	1	13,231	1	1	1	Atlas	12,437
CSO203	2-Jun-2016	2-Jun-2016	0	0	10,092	0	0	1	Atlas	3,128
CSO203	4-Jun-2016	4-Jun-2016	0	0	77,992	0	0	3	Atlas	14,038
CSO203	14-Jun-2016	14-Jun-2016	0	1	3,295	1	1	3	Atlas	2,669
CSO203	23-Jun-2016	23-Jun-2016	0	2	32,237	2	1	6	Cloudburst	59,961
CSO203 Count										25
CSO203 Total										279,340
CSO205	12-Jul-2015	12-Jul-2015	0	1	499	2	1	3	Atlas	384
CSO205	21-Aug-2015	21-Aug-2015	0			1			#N/A	1,299
CSO205	6-Nov-2015	6-Nov-2015	0	1	205	1	0	3	Atlas	145
CSO205	18-Nov-2015	18-Nov-2015	0	1	2,260	2	1	6	Atlas	3,344
CSO205	1-Dec-2015	1-Dec-2015	0	1	306	2	0	12	Atlas	218
CSO205	21-Feb-2016	21-Feb-2016	0	1	654	1	0	12	Atlas	621
CSO205	24-Feb-2016	25-Feb-2016	1	2	44,085	3	1	12	Atlas	93,020
CSO205	1-Mar-2016	1-Mar-2016	0	0	21,210	2	0	3	Atlas	5,515
CSO205 Count										8
CSO205 Total										104,546
CSO206	2-Jul-2015	2-Jul-2015	0	1	4,515	2	0	24	Atlas	5,688
CSO206	2-Jul-2015	2-Jul-2015	0	1	9,044	3	0	24	Atlas	11,396
CSO206	3-Jul-2015	3-Jul-2015	0	0	74,611	3	0	1	Atlas	32,083
CSO206	7-Jul-2015	7-Jul-2015	0	1	3,931	2	0	6	Atlas	2,870
CSO206	8-Jul-2015	8-Jul-2015	0	0	266,638	3	0	1	Atlas	21,331

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO206	9-Jul-2015	9-Jul-2015	0	0	160,570	2	0	3	Atlas	38,537
CSO206	10-Jul-2015	10-Jul-2015	0	1	2,026,321	2	0	6	Atlas	1,134,740
CSO206	12-Jul-2015	12-Jul-2015	0	1	6,939,649	3	1	3	Atlas	9,646,113
CSO206	13-Jul-2015	13-Jul-2015	0	0	1,809,375	4	0	1	Atlas	886,594
CSO206	14-Jul-2015	14-Jul-2015	0	1	102,520	4	0	1	Atlas	53,310
CSO206	17-Jul-2015	18-Jul-2015	0	1	107,732	4	1	3	Atlas	129,278
CSO206	29-Jul-2015	29-Jul-2015	0	0	50,172	0	0	1	Atlas	4,515
CSO206	4-Aug-2015	4-Aug-2015	0	0	208,259	0	0	1	Atlas	37,487
CSO206	6-Aug-2015	6-Aug-2015	1	1	223,802	1	0	24	Atlas	266,325
CSO206	19-Aug-2015	19-Aug-2015	0	1	21,032	0	0	12	Atlas	14,302
CSO206	7-Sep-2015	7-Sep-2015	0	2	342,595	2	4	1	Atlas	555,004
CSO206	10-Sep-2015	10-Sep-2015	0	0	52,054	2	0	24	Atlas	13,534
CSO206	29-Sep-2015	29-Sep-2015	0	1	25,597	1	0	48	Atlas	29,436
CSO206	2-Oct-2015	2-Oct-2015	0	1	100,397	2	0	6	Atlas	56,223
CSO206	12-Oct-2015	12-Oct-2015	0	0	175,772	0	0	3	Atlas	40,428
CSO206	24-Oct-2015	24-Oct-2015	0	0	120,181	0	0	6	Atlas	43,265
CSO206	27-Oct-2015	28-Oct-2015	1	3	106,816	3	1	48	Atlas	293,745
CSO206	28-Oct-2015	28-Oct-2015	0	0	99,816	3	0	1	Atlas	18,965
CSO206	31-Oct-2015	31-Oct-2015	0	0	58,435	3	0	3	Atlas	9,350
CSO206	6-Nov-2015	6-Nov-2015	0	1	775,873	1	1	3	Atlas	659,492
CSO206	9-Nov-2015	9-Nov-2015	0	1	107,430	1	0	12	Atlas	55,864
CSO206	12-Nov-2015	12-Nov-2015	0	0	152,627	2	0	3	Atlas	57,998
CSO206	18-Nov-2015	18-Nov-2015	0	2	177,537	2	1	6	Atlas	326,667
CSO206	21-Nov-2015	21-Nov-2015	0	0	224,815	2	0	1	Atlas	38,219
CSO206	28-Nov-2015	28-Nov-2015	0	1	598,004	1	0	12	Atlas	532,224
CSO206	30-Nov-2015	1-Dec-2015	0	1	313,615	2	0	12	Atlas	216,394
CSO206	14-Dec-2015	14-Dec-2015	0	0	222,810	0	0	6	Atlas	66,843
CSO206	21-Dec-2015	21-Dec-2015	0	1	19,029	0	0	6	Atlas	14,082
CSO206	21-Dec-2015	22-Dec-2015	0	1	369,172	1	0	6	Atlas	273,188
CSO206	23-Dec-2015	23-Dec-2015	0	1	3,376,902	1	1	1	Atlas	2,904,136
CSO206	25-Dec-2015	25-Dec-2015	0	0	183,852	2	0	3	Atlas	22,062
CSO206	26-Dec-2015	26-Dec-2015	0	0	617,788	2	0	3	Atlas	191,514
CSO206	27-Dec-2015	28-Dec-2015	1	2	810,265	4	1	48	Atlas	1,863,610
CSO206	1-Feb-2016	1-Feb-2016	0	0	130,166	0	0	3	Atlas	13,017
CSO206	2-Feb-2016	3-Feb-2016	0	2	131,148	2	1	6	Atlas	209,836
CSO206	21-Feb-2016	21-Feb-2016	0	1	257,860	1	0	12	Atlas	226,916

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO206	23-Feb-2016	24-Feb-2016	0	2	251,937	3	1	12	Atlas	498,835
CSO206	1-Mar-2016	1-Mar-2016	0	0	213,795	2	0	3	Atlas	76,966
CSO206	9-Mar-2016	9-Mar-2016	0	1	34,896	0	0	12	Atlas	44,667
CSO206	10-Mar-2016	10-Mar-2016	0	1	116,988	1	0	12	Atlas	149,745
CSO206	12-Mar-2016	12-Mar-2016	0	1	27,415	2	0	24	Atlas	21,932
CSO206	13-Mar-2016	13-Mar-2016	0	1	26,497	2	0	24	Atlas	21,198
CSO206	19-Mar-2016	19-Mar-2016	0	0	70,868	1	0	1	Atlas	11,339
CSO206	24-Mar-2016	24-Mar-2016	0	1	381,745	1	0	1	Atlas	209,960
CSO206	27-Mar-2016	27-Mar-2016	0	1	477,381	1	1	3	Atlas	381,905
CSO206	31-Mar-2016	1-Apr-2016	1	1	126,590	3	0	24	Atlas	156,971
CSO206	31-Mar-2016	31-Mar-2016	1	1	123,749	2	0	24	Atlas	153,448
CSO206 Count										52
CSO206 Total										22,743,547
CSO207	2-Jul-2015	2-Jul-2015	0	2	15,692	4	1	24	Atlas	31,698
CSO207	7-Jul-2015	7-Jul-2015	0	1	4,067	3	0	6	Atlas	4,229
CSO207	12-Jul-2015	12-Jul-2015	0	1	24,743	3	1	3	Atlas	31,424
CSO207	14-Jul-2015	14-Jul-2015	0	1	7,174	4	0	1	Atlas	4,448
CSO207	18-Jul-2015	18-Jul-2015	0	1	15,717	4	1	3	Atlas	20,590
CSO207	15-Aug-2015	15-Aug-2015	0	0	141,732	0	0	1	Atlas	5,669
CSO207	9-Sep-2015	9-Sep-2015	0	0	14,249	0	0	1	Atlas	3,990
CSO207	23-Dec-2015	23-Dec-2015	0	1	21,667	1	1	1	Atlas	15,600
CSO207	27-Dec-2015	27-Dec-2015	0	2	11,508	3	1	6	Atlas	24,168
CSO207	23-Jun-2016	23-Jun-2016	0	2	19,462	3	4	6	Cloudburst	48,266
CSO207 Count										10
CSO207 Total										190,082
CSO208	2-Jul-2015	2-Jul-2015	1	2	37,152	4	1	24	Atlas	76,162
CSO208	3-Jul-2015	3-Jul-2015	0	1	23,600	4	0	1	Atlas	12,980
CSO208	7-Jul-2015	7-Jul-2015	0	1	7,406	3	1	3	Atlas	7,999
CSO208	8-Jul-2015	8-Jul-2015	0	1	492	4	1	3	Atlas	531
CSO208	9-Jul-2015	9-Jul-2015	0	0	6,473	3	0	3	Atlas	1,748
CSO208	10-Jul-2015	10-Jul-2015	0	1	1,916	2	0	6	Atlas	1,035
CSO208	12-Jul-2015	12-Jul-2015	0	1	82,919	3	1	1	Atlas	74,627
CSO208	13-Jul-2015	13-Jul-2015	0	0	42,865	3	0	1	Atlas	15,431
CSO208	14-Jul-2015	14-Jul-2015	0	1	69,058	4	0	1	Atlas	42,816
CSO208	14-Jul-2015	14-Jul-2015	0	0	7,751	3	0	1	Atlas	155
CSO208	17-Jul-2015	18-Jul-2015	0	1	119,507	3	1	3	Atlas	163,724

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO208	28-Jul-2015	28-Jul-2015	0	0	26,678	0	0	1	Atlas	267
CSO208	29-Jul-2015	29-Jul-2015	0	0	4,410	0	0	1	Atlas	353
CSO208	10-Aug-2015	10-Aug-2015	0	0	233	1	0	1	Atlas	30
CSO208 Count										14
CSO208 Total										397,858
CSO210	2-Jul-2015	2-Jul-2015	0	1	646,117	3	0	3	Atlas	542,738
CSO210	7-Jul-2015	7-Jul-2015	0	1	1,264,543	3	0	6	Atlas	1,150,734
CSO210	10-Jul-2015	10-Jul-2015	0	0	721,016	2	0	6	Atlas	331,667
CSO210	12-Jul-2015	13-Jul-2015	2	1	4,511,175	3	0	1	Atlas	3,293,158
CSO210	14-Jul-2015	14-Jul-2015	0	0	715,577	3	0	1	Atlas	214,673
CSO210	17-Jul-2015	18-Jul-2015	0	1	730,546	3	1	3	Atlas	606,353
CSO210	5-Aug-2015	5-Aug-2015	0	1	195,747	1	0	1	Atlas	152,682
CSO210	6-Aug-2015	6-Aug-2015	0	1	202,872	1	0	1	Atlas	158,240
CSO210	15-Aug-2015	15-Aug-2015	0	0	789,457	0	0	1	Atlas	165,786
CSO210	2-Oct-2015	2-Oct-2015	0	0	78,539	1	0	12	Atlas	36,128
CSO210	27-Oct-2015	28-Oct-2015	1	3	261,756	4	2	24	Cloudburst	900,441
CSO210	6-Nov-2015	6-Nov-2015	0	1	395,052	1	1	3	Atlas	414,805
CSO210	9-Nov-2015	10-Nov-2015	0	1	176,348	2	0	12	Atlas	105,809
CSO210	12-Nov-2015	12-Nov-2015	0	0	112,628	2	0	3	Atlas	33,789
CSO210	18-Nov-2015	18-Nov-2015	0	2	640,712	2	1	6	Atlas	1,127,653
CSO210	28-Nov-2015	28-Nov-2015	0	1	143,696	1	0	12	Atlas	125,016
CSO210	30-Nov-2015	1-Dec-2015	0	1	424,183	1	0	12	Atlas	237,542
CSO210	14-Dec-2015	14-Dec-2015	0	0	69,914	0	0	6	Atlas	19,576
CSO210	22-Dec-2015	22-Dec-2015	0	1	112,181	1	0	24	Atlas	78,527
CSO210	23-Dec-2015	24-Dec-2015	0	1	1,782,468	2	1	1	Atlas	1,800,293
CSO210	26-Dec-2015	26-Dec-2015	0	1	197,772	2	0	12	Atlas	114,708
CSO210	27-Dec-2015	29-Dec-2015	2	3	1,203,267	5	1	48	Atlas	3,044,266
CSO210	2-Feb-2016	3-Feb-2016	1	2	959,356	2	1	6	Atlas	1,448,628
CSO210	21-Feb-2016	21-Feb-2016	0	1	42,340	1	0	12	Atlas	45,303
CSO210	24-Feb-2016	24-Feb-2016	1	2	624,727	3	1	12	Atlas	1,399,388
CSO210	1-Mar-2016	1-Mar-2016	0	1	85,744	3	0	6	Atlas	55,733
CSO210	10-Mar-2016	11-Mar-2016	0	1	27,693	1	0	48	Atlas	36,278
CSO210	12-Mar-2016	13-Mar-2016	1	0	111,696	2	0	24	Atlas	55,848
CSO210	24-Mar-2016	24-Mar-2016	0	0	35,365	0	0	1	Atlas	10,963
CSO210	27-Mar-2016	28-Mar-2016	0	1	91,769	1	1	1	Atlas	70,662
CSO210	31-Mar-2016	31-Mar-2016	0	1	32,150	2	1	24	Atlas	43,080

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Appendix C - CSO Flow Monitoring Data

CSO	Start Date	End Date	Duration (Days)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency (yrs)	Period	Standard	Overflow Volume (Gal)
CSO210	31-Mar-2016	31-Mar-2016	0	1	32,150	2	1	24	Atlas	43,080
CSO210	31-Mar-2016	1-Apr-2016	0	1	31,583	2	1	24	Atlas	42,322
CSO210	31-Mar-2016	1-Apr-2016	0	1	31,583	2	1	24	Atlas	42,322
CSO210	11-Apr-2016	12-Apr-2016	0	1	53,795	1	0	6	Atlas	52,181
CSO210	27-Apr-2016	27-Apr-2016	0	0	17,905	1	0	3	Atlas	4,297
CSO210	27-Apr-2016	28-Apr-2016	0	1	46,383	2	0	3	Atlas	47,775
CSO210	30-Apr-2016	30-Apr-2016	0	1	29,323	2	0	24	Atlas	23,165
CSO210	1-May-2016	1-May-2016	0	0	55,066	2	0	3	Atlas	17,621
CSO210	7-May-2016	8-May-2016	0	0	57,253	1	0	3	Atlas	21,183
CSO210	10-May-2016	11-May-2016	1	1	112,872	2	0	24	Atlas	95,941
CSO210	11-May-2016	12-May-2016	0	0	108,549	2	0	12	Atlas	39,078
CSO210	12-May-2016	13-May-2016	0	0	21,237	2	0	3	Atlas	3,398
CSO210	17-May-2016	18-May-2016	0	1	11,303	1	0	24	Atlas	7,573
CSO210	20-May-2016	20-May-2016	0	1	101,614	1	0	3	Atlas	74,178
CSO210	26-May-2016	26-May-2016	0	0	46,003	1	0	3	Atlas	19,321
CSO210	2-Jun-2016	2-Jun-2016	0	1	136,509	1	1	1	Atlas	122,858
CSO210	4-Jun-2016	4-Jun-2016	0	0	33,426	1	0	12	Atlas	10,028
CSO210	12-Jun-2016	12-Jun-2016	0	1	6,897	1	1	1	Atlas	6,207
CSO210	14-Jun-2016	15-Jun-2016	0	1	192,215	2	1	6	Atlas	271,023
CSO210	23-Jun-2016	24-Jun-2016	0	2	261,822	2	1	12	Atlas	531,499
CSO210 Count										51
CSO210 Total										19,295,517
CSO211	18-Jul-2015	18-Jul-2015	0	1	21,753,140	3	1	3	Atlas	18,055,106
CSO211	18-Nov-2015	18-Nov-2015	0	2	2,959,280	2	1	6	Atlas	5,208,334
CSO211	23-Dec-2015	23-Dec-2015	0	1	3,172,152	2	1	1	Atlas	3,203,874
CSO211	27-Dec-2015	27-Dec-2015	0	3	2,197,417	3	1	48	Atlas	5,559,465
CSO211	3-Feb-2016	3-Feb-2016	0	2	7,939,951	2	1	6	Atlas	11,989,326
CSO211 Count										5
CSO211 Total										44,016,105
Grand Count										3507
Grand Total										8,238,576,600

Appendix D-1 Discharge Work Orders – Waters of the United States

Appendix D-1 Discharge Work Orders – Waters of the United States

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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
BANCROFT	KY0039021	7404 ARROWWOOD RD	7/13/15 9:00 PM	07/15/15 08:05 AM	157,875	SEWER LIFT STATION	MSD0040-PS	DITCH	GOOSE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388693	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
BERRYTOWN	KY0036501	1203 HEAFER RD	7/12/15 1:00 PM	07/13/15 01:40 AM	38,000	SEWER TREATMENT PLANT	MSD0209	STREAM	FLOYDS FORK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BYPASS AT WQTC	DISREV RAIN EVENT DISCHARGE	2387497	MSD CLEANED & SANITIZED	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
BERRYTOWN	KY0036501	1203 HEAFER RD	7/14/15 1:30 PM	07/14/15 05:45 PM	1,425	SEWER TREATMENT PLANT	MSD0209	STREAM	FLOYDS FORK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BYPASS AT WQTC	DISREV RAIN EVENT DISCHARGE	2389577	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS LOCATED IN THE IOAP
CEDAR CREEK	KY0098540	3258 RUCKRIEGEL PKY	7/12/15 1:21 AM	07/14/15 06:50 PM	18,000	SEWER MANHOLE	28173	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387474	WO# 2387788	LOCATION INCLUDED IN IOAP
CEDAR CREEK	KY0098540	11401 GRAND AVE	7/12/15 8:05 AM	07/13/15 05:30 AM	27,000	SEWER MANHOLE	28551	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387573	WO# 2387695	LOCATION INCLUDED IN IOAP
CEDAR CREEK	KY0098540	5410 SPRIGWOOD LN	7/12/15 8:15 AM	07/12/15 11:48 AM	9,650	SEWER MANHOLE	28984	GROUND	CEDAR CREEK	HEAVY RAIN CAUSED LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387239	MSD TO CLEAN AND SANITIZE AFFECTED AREA	INCLUDED IN IOAP
CEDAR CREEK	KY0098540	5410 SPRIGWOOD LN	7/12/15 8:15 AM	07/12/15 10:28 AM	6,750	SEWER MANHOLE	28985	GROUND	CEDAR CREEK	HEAVY RAIN CAUSED LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387211	MSD TO CLEAN AND SANITIZE AFFECTED AREA	INCLUDED IN IOAP
CEDAR CREEK	KY0098540	5600 HOFELICH CT	7/12/15 8:15 AM	07/12/15 10:28 AM	6,550	SEWER MANHOLE	28998	GROUND	CEDAR CREEK	HEAVY RAIN CAUSED LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387212	MSD TO CLEAN AND SANITIZE AFFECTED AREA	INCLUDED IN IOAP
CEDAR CREEK	KY0098540	5600 HOFELICH CT	7/12/15 8:15 AM	07/12/15 10:00 AM	6,750	SEWER MANHOLE	28998	GROUND	CEDAR CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387255	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
CEDAR CREEK	KY0098540	9517 PLUMWOOD RD	7/12/15 8:15 AM	07/12/15 10:28 AM	5,850	SEWER MANHOLE	63094	STREAM	CEDAR CREEK	HEAVY RAIN CAUSED LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387215	MSD TO CLEAN AND SANITIZE AFFECTED AREA	INCLUDED IN IOAP
CEDAR CREEK	KY0098540	9300 HAYES AVE	7/12/15 8:15 AM	07/12/15 12:05 PM	11,500	SEWER MANHOLE	63095	STREAM	CEDAR CREEK	HEAVY RAIN CAUSED LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387214	MSD TO CLEAN AND SANITIZE AFFECTED AREA	INCLUDED IN IOAP
CEDAR CREEK	KY0098540	5600 HOFELICH CT	7/12/15 8:15 AM	07/12/15 10:00 AM	6,750	SEWER MANHOLE	70158	GROUND	CEDAR CREEK	HEAVY RAIN CAUSED LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387210	MSD TO CLEAN AND SANITIZE AFFECTED AREA	INCLUDED IN IOAP
CEDAR CREEK	KY0098540	7702 CEDAR CREEK RD	7/12/15 10:30 AM	07/12/15 11:48 AM	5,000	SEWER MANHOLE	83011	GROUND	CEDAR CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387314	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
CEDAR CREEK	KY0098540	8405 CEDAR CREEK RD	7/12/15 8:50 PM	07/12/15 09:00 PM	1,000	SEWER TREATMENT PLANT	MSD0289	GROUND	CEDAR CREEK	FILTER BYPASS GATE FAILED TO OPEN IN AUTO	BYPASS AT WQTC	DISREV RAIN EVENT DISCHARGE	2387653	NO DEBRIS	OPERATOR OPENED BYPASS GATE MANUALLY
CEDAR CREEK	KY0098540	11010 RADLEIGH LN	7/14/15 2:25 PM	07/14/15 02:35 PM	500	SEWER LIFT STATION	MSD1135-PS	GROUND	FLOYDS FORK	BREAKER TRIPPED AT PUMP STATION CAUSING THE PUMPS TO STOP	ELECTRICAL PROBLEMS AT MSD	DISREV RAIN EVENT DISCHARGE	2389718	MSD CLEANED & SANITIZED THE AREA	RESET BREAKER
CEDAR CREEK	KY0098540	11010 RADLEIGH LN	7/14/15 2:25 PM	07/14/15 06:29 PM	12,200	SEWER MANHOLE	104381	GROUND	FLOYDS FORK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT - PUMP STATION CIRCUIT BREAKER TRIPPED; RESET.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389722	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS LOCATED IN THE IOAP
CEDAR CREEK	KY0098540	4014 RIVULET LN	8/12/15 10:30 AM	08/12/15 06:30 PM	500	SEWER MANHOLE	88204	DITCH	CHENOWETH RUN	BULKHEAD FAILED ALLOWING STONE TO COLLECT IN PIPE	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2416240	NO DEBRIS	VACTOR ASSISTED WITH REMOVAL OF STONE BULKHEAD TO BE REPAIRED
CEDAR CREEK	KY0098540	11401 GRAND AVE	11/18/15 1:33 PM	11/18/15 05:45 AM	48,000	SEWER MANHOLE	28551	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463120	WO# 2463189	LOCATION INCLUDED IN IOAP
CEDAR CREEK	KY0098540	3258 RUCKRIEGEL PKY	11/18/15 1:49 PM	11/18/15 06:25 PM	9,000	SEWER MANHOLE	28173	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463116	WO# 2463143	LOCATION INCLUDED IN IOAP
CEDAR CREEK	KY0098540	10800 FAIRMOUNT RD	12/27/15 9:45 AM	12/30/15 08:09 AM	450,225	SEWER MANHOLE	97365	GROUND	BIG RUN	RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476557	DISCLN #2480333	SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR AND EVALUATE FOR REPAIR
CEDAR CREEK	KY0098540	9300 HAYES AVE	12/27/15 12:00 PM	12/27/15 04:05 PM	3,150	SEWER MANHOLE	63095	STREAM	CEDAR CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476615	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
CEDAR CREEK	KY0098540	6810 GLENDALE RD	12/27/15 2:00 PM	12/27/15 05:00 PM	900	SEWER MANHOLE	63531	GROUND	LITTLE CEDAR CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476633	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
CEDAR CREEK	KY0098540	10800 FAIRMOUNT RD	12/27/15 3:45 PM	12/28/15 11:00 AM	172,800	SEWER MANHOLE	97363	STREAM	BIG RUN	RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476685	DISCLN #2480332	SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR
CEDAR CREEK	KY0098540	10801 FAIRMOUNT RD	12/27/15 4:00 PM	12/28/15 11:00 AM	456,000	SEWER MANHOLE	116106	GROUND	BIG RUN	RAIN EVENT CAUSED LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476682	DISCLN #2480336	SITE FOUND DURING RAIN EVENT RECON- WILL MONITOR & EVALUATE FOR REPAIR
CEDAR CREEK	KY0098540	10800 FAIRMOUNT RD	12/30/15 3:30 PM	12/31/15 08:00 AM	99,000	SEWER MANHOLE	97365	GROUND	BIG RUN	LACK OF CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2480711	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	7/7/15 8:00 PM	07/07/15 10:50 PM	3,125	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY DUE TO HEAVY RAINS	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2383615	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	7/12/15 8:30 AM	07/12/15 02:15 PM	10,125	SEWER MANHOLE	27116	STREAM	MUD CREEK	HEAVY RAIN CAUSED LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387241	MSD TO CLEAN AND SANITIZE AFFECTED AREA	INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	5006 LEA ANN WAY	7/12/15 9:30 AM	07/12/15 03:00 PM	1,207,500	SEWER LIFT STATION	MSD1010-PS	STREAM	NORTHERN DITCH	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	PUMPED OVERFLOW	DISREV RAIN EVENT DISCHARGE	2387525	REFERENCE #2388818	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9317 LANTANA DR	7/12/15 9:37 AM	07/12/15 11:40 AM	3,075	SEWER MANHOLE	25484	STREAM	PENNSYLVANIA RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387514	SEE WORK ORDER #23889737	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9114 CINDERELLA LN	7/12/15 9:53 AM	07/12/15 11:50 AM	2,925	SEWER MANHOLE	60679	DITCH	FISHPOOL CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387517	SEE WORK ORDER #2388940	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	6810 SANDSTONE BLVD	7/12/15 10:12 AM	07/12/15 12:25 PM	6,650	SEWER MANHOLE	29948	GROUND	FERN CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387298	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	6808 SANDSTONE BLVD	7/12/15 10:15 AM	07/12/15 12:31 PM	6,800	SEWER MANHOLE	31074	DITCH	FERN CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387302	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP

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ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	5006 LEA ANN WAY	7/14/15 6:44 AM	07/14/15 02:05 PM	1,278,900	SEWER LIFT STATION	MSD1010-PS	STREAM	NORTHERN DITCH	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	PUMPED OVERFLOW	DISREV RAIN EVENT DISCHARGE	2388818	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	7/14/15 7:00 AM	07/14/15 02:30 PM	10,500	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389054	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	6810 SANDSTONE BLVD	7/14/15 7:00 AM	07/14/15 08:01 AM	500	SEWER MANHOLE	29948	GROUND	FERN CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389050	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	9317 LANTANA DR	7/14/15 7:28 AM	07/14/15 10:00 AM	3,800	SEWER MANHOLE	25484	STREAM	PENNSYLVANIA RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388937	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS FOUND IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9114 CINDERELLA LN	7/14/15 7:43 AM	07/14/15 01:20 PM	8,425	SEWER MANHOLE	102339	GROUND	FISHPOOL CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389038	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS LOCATED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9114 CINDERELLA LN	7/14/15 7:43 AM	07/14/15 01:20 PM	8,425	SEWER MANHOLE	60679	DITCH	FISHPOOL CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388940	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS FOUND IN THE IOAP
DEREK R. GUTHRIE	KY0078956	4005 KIRBY LN	7/23/15 11:30 PM	07/24/15 10:15 AM	50	SEWER MAIN	MSD1203-PS	GROUND	FERN CREEK	FORCE MAIN BREAK	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2397937	MSD CLEANED & SANITIZED THE AREA	CONTRACTOR TO REPAIR FORCE MAIN
DEREK R. GUTHRIE	KY0078956	3809 DIXIE HWY	10/22/15 2:10 PM	10/22/15 02:35 PM	250	SEWER MAIN	06940-AG	GROUND	MILL CREEK	FORCE MAIN BREAK	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2449271	AREA HAS BEEN CLEANED & SANITIZED	CONTRACTOR REPAIRED FORCE MAIN
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	10/27/15 8:00 PM	10/29/15 12:30 PM	49,200	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2452992	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	11/18/15 1:00 PM	11/19/15 07:30 AM	27,750	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2462984	MSD TO CLEAN SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	9317 LANTANA DR	11/18/15 3:15 PM	11/18/15 05:30 PM	1,350	SEWER MANHOLE	25484	STREAM	PENNSYLVANIA RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463081	NO DEBRIS	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9114 CINDERELLA LN	11/18/15 4:02 PM	11/18/15 09:12 PM	7,750	SEWER MANHOLE	102339	GROUND	FISHPOOL CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463087	MSD CLEANED AND SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	12/1/15 7:03 AM	12/01/15 10:25 PM	24,000	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2467174	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	6810 SANDSTONE BLVD	12/27/15 12:00 AM	12/27/15 03:00 PM	1,875	SEWER MANHOLE	29948	GROUND	FERN CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476624	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	6808 SANDSTONE BLVD	12/27/15 12:00 AM	12/27/15 03:00 PM	1,875	SEWER MANHOLE	31073	DITCH	FERN CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476617	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	6808 SANDSTONE BLVD	12/27/15 12:00 AM	12/27/15 03:00 PM	1,875	SEWER MANHOLE	31074	DITCH	FERN CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476621	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	5006 LEA ANN WAY	12/27/15 1:20 PM	12/27/15 09:45 PM	1,990,000	SEWER LIFT STATION	MSD1010-PS	STREAM	NORTHERN DITCH	RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY	PUMPED OVERFLOW	DISREV RAIN EVENT DISCHARGE	2476660	MSD CLEANED AND SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9317 LANTANA DR	12/27/15 1:42 PM	12/28/15 07:40 AM	10,780	SEWER MANHOLE	25484	STREAM	PENNSYLVANIA RUN	RAIN EVENT CASUED A LACK OF SYSTEM CAPAITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476651	MSD CLEANED & SANITIZED	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	12/27/15 1:50 PM	12/29/15 04:00 AM	36,000	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476629	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
DEREK R. GUTHRIE	KY0078956	9114 CINDERELLA LN	12/27/15 2:20 PM	12/28/15 08:40 AM	22,000	SEWER MANHOLE	60679	DITCH	FISHPOOL CREEK	RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476648	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	2/2/16 11:47 PM	02/03/16 12:30 PM	19,125	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499052	MSD CLEANED AND SANITIZED THE AFFECTED AREA	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9317 LANTANA DR	2/3/16 2:55 AM	02/03/16 09:30 AM	19,750	SEWER MANHOLE	25484	STREAM	PENNSYLVANIA RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499111	NO DEBRIS OBSERVED	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	2/24/16 4:30 AM	02/25/16 08:15 AM	40,500	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511631	MSD CLEANED AND SANITIZED THE AFFECTED AREA	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9317 LANTANA DR	2/24/16 7:10 AM	02/24/16 09:35 AM	3,625	SEWER MANHOLE	25484	STREAM	PENNSYLVANIA RUN	LACK OF CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511521	MSD CLEANED AND SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9114 CINDERELLA LN	2/24/16 7:25 AM	02/24/16 04:50 PM	14,125	SEWER MANHOLE	60679	DITCH	FISHPOOL CREEK	LACK OF CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511535	MSD CLEANED AND SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	3/10/16 4:30 PM	03/11/16 06:30 AM	21,000	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521059	MSD TO CLEAN AND SANITIZE AFFECTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9114 CINDERELLA LN	3/10/16 6:30 PM	03/10/16 10:08 PM	1,010	SEWER MANHOLE	60679	DITCH	FISHPOOL CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521072	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION CAN BE LOCATED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	3/12/16 11:55 PM	03/14/16 07:30 AM	47,375	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521549	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10517 SUNLIGHT LN	4/20/16 2:47 PM	04/21/16 03:21 PM	450	SEWER LIFT STATION	MSD0120-PS	STREAM	POND CREEK	PIPE SEPARATION DUE TO EROSION	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2547242	MSD CLEANED & SANITIZED THE AREA	CONTRACTOR REPAIRED
DEREK R. GUTHRIE	KY0078956	423 ECHAPPE LN	6/24/16 2:49 AM	06/24/16 03:00 AM	55	SEWER MANHOLE	81440	GROUND	BEE LICK CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2575247	NO DEBRIS	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
FLOYDS FORK	KY0102784	815 TUCKER STATION RD	7/12/15 9:00 AM	07/12/15 12:30 PM	5,250	SEWER MANHOLE	33003	STREAM	POPE LICK	HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387166	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
FLOYDS FORK	KY0102784	12400 BRIERLY HILL PL	7/12/15 9:00 AM	07/12/15 10:28 AM	5,250	SEWER MANHOLE	65516	GROUND	POPE LICK	HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387189	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP

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ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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
FLOYDS FORK	KY0102784	12400 BRIERLY HILL PL	7/12/15 9:00 AM	07/12/15 12:00 AM	5,250	SEWER MANHOLE	65531	STREAM	POPE LICK	HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387170	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
FLOYDS FORK	KY0102784	1203 HEAFER RD	7/14/15 5:50 AM	07/15/15 08:00 AM	39,250	SEWER MANHOLE	24012	DITCH	CHENOWETH RUN,UPPER	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388697	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
FLOYDS FORK	KY0102784	912 EASTWOOD FISHERVILLE RD	8/25/15 10:20 AM	08/25/15 04:00 PM	5,000	SEWER MAIN	96911A-V	GROUND	LONG RUN	16" FM BREAK.	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2420006	AFFECTED AREA WAS RAKED.	CHEROKEE CONSTRUCTION - 16" FM WAS REPAIRED.
FLOYDS FORK	KY0102784	912 EASTWOOD FISHERVILLE RD	10/23/15 8:00 PM	10/23/15 08:30 PM	500	SEWER MAIN	96911A-V	GROUND	LONG RUN	FM BREAK	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2451472	MSD CLEAN AND SANITIZE AREA AFTER CONTRACTOR REPAIRS	CLOSED 16" FM OPENED 24" FM DISCHARGE STOPPED
FLOYDS FORK	KY0102784	12400 BRIERLY HILL PL	12/27/15 12:00 AM	12/27/15 05:00 PM	900	SEWER MANHOLE	65516	GROUND	POPE LICK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476636	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
FLOYDS FORK	KY0102784	815 TUCKER STATION RD	12/27/15 2:00 PM	12/27/15 05:00 PM	900	SEWER MANHOLE	33003	STREAM	POPE LICK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476632	MSD TO CLEAN AND SANITIZE AFFECTED AREA	AREA INCLUDED IN IOAP
FLOYDS FORK	KY0102784	15026 BIRCHAM RD	12/27/15 3:25 PM	12/28/15 07:40 AM	24,375	SEWER MANHOLE	69305	GROUND	FLOYDS FORK	RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476697	NO DEBRIS	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
FLOYDS FORK	KY0102784	611 WOODLAKE DR	6/30/16 7:29 PM	06/30/16 08:29 PM	480	SEWER MAIN	80581B-AG	STREAM	FLOYDS FORK	STRUCTURAL FAILURE OF FORCE MAIN	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2580166	MSD PERSONNEL WILL CLEAN AND SANITIZE THE IMPACTED AREA	MSD CONTRACTOR MADE REPAIRS TO THE FORCE MAIN
HITE CREEK	KY0022420	5500 HITT RD	7/12/15 8:00 AM	07/12/15 01:15 PM	157,500	SEWER TREATMENT PLANT	MSD0202	STREAM	HITE CREEK	RAIN EVENT CAUSED CREEK TO FLOOD WET WELL	BYPASS AT WQTC	DISREV RAIN EVENT DISCHARGE	2387485	MSD CLEANED & SANITIZED	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
HITE CREEK	KY0022420	9810 U S HIGHWAY 42	7/12/15 8:00 AM	07/13/15 12:15 AM	1,325,490	SEWER TREATMENT PLANT	MSD0291	STREAM	HARRODS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BYPASS AT WQTC	DISREV RAIN EVENT DISCHARGE	2387500	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
HITE CREEK	KY0022420	5500 HITT RD	7/12/15 8:00 AM	07/13/15 01:00 AM	9,999	SEWER MANHOLE	102447A	GROUND	HITE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387508	REFERENCE #2388159	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
HITE CREEK	KY0022420	6709 GUNPOWDER LN	7/12/15 9:30 AM	07/12/15 09:35 AM	9,999	SEWER LIFT STATION	MSD1055-LS	DITCH	HARRODS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387507	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
HITE CREEK	KY0022420	10723 COPPER RIDGE DR	7/13/15 4:00 PM	07/14/15 07:20 AM	157,000	SEWER MANHOLE	108674	GROUND	HITE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388159	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
HITE CREEK	KY0022420	6210 DEEP CREEK CT	7/13/15 4:15 PM	07/13/15 06:06 PM	2,750	SEWER LIFT STATION	MSD1063-PS	DITCH	HARRODS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388160	PIPE DISCHARGE SUBMERGED- NO CLEANUP	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
HITE CREEK	KY0022420	5500 HITT RD	7/14/15 5:42 AM	07/14/15 07:20 AM	49,000	SEWER TREATMENT PLANT	MSD0202	STREAM	HITE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BYPASS AT WQTC	DISREV RAIN EVENT DISCHARGE	2388696	MSD CLEANED & SANITIZED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
HITE CREEK	KY0022420	5500 HITT RD	7/14/15 7:10 AM	07/14/15 05:00 PM	9,999	SEWER MANHOLE	11877	STREAM	HITE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388790	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
HITE CREEK	KY0022420	7520 KAVANAUGH RD	7/14/15 7:15 AM	07/14/15 07:30 AM	150	SEWER LIFT STATION	MSD1085-PS	GROUND	HITE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389008	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
HITE CREEK	KY0022420	8619 WESTOVER DR	7/14/15 7:27 AM	07/14/15 03:15 PM	23,400	SEWER LIFT STATION	MSD1064-PS	DITCH	HARRODS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388841	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS LOCATED IN THE IOAP
HITE CREEK	KY0022420	10723 COPPER RIDGE DR	7/14/15 1:15 PM	07/14/15 02:00 PM	9,000	SEWER MANHOLE	108674	GROUND	HITE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389570	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION CAN BE LOCATED IN THE IOAP
HITE CREEK	KY0022420	10501 WORTHINGTON LN	8/4/15 3:06 PM	08/04/15 05:30 PM	70	SEWER MAIN	40582	GROUND	HITE CREEK	GREASE BLOCKAGE IN THE MAIN	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2407652	MSD CLEANED AREA AFTER DISCHARGED WAS ELIMINATED	GREASE WAS IN THE MSIN SEWER FLUSHED FROM MH# 40583 TO 40582 REMOVED GREASE
HITE CREEK	KY0022420	3700 CYPRESS SPRINGS PL	9/18/15 4:05 PM	09/18/15 07:30 PM	10,250	SEWER MAIN	45214-AG	GROUND	FLOYDS FORK	STRUCTURAL FAILURE OF FORCE MAIN	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2431706	MSD CLEANED & SANITIZED THE AREA	CONTRACTOR REPAIRED THE FORCE MAIN
HITE CREEK	KY0022420	3700 CYPRESS SPRINGS PL	9/18/15 8:40 PM	09/18/15 11:30 PM	700	SEWER LIFT STATION	MSD1018-PS	GROUND	FLOYDS FORK	STRUCTURAL FAILURE - FORCE MAIN BREAK	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2431709	MSD CLEANED & SANITIZED THE AREA	HAULED SEWAGE UNTIL REPAIRS MADE- CONTRACTOR REPAIRED THE FORCE MAIN
HITE CREEK	KY0022420	5500 HITT RD	9/26/15 10:59 PM	09/27/15 12:45 AM	49,074	SEWER TREATMENT PLANT	MSD0202	STREAM	HITE CREEK	COMMUNICATION FAILURE OF UV SYSTEM	BYPASS AT WQTC	DISDW DRY WEATHER DISCHARGE	2434538	NO CLEAN UP REQUIRED MOSTLY TREATED FLOW DISCHARGED AT PLANT EFFLUENT	OPERATOR INSTALLED SLIDE GATE UNTIL ELETRICAL REPAIRS WERE COMPLETED
HITE CREEK	KY0022420	3700 CYPRESS SPRINGS PL	10/8/15 8:22 AM	10/08/15 10:05 AM	20,600	SEWER NODE	45213-AG	DITCH	KLEMENZ CREEK	FORCE MAIN BREAK	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2441597	MSD CLEANED & SANITIZED THE AREA	CONTRACTOR HAULING UNTIL PIPE IS REPAIRED; CONTRACTOR REPAIRED THE FORCE MAIN
HITE CREEK	KY0022420	8619 WESTOVER DR	12/15/15 11:37 AM	12/15/15 11:42 AM	25	SEWER MAIN	MSD1064-PS	GROUND	HUNTING CREEK	FORCE MAIN BREAK	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2472955	NO CLEAN UP- THIS IS AN ACTIVE CONSTRUCTION SITE.	CONTRACTOR REPAIRED THE FORCE MAIN
HITE CREEK	KY0022420	5500 HITT RD	12/27/15 12:05 PM	12/27/15 06:00 PM	17,750	SEWER MANHOLE	11877A	STREAM	HITE CREEK	RAIN EVENT, LACK OF CAPACITY AT HITE CREEK	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476584	MSD CLEANED AND SANITIZED	UNABLE TO STOP DUE TO RAIN STILL IN THE AREA
HITE CREEK	KY0022420	10723 COPPER RIDGE DR	2/24/16 8:31 AM	03/02/16 10:51 AM	284,500	SEWER MANHOLE	108674	GROUND	HITE CREEK	ONLY 2 PUMPS IN WW @ HITE CREEK	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511613	MSD CLEANED AND SANITIZED AREA	REPAIR RISER
HITE CREEK	KY0022420	6605 GUNPOWDER LN	2/24/16 8:45 AM	02/24/16 03:30 PM	20,250	SEWER MANHOLE	66723	GROUND	HARRODS CREEK	MH RISER OFF BASE CLEAN OUT CAP BROKEN	STRUCTURAL FAILURE	DISREV RAIN EVENT DISCHARGE	2511723	MSD CLEANED & SANITIZED THE AREA	MSD EMPLOYEES REPLACED THE CLEAN OUT CAP
HITE CREEK	KY0022420	9519 U S HIGHWAY 42	3/26/16 10:15 PM	03/27/16 12:15 AM	800	SEWER MAIN	MSD1058-LS	DITCH	HUNTING CREEK	FORCE MAIN BREAK	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2531214	CLEANED AND SANITIZED THE IMPACTED AREA	CONTRACTOR REPAIRED FORCE MAIN
HITE CREEK	KY0022420	8619 WESTOVER DR	4/2/16 7:05 PM	04/02/16 07:20 PM	100	SEWER LIFT STATION	MSD1064-PS	DITCH	HARRODS CREEK	ELECTRICAL PROBLEM WITH MSD EQUIPMENT / PUMP PROTECTIVE CIRCUIT ENGAGED AFTER UTILITY POWER FAIL.	ELECTRICAL PROBLEMS AT MSD	DISDW DRY WEATHER DISCHARGE	2535332	MSD CLEANED AND SANITIZED THE AREA	RESET PUMP PROTECTIVE CIRCUIT
HITE CREEK	KY0022420	6802 FAIRWAY VIEW CT	5/19/16 10:47 AM	05/19/16 11:29 AM	30	SEWER MAIN	68048B-AG	DITCH	HUNTING CREEK	FURTHER INVESTIGATION REQUIRED	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2560429	MSD WILL CLEAN AREA	REFERRED TO OPERATIONS
JEFFERSONTO WN	KY0025194	10725 OLD TAYLORSVILLE RD	7/3/15 3:56 PM	07/04/15 01:28 AM	359,280	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BLENDING AT JTOWN WQTC	DISREV RAIN EVENT DISCHARGE	2382474	NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED FOR THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER.

Appendix D-1 Discharge Work Orders – Waters of the United States

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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
JEFFERSONTO WN	KY0025194	10725 OLD TAYLORSVILLE RD	7/10/15 12:03 PM	07/11/15 12:50 AM	564,375	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BLENDING AT JTOWN WQTC	DISREV RAIN EVENT DISCHARGE	2387007	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.
JEFFERSONTO WN	KY0025194	10725 OLD TAYLORSVILLE RD	7/12/15 7:39 AM	07/13/15 03:06 AM	3,425,126	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BLENDING AT JTOWN WQTC	DISREV RAIN EVENT DISCHARGE	2387491	NO CLEANUP- PIPE DISCHARGE SUBMERGED	TEMPORARY BLENDING HAS BEEN NEGOTIATED AT THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER.
JEFFERSONTO WN	KY0025194	10725 OLD TAYLORSVILLE RD	7/13/15 3:44 PM	07/15/15 07:53 AM	3,870,550	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BLENDING AT JTOWN WQTC	DISREV RAIN EVENT DISCHARGE	2388137	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.
JEFFERSONTO WN	KY0025194	10725 OLD TAYLORSVILLE RD	7/18/15 2:21 AM	07/18/15 05:23 AM	107,109	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BLENDING AT JTOWN WQTC	DISREV RAIN EVENT DISCHARGE	2391429	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED FOR THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER
JEFFERSONTO WN	KY0025194	10725 OLD TAYLORSVILLE RD	9/29/15 11:03 AM	09/29/15 04:40 PM	382,797	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BLENDING AT JTOWN WQTC	DISREV RAIN EVENT DISCHARGE	2436657	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED FOR THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER
JEFFERSONTO WN	KY0025194	10725 OLD TAYLORSVILLE RD	10/27/15 7:46 PM	10/28/15 06:27 PM	2,514,321	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BLENDING AT JTOWN WQTC	DISREV RAIN EVENT DISCHARGE	2452977	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED FOR THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER
JEFFERSONTO WN	KY0025194	10725 OLD TAYLORSVILLE RD	11/18/15 11:54 AM	11/19/15 01:10 AM	1,940,645	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BLENDING AT JTOWN WQTC	DISREV RAIN EVENT DISCHARGE	2462919	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED AT THIS LOCATION WHEN FLOW HAS BEEN OPTIMIZED DURING WET WEATHER.
JEFFERSONTO WN	KY0025194	10725 OLD TAYLORSVILLE RD	12/1/15 4:12 AM	12/01/15 02:02 PM	407,810	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BLENDING AT JTOWN WQTC	DISREV RAIN EVENT DISCHARGE	2467069	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED FOR THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	7/10/15 11:40 AM	07/10/15 01:40 PM	1,500	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387043	WO# 2387116	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	7/10/15 11:45 AM	07/10/15 01:55 PM	1,200	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387050	WO# 2387117	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	7/12/15 7:14 AM	07/12/15 05:42 PM	2,379,438	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387441	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	7/12/15 7:23 AM	07/12/15 11:28 AM	2,400	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387555	WO# 2387635	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	7/12/15 7:24 AM	07/12/15 11:27 AM	12,000	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387556	WO# 2387637	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	8113 SHELBYVILLE RD	7/12/15 7:24 AM	07/14/15 04:20 PM	2,000	SEWER MANHOLE	30376	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387534	WO# 2388645	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1600 BELMAR DR	7/12/15 7:25 AM	07/12/15 11:22 AM	2,500	SEWER MANHOLE	13946	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387569	WO# 2387802	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4103 LEE AVE	7/12/15 7:27 AM	07/12/15 11:11 AM	1,100	SEWER MANHOLE	104223	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387571	WO# 2387691	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	7/12/15 7:30 AM	07/12/15 11:35 AM	14,400	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387560	WO# 2387656	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4108 LEE AVE	7/12/15 7:36 AM	07/12/15 11:12 AM	100	SEWER SERVICE LINE	KK14815019	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387567	WO# 2387673	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4107 LEE AVE	7/12/15 7:38 AM	07/12/15 11:15 AM	1,100	SEWER SERVICE LINE	KK14855239	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387570	WO# 2387681	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	7/12/15 8:05 AM	07/15/15 07:28 AM	1,000	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387494	WO# 2388628	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1122 ROSTREVOR CIR	7/12/15 8:07 AM	07/14/15 03:14 PM	2,000	SEWER MANHOLE	45900	DITCH	HAWKINS RILL	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387597	WO# 2388674	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1013 ALTA CIR	7/12/15 8:13 AM	07/15/15 07:39 AM	1,000	SEWER MANHOLE	27007	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387484	WO# 2388175	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	7/12/15 8:13 AM	07/15/15 07:39 AM	1,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387488	WO# 2388624	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1726 FRASER DR	7/12/15 8:15 AM	07/12/15 12:15 PM	2,000	SEWER MANHOLE	16649	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387910	WO# 2387913	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	2216 FAIRLAND AVE	7/12/15 8:15 AM	07/12/15 06:02 PM	15,000	SEWER MANHOLE	49445	GROUND	BUECHEL BRANCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387565	WO# 2387662	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	2219 RICHLAND AVE	7/12/15 8:15 AM	07/12/15 06:03 PM	6,000	SEWER MANHOLE	49446	STREAM	BUECHEL BRANCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387566	WO# 2387667	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1700 SULGRAVE RD	7/12/15 8:17 AM	07/13/15 07:10 AM	1,000	SEWER MANHOLE	72289	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387477	WO# 2388161	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3620 CHARLANE PKY	7/12/15 8:25 AM	07/14/15 06:30 PM	9,000	SEWER MANHOLE	104289	GROUND	BEATTY BROOK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387472	WO# 2387785	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3620 CHARLANE PKY	7/12/15 8:25 AM	07/14/15 06:30 PM	9,000	SEWER MANHOLE	28340	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387467	WO# 2387782	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	8021 CHRISTIAN CT	7/12/15 8:30 AM	07/14/15 06:18 AM	9,000	SEWER MANHOLE	47593	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387519	WO# 2388638	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3500 ST EDWARDS DR	7/12/15 8:31 AM	07/12/15 05:45 PM	9,000	SEWER MANHOLE	28249	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387459	WO# 2387778	LOCATION INCLUDED IN IOAP

Appendix D-1 Discharge Work Orders – Waters of the United States

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	3506 CHARLANE PKY	7/12/15 8:35 AM	07/14/15 06:35 PM	9,000	SEWER MANHOLE	28250	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387457	WO# 2387776	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3406 CHARLANE PKY	7/12/15 8:36 AM	07/14/15 06:30 PM	7,500	SEWER MANHOLE	28451	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387455	WO# 2387774	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4313 PRUITT CT	7/12/15 8:40 AM	07/12/15 12:47 PM	500	SEWER MANHOLE	08427	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387546	WO# 2387607	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3501 MARLIN DR	7/12/15 8:40 AM	07/14/15 09:30 AM	15,000	SEWER MANHOLE	28416	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387449	WO# 2387605	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4315 PRUITT CT	7/12/15 8:41 AM	07/12/15 12:48 PM	500	SEWER MANHOLE	08426	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387549	WO# 2387631	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4339 PRUITT CT	7/12/15 8:43 AM	07/12/15 12:54 PM	300	SEWER MANHOLE	08431	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387550	WO# 2387634	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3506 DELL RD	7/12/15 8:45 AM	07/14/15 09:30 AM	15,000	SEWER MANHOLE	28417	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387452	WO# 2387606	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3406 DELL RD	7/12/15 8:47 AM	07/14/15 09:30 AM	15,000	SEWER MANHOLE	28415	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387447	WO# 2387602	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4002 BROOKFIELD AVE	7/12/15 8:54 AM	07/14/15 05:50 PM	2,000	SEWER MANHOLE	24448	GROUND	CHERRYWOOD CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387585	WO# 2387707	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1552 CHEROKEE RD	7/12/15 9:00 AM	07/15/15 07:45 AM	2,000	SEWER MANHOLE	40471	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387595	WO# 2388672	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1552 CHEROKEE RD	7/12/15 9:00 AM	07/15/15 07:45 AM	2,000	SEWER MANHOLE	40471C	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387596	WO# 2388673	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	300 MOCKINGBIRD VALLEY RD	7/12/15 9:12 AM	07/14/15 05:35 PM	3,000	SEWER MANHOLE	41374	DITCH	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387582	WO# 2388666	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3343 BROWNSBORO RD	7/12/15 9:12 AM	07/13/15 11:09 AM	2,000	SEWER MANHOLE	41416	GROUND	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387583	WO# 2388667	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	9514 TAYLORSVILLE RD	7/12/15 9:22 AM	07/14/15 06:45 PM	27,000	SEWER MANHOLE	28711	DITCH	BEATTY BROOK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387445	WO# 2387601	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	2711 GRASSLAND DR	7/12/15 9:27 AM	07/15/15 05:25 AM	90,000	SEWER MANHOLE	31733	DITCH	BEATTY BROOK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387444	WO# 2387755	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1913 CHARBDIN PL	7/12/15 9:49 AM	07/12/15 04:34 PM	30,000	SEWER MANHOLE	16455	GROUND	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387589	WO# 2387711	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3302 TROUT CREEK DR	7/12/15 9:49 AM	07/14/15 09:23 PM	3,000	SEWER MANHOLE	23211	STREAM	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387559	WO# 2388660	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4801 CASSIA CT	7/12/15 9:49 AM	07/16/15 09:30 AM	18,000	SEWER MANHOLE	46623	STREAM	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387590	WO# 2390679	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1910 CHARBDIN PL	7/12/15 9:49 AM	07/15/15 06:00 AM	4,500	SEWER MANHOLE	46627	STREAM	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387593	WO# 2391322	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1910 CHARBDIN PL	7/12/15 9:49 AM	07/15/15 06:03 AM	5,000	SEWER MANHOLE	65606	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387579	WO# 2391316	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1802 ROUND RIDGE RD	7/12/15 9:49 AM	07/15/15 06:00 AM	6,000	SEWER MANHOLE	65610	STREAM	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387594	WO# 2391329	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1804 ROUND RIDGE RD	7/12/15 9:49 AM	07/16/15 09:30 AM	18,000	SEWER MANHOLE	65623	STREAM	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387580	WO# 2390677	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3303 TROUT CREEK DR	7/12/15 9:51 AM	07/12/15 04:09 PM	9,900	SEWER SERVICE LINE	BU05091039	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387568	WO# 2387686	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3305 BENT CREEK CT	7/12/15 9:57 AM	07/14/15 09:25 PM	2,000	SEWER SERVICE LINE	BU05074039	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387562	WO# 2388661	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3305 INDIAN CREEK CT	7/12/15 9:58 AM	07/15/15 01:27 PM	1,000	SEWER MANHOLE	51160	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387557	WO# 2387948	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	7900 SHELBYVILLE RD	7/12/15 10:28 AM	07/15/15 06:13 AM	2,000	SEWER MANHOLE	02933	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387502	WO# 2388634	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	7900 SHELBYVILLE RD	7/12/15 10:33 AM	07/15/15 06:09 AM	2,000	SEWER MANHOLE	02935	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387499	WO# 2388633	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	201 BULLITT LN	7/12/15 10:35 AM	07/13/15 07:49 AM	2,000	SEWER MANHOLE	47582	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387496	WO# 2388631	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	202 OXMOOR LN	7/12/15 10:35 AM	07/15/15 06:03 AM	3,000	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387495	WO# 2391310	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	8021 CHRISTIAN CT	7/12/15 10:39 AM	07/15/15 06:15 AM	2,000	SEWER MANHOLE	90700	CATCH BASIN	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387504	WO# 2388636	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	7913 SHELBYVILLE RD	7/12/15 10:57 AM	07/15/15 06:23 AM	2,000	SEWER MANHOLE	84155	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387537	WO# 2388646	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	8016 SHELBYVILLE RD	7/12/15 11:00 AM	07/14/15 04:13 PM	2,000	SEWER MANHOLE	47603	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387522	WO# 2388640	LOCATION INCLUDED IN IOAP

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ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	8016 SHELBYVILLE RD	7/12/15 11:00 AM	07/13/15 08:09 AM	2,000	SEWER MANHOLE	47604	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387524	WO# 2388641	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	9 MUIRFIELD PL	7/12/15 11:15 AM	07/13/15 08:21 AM	2,000	SEWER MANHOLE	01793	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387527	WO# 2388642	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	9 MUIRFIELD PL	7/12/15 11:15 AM	07/13/15 08:21 AM	2,000	SEWER MANHOLE	67535	GROUND	HURSTBOURNE CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387531	WO# 2388643	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4609 BLENHEIM RD	7/12/15 12:17 PM	07/14/15 04:32 PM	3,000	SEWER MANHOLE	21171	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387544	WO# 2388657	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	332 STONEHENGE DR	7/12/15 12:17 PM	07/14/15 04:32 PM	3,000	SEWER MANHOLE	63357	DITCH	VALLEY CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387577	WO# 2388663	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	208 BRUNSWICK RD	7/12/15 12:25 PM	07/15/15 06:28 AM	2,000	SEWER MANHOLE	115183	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387538	WO# 2388647	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	208 BRUNSWICK RD	7/12/15 12:25 PM	07/14/15 04:36 PM	2,000	SEWER MANHOLE	115184	GROUND	SINKING FORK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387540	WO# 2388649	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	207 BRUNSWICK RD	7/12/15 12:25 PM	07/14/15 04:36 PM	2,000	SEWER MANHOLE	115185	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387541	WO# 2388650	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	207 BRUNSWICK RD	7/12/15 12:25 PM	07/14/15 04:36 PM	2,000	SEWER MANHOLE	21089A	DITCH	UPPER MILL CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387539	WO# 2388648	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	308 STONEHENGE DR	7/12/15 12:40 PM	07/14/15 04:31 PM	3,000	SEWER MANHOLE	25017	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387543	WO# 2388656	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	232 STONEHENGE DR	7/12/15 12:40 PM	07/14/15 04:28 PM	3,000	SEWER MANHOLE	47034	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387542	WO# 2388650	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3317 BROWNSBORO RD	7/12/15 1:00 PM	07/13/15 11:02 AM	2,000	SEWER MANHOLE	26752	DITCH	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387584	WO# 2388669	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3920 DUTCHMANS LN	7/12/15 1:13 PM	07/14/15 06:12 PM	2,000	SEWER MANHOLE	96673	STREAM	WEICHER CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387599	WO# 2388675	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3920 DUTCHMANS LN	7/12/15 1:15 PM	07/12/15 02:30 PM	1,875	SEWER MANHOLE	96672	GROUND	MIDDLE FORK BEARGRASS CREEK	CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387337	NONE AT THIS TIME	REFERRED TO OPERATIONS TO CHECK THE PUMP STATION #2387299
MORRIS FORMAN	KY0022411	1108 DUPONT CIR	7/12/15 1:21 PM	07/14/15 06:06 PM	2,000	SEWER MANHOLE	43726	GROUND	WEICHER CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387586	WO# 2388670	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1106 BROADFIELDS DR	7/12/15 1:27 PM	07/14/15 05:50 PM	3,000	SEWER MANHOLE	74513	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387588	WO# 2388671	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	2120 INDIAN HILLS TRL	7/12/15 2:00 PM	07/13/15 12:00 AM	30,000	SEWER MANHOLE	40870	DITCH	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387548	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	2120 INDIAN HILLS TRL	7/12/15 2:00 PM	07/13/15 12:00 AM	300,000	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	2387520	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1700 SULGRAVE RD	7/12/15 3:15 PM	07/13/15 07:10 AM	1,000	SEWER MANHOLE	15195	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387575	WO# 2388662	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	806 PINE WAY	7/12/15 6:00 PM	07/13/15 02:05 AM	4,850	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	2387530	SEE WORK ORDER #2388619	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	7/12/15 6:18 PM	07/13/15 02:00 AM	11,550	SEWER MANHOLE	00746	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387533	SEE WO#2389001	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	7713 WESTPORT RD	7/12/15 8:38 PM	07/14/15 05:02 PM	2,000	SEWER MANHOLE	105936	GROUND	GOOSE CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387578	WO# 2388664	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	806 PINE WAY	7/13/15 4:35 PM	07/13/15 06:20 PM	525	SEWER MANHOLE	00817	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388619	SEE WO#2388993	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4103 LEE AVE	7/14/15 5:37 AM	07/14/15 04:49 PM	300	SEWER MANHOLE	104223	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389035	WO# 2389803	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4103 LEE AVE	7/14/15 5:39 AM	07/14/15 04:48 PM	500	SEWER MANHOLE	104224	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389100	WO# 2389799	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4107 LEE AVE	7/14/15 5:39 AM	07/14/15 08:40 AM	500	SEWER SERVICE LINE	KK14855239	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389065	WO# 2389081	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4108 LEE AVE	7/14/15 5:41 AM	07/14/15 08:43 AM	500	SEWER SERVICE LINE	KK14815019	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389053	WO# 2389056	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1600 BELMAR DR	7/14/15 5:42 AM	07/14/15 08:41 AM	500	SEWER MANHOLE	13946	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389061	WO# 2389063	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	7/14/15 5:48 AM	07/14/15 09:07 AM	500	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389101	WO# 2389102	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	7/14/15 5:50 AM	07/14/15 04:58 PM	500	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389025	WO# 2389800	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	7/14/15 5:51 AM	07/14/15 04:59 PM	300	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389029	WO# 2389801	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	2216 FAIRLAND AVE	7/14/15 7:07 AM	07/14/15 09:12 PM	400	SEWER MANHOLE	49445	GROUND	BUECHEL BRANCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389037	WO# 2389804	LOCATION INCLUDED IN IOAP

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ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	2219 RICHLAND AVE	7/14/15 7:08 AM	07/14/15 09:13 PM	500	SEWER MANHOLE	49446	STREAM	BUECHEL BRANCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389041	WO# 2389805	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	7/14/15 8:56 AM	07/15/15 03:45 AM	89,175	SEWER MANHOLE	00746	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389001	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION CA BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	4640 BARBOUR LN	7/14/15 9:00 AM	07/15/15 12:57 AM	143,500	SEWER MANHOLE	42680	STREAM	LITTLE GOOSE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389120	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4640 BARBOUR LN	7/14/15 9:00 AM	07/15/15 12:57 AM	95,700	SEWER MANHOLE	65633	STREAM	LITTLE GOOSE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389121	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4640 BARBOUR LN	7/14/15 9:00 AM	07/15/15 12:57 AM	95,700	SEWER MANHOLE	65635	STREAM	LITTLE GOOSE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389119	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4500 CORDOVA RD	7/14/15 9:35 AM	07/14/15 04:52 PM	9,000	SEWER MANHOLE	21069	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389785	WO# 2389788	LOCATION INCLUDED IN IOAP.
MORRIS FORMAN	KY0022411	4440 CORDOVA RD	7/14/15 9:40 AM	07/14/15 04:52 PM	9,000	SEWER MANHOLE	21068	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389789	WO# 2389790	LOCATION INCLUDED IN IOAP.
MORRIS FORMAN	KY0022411	1200 PARK HILLS DR	7/14/15 9:40 AM	07/14/15 01:10 PM	500	SEWER MANHOLE	24553	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389104	WO# 2389797	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	101 SAGE RD	7/14/15 9:58 AM	07/14/15 05:00 PM	18,000	SEWER MANHOLE	45419	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389795	WO# 2389796	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3928 DUTCHMANS LN	7/14/15 12:00 PM	07/14/15 06:07 PM	200	SEWER SERVICE LINE	Z18284029	GROUND	WEICHER CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389125	WO# 2389798	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	7/18/15 1:35 AM	07/18/15 08:30 AM	3,500	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391498	WO# 2391500	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	7/18/15 1:36 AM	07/18/15 08:31 AM	1,000	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391502	WO# 2391503	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4107 LEE AVE	7/18/15 1:39 AM	07/18/15 08:35 AM	1,500	SEWER SERVICE LINE	KK14855239	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391506	WO# 2391507	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	7/18/15 1:45 AM	07/18/15 08:45 AM	4,500	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391504	WO# 2391505	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	7/18/15 2:26 AM	07/19/15 10:35 AM	18,000	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391491	WO# 2391579	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	7/18/15 2:33 AM	07/19/15 11:05 AM	1,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391490	WO# 2391578	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1552 CHEROKEE RD	7/18/15 2:40 AM	07/19/15 11:18 AM	21,000	SEWER MANHOLE	40471	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391495	WO# 2391582	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1548 CHEROKEE RD	7/18/15 2:40 AM	07/19/15 11:18 AM	18,000	SEWER MANHOLE	40471A	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391496	WO# 2391583	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1700 SULGRAVE RD	7/18/15 2:40 AM	07/19/15 11:12 AM	9,000	SEWER MANHOLE	72289	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391487	WO# 2391574	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	201 BULLITT LN	7/18/15 3:23 AM	07/19/15 11:40 AM	19,000	SEWER MANHOLE	47582	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391493	WO# 2391581	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	202 OXMOOR LN	7/18/15 3:23 AM	07/19/15 01:00 PM	24,000	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391492	WO# 2391580	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1552 CHEROKEE RD	7/19/15 2:40 AM	07/19/15 11:18 AM	20,000	SEWER MANHOLE	40471C	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391497	WO# 2391584	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	8/19/15 6:10 PM	08/19/15 07:30 PM	1,500	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2418030	DISCLN WO# 2418032	LOCATION INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1215 ELLISON AVE	9/14/15 8:15 AM	09/14/15 08:30 AM	450	SEWER MANHOLE	CSO113	STREAM	SOUTH FORK BEARGRASS CREEK	OBSTRUCTION IN MAIN SEWR	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2429237	FLUSHED THE LINE	OPENED BY FLUSHING THE LINE
MORRIS FORMAN	KY0022411	4522 ALGONQUIN PKY	10/5/15 9:50 AM	10/05/15 10:00 AM	300	SEWER TREATMENT PLANT	MSD0278	STREAM	OHIO RIVER	VALVING NOT SET UP CORRECTLY	BYPASS AT WQTC	DISDW DRY WEATHER DISCHARGE	2439679	MSD CLEANED AND SANITIZED AREA	SUMP PUMP WAS TURNED OFF
MORRIS FORMAN	KY0022411	376 CRESCENT SPRING DR	10/16/15 8:00 PM	10/16/15 09:00 PM	188,884	SEWER MANHOLE	CSO125	STREAM	MIDDLE FORK BEARGRASS CREEK	TWELVE INCH WATER MAIN BREAK	UTILITY DAMAGED MSD ASSET	DISDW DRY WEATHER DISCHARGE	2447722	NO CLEANUP OCCURRED	WATER MAIN REPAIRED BY UTILITY
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	10/27/15 8:19 PM	10/27/15 09:09 PM	3,000	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2452991	WO# 2454452	LOCATION INCLUDED IN IOAP.
MORRIS FORMAN	KY0022411	3406 CHARLANE PKY	10/28/15 5:15 AM	10/28/15 12:45 PM	10,500	SEWER MANHOLE	28451	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2454325	WO# 2454548	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3402 CHARLANE PKY	10/28/15 5:20 AM	10/28/15 12:45 PM	10,500	SEWER MANHOLE	28453	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2454328	WO#2454553	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1215 ELLISON AVE	11/2/15 10:19 AM	11/02/15 10:37 AM	9	SEWER MANHOLE	CSO113	STREAM	SOUTH FORK BEARGRASS CREEK	UNKNOWN OBSTRUCTION IN LOW FLOW LINE	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2456311	FLUSHED LINE TO MITIGATE. NO CLEAN-UP NECESSARY	FLUSHED THE LINE TO MITIGATE
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	11/18/15 12:54 PM	11/18/15 07:20 PM	10,000	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463122	WO# 2463152	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	11/18/15 12:55 PM	11/18/15 06:12 PM	3,000	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463121	WO# 2463151	LOCATION INCLUDED IN IOAP

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ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	1418 TREVILIAN WAY	11/18/15 1:12 PM	11/18/15 06:00 PM	3,500	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463123	WO# 2463130	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	11/18/15 1:48 PM	11/18/15 05:21 PM	13,500	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463112	WO# 2463139	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1013 ALTA CIR	11/18/15 1:52 PM	11/18/15 06:13 AM	144,000	SEWER MANHOLE	27007	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463110	WO# 2463209	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	11/18/15 1:52 PM	11/18/15 06:13 AM	288,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463111	WO# 2463229	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3500 ST EDWARDS DR	11/18/15 2:02 PM	11/18/15 06:34 PM	6,000	SEWER MANHOLE	28249	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463117	WO# 2463150	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3406 CHARLANE PKY	11/18/15 2:03 PM	11/18/15 06:05 AM	24,000	SEWER MANHOLE	28451	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463118	WO# 2463169	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3506 CHARLANE PKY	11/18/15 2:05 PM	11/18/15 05:59 AM	24,000	SEWER MANHOLE	28250	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463119	WO# 2463170	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1700 SULGRAVE RD	11/18/15 2:13 PM	11/18/15 05:31 PM	13,500	SEWER MANHOLE	72289	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463109	WO# 2463125	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	11/18/15 2:16 PM	11/18/15 10:37 PM	712,477	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463115	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1552 CHEROKEE RD	11/18/15 2:27 PM	11/18/15 06:30 AM	48,000	SEWER MANHOLE	40471	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463114	WO# 2463251	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	202 OXMOOR LN	11/18/15 2:57 PM	11/19/15 06:45 AM	28,800	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463113	WO# 2463250	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	11/18/15 7:02 PM	11/19/15 12:10 AM	3,080	SEWER MANHOLE	00746	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463107	MSD CLEANED AND SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1215 ELLISON AVE	11/23/15 10:16 AM	11/23/15 11:38 AM	82	SEWER MANHOLE	CSO113	STREAM	SOUTH FORK BEARGRASS CREEK	HEAVY LEAVES (BUILD UP AT REDUCER/LOW-FLOW	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2464186	NONE NOTED. OVERFLOWS DIRECTLY INTO CREEK	FLUSHED LINE AND RELIEVED OBSTRUCTION
MORRIS FORMAN	KY0022411	3705 BARDSTOWN RD	12/16/15 11:30 AM	12/16/15 11:45 AM	250	SEWER MAIN	73111	CATCH BASIN	SOUTH FORK BEARGRASS CREEK	GREASE IN THE MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2473300	MSD CLEANED AREA	REFERRED TO IWD
MORRIS FORMAN	KY0022411	973 SWAN ST	12/16/15 2:15 PM	12/16/15 02:35 PM	200	SEWER MAIN	11777A	STREAM	SOUTH FORK BEARGRASS CREEK	CONTRACTOR HIT SIPHON WHILE WORKING IN AREA	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2473390	CONTRACTOR TO CLEAN AND SANITIZE AREA	LOCATION PUT ON BYPASS WHILE CONTRACTOR REPAIRS LINE
MORRIS FORMAN	KY0022411	1013 ALTA CIR	12/23/15 1:33 PM	12/24/15 10:46 AM	6,000	SEWER MANHOLE	27007	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476096	WO# 2476267	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	12/23/15 7:50 PM	12/23/15 09:40 PM	5,000	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476085	WO# 2476246	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	12/23/15 8:15 PM	12/24/15 09:38 AM	3,000	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476081	WO# 2476221	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	12/23/15 8:18 PM	12/24/15 09:37 AM	18,000	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476082	WO# 2476226	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1600 BELMAR DR	12/23/15 8:25 PM	12/23/15 09:52 PM	2,500	SEWER MANHOLE	13946	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476088	WO# 2476255	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4107 LEE AVE	12/23/15 8:30 PM	12/23/15 09:53 PM	2,500	SEWER SERVICE LINE	KK14855239	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476090	WO# 2476263	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4103 LEE AVE	12/23/15 8:34 PM	12/23/15 09:55 PM	3,000	SEWER MANHOLE	104223	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476084	WO# 2476243	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4108 LEE AVE	12/23/15 8:39 PM	12/23/15 09:50 PM	1,500	SEWER SERVICE LINE	KK14815019	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476087	WO# 2476246	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	12/23/15 9:03 PM	12/24/15 11:01 PM	342,732	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476093	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	12/23/15 9:32 PM	12/24/15 01:57 PM	6,000	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476100	WO# 2476276	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	12/23/15 9:47 PM	12/24/15 10:46 AM	28,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476098	WO# 2476274	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1552 CHEROKEE RD	12/23/15 9:59 PM	12/24/15 11:01 AM	10,000	SEWER MANHOLE	40471	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476105	WO# 2476285	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1122 ROSTREVOR CIR	12/23/15 9:59 PM	12/24/15 11:01 AM	10,000	SEWER MANHOLE	45900	DITCH	HAWKINS RILL	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476106	WO# 2476288	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	201 BULLITT LN	12/23/15 10:13 PM	12/24/15 11:30 AM	10,000	SEWER MANHOLE	47582	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476103	WO# 2476282	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	202 OXMOOR LN	12/23/15 10:14 PM	12/24/15 11:30 AM	18,000	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476101	WO# 2476278	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4108 LEE AVE	12/27/15 11:32 AM	12/28/15 11:03 AM	27,000	SEWER SERVICE LINE	KK14815019	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476716	WO# 2479559	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4107 LEE AVE	12/27/15 11:33 AM	12/28/15 11:00 AM	5,400	SEWER SERVICE LINE	KK14855239	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476718	WO# 2479563	LOCATION INCLUDED IN IOAP

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ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	1600 BELMAR DR	12/27/15 11:34 AM	12/28/15 11:04 AM	27,000	SEWER MANHOLE	13946	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476717	WO# 2479561	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4103 LEE AVE	12/27/15 11:37 AM	12/28/15 11:00 AM	15,000	SEWER MANHOLE	104223	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476719	WO# 2479564	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	12/27/15 11:38 AM	12/29/15 09:21 PM	14,161,636	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476714	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	12/27/15 11:45 AM	12/28/15 10:55 AM	22,500	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476721	WO# 2479567	LACK OF SYSTEM CAPACITY-HEAVY RAIN.
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	12/27/15 11:50 AM	12/29/15 12:50 PM	2,500	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476726	WO# 2479862	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	12/27/15 11:51 AM	12/28/15 11:15 AM	21,000	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476724	WO# 2479571	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1726 FRASER DR	12/27/15 12:15 PM	12/27/15 09:00 PM	218,305	SEWER MANHOLE	16649	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476720	WO# 2479566	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	12/27/15 1:16 PM	12/29/15 03:15 PM	384,000	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476734	WO# 2479992	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1013 ALTA CIR	12/27/15 1:21 PM	12/29/15 11:16 AM	5,000	SEWER MANHOLE	27007	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476730	WO# 2479826	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	12/27/15 1:21 PM	12/29/15 11:16 AM	540,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476731	WO# 2479830	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1012 ALTA CIR	12/27/15 1:26 PM	12/28/15 09:51 PM	144,000	SEWER MANHOLE	40559	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476728	WO# 2479613	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1700 SULGRAVE RD	12/27/15 1:26 PM	12/28/15 11:03 AM	33,000	SEWER MANHOLE	72289	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476727	WO# 2479589	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	202 OXMOOR LN	12/27/15 2:04 PM	12/29/15 12:25 PM	576,000	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476735	WO# 2479849	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	7900 SHELBYVILLE RD	12/27/15 2:08 PM	12/28/15 08:29 AM	24,000	SEWER MANHOLE	02935	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476738	WO# 2479634	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	7900 SHELBYVILLE RD	12/27/15 2:10 PM	12/28/15 08:31 AM	162,000	SEWER MANHOLE	02933	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476739	WO# 2479655	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	806 PINE WAY	12/27/15 2:15 PM	12/28/15 08:11 AM	21,525	SEWER MANHOLE	0057-W	GROUND	MIDDLE FORK BEARGRASS CREEK	RAIN EVENT CAUSED LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476687	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	8021 CHRISTIAN CT	12/27/15 2:20 PM	12/28/15 08:33 AM	54,000	SEWER MANHOLE	90700	CATCH BASIN	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476740	WO# 2479660	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3406 DELL RD	12/27/15 2:25 PM	12/28/15 07:30 AM	1,000	SEWER MANHOLE	28415	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476686	WO# 2479796	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3402 CHARLANE PKY	12/27/15 2:30 PM	12/29/15 05:20 AM	3,000	SEWER MANHOLE	28453	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476706	WO# 24799801	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	8021 CHRISTIAN CT	12/27/15 2:30 PM	12/28/15 08:36 AM	108,000	SEWER MANHOLE	47593	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476741	WO# 2479663	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3406 CHARLANE PKY	12/27/15 2:35 PM	12/28/15 07:35 AM	2,000	SEWER MANHOLE	28451	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476709	WO# 2479810	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3506 CHARLANE PKY	12/27/15 2:40 PM	12/28/15 07:45 AM	2,000	SEWER MANHOLE	28250	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476711	WO# 2479817	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	8016 SHELBYVILLE RD	12/27/15 2:41 PM	12/28/15 08:38 AM	108,000	SEWER MANHOLE	47603	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476742	WO# 2479667	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	12/27/15 2:42 PM	12/29/15 06:00 AM	58,950	SEWER MANHOLE	00056-W	GROUND	MIDDLE FORK BEARGRASS CREEK	RAIN EVENT CAUSED LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476693	MSD CLEANED AND SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	12/27/15 2:42 PM	12/29/15 06:00 AM	58,950	SEWER MANHOLE	00746	DITCH	MIDDLE FORK BEARGRASS CREEK	RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476688	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3500 ST EDWARDS DR	12/27/15 2:50 PM	12/28/15 07:45 AM	2,000	SEWER MANHOLE	28249	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476712	WO# 2479823	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	9707 WILLOWWOOD WAY	12/27/15 2:55 PM	12/29/15 05:35 AM	34,500	SEWER MANHOLE	28336	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY- HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2479745	DISCLN WO# 2479751	LOCATION INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4716 BURKLEY AVE	12/27/15 2:56 PM	12/28/15 08:44 AM	27,000	SEWER MANHOLE	10793	CATCH BASIN	OHIO RIVER	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476743	WO# 2479674	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	9 MUIRFIELD PL	12/27/15 2:56 PM	12/28/15 08:44 AM	27,000	SEWER MANHOLE	67535	GROUND	HURSTBOURNE CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476745	WO# 2479676	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	8113 SHELBYVILLE RD	12/27/15 3:06 PM	12/28/15 08:52 AM	153,000	SEWER MANHOLE	30376	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476747	WO# 2479678	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	7913 SHELBYVILLE RD	12/27/15 3:37 PM	12/28/15 08:57 AM	153,000	SEWER MANHOLE	84155	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476748	WO# 2479679	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4313 PRUITT CT	12/27/15 3:46 PM	12/28/15 10:25 AM	2,500	SEWER MANHOLE	08427	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476722	WO# 2479568	LOCATION INCLUDED IN IOAP

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ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	4315 PRUITT CT	12/27/15 3:47 PM	12/28/15 10:26 AM	2,500	SEWER MANHOLE	08426	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476723	WO# 2479570	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	7713 WESTPORT RD	12/27/15 3:56 PM	12/28/15 09:04 AM	162,000	SEWER MANHOLE	105936	GROUND	GOOSE CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476749	WO# 2479692	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4801 CASSIA CT	12/27/15 4:21 PM	12/29/15 09:38 AM	270,000	SEWER MANHOLE	46623	STREAM	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476751	WO# 2479726	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1804 ROUND RIDGE RD	12/27/15 4:21 PM	12/29/15 09:38 AM	45,000	SEWER MANHOLE	65623	STREAM	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476750	WO# 2479719	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	37 ARROWHEAD RD	12/27/15 4:51 PM	12/28/15 09:39 AM	24,000	SEWER MANHOLE	89791	GROUND	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476754	WO# 2479714	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3317 BROWNSBORO RD	12/27/15 4:55 PM	12/28/15 09:48 AM	67,500	SEWER MANHOLE	26752	DITCH	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476756	WO# 2479735	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	300 MOCKINGBIRD VALLEY RD	12/27/15 4:55 PM	12/28/15 09:48 AM	22,500	SEWER MANHOLE	41374	DITCH	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476755	WO# 2479730	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1106 BROADFIELDS DR	12/27/15 5:29 PM	12/28/15 10:26 AM	45,000	SEWER MANHOLE	74513	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476760	WO# 2479746	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3920 DUTCHMANS LN	12/27/15 5:33 PM	12/28/15 10:31 AM	45,000	SEWER MANHOLE	96673	STREAM	WEICHER CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476762	WO# 2479750	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1108 DUPONT CIR	12/27/15 5:35 PM	12/28/15 10:33 AM	24,000	SEWER MANHOLE	43726	GROUND	WEICHER CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476759	WO# 2479739	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3302 TROUT CREEK DR	12/27/15 6:49 PM	12/28/15 10:36 AM	129,600	SEWER MANHOLE	23211	STREAM	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476765	WO# 2479752	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3305 BENT CREEK CT	12/27/15 6:53 PM	12/28/15 10:37 AM	54,000	SEWER SERVICE LINE	BU05074039	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476766	WO# 2479756	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3305 INDIAN CREEK CT	12/27/15 6:58 PM	12/29/15 12:45 PM	3,000	SEWER MANHOLE	51160	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476764	WO# 2479863	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	7404 ARROWWOOD RD	12/28/15 1:00 AM	12/28/15 05:45 AM	2,850	SEWER MANHOLE	117721	DITCH	GOOSE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2479181	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1800 NIGHTINGALE RD	12/31/15 3:00 PM	12/31/15 11:40 PM	621,132	SEWER LIFT STATION	MSD0022-PS	STREAM	SOUTH FORK BEARGRASS CREEK	FAILURE OF FORCE MAIN ON PHILLIPS LANE STATION HAD TO BE SHUT DOWN FOR REPAIR CAUSING WET WELL TO OVERFLOW	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2481317	PIPE DISCHARGE SUBMERGED- NO CLEANUP	CONTRACTOR REPAIRED FORCE MAIN AND STATION PLACED BACK IN SERVICE @ 2330 HRS 12/31/15
MORRIS FORMAN	KY0022411	1700 SULGRAVE RD	2/2/16 11:45 PM	02/03/16 09:39 AM	3,500	SEWER MANHOLE	72289	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499130	WO# 2499338	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4108 LEE AVE	2/3/16 12:30 AM	02/03/16 09:20 AM	2,700	SEWER SERVICE LINE	KK14815019	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499074	WO# 2499335	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4103 LEE AVE	2/3/16 12:33 AM	02/03/16 09:23 AM	2,700	SEWER MANHOLE	104223	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499072	WO# 2499329	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	2/3/16 12:46 AM	02/03/16 09:36 AM	2,700	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499071	WO# 2499324	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	2/3/16 1:15 AM	02/03/16 10:02 AM	2,700	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499073	WO# 2499331	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	2/3/16 1:53 AM	02/06/16 10:04 PM	394,824	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499149	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	806 PINE WAY	2/3/16 2:20 AM	02/03/16 11:15 AM	10,700	SEWER MANHOLE	00817	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499110	NO DEBRIS OBSERVED	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	3402 CHARLANE PKY	2/3/16 6:15 AM	02/03/16 10:30 AM	6,000	SEWER MANHOLE	28453	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499263	WO# 2503649	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	2/3/16 7:05 AM	02/03/16 11:05 AM	900	SEWER MANHOLE	00746	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499405	NO DEBRIS OBSERVED	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	2/3/16 7:24 AM	02/03/16 09:36 AM	27,000	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2499189	WO# 2499342	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	4800 HAZELWOOD AVE	2/23/16 1:00 PM	02/23/16 02:00 PM	600	SEWER MAIN	MSD0002-PS	GROUND	MILL CREEK	FORCE MAIN BREAK	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2511288	MSD CLEANED AND SANITIZED THE AREA	CONTRACTOR REPAIRED THE FORCE MAIN
MORRIS FORMAN	KY0022411	3402 CHARLANE PKY	2/24/16 4:25 AM	02/24/16 05:50 PM	36,000	SEWER MANHOLE	28453	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511841	WO# 2511974	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1013 ALTA CIR	2/24/16 4:32 AM	02/24/16 06:50 PM	3,000	SEWER MANHOLE	27007	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511651	WO# 25111953	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	2/24/16 4:32 AM	02/24/16 06:50 PM	3,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511655	WO# 2511954	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1600 BELMAR DR	2/24/16 5:35 AM	02/24/16 05:57 PM	18,000	SEWER MANHOLE	13946	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511839	WO# 2511973	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4103 LEE AVE	2/24/16 5:36 AM	02/24/16 05:55 PM	54,000	SEWER MANHOLE	104223	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511815	WO# 2511962	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	4108 LEE AVE	2/24/16 5:53 AM	02/24/16 05:56 PM	18,000	SEWER SERVICE LINE	KK14815019	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511836	WO# 2511972	LOCATION INCLUDED IN IOAP

Appendix D-1 Discharge Work Orders – Waters of the United States

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	3726 FINCASTLE RD	2/24/16 6:26 AM	02/24/16 06:04 PM	180,000	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511812	WO# 2511959	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	2/24/16 6:28 AM	02/25/16 01:49 AM	3,372,023	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511518	NO CLEAN UP PERFORMED – PIPE DISCHARGES UNDERWATER, DIRECTLY INTO STREAM	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	2/24/16 6:29 AM	02/24/16 06:04 PM	72,000	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511810	WO# 2511957	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	2/24/16 6:53 AM	02/24/16 05:49 PM	132,000	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511833	WO# 2511971	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1726 FRASER DR	2/24/16 7:00 AM	02/24/16 05:40 PM	7,500	SEWER MANHOLE	16649	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511849	WO# 2511982	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3302 TROUT CREEK DR	2/24/16 7:20 AM	02/24/16 05:35 PM	120,000	SEWER MANHOLE	23211	STREAM	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511825	WO# 2511967	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3406 CHARLANE PKY	2/24/16 7:20 AM	02/24/16 05:45 PM	15,000	SEWER MANHOLE	28451	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511843	WO# 2511975	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3305 INDIAN CREEK CT	2/24/16 7:20 AM	02/24/16 05:35 PM	30,000	SEWER MANHOLE	51160	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511823	WO# 2511964	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	7404 ARROWWOOD RD	2/24/16 7:30 AM	02/24/16 08:00 PM	18,750	SEWER MANHOLE	117721	DITCH	GOOSE CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511544	MSD CLEANED AND SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3406 DELL RD	2/24/16 7:30 AM	02/24/16 11:10 AM	7,500	SEWER MANHOLE	28415	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511844	WO# 2511977	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	9707 WILLOWWOOD WAY	2/24/16 7:40 AM	02/24/16 11:20 AM	7,500	SEWER MANHOLE	28336	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511847	WO# 2511980	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3620 CHARLANE PKY	2/24/16 7:45 AM	02/24/16 11:30 AM	7,500	SEWER MANHOLE	28340	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511848	WO# 2511981	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	2001 TERRIL LN	2/24/16 7:47 AM	02/24/16 05:38 PM	60,000	SEWER MANHOLE	23212	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511829	WO# 2511970	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	2/24/16 8:17 AM	02/24/16 05:48 PM	5,000	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511851	WO# 2511984	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1012 ALTA CIR	2/24/16 8:45 AM	02/24/16 06:05 PM	5,000	SEWER MANHOLE	40559	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511853	WO# 2511985	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	202 OXMOOR LN	2/24/16 9:15 AM	02/25/16 09:00 AM	11,000	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511854	WO# 2512288	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	7900 SHELBYVILLE RD	2/24/16 9:23 AM	02/25/16 09:00 AM	11,000	SEWER MANHOLE	02933	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511856	WO# 25112296	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	2/24/16 9:40 AM	02/24/16 05:00 PM	4,400	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	2511676	MSD CLEANED AND SANITIZED	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	7913 SHELBYVILLE RD	2/24/16 10:00 AM	02/23/16 04:44 PM	5,000	SEWER MANHOLE	84155	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511857	WO# 2511986	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	806 PINE WAY	2/24/16 10:12 AM	02/24/16 05:00 PM	8,160	SEWER LIFT STATION	MSD0057-LS	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511678	MSD CLEANED AND SANITIZED THE AFFECTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4801 CASSIA CT	2/24/16 10:41 AM	02/24/16 07:03 PM	5,000	SEWER MANHOLE	46623	STREAM	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511863	WO# 2511988	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1804 ROUND RIDGE RD	2/24/16 10:41 AM	02/24/16 07:03 PM	5,000	SEWER MANHOLE	65623	STREAM	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511860	WO# 2511987	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3402 CHARLANE PKY	3/10/16 6:20 PM	03/11/16 05:40 AM	30,000	SEWER MANHOLE	28453	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521076	WO# 2521135	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	3/10/16 7:07 PM	03/11/16 09:18 AM	36,000	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521073	WO# 2521288	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	3/10/16 7:24 PM	03/11/16 09:27 AM	126,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521074	WO# 2521292	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	3/10/16 7:50 PM	03/10/16 11:41 PM	209,554	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521106	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3406 CHARLANE PKY	3/10/16 8:56 PM	03/11/16 05:40 AM	13,500	SEWER MANHOLE	28451	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521075	WO# 2521120	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	3/10/16 10:45 PM	03/11/16 08:40 AM	2,975	SEWER MANHOLE	00746	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521086	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	806 PINE WAY	3/10/16 11:00 PM	03/11/16 01:05 AM	250	SEWER MANHOLE	00817	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521087	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	2408 GRAY FOX RD	3/24/16 6:50 PM	03/26/16 10:00 AM	216,000	SEWER MAIN	27012-LH	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2530360	WO# 2530737	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1174 CASTLEVALE DR	3/29/16 10:30 AM	03/29/16 05:55 PM	76,000	SEWER MANHOLE	CSO097	STREAM	SOUTH FORK BEARGRASS CREEK	CONTRACTING CREW CLEANING 48" LINE DOWNSTREAM OF NIGHTINGALE P.S. FLOW DIVERTED TO BGI, CAUSING ADDITIONAL SURCHARGE CONDITIONS AND OVERFLOW AT CSO097	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2533418	NO CLEAN UP PERFORMED – PIPE DISCHARGING DIRECTLY INTO STREAM	CONTRACTING CREW INSTRUCTED TO STOP CLEANING UNTIL SURCHARGE CONDITION SUBSIDES.

Appendix D-1 Discharge Work Orders – Waters of the United States

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	4907 PRESTON DR	3/30/16 11:30 AM	03/30/16 01:00 PM	100	SEWER SERVICE LINE	PA12277029	GROUND	GREASY DITCH	ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2533806	MSD WILL CLEAN UP AROUND THE IMPACTED AREA	ROOT CUT THE MAIN SEWER
MORRIS FORMAN	KY0022411	806 PINE WAY	4/1/16 1:15 AM	04/01/16 07:16 AM	9,025	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	2534582	NO DEBRIS	A SOLUTION FOR THIS LOCATION CAN BE LOCATED IN THE IOAP
MORRIS FORMAN	KY0022411	4101 CAMP GROUND RD	4/5/16 10:00 AM	04/05/16 03:45 PM	14,700	SEWER MAIN	84101-V	STREAM	PADDY RUN	MECHANICAL FAILURE OF SEWER VALVE WHERE PRIVATE SEWER LINE CONNECTS TO MSD SEWER LINE	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2540336	NO CLEAN UP PERFORMED - DISCHARGING DIRECTLY INTO STREAM	PRIVATE SEWER LINE OWNER HAS BEEN NOTIFIED. MSD CONTRACTOR COMPLETED THE REPAIR.
MORRIS FORMAN	KY0022411	2408 GRAY FOX RD	4/9/16 9:30 AM	04/09/16 12:15 PM	800	SEWER MAIN	27012-LH	STREAM	MIDDLE FORK BEARGRASS CREEK	CONTRACTOR CLEANING LINE TO REMOVE OBSTRUCTION, STOPPED CLEANING WHEN DISCHARGE STARTED.	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2542383	NO CLEAN UP	CONTRACTOR STOPPED CLEANING WHEN DISCHARGING OCCURRED. CONTRACTOR REPAIRED PIPE ON 4/9/16 AT 4:00 PM.
MORRIS FORMAN	KY0022411	2413 SPRING VALLEY LN	5/3/16 11:35 AM	05/03/16 02:40 PM	9,250	SEWER MAIN	45800	STREAM	MIDDLE FORK BEARGRASS CREEK	STRUCTURAL FAILURE OF SANITARY MAIN. CONTRACTOR FOUND DISCHARGE WHILE CLEANING PIPE UPSTREAM AND STOPPED CLEANING IMMEDIATELY.	STRUCTURAL FAILURE	DISREV RAIN EVENT DISCHARGE	2555132	NO CLEANUP - DISCHARGE DIRECTLY TO STREAM	CONTRACTOR REPAIRED SANITARY MAIN.
MORRIS FORMAN	KY0022411	2413 SPRING VALLEY LN	5/5/16 11:00 AM	05/05/16 05:05 PM	31,500	SEWER MAIN	45800	STREAM	MIDDLE FORK BEARGRASS CREEK	CONTRACTOR WAS MAKING REPAIRS TO MAIN WRAPPED IN ROOTS OF A LARGE TREE. WHEN A ROOT WAS CUT, THE TREE FELL AND PULLED OUT A SECTION OF MAIN.	STRUCTURAL FAILURE	DISREV RAIN EVENT DISCHARGE	2556061	NO CLEANUP PERFORMED, PIPE DISCHARGING DIRECTLY INTO STREAM.	CONTRACTOR REPAIRED THE MAIN SEWER.
MORRIS FORMAN	KY0022411	2413 SPRING VALLEY LN	5/9/16 3:35 PM	05/09/16 07:15 PM	8,000	SEWER MAIN	45800	STREAM	MIDDLE FORK BEARGRASS CREEK	STRUCTURAL FAILURE OF SANITARY MAIN. CONTRACTOR FOUND DISCHARGE WHILE CLEANING PIPE UPSTREAM AND STOPPED CLEANING IMMEDIATELY.	STRUCTURAL FAILURE	DISREV RAIN EVENT DISCHARGE	2556974	NO CLEANUP - DISCHARGE DIRECTLY TO STREAM	CONTRACTOR REPAIRED SANITARY MAIN.
MORRIS FORMAN	KY0022411	806 PINE WAY	5/10/16 8:30 PM	05/11/16 10:40 AM	4,250	SEWER MANHOLE	0057-W	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF CAPACITY DUE TO RAIN EVENT	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2557439	NO DEBRIS	A SOLUTION FOR THIS LOCATION CAN BE FOUND IN THE IOAP
MORRIS FORMAN	KY0022411	2002 MILLVALE RD	5/20/16 6:35 PM	05/21/16 06:15 AM	54,000	SEWER MANHOLE	45829	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2561322	WO# 2561354	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	5/20/16 6:40 PM	05/21/16 05:40 AM	16,500	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2561323	WO# 2561355	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	2413 SPRING VALLEY LN	6/1/16 2:35 PM	06/01/16 07:40 PM	3,000	SEWER MAIN	45800	STREAM	MIDDLE FORK BEARGRASS CREEK	STRUCTURAL FAILURE OF MAIN SEWER. CONTRACTOR CLEANING MAIN IN PREPARATION FOR LINING, OBSERVED SEWAGE IN CREEK AND STOPPED CLEANING IMMEDIATELY.	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2568161	NO CLEANUP PERFORMED, PIPE DISCHARGING DIRECTLY TO STREAM.	MAIN PLUGGED AND FLOW PUMPED TO NEXT MANHOLE. LINING SCHEDULED TO OCCUR WITHIN 48 HOURS.
MORRIS FORMAN	KY0022411	2413 SPRING VALLEY LN	6/2/16 4:30 PM	06/02/16 06:00 PM	1,800	SEWER MAIN	45800	STREAM	MIDDLE FORK BEARGRASS CREEK	FLOW DIVERSION SET UP FOR LINING REMOVED TO PREVENT OVERFLOW AT MANHOLE.	STRUCTURAL FAILURE	DISREV RAIN EVENT DISCHARGE	2568618	NO CLEANUP PERFORMED, PIPE DISCHARGING DIRECTLY TO STREAM.	LINING SCHEDULED TO OCCUR WITHIN 24 HOURS.
NO PLANT-GOES TO STREAM/RIVER		10300 ROD N REEL RD	7/18/15 12:10 PM	07/18/15 01:30 PM	8,000	SEWER TREATMENT PLANT	MSD0228	STREAM	PENNSYLVANIA RUN	LOST POWER DUE TO POWER LINES BEING ON FIRE.	BYPASS AT WQTC	DISDW DRY WEATHER DISCHARGE	2391494	MSD CLEANED & SANITIZED THE AREA	INSTALLED GENERATOR TO STOP BYPASS
NO PLANT-GOES TO STREAM/RIVER		10300 ROD N REEL RD	12/1/15 7:25 AM	12/01/15 09:10 AM	31,000	SEWER TREATMENT PLANT	MSD0228	STREAM	PENNSYLVANIA RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BYPASS AT WQTC	DISREV RAIN EVENT DISCHARGE	2467155	DUE TO HIGH FLOW IN CREEK NO CLEAN UP	OPERATOR TURNED AIR OFF PLANT TO STOP SOLIDS FROM GOING OVER WEIR
NO PLANT-GOES TO STREAM/RIVER		4005 KIRBY LN	12/27/15 12:05 PM	12/28/15 06:00 AM	53,750	SEWER MANHOLE	61266	DITCH	FERN CREEK	RAIN EVENT CAUSED A LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476656	MSD CLEANED & SANITIZED THE AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
STARVIEW	KY0031712	423 BERMUDA WAY	12/1/15 8:20 AM	12/01/15 10:00 AM	17,000	SEWER TREATMENT PLANT	MSD0247	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	BYPASS AT WQTC	DISREV RAIN EVENT DISCHARGE	2467165	DUE TO HIGH FLOW IN CREEK NO CLEAN UP NEEDED	OPERATOR TURNED AIR OFF TO STOP BYPASSING OVER WEIR

Appendix D-2 Discharge Work Orders – Ground

Appendix D-2 Discharge Work Orders – Ground

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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
CEDAR CREEK	KY0098540	4024 LANDHERR DR	8/29/15 11:15 AM	08/29/15 11:16 AM	75	SEWER MANHOLE	88211			ALLIED PUMP AROUND DISCHARGE HOSE BUSTED	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2422989	OPERATOR CLEANED AND SANITIZED	ALLIED CONTRACTORS REPLACED SECTION OF HOSE
CEDAR CREEK	KY0098540	10908 BLACKWOOD RD	2/28/16 5:16 PM	02/28/16 05:50 PM	340	SEWER MANHOLE	27853	GROUND	CHENOWETH RUN	OBSTRUCTION IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2514362	SPRAYED AND CLEANED THE GRASS AND CLEANED THE GRASS DITCH.	FLUSHED THE MAIN SEWER 100FT
DEREK R. GUTHRIE	KY0078956	9303 MICHAEL EDWARD DR	7/5/15 4:18 PM	07/05/15 04:22 PM	1	SEWER SERVICE LINE	607417			LOCATED BLOCKAGE ON MSD PORTION OF SERVICE LINE	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2382701	MSD CLEANED IMPACTED AREA	FLUSHED LINE #2382700
DEREK R. GUTHRIE	KY0078956	6211 COOPER CHAPEL RD	10/13/15 11:22 PM	10/13/15 11:33 PM	1	SEWER SERVICE LINE	PD25246019			ROOTS IN MAIN	ROOTS	DISDW DRY WEATHER DISCHARGE	2445693	CUSTOMER CLEANED THE IMPACTED AREA	ROOT CUT LINE
DEREK R. GUTHRIE	KY0078956	3809 DIXIE HWY	10/22/15 12:20 PM	10/22/15 12:35 PM	2	SEWER MAIN	06940-AG	GROUND	MILL CREEK	FORCE MAIN BREAK	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2449224	MSD CONTRACTOR WILL CLEAN AREA	CONTRACTOR REPAIRED THE FORCE MAIN
DEREK R. GUTHRIE	KY0078956	6118 COOPER CHAPEL RD	10/29/15 5:30 PM	10/29/15 06:24 PM	1	SEWER SERVICE LINE	PD21096019	GROUND	FISHPOOL CREEK	ROOTS AND GREASE IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2454966	THE CUSTOMER CLEANED THE IMPACTED AREA	ROOT CUT LINE #2455477
DEREK R. GUTHRIE	KY0078956	3707 CARPENTER DR	12/26/15 5:00 PM	12/26/15 05:26 PM	2	SEWER SERVICE LINE	PD27498039			ROOTS IN THE MAIN SEWER	ROOTS	DISREV RAIN EVENT DISCHARGE	2476505	CUSTOMER CLEANED UP IMPACTED AREA	ROOT CUT MAIN , NO FURTHER ACTION NEEDED
DEREK R. GUTHRIE	KY0078956	3506 ORBIT CT	12/27/15 1:19 PM	12/28/15 01:46 PM	50	SEWER SERVICE LINE	171475			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476768	WATER STILL DISCHARGING	AN INVESTIGATION HAS INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
DEREK R. GUTHRIE	KY0078956	11621 LOWER RIVER RD	1/4/16 1:19 PM	01/04/16 01:23 PM	15	SEWER TREATMENT PLANT	MSD0277	STREAM	OHIO RIVER	CONTRACTOR USING TRASH PUMP TO CLEAN OUT #2 CLARIFIER, DISCHARGE HOSE CAME OUT OF DRAIN AND SPILLED ABOUT 15 GAL OF SLUDGE ON GROUND	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2482983	CONTRACTORS WILL CLEAN AND LIME	SECURE DISCHARGE HOSE IN DRAIN
DEREK R. GUTHRIE	KY0078956	6903 RIVER WIND DR	2/15/16 1:50 PM	02/15/16 02:10 PM	1,000	SEWER MAIN	97887			UTILITY DAMAGE	UTILITY DAMAGED MSD ASSET	DISDW DRY WEATHER DISCHARGE	2504705	CUSTOMER CLEANED IMPACTED AREA	REFERED TO MAKE NEEDED REPAIRS
DEREK R. GUTHRIE	KY0078956	11621 LOWER RIVER RD	3/9/16 10:30 AM	03/09/16 10:35 AM	2	SEWER TREATMENT PLANT	MSD0277	STREAM	OHIO RIVER	WHILE REMOVING STOP LOGS FROM THE INFLUENT CHANNEL A SMALL AMOUNT OF SLUDGE DRIPPED OFF OF THEM AND ONTO THE GROUND	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2520560	MSD CLEANED AND LIMED	CLEAN UP SLUDGE FROM GROUND
DEREK R. GUTHRIE	KY0078956	2122 WEST LN	4/1/16 10:30 PM	04/01/16 11:43 PM	1	SEWER SERVICE LINE	101503290000 A			BLOCKAGE IN THE MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2535290	MSD CLEANED IMPACTED AREA	FLUSHED LINE #2535288
DEREK R. GUTHRIE	KY0078956	3502 TEMPLETON CT	5/5/16 5:20 PM	05/05/16 06:36 PM	5	SEWER SERVICE LINE	DE46130029			MAIN SEWER STOPPED UP	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2556102	CUSTOMER CLEANED IMPACTED AREA	FLUSHED THE MAIN SEWER
DEREK R. GUTHRIE	KY0078956	2800 OUTER LOOP	6/1/16 8:38 AM	06/02/16 10:02 AM	70	SEWER MANHOLE	58067			GREASE IN THE MAIN	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2568268	REFER OVER TO SUPERVISOR TO CLEAN UP THE IMPACTED AREA	CALLED FLUSHED AND VACTORED LINE
DEREK R. GUTHRIE	KY0078956	2800 OUTER LOOP	6/1/16 8:38 AM	Ongoing	70	SEWER MANHOLE	58066	GROUND	SOUTHERN DITCH	MANHOLE LID MISSING	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2568266	REFER OVER TO AREA SUPERVISOR TO CLEAN UOP AROUND THE IMPACTED AREA	CALLED B & H SEPTIC TO VACTOR DOWN MANHOLES; RESET MANHOLE FRAME AND LID
HITE CREEK	KY0022420	1 HARRODS LANDING DR	8/27/15 6:16 AM	08/27/15 07:30 AM	20	SEWER MAIN	MSD1071-PS	GROUND	HARRODS CREEK	2" FM HAS A LEAK.	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2420570	NONE REQUIRED	HAUL STATION UNTIL REPAIRS CAN BE MADE. #2420630
HITE CREEK	KY0022420	10503 POINTE BAY BLVD	9/2/15 10:35 PM	09/02/15 10:40 PM	10	SEWER MAIN	MSD0069-PS	GROUND	LITTLE GOOSE CREEK	FM BREAK AT SIDE OF HOUSE BETWEEN THEIR DRIVEWAY AND CHAMBERLAIN LANE.	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2424490	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	CONTACTED CHEROKEE CONSTRUCTION TO REPAIR FORCE MAIN.
HITE CREEK	KY0022420	5500 HITT RD	1/29/16 8:40 AM	01/29/16 08:45 AM	25	SEWER TREATMENT PLANT	MSD0202	STREAM	HITE CREEK	SCUM PUMPS WILL NOT PUMP THICK SCUM	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2498607	MSD CONTRACTOR CLEANED AND SANITIZED AREA	THICK SCUM HAULED FROM PLANT
HITE CREEK	KY0022420	5500 HITT RD	5/12/16 9:30 AM	07/28/16 09:14 AM	100	SEWER TREATMENT PLANT	MSD0202	STREAM	HITE CREEK	HI FLOW IN PLANT CAUSED SCUM/FOAM TO EXIT PLANT DRAINAGE SYSTEM	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2558087	MSD & CONTRACTOR CLEANED AND SANITIZED AREA	CLEANED OUT SCUM WELL
HITE CREEK	KY0022420	5500 HITT RD	5/13/16 7:25 AM	05/13/16 07:30 AM	25	SEWER TREATMENT PLANT	MSD0202	STREAM	HITE CREEK	HIGH FLOW IN PLANT CAUSED SCUM/FOAM TO EXIT PLANT DRAINAGE SYSTEM	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2558301	MSD AND CONTRACTOR CLEANED AND SANITIZED AREA	CLEANED OUT SCUM WELL
HITE CREEK	KY0022420	6802 FAIRWAY VIEW CT	5/19/16 12:45 PM	05/20/16 08:18 AM	225	SEWER MAIN	68048B-AG	DITCH	HUNTING CREEK	STRUCTURAL FAILURE, FORCE MAIN BREAK	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2560473	MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA	CONTRACTOR REPAIRED FORCE MAIN (WORK ORDER # 2560801)
HITE CREEK	KY0022420	5500 HITT RD	6/6/16 9:15 AM	06/07/16 09:22 AM	50	SEWER TREATMENT PLANT	MSD0202	STREAM	HITE CREEK	PROCESS WATER FORCE MAIN BROKE	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2569360	NO CLEANUP- JUST WATER	CONTRACTOR REPAIRED WATER LINE
HITE CREEK	KY0022420	3200 COLLINS LN	6/16/16 12:45 PM	06/16/16 02:00 PM	100	SEWER MAIN	105353B-V			UTILITY CONTRACTOR DAMAGED MSD ASSET	UTILITY DAMAGED MSD ASSET	DISDW DRY WEATHER DISCHARGE	2572855	MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA	MSD CONTRACTOR REPAIRED FORCE MAIN
JEFFERSONTO WN	KY0025194	10725 OLD TAYLORSVILLE RD	7/8/15 2:30 PM	07/08/15 02:31 PM	500	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	OVERHEAD LOADER SLIPPED FROM TRUCK	MECHANICAL FAILURE	DISREV RAIN EVENT DISCHARGE	2386172	CONTRACTOR CLEANED & SANITIZED	CONTRACTOR TO BE MORE AWARE
JEFFERSONTO WN	KY0025194	10721 OLD TAYLORSVILLE RD	7/13/15 1:45 PM	07/13/15 01:54 PM	500	SEWER MANHOLE	64099			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387931	CONTRACTOR CLEANED AND SANITIZED AFFECTED AREA	INSTALLED ADDITIONAL PUMPS
MORRIS FORMAN	KY0022411	614 FATIMA LN	7/5/15 12:12 PM	07/05/15 02:25 PM	8	SEWER MANHOLE	48362			ROOTS IN THE LINE	ROOTS	DISDW DRY WEATHER DISCHARGE	2382675	MSD CLEANED THE IMPACTED AREA	ROOT CUT AND FLUSHED. REFER TO ROOT CUT W/O # 2382694. FLUSH W/O#2382695
MORRIS FORMAN	KY0022411	1111 HESS LN	7/9/15 6:10 PM	07/09/15 07:01 PM	1	SEWER SERVICE LINE	KK10414019			OBSTRUCTION IN THE MAIN	ROOTS	DISDW DRY WEATHER DISCHARGE	2386693	THE CUSTOMER CLEANED THE IMPACTED AREA	REFERRED TO SUPERVISOR TO MAKE NEEDED REPAIR #2386692**CREW DUG DOWN AND REPAIR THE PROPERTY SERVICE CONNECTION
MORRIS FORMAN	KY0022411	352 PLAZA AVE	7/12/15 10:23 AM	07/12/15 10:27 AM	1	SEWER SERVICE LINE	83261			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387256	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	3920 DUTCHMANS LN	7/12/15 10:30 AM	07/12/15 07:00 PM	5,000	SEWER MANHOLE	96673	STREAM	WEICHER CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387334	MSD EMPLOYEES CLEANED THE AFFECTED AREA	REFERRED TO OPERATIONS TO CHECK PUMP #2387299
MORRIS FORMAN	KY0022411	600 STIVERS RD	7/12/15 10:58 AM	07/12/15 11:03 AM	1	SEWER SERVICE LINE	171850			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387272	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	4438 CORDOVA RD	7/13/15 2:20 PM	07/14/15 03:40 PM	1	SEWER SERVICE LINE	22071			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388678	MSD CLEANED AND SANITIZED THE AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	7/14/15 10:30 AM	07/15/15 11:00 AM	150	SEWER MANHOLE	43717			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389073	MSD CLEANED THE AREA	REFERRED FOR TV CREW

Appendix D-2 Discharge Work Orders – Ground

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	352 PLAZA AVE	7/14/15 11:25 AM	07/15/15 08:15 AM	20	SEWER SERVICE LINE	83261			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389091	MSD CLEANED AND REPAIRED THE AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	102 BURNLEY RD	7/14/15 4:28 PM	07/14/15 04:55 PM	1	SEWER MAIN	00516A			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389759	CUSTOMER CLEANED AREA	ADVISED TO CONTACT APT MAIN
MORRIS FORMAN	KY0022411	4802 CASSIA CT	7/14/15 11:46 PM	07/14/15 11:51 PM	1	SEWER MAIN	89962			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389809	CUSTOMER CLEANED IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	816 N 34TH ST	7/18/15 2:00 AM	07/18/15 04:00 AM	100,000	SEWER MANHOLE	CSO019	STREAM	OHIO RIVER	LACK OF SYSTEM CAPACITY DUE TO THE 34TH ST FLOOD PUMP STATION BEING IN MINOR FLOOD MODE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391517	MSD PICKED UP THE TRASH AND DEBRIS THAT WAS SCATTERED ON THE GROUND	THE 34TH ST FLOOD PUMP STATION WAS ABLE TO CATCH UP WITH THE INCOMING FLOW AND WAS ABLE TO PUMP DOWN THE WATER THAT CAME OUT OF THE SEWER SYSTEM
MORRIS FORMAN	KY0022411	1510 CADET CT	7/20/15 10:25 AM	07/20/15 10:27 AM	3	SEWER MANHOLE	44638			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391822	MSD CLEANED AREA	CLEANED AFFECTED AREA #2391827
MORRIS FORMAN	KY0022411	4521 LOUANE WAY	7/23/15 6:25 PM	07/23/15 08:09 PM	5	SEWER SERVICE LINE	62115			OBSTRUCTION IN MSD MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2397769	THE CUSTOMER CLEANED THE IMPACTED AREA	ROOT CUT TO OPEN #2397737; REFERRED TO CREW FOR TV CREW FOR FURTHER INVESTIGATION
MORRIS FORMAN	KY0022411	1519 SYLVAN CT	8/18/15 10:45 AM	08/18/15 01:10 PM	270	SEWER MANHOLE	51598			GREASE BUILD UP IN THE MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2416779	MSD CLEANED IMPACTED AREA	MAIN FLUSHED FROM MH# 51598 TO NODE WO# 2416795 WASHED DOWN AREA
MORRIS FORMAN	KY0022411	3050 COMMERCE CENTER PL	10/14/15 8:50 AM	10/14/15 09:10 AM	50	SEWER MANHOLE	77001-CP			MECHANICAL ISSUE WITH REAR DOOR ON COMBINATION SEWER CLEANER	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2445924	AREA CLEANED BY MSD PERSONNEL	CLEANED IMPACTED AREA AND RESOLVED ISSUE WITH REAR DOOR OF COMBINATION SEWER CLEANER
MORRIS FORMAN	KY0022411	300 ABRAHAM FLEXNER WAY	10/19/15 1:12 PM	10/19/15 01:30 PM	2	SEWER MANHOLE	77023			SAMPLING UNIT MALFUNCTION	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2447737	MSD CLEANED AND SANATIZED AREA	EQUIPMENT REPAIRED
MORRIS FORMAN	KY0022411	3304 CHARLANE PKY	10/28/15 12:07 PM	10/28/15 12:09 PM	1	SEWER MANHOLE	28454			NO DISCHARGE MH SURCHARGED	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2454460	NO CLEANUP REQUIRED	ADVISED CUSTOMER
MORRIS FORMAN	KY0022411	8021 CHRISTIAN CT	11/25/15 2:32 PM	11/25/15 04:17 PM	1	SEWER MAIN	90700			GREASE	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2465248	CUSTOMER CLEANED AREA	FLUSHED MAIN SEWER
MORRIS FORMAN	KY0022411	2103 OLD HICKORY RD	12/27/15 8:00 PM	12/27/15 08:31 PM	10	SEWER SERVICE LINE	JT19935019			ROOTS IN MAIN SEWER	ROOTS	DISREV RAIN EVENT DISCHARGE	2476758	MSD CONTRACTOR CLEANED UP THE IMPACTED AREA	ROOT CUT THE MAIN SEWER
MORRIS FORMAN	KY0022411	806 PINE WAY	12/30/15 1:25 PM	12/30/15 01:50 PM	625	SEWER LIFT STATION	MSD0057-LS	STREAM	MIDDLE FORK BEARGRASS CREEK	BAD COMPUTER BOARD ON THE NATURAL GAS GENERATOR	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2480343	MSD CLEANED AND SANITIZED THE AREA	MSD ELECTRICIAN STARTED GENERATOR; CONTRACTOR ORDERED NEW COMPUTER BOARD
MORRIS FORMAN	KY0022411	4801 RAVEN RD	1/5/16 11:30 AM	01/05/16 12:15 PM	1,500	SEWER NODE	50806-CO			GREASE BLOCKAGE IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2483492	MSD PERSONNEL CLEANED IMPACTED AREA	FLUSHED AND VACTORED MAIN SEWER WO#2483527
MORRIS FORMAN	KY0022411	1241 W CHESTNUT ST	1/19/16 3:00 PM	01/19/16 05:00 PM	1	SEWER MANHOLE	77291			GREASE BLOCKAGE IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2492892	MSD PERSONNEL CLEANED IMPACTED AREA	FLUSHED MAIN SEWER TO CLEAR GREASE OBSTRUCTION
MORRIS FORMAN	KY0022411	1029 THRUSTON AVE	2/9/16 5:50 PM	02/09/16 06:20 PM	1	SEWER SERVICE LINE	154126	GROUND	SOUTH FORK BEARGRASS CREEK	OBSTRUCTION IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2502933	MSD CLEANED IMPACTED AREA	MSD PERSONNEL FLUSHED MAIN SEWER
MORRIS FORMAN	KY0022411	126 DON ALLEN RD	2/29/16 4:41 PM	02/29/16 04:41 PM	5	SEWER SERVICE LINE	032200220000 A			ROOTS IN THE MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2514621	MSD EMPLOYEES RESTORED THE AREA	ROOT CUT MAIN SEWER #2515792
MORRIS FORMAN	KY0022411	6911 BARTLETT RD	3/2/16 8:30 PM	03/03/16 08:55 PM	1	SEWER SERVICE LINE	226800530000 A			OBSTRUCTION IN MSD PORTION OF THE SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2515862	MSD PERSONNEL CLEANED IMPACTED AREA	FLUSHED LINE #2515843
MORRIS FORMAN	KY0022411	1300 TRINITY PARK DR	3/9/16 7:00 PM	03/09/16 08:44 PM	1	SEWER SERVICE LINE	085L01670000 A			ROOTS WERE IN MAIN RIGHT WHERE THE PSC TIES IN	ROOTS	DISDW DRY WEATHER DISCHARGE	2520709	MSD CLEANED IMPACTED AREA	ROOT CUT THE MAIN SEWER AND REFERED IT OVER TO THE TV CREW
MORRIS FORMAN	KY0022411	3978 FINCASTLE RD	3/29/16 1:30 PM	03/29/16 02:16 PM	1	SEWER SERVICE LINE	3409A3978			ROOTS IN THE MAIN	ROOTS	DISDW DRY WEATHER DISCHARGE	2533361	MSD CLEANED IMPACTED AREA	FLUSHED THE MAIN SEWER
MORRIS FORMAN	KY0022411	906 EXMOOR AVE	4/16/16 5:35 PM	04/16/16 06:14 PM	10	SEWER MAIN	68094			OBSTRUCTION IN THE MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2545779	PUT DOWN LIME	FLUSHED MAIN SEWER
MORRIS FORMAN	KY0022411	926 STONE ST	5/26/16 4:25 PM	05/26/16 05:22 PM	5	SEWER SERVICE LINE	100206			OBSTRUCTION IN THE MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2565336	MSD BAGGED AND LIMED THE AREA	FLUSHED THE MAIN SEWER
NO PLANT-GOES TO STREAM/RIVER		816 N 34TH ST	7/18/15 2:00 AM	07/18/15 04:00 AM	100,000	STORM LIFT STATION	MSD0308-FP	STREAM	OHIO RIVER	LACK OF SYSTEM CAPACITY DUE TO THE 34TH ST FLOOD PUMP STATION BEING IN MINOR FLOOD MODE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2391518	MSD PICKED UP THE TRASH AND DEBRIS THAT WAS SCATTERED ON THE GROUND	THE 34TH ST FLOOD PUMP STATION WAS ABLE TO CATCH UP WITH THE INCOMING FLOW AND WAS ABLE TO PUMP DOWN THE WATER THAT CAME OUT OF THE SEWER SYSTEM
NO PLANT-GOES TO STREAM/RIVER		1111 E WASHINGTON ST	8/4/15 6:00 PM	08/04/15 06:53 PM	1	STORM INLET	130112230			OBSTRUCTION IN MAIN	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2407710	CUSTOMER CLEANED AREA	FLUSHED LINE #2408822

Appendix D-3 Discharge Work Orders – Interior

Appendix D-3 Discharge Work Orders – Interior

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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
CEDAR CREEK	KY0098540	9602 MARY DELL LN	7/12/15 6:07 PM	07/12/15 06:08 PM	1	SEWER SERVICE LINE	BE09185439			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387852	ADVISED CUSTOMER THEY'RE RESPONSIBLE FOR CLEANING THE AFFECTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
CEDAR CREEK	KY0098540	5106 OLD BILLTOWN RD	9/11/15 12:05 AM	09/11/15 12:53 AM	10	SEWER SERVICE LINE	BE09359699			ROOTS IN MSD MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2428349	MSD CONTRACTOR CLEANED THE IMPACTED AREA	ROOT CUT LINE #2428612
CEDAR CREEK	KY0098540	5508 OAK CREEK LN	6/8/16 7:55 PM	06/08/16 08:33 PM	5	SEWER SERVICE LINE	114765508			OBSTRUCTION IN THE MAIN	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2570491	CUSTOMER CLEANED IMPACTED AREA	FLUSHED LINE TO OPEN
CEDAR CREEK	KY0098540	7603 CARMIL CT	6/13/16 12:30 PM	06/13/16 12:30 PM	1	SEWER SERVICE LINE	BW05801039			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2571340	CUSTOMER CLEANED THE IMPACTED AREA	ROOTCUT ROOTS FROM SEWER MAIN
DEREK R. GUTHRIE	KY0078956	8207 SIESTA WAY	7/12/15 6:25 PM	07/12/15 06:25 PM	1	SEWER SERVICE LINE	PC12114029			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387952	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
DEREK R. GUTHRIE	KY0078956	5405 GEORGIA LN	10/2/15 9:55 PM	10/02/15 10:37 PM	5	SEWER SERVICE LINE	PB16144029			ROOTS IN MSD MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2439387	MSD CONTRACTOR CLEANED IMPACTED AREA	ROOT CUT LINE
DEREK R. GUTHRIE	KY0078956	2318 FARNSLEY RD	10/3/15 8:50 PM	10/03/15 09:31 PM	1	SEWER SERVICE LINE	34204			ROOTS IN MSD MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2439493	THE CUSTOMER CLEANED THE IMPACTED AREA	DUG DOWN, REPLACED PIPE & INSTALLED A 2-WAY C/O #2439686
DEREK R. GUTHRIE	KY0078956	1841 OLENDA AVE	10/19/15 5:08 PM	10/19/15 05:11 PM	1	SEWER SERVICE LINE	109202190000 A			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2447723	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT TO OPEN LINE #2447720
DEREK R. GUTHRIE	KY0078956	2523 RALPH AVE	10/22/15 7:55 PM	10/22/15 09:25 PM	1	SEWER SERVICE LINE	100901140000 A			ROOTS IN MSD'S SANITARY MAIN.	ROOTS	DISDW DRY WEATHER DISCHARGE	2449377	MSD CONTRACTOR CLEANED AND SANITIZED THE AREA	ROOT CUT MAIN SEWER #2451657
DEREK R. GUTHRIE	KY0078956	3204 PENHURST DR	11/18/15 11:15 AM	11/18/15 12:00 PM	5	SEWER SERVICE LINE	RR14017029			SYSTEM AT CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2462925	CUSTOMER CLEANED THE IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
DEREK R. GUTHRIE	KY0078956	1900 FARNSLEY RD	11/19/15 12:50 PM	11/19/15 01:40 PM	1	SEWER SERVICE LINE	RR14246019			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2463391	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER
DEREK R. GUTHRIE	KY0078956	5523 SAXON BLVD	12/14/15 8:05 AM	12/14/15 08:30 AM	10	SEWER SERVICE LINE	182766			OBSTRUCTION IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2472549	WATER HAS NOT RECEDED,ADVISED CUSTOMER TO CONTACT CUSTOMER RELATIONS WHEN WATER RECEDES	REMOVED BLOCKAGE FROM SEWER #2472498
DEREK R. GUTHRIE	KY0078956	7211 SHEPHERDSVILL E RD	12/27/15 4:45 PM	12/27/15 04:48 PM	1	SEWER SERVICE LINE	T11617211			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476665	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
DEREK R. GUTHRIE	KY0078956	7914 ANNELLA WAY	12/27/15 6:40 PM	12/27/15 06:40 PM	1	SEWER SERVICE LINE	PC11306019			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2483058	ADVISED CUSTOMER THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA	ADVISED CUSTOMER TO CALL BACK IF WATER HASN'T RECEDED WITHIN 24 HOURS
DEREK R. GUTHRIE	KY0078956	4302 CATHAY CT	12/27/15 10:00 PM	12/27/15 10:09 PM	1	SEWER SERVICE LINE	179024			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2482972	ADVISED CUSTOMER THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA	ADVISED CUSTOMER TO CALL BACK IF WATER HASN'T RECEDED WITHIN 24 HOURS
DEREK R. GUTHRIE	KY0078956	10106 JEFFERSON HILL RD	12/28/15 2:22 PM	12/28/15 02:22 PM	1	SEWER SERVICE LINE	154100			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2483079	ADVISED CUSTOMER THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA	ADVISED CUSTOMER TO CALL BACK IF WATER HASN'T RECEDED WITHIN 24 HOURS
DEREK R. GUTHRIE	KY0078956	4307 SANTA PAULA LN	12/28/15 6:40 PM	12/28/15 06:40 PM	1	SEWER SERVICE LINE	PC12216029			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2483098	ADVISED CUSTOMER THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA	ADVISED CUSTOMER TO CALL BACK IF WATER DOESN'T RECEDE AFTER 24 HOURS
DEREK R. GUTHRIE	KY0078956	3408 PARK ROW DR	1/2/16 4:35 PM	01/02/16 06:16 PM	1	SEWER SERVICE LINE	82584			OBSTRUCTION IN MSD MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2481556	THE CUSTOMER CLEANED THE IMPACTED AREA	WE FLUSHED OBSTRUCTION FROM MAIN SEWER
DEREK R. GUTHRIE	KY0078956	1900 FARNSLEY RD	1/4/16 12:30 PM	01/04/16 01:10 PM	1	SEWER SERVICE LINE	RR14246019			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2482980	CUSTOMER CLEANED AREA	FLUSHED MAIN SEWER
DEREK R. GUTHRIE	KY0078956	2216 AMBOY DR	1/6/16 4:15 PM	01/06/16 05:29 PM	1	SEWER SERVICE LINE	10271			OBSTRUCTION IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2483865	THE CUSTOMER CLEANED THE IMPACTED AREA	WE FLUSHED OBSTRUCTION FROM MAIN
DEREK R. GUTHRIE	KY0078956	1900 FARNSLEY RD	1/14/16 10:50 AM	01/14/16 11:46 AM	2	SEWER SERVICE LINE	RR14246019			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2491881	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER
DEREK R. GUTHRIE	KY0078956	2324 QUINN DR	2/3/16 2:00 AM	02/03/16 04:30 AM	50	SEWER SERVICE LINE	85683			ROOTS IN THE MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2499075	MSD CONTRACTOR WILL CLEAN THE IMPACTED AREA	ROOT CUT THE MAIN SEWER TO GET OPEN. REFER TO ROOT CUT W/O# 2499092
DEREK R. GUTHRIE	KY0078956	5252 BARDSTOWN RD	2/8/16 5:05 PM	02/08/16 05:08 PM	1	SEWER SERVICE LINE	106565252	GROUND	PICADILLY RUN	GREASE BLOCKAGE IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2502630	CUSTOMER CLEANED IMPACTED AREA	FLUSHED LINE; ADVISED CUSTOMER TO CONTACT A PLUMBER IF STILL HAVING ISSUES
DEREK R. GUTHRIE	KY0078956	6103 LYNNCHESTER DR	2/12/16 12:30 PM	02/12/16 01:11 PM	1	SEWER SERVICE LINE	PB17552019			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2503780	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER #2503779
DEREK R. GUTHRIE	KY0078956	9805 EAST AVE	2/17/16 2:00 PM	02/17/16 03:00 PM	10	SEWER SERVICE LINE	27407			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2505309	MSD CONTRACTOR CLEANED THE IMPACTED AREA	ROOT CUT MAIN SEWER
DEREK R. GUTHRIE	KY0078956	6816 MANSLICK RD	2/22/16 3:10 PM	02/22/16 04:29 PM	1	SEWER SERVICE LINE	102800460000 A			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2508035	ADVISED CUSTOMER THAT THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA	FLUSHED MAIN SEWER #2508029
DEREK R. GUTHRIE	KY0078956	3446 HEATHERFIELD DR	2/24/16 11:43 AM	02/24/16 12:13 PM	5	SEWER SERVICE LINE	RR14552049			CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511717	CUSTOMER WILL CLEAN IMPACTED AREA	FLUSHED MAIN SEWER BETWEEN MH #04526 AND #04527
DEREK R. GUTHRIE	KY0078956	3443 HEATHERFIELD DR	2/24/16 12:57 PM	02/24/16 12:57 PM	50	SEWER SERVICE LINE	RR14471039			ROOTS IN MAIN SEWER	ROOTS	DISREV RAIN EVENT DISCHARGE	2511764	UNKNOWN AT THIS TIME	REFERRED TO TV MAIN SEWER BETWEEN MH# 04526 AND #04527; ROOT CUT LINE
DEREK R. GUTHRIE	KY0078956	8215 SIESTA WAY	2/24/16 1:30 PM	02/24/16 01:50 PM	1	SEWER SERVICE LINE	PC12110019			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511828	CUSTOMER CLEANED THE IMPACTED AREA	ADVISED CUSTOMER TO CONTACT A PLUMBER IF ISSUE PERSISTS
DEREK R. GUTHRIE	KY0078956	2227 DEVERON DR	3/3/16 1:55 PM	03/03/16 02:50 PM	1	SEWER SERVICE LINE	23456			OBSTRUCTION IN MSD MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2516213	THE CUSTOMER CLEANED THE IMPACTED AREA	WE FLUSHED DEBRIS FROM SEWER
DEREK R. GUTHRIE	KY0078956	4011 LISA AVE	3/5/16 2:46 PM	03/05/16 02:49 PM	1	SEWER SERVICE LINE	61270			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2516792	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT MAIN SEWER TO REMOVE ROOTS
DEREK R. GUTHRIE	KY0078956	3910 SAN MARCOS RD	3/25/16 4:35 PM	03/25/16 06:49 PM	10	SEWER SERVICE LINE	T168A3910			MAIN WAS STOPPED UP	ROOTS	DISDW DRY WEATHER DISCHARGE	2530708	MSD CONTRACTOR CLEANED IMPACTED AREA	ROOT CUT THE MAIN

Appendix D-3 Discharge Work Orders – Interior

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	4017 CHEVIOT DR	3/29/16 1:48 AM	03/29/16 01:50 AM	1	SEWER SERVICE LINE	124000570000 A			MAIN SEWER STOPPED UP	ROOTS	DISDW DRY WEATHER DISCHARGE	2533065	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT MAIN SEWER
DEREK R. GUTHRIE	KY0078956	13304 HORNCASTLE WAY	4/10/16 7:30 PM	04/10/16 07:44 PM	1	SEWER SERVICE LINE	DD71140019			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2542444	CUSTOMER CLEANED IMPACTED AREA	MAIN SEWER HAD TO BE ROOT CUT TO OPEN
DEREK R. GUTHRIE	KY0078956	5609 AXBRIDGE RD	4/21/16 10:55 AM	04/21/16 11:36 AM	1	SEWER SERVICE LINE	16558			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2547452	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER # 2547441
DEREK R. GUTHRIE	KY0078956	8603 CODINGTON CT	4/27/16 1:38 PM	04/27/16 01:38 PM	1	SEWER SERVICE LINE	175223			ROOTS IN BOTH MAIN SEWER AS WELL AS PROPERTY SERVICE CONNECTION	ROOTS	DISDW DRY WEATHER DISCHARGE	2549906	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT MAIN SEWER AS WELL AS SERVICE CONNECTION. REFER TO AREA SUPERVISOR TO MAKE REPAIRS
DEREK R. GUTHRIE	KY0078956	7406 PRESTON HWY	4/27/16 7:00 PM	04/27/16 08:13 PM	10	SEWER SERVICE LINE	133590			GREASE IN THE MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2551652	MSD CONTRACTORS CLEANED IMPACTED AREA	FLUSHED THE MAIN SEWER
DEREK R. GUTHRIE	KY0078956	6812 WUNDERLY CT	4/29/16 10:55 AM	04/29/16 11:54 AM	3	SEWER SERVICE LINE	BW04610039			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2553926	MSD CONTRACTOR CLEANED THE IMPACTED AREA	ROOT CUT MAIN SEWER # 2553909
DEREK R. GUTHRIE	KY0078956	1950 APPLETON LN	4/30/16 8:10 PM	04/30/16 09:02 PM	1	SEWER SERVICE LINE	109202440000 A			MAIN SEWER WAS STOPPED UP	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2554063	CUSTOMER CLEANED IMPACTED AREA	FLUSHED THE MAIN
DEREK R. GUTHRIE	KY0078956	5252 BARDSTOWN RD	5/6/16 1:30 PM	05/06/16 02:17 PM	1	SEWER SERVICE LINE	106665252	GROUND	PICADILLY RUN	GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2556510	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER #2556496
DEREK R. GUTHRIE	KY0078956	8937 LA COSTA RD	5/17/16 2:15 PM	05/17/16 02:56 PM	1	SEWER SERVICE LINE	T168A8937			CONTRACTOR HAS SLIP LINED OVER CONNECTION	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2559739	CUSTOMER CLEANED AREA	ADVISED CUSTOMER ON SITE THAT CONTRACTOR WILL BE MAKING REPAIRS
DEREK R. GUTHRIE	KY0078956	5252 BARDSTOWN RD	5/20/16 9:40 AM	05/20/16 10:37 AM	1	SEWER SERVICE LINE	106665252	GROUND	PICADILLY RUN	GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2561032	CUSTOMER CLEANED THE IMPACTED AREA	USED ROOT CUTTER TO REMOVE GREASE BLOCKAGE AND FLUSHED MAIN SEWER #2561026
FLOYDS FORK	KY0102784	826 CREEKVALLEY RD	12/27/15 12:49 PM	12/27/15 12:52 PM	1	SEWER SERVICE LINE	MT12758039			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476773	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
FLOYDS FORK	KY0102784	12200 CROSSWINDS DR	12/27/15 3:30 PM	12/27/15 03:33 PM	1	SEWER SERVICE LINE	181801420000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476635	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
FLOYDS FORK	KY0102784	800 ROCKBRIDGE RD	2/25/16 11:35 AM	02/25/16 11:35 AM	25	SEWER SERVICE LINE	139210			ROOT BLOCKAGE ON MSD'S MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2512203	CUSTOMER HAS A PRIVATE CONTRACTOR TO CLEAN IMPACTED AREA	ROOTCUT MAIN SEWER/ WO#2512242
HITE CREEK	KY0022420	6712 GUNPOWDER LN	7/12/15 12:14 PM	07/12/15 12:17 PM	1	SEWER SERVICE LINE	111206712			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387304	CUSTOMER CLEANED IMPACTED AREA	CONTRACTOR PUMPING #2387244
HITE CREEK	KY0022420	6711 GUNPOWDER LN	7/12/15 12:29 PM	07/12/15 12:36 PM	1	SEWER SERVICE LINE	111206711			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387317	CONTRACTOR CLEANED IMPACTED AREA	CONTRACTOR PUMPING MAIN SEWER
HITE CREEK	KY0022420	7100 CANNONADE CT	7/12/15 2:19 PM	07/12/15 02:23 PM	1	SEWER SERVICE LINE	111217100			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387338	CUSTOMER CLEANED IMPACTED AREA	CONTRACTOR PUMPING THE MAIN SEWER
HITE CREEK	KY0022420	5013 CRONIN DR	7/12/15 4:58 PM	07/12/15 04:58 PM	1	SEWER SERVICE LINE	182527			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387748	ADVISED CUSTOMER THEY'RE RESPONSIBLE FOR CLEANING	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
HITE CREEK	KY0022420	11202 KENDALTON PL	7/12/15 5:00 PM	07/12/15 05:01 PM	1	SEWER SERVICE LINE	162903450000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387841	ADVISED CUSTOMER THEY'RE RESPONSIBLE FOR CLEANING THE AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
HITE CREEK	KY0022420	6711 GUNPOWDER LN	7/13/15 7:35 PM	07/13/15 08:00 PM	1	SEWER SERVICE LINE	111206711			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388621	CONTRACTOR CALLED TO CLEAN.	REFER TO TVLIS
HITE CREEK	KY0022420	12020 ANCIENT SPRING DR	10/12/15 2:04 PM	10/12/15 02:18 PM	1	SEWER SERVICE LINE	171802500000 A			ROOTS IN THE MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2445130	CUSTOMER CLEANED AREA	ROOT CUT MAIN #2445973
HITE CREEK	KY0022420	6210 DEEP CREEK CT	12/1/15 11:46 AM	12/01/15 12:14 PM	1	SEWER SERVICE LINE	EP47640019			NO DISCHARGE	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2467228	NO CLEAN UP	LWC CONTRACTOR WAS WORKING IN AREA
MORRIS FORMAN	KY0022411	1503 SYLVAN CT	7/9/15 8:10 PM	07/09/15 08:43 PM	1	SEWER SERVICE LINE	086E01170000 A			OBSTRUCTION IN MSD MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2386700	THE CUSTOMER CLEANED THE IMPACTED AREA	TAP CUT THE MAIN #2387833
MORRIS FORMAN	KY0022411	3014 AUBERT AVE	7/10/15 11:09 AM	07/10/15 11:45 AM	1	SEWER SERVICE LINE	13573			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2386980	CUSTOMER CLEANED IMPACTED AREA	DUG DOWN AND REPLACED PIPE#2387003
MORRIS FORMAN	KY0022411	3917 KENNISON AVE	7/12/15 9:22 AM	07/12/15 09:25 AM	1	SEWER SERVICE LINE	51925			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387165	CUSTOMER CLEANING IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	3935 DRUID HILLS RD	7/12/15 11:55 AM	07/12/15 12:23 PM	200	SEWER SERVICE LINE	30003			ROOTS IN THE MAIN SEWER	ROOTS	DISREV RAIN EVENT DISCHARGE	2387307	CUSTOMER CLEANED THE IMPACTED AREA	ROOTCUT ROOT FROM SEWER MAIN #2387311
MORRIS FORMAN	KY0022411	4118 ELMWOOD AVE	7/12/15 12:25 PM	07/12/15 01:00 PM	5	SEWER SERVICE LINE	35382			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387322	CUSTOMER CLEANED THE IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	2426 RIDGEVIEW AVE	7/12/15 2:30 PM	07/12/15 03:00 PM	1	SEWER SERVICE LINE	089H0113000 0A			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387674	CUSTOMER CLEANED THE IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	210 HEMINGWAY RD	7/12/15 3:15 PM	07/12/15 03:27 PM	2	SEWER SERVICE LINE	053600470000 A			LACK OF SYSTEM CAPACITIY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387390	CUSTOMER CLEANED THE IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	4411 GREEN PINE DR	7/12/15 3:40 PM	07/12/15 04:09 PM	5	SEWER SERVICE LINE	199900100000 A			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387407	CUSTOMER CLEANED THE IMPACTED AREA	AN INVESTIGATION HAS INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	4512 BLENHEIM RD	7/12/15 3:52 PM	07/12/15 03:52 PM	1	SEWER SERVICE LINE	140611			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387959	CUSTOMER WILL CLEAN THE IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	203 DON ALLEN RD	7/12/15 4:03 PM	07/12/15 04:52 PM	1	SEWER SERVICE LINE	032500100000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387916	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	2911 HENRIETTA AVE	7/12/15 4:15 PM	07/12/15 04:33 PM	10	SEWER SERVICE LINE	082C0029000 0A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387427	CUSTOMER CLEANED THE IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD

Appendix D-3 Discharge Work Orders – Interior

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	2323 GLENVIEW AVE	7/12/15 4:16 PM	07/12/15 04:16 PM	1	SEWER SERVICE LINE	164454			LACK OF CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387789	CUSTOMER CLEANED AREA	INVESTIGATION INDICATED THAT REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	3112 MELANIE WAY	7/12/15 4:34 PM	07/12/15 04:34 PM	1	SEWER SERVICE LINE	091N0187000 0A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387938	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	3024 NADINA DR	7/12/15 4:42 PM	07/12/15 04:42 PM	1	SEWER SERVICE LINE	081G0120000 0A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387946	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	210 N HUBBARDS LN	7/12/15 4:48 PM	07/12/15 04:48 PM	1	SEWER SERVICE LINE	46796			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387925	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	4434 CORDOVA RD	7/12/15 5:11 PM	07/12/15 05:11 PM	1	SEWER SERVICE LINE	22069			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387843	ADVISED CUSTOMER THEY'RE RESPONSIBLE FOR CLEANING THE AREA	AN INVESTIGATION HAS INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	3823 CHATHAM RD	7/12/15 5:20 PM	07/12/15 05:53 PM	1	SEWER SERVICE LINE	091E01610000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387551	THE CUSTOMER CLEANED THE IMPACTED AREA	ADVISED TO CALL BACK IF NEEDED
MORRIS FORMAN	KY0022411	4208 LYNNBROOK DR	7/12/15 5:36 PM	07/12/15 05:58 PM	50	SEWER SERVICE LINE	089J01310000 A			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387505	UNKNOWN AT THIS TIME	ADVISED CUSTOMER TO CONTACT MSD IF PROBLEM PERSISTS
MORRIS FORMAN	KY0022411	4015 BROOKFIELD AVE	7/12/15 5:54 PM	07/12/15 05:54 PM	1	SEWER SERVICE LINE	14684			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387954	CUSTOMER CLEANED IMPACTED AREA	A INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS ARE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	3821 CHATHAM RD	7/12/15 5:55 PM	07/12/15 06:07 PM	1	SEWER SERVICE LINE	091E01600000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387553	THE CUSTOMER CLEANED THE IMPACTED AREA	ADVISED TO CALL BACK IF NEEDED
MORRIS FORMAN	KY0022411	914 GIRARD DR	7/12/15 5:58 PM	07/12/15 05:58 PM	1	SEWER SERVICE LINE	HP14245059			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387951	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION HAS INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	1000 GIRARD DR	7/12/15 6:03 PM	07/12/15 06:03 PM	1	SEWER SERVICE LINE	HP14242079			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387940	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION HAS INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	4402 SHELBYVILLE RD	7/12/15 6:07 PM	07/12/15 06:34 PM	10	SEWER SERVICE LINE	93569			SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387528	UNKNOWN AT THIS TIME	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	2801 SHEILA DR	7/12/15 6:17 PM	07/12/15 06:17 PM	1	SEWER SERVICE LINE	XX11701069			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387921	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION HAS INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	2432 AINTREE WAY	7/12/15 6:20 PM	07/12/15 06:40 PM	2	SEWER SERVICE LINE	188701280000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387547	THE CUSTOMER CLEANED THE IMPACTED AREA	ADVISED TO CALL BACK IF NEEDED
MORRIS FORMAN	KY0022411	2723 SHEILA DR	7/12/15 6:20 PM	07/12/15 06:20 PM	1	SEWER SERVICE LINE	XX11699019			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387857	ADVISED CUSTOMER THEY'RE RESPONSIBLE FOR CLEANING THE AFFECTED AREA	A INVESTIGATION HAS INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	4225 BRIARWOOD RD	7/12/15 6:36 PM	07/12/15 06:36 PM	1	SEWER SERVICE LINE	052400880000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387927	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	11106 HALKIRK PL	7/12/15 6:41 PM	07/12/15 06:41 PM	1	SEWER SERVICE LINE	186304240000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387949	CUSTOMER CLEANED IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	4114 ELMWOOD AVE	7/12/15 6:55 PM	07/12/15 07:14 PM	1	SEWER SERVICE LINE	157900340000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387545	THE CUSTOMER CLEANED THE IMPACTED AREA	ADVISED TO CALL BACK IF NEEDED
MORRIS FORMAN	KY0022411	403 LYNDONWOODS CIR	7/12/15 7:00 PM	07/12/15 07:55 PM	10	SEWER SERVICE LINE	143066			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387561	CUSTOMER CLEANED THE IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	1403 CADENCE CT	7/12/15 9:30 PM	07/12/15 09:51 PM	1	SEWER SERVICE LINE	265500830000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387603	THE CUSTOMER CLEANED THE IMPACTED AREA	ADVISED TO CALL BACK IF NEEDED
MORRIS FORMAN	KY0022411	4307 NORTHWOOD DR	7/12/15 9:32 PM	07/12/15 10:00 PM	5	SEWER SERVICE LINE	76743			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387604	CUSTOMER CLEANED THE IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	3941 KENNISON AVE	7/13/15 8:10 AM	07/13/15 08:43 AM	1	SEWER SERVICE LINE	52008			SYSTEM AT CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387737	UNKNOWN AT THIS TIME	INVESTIGATION INDICATED THAT MSD SERVICE WHERE NOT REQUIRED
MORRIS FORMAN	KY0022411	4802 CASSIA CT	7/13/15 9:00 AM	07/13/15 09:45 AM	1	SEWER SERVICE LINE	164901540000 A			SYSTEM AT CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2387790	CUSTOMER CLEANED THE IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	3025 LEMAN DR	7/13/15 7:41 PM	07/15/15 02:23 PM	1	SEWER SERVICE LINE	167483			ROOTS AT THE TAP	ROOTS	DISDW DRY WEATHER DISCHARGE	2388622	UNKNOWN AT THIS TIME	FLUSHED LINE #2389089
MORRIS FORMAN	KY0022411	216 RING RD	7/14/15 8:40 AM	07/14/15 09:10 AM	1	SEWER SERVICE LINE	88161			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388901	CUSTOMER CLEANED THE IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WHERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	2811 AVON RD	7/14/15 9:30 AM	07/14/15 09:51 AM	1	SEWER SERVICE LINE	082D0035000 0A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2388977	CUSTOMER CLEANED THE IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	5000 SHELBYVILLE RD	7/14/15 9:41 AM	07/14/15 10:14 AM	1	SEWER SERVICE LINE	93606			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389003	NO CLEANUP REQUIRED	PLUMBER ON SITE
MORRIS FORMAN	KY0022411	2501 WYETH CT	7/14/15 10:10 AM	07/14/15 10:34 AM	1	SEWER SERVICE LINE	191800160000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389022	CUSTOMER CLEANED THE IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED
MORRIS FORMAN	KY0022411	351 PLAZA AVE	7/14/15 10:50 AM	07/14/15 11:20 AM	1	SEWER SERVICE LINE	83219			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389077	CUSTOMER CLEANED THE IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	704 BRECKENRIDGE LN	7/14/15 11:46 AM	07/14/15 12:17 PM	1	SEWER SERVICE LINE	P5746			FURTHER INVESTIGATION REQUIRED	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389105	CUSTOMER CLEANED AREA	REFERRED FOR TV/LIS
MORRIS FORMAN	KY0022411	706 FOUNTAIN AVE	7/14/15 2:55 PM	07/14/15 03:12 PM	1	SEWER SERVICE LINE	035300390000 A			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389710	CUSTOMER CLEANED AREA	ADVISED CUSTOMER OF CAPACITY ISSUE
MORRIS FORMAN	KY0022411	403 LYNDONWOODS CIR	7/14/15 3:21 PM	07/14/15 04:05 PM	1	SEWER SERVICE LINE	143066			CAPACITY ISSUE WITH THE MAIN SEWER	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389744	CUSTOMER CLEANED IMPACTED AREA	ADVISED CUSTOMER TO CALL FOR PMP PACKET

Appendix D-3 Discharge Work Orders – Interior

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	101 SAGE RD	7/14/15 5:56 PM	07/14/15 05:59 PM	1	SEWER SERVICE LINE	91939			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389765	UNKNOWN AT THIS TIME	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	1005 AMBRIDGE DR	7/15/15 9:30 AM	07/15/15 10:03 AM	1	SEWER SERVICE LINE	163401270000 A			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2389996	CUSTOMER CLEANED THE IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	121 MCARTHUR DR	7/15/15 1:28 PM	07/15/15 02:10 PM	1	SEWER SERVICE LINE	64164			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2390161	CUSTOMER CLEANED IMPACTED AREA	ADVISED CONTRACTOR OF SURCHARGED MAIN SEWER
MORRIS FORMAN	KY0022411	4729 S RUTLAND AVE	7/18/15 6:15 PM	07/18/15 06:53 PM	1	SEWER SERVICE LINE	35774729			OBSTRUCTION IN MSD MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2391524	THE CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN TO OPEN #2391940
MORRIS FORMAN	KY0022411	3518 LEXINGTON RD	8/7/15 9:07 AM	08/07/15 09:49 AM	1	SEWER SERVICE LINE	59699			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2408796	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT TO OPEN LINE #2409467
MORRIS FORMAN	KY0022411	10907 ALLOWAY CT	9/11/15 12:44 PM	09/11/15 02:07 PM	1	SEWER SERVICE LINE	196809340000 A			ROOTS FOUND ON MSD OWNED SANITARY LINE	ROOTS	DISDW DRY WEATHER DISCHARGE	2428646	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT LINE #2428862
MORRIS FORMAN	KY0022411	1641 TAYLOR AVE	9/18/15 4:30 PM	09/18/15 05:32 PM	1	SEWER SERVICE LINE	KK14916019			OBSTRUCTION IN MSD MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2431700	MSD PERSONNEL CLEANED THE IMPACTED AREA	REFERRED TO SUPERVISOR TO MAKE NEEDED REPAIR
MORRIS FORMAN	KY0022411	3802 HILLCREEK RD	9/23/15 3:36 PM	09/23/15 05:21 PM	50	SEWER SERVICE LINE	091P00820000 A			ROOT BLOCKAGE IN THE MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2433456	MSD CONTRACTOR WILL CLEAN THE IMPACTED AREA	REFERRED TO MSD CLEANING CONTRACTOR
MORRIS FORMAN	KY0022411	3111 DANBURY CT	9/27/15 3:10 PM	09/27/15 03:14 PM	1	SEWER SERVICE LINE	HP11530029			ROOT BLOCKAGE IN MSD MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2434602	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT LINE TO REOPEN #2434600
MORRIS FORMAN	KY0022411	104 E FAIRMONT AVE	9/30/15 2:00 PM	09/30/15 02:40 PM	1	SEWER SERVICE LINE	055H00340000 OA	GROUND	OHIO RIVER	GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2437159	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER
MORRIS FORMAN	KY0022411	4003 TALLY HO CT	10/12/15 5:27 PM	10/12/15 06:02 PM	1	SEWER SERVICE LINE	JT02090619	GROUND	WATTERSON TRAIL CREEK	ROOTS IN THE MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2445216	CUSTOMER CLEANED AREA	REFERRED T AREA SUPERVISOR FOR FURTHER INVESTIGATION
MORRIS FORMAN	KY0022411	3307 CHARLANE PKY	10/28/15 11:05 AM	10/28/15 11:40 AM	30	SEWER SERVICE LINE	JT00938819			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2454402	CUSTOMER CLEANED AREA	REFERRED FOR TVLIS
MORRIS FORMAN	KY0022411	3305 CHARLANE PKY	10/28/15 11:50 AM	10/28/15 11:52 AM	1	SEWER SERVICE LINE	JT00939019			CAPACITY ISSUE WITH THE MAIN SEWER	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2454450	NO CLEANUP	REFERRED FOR TVLIS
MORRIS FORMAN	KY0022411	3024 DALE ANN DR	11/12/15 9:04 AM	11/12/15 09:22 AM	1	SEWER SERVICE LINE	24257			ROOTS IN THE MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2461018	ADVISED L WASHINGTON OF FINDINGS	ROOT CUT MAIN SEWER #2461032
MORRIS FORMAN	KY0022411	9817 OLD SIX MILE LN	11/16/15 11:02 PM	11/16/15 11:04 PM	1	SEWER SERVICE LINE	JT00371049			ROOTS IN MAIN	ROOTS	DISDW DRY WEATHER DISCHARGE	2462426	CUSTOMER CLEANED AREA	ROOT CUT LINE #2462890
MORRIS FORMAN	KY0022411	3822 POPLAR LEVEL RD	11/18/15 11:30 AM	11/18/15 01:15 PM	1	SEWER SERVICE LINE	KK14471019			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2462872	CUSTOMER CLEANED AREA	ROOT CUT MAIN SEWER
MORRIS FORMAN	KY0022411	3827 POPLAR LEVEL RD	11/18/15 1:40 PM	11/18/15 02:13 PM	1	SEWER SERVICE LINE	KK09641319			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2462988	CUSTOMER CLEANED AREA	ROOT CUT MAIN SEWER
MORRIS FORMAN	KY0022411	3307 CHARLANE PKY	11/18/15 2:45 PM	11/18/15 03:24 PM	2	SEWER SERVICE LINE	JT00938819			CAPACITY ISSUE WITH THE MAIN SEWER	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463051	CUSTOMER CLEANED AREA	REFERRED FOR BACKFLOW
MORRIS FORMAN	KY0022411	1225 RUFER AVE	11/18/15 7:45 PM	11/18/15 08:08 PM	1	SEWER SERVICE LINE	90984			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2463131	THE CUSTOMER CLEANED THE IMPACTED AREA	INFORMATION PROVIDED
MORRIS FORMAN	KY0022411	3307 CHARLANE PKY	12/1/15 11:50 AM	12/01/15 12:19 PM	1	SEWER SERVICE LINE	JT00938819			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2467251	CUSTOMER CLEANED THE IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED
MORRIS FORMAN	KY0022411	1917 SILS AVE	12/14/15 11:27 AM	12/14/15 12:12 PM	1	SEWER SERVICE LINE	080A00690000 A			CONTRACTOR BACK FLOWED IN CUSTOMERS HOME	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2472629	CUSTOMER CLEANED AREA	REFERRED TO CONTRACTOR
MORRIS FORMAN	KY0022411	207 CORNELL PL	12/16/15 3:02 PM	12/16/15 03:06 PM	1	SEWER SERVICE LINE	MA09066049			MSD FLUSHING MAINS IN AREA BACK FLUSHED INTO CUSTOMER FACILITY	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2473360	MSD CONTRACTOR WILL CLEAN AREA	PLACED ONE COURTESY CLEAN
MORRIS FORMAN	KY0022411	4303 BUXTON DR	12/17/15 1:40 PM	12/17/15 02:30 PM	1	SEWER SERVICE LINE	091C00240000 OA			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2473713	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER # 2473672
MORRIS FORMAN	KY0022411	3128 LYNNWOOD WAY	12/21/15 9:05 AM	12/21/15 10:45 AM	1	SEWER SERVICE LINE	JT00369639	GROUND	CHENOWETH RUN	OBSTRUCTION IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2475041	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER
MORRIS FORMAN	KY0022411	3512 SUSANNA DR	12/24/15 1:06 AM	12/24/15 01:55 AM	1	SEWER SERVICE LINE	101202			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476109	CUSTOMER CLEANED AREA	ADVISED THST MAIN WAS SURCHARGED
MORRIS FORMAN	KY0022411	1707 S 3RD ST	12/24/15 2:42 AM	12/24/15 03:38 AM	1	SEWER SERVICE LINE	117352			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476112	CUSTOMER CLEANED AREA	REFERRED FOR AREA SUPERVISOR
MORRIS FORMAN	KY0022411	3512 SUSANNA DR	12/27/15 11:50 AM	12/27/15 11:53 AM	1	SEWER SERVICE LINE	101202			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476772	CUSTOMER CLEAN IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	4422 MALCOLM RD	12/27/15 4:56 PM	12/27/15 04:56 PM	1	SEWER SERVICE LINE	66186			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2483742	CUSTOMER CLEANED IMPACTED AREA	ADVISED CUSTOMER TO CONTACT PLUMBER IF CONTINUES TO BACKUP
MORRIS FORMAN	KY0022411	840 LINWOOD AVE	12/27/15 5:57 PM	12/27/15 06:00 PM	1	SEWER SERVICE LINE	61171			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476689	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	3212 WELLINGMOOR AVE	12/27/15 8:00 PM	12/27/15 08:00 PM	1	SEWER SERVICE LINE	109766			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2483061	ADVISED CUSTOMER THEY ARE RESPONSIBLE FOR CLEANING THE IMPACTED AREA	ADVISED CUSTOMER TO CALL BACK IF WATER HASN'T RECEDED WITHIN 24 HOURS
MORRIS FORMAN	KY0022411	1119 RED FOX RD	12/27/15 9:09 PM	12/27/15 09:12 PM	1	SEWER SERVICE LINE	X07943019			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2476767	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION HAS INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	2903 KLONDIKE LN	12/28/15 3:28 PM	12/28/15 03:28 PM	5	SEWER SERVICE LINE	091E01760000 A			ROOTS IN THE MAIN SEWER	ROOTS	DISREV RAIN EVENT DISCHARGE	2479456	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT MAIN SEWER

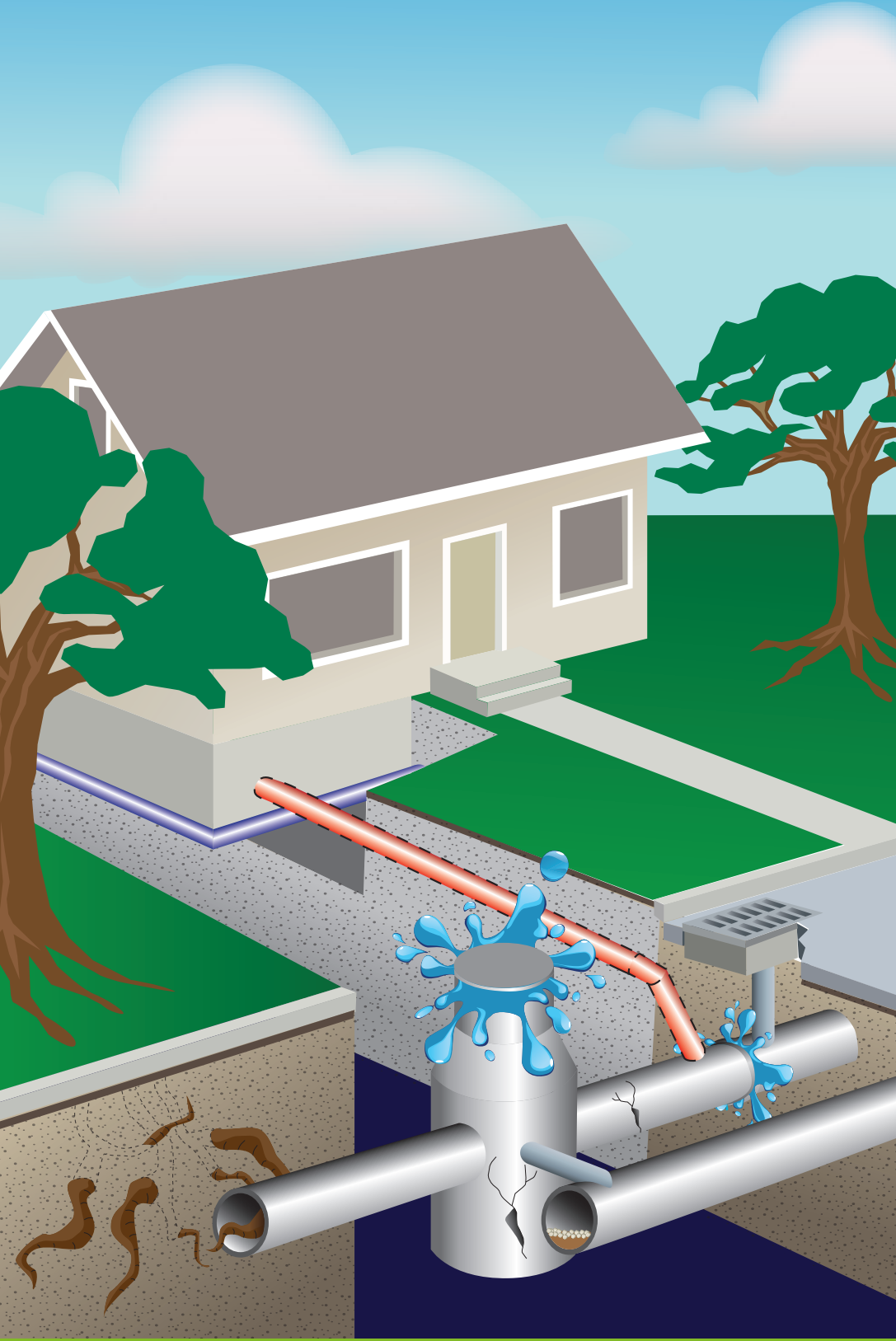
Appendix D-3 Discharge Work Orders – Interior

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	4525 S 3RD ST	12/28/15 5:49 PM	12/28/15 06:25 PM	1	SEWER SERVICE LINE	057G0007000 0A			CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2479531	CUSTOMER CLEANED IMPACTED AREA	ADVISED CUSTOMER OF PMP PROGRAM.
MORRIS FORMAN	KY0022411	3307 CHARLANE PKY	12/28/15 6:03 PM	12/28/15 06:07 PM	1	SEWER SERVICE LINE	JT00938819			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2479516	CUSTOMER CLEANED IMPACTED AREA	AN INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED BY MSD
MORRIS FORMAN	KY0022411	2601 DRAYTON DR	12/29/15 2:31 PM	12/29/15 02:31 PM	5	SEWER SERVICE LINE	078L01160000 A			PROPERTY SERVICE LINE IS FLAT; WITH HEAVEY FLOW IN THE SEWER MAIN; WATER MAIN BREAK ALSO	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2479901	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT MAIN SEWER; REFER TO WATER COMPANY RECORDING THE WATER BREAK
MORRIS FORMAN	KY0022411	22 CARDWELL WAY	12/29/15 3:36 PM	12/29/15 03:39 PM	1	SEWER SERVICE LINE	180544			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2479945	CUSTOMER CLEANED IMPACTED AREA	MSD ROOT CUT MAIN SEWER
MORRIS FORMAN	KY0022411	3600 GRAHAM RD	12/29/15 4:18 PM	12/29/15 04:21 PM	1	SEWER SERVICE LINE	057200740000 A			ROOTS IN MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION	ROOTS	DISDW DRY WEATHER DISCHARGE	2479958	CUSTOMER CLEANED IMPACTED AREA	REMOVED ROOT BLOCKAGE FROM LINE
MORRIS FORMAN	KY0022411	6706 TOTTEHAM RD	12/31/15 2:36 PM	12/31/15 03:45 PM	1	SEWER SERVICE LINE	181247			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2481214	CUSTOMER CLEANED THE AREA	ADVISED CUSTOMER TO CALL BACK IF WATER HAS NOT RECEDED WITHIN 24 HOURS
MORRIS FORMAN	KY0022411	2700 RIVER GREEN CIR	1/8/16 2:20 PM	01/08/16 02:23 PM	1	SEWER SERVICE LINE	121852756			GREASE BLOCKAGE IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2485110	CUSTOMER CLEANED IMPACTED AREA	FLUSHED TO OPEN LINE #2486344
MORRIS FORMAN	KY0022411	314 MERRIMAN RD	1/20/16 11:52 AM	01/20/16 02:19 PM	1	SEWER SERVICE LINE	71151			RESIDENTIAL GREASE IN MSD'S PORTION OF THE MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2492913	UNSURE OF AS OF THIS TIME	FLUSHED GREASE FROM SEWER MAIN; AND TVED CUSTOMERS LATERAL LINE
MORRIS FORMAN	KY0022411	4249 REGINA AVE	1/27/16 3:00 PM	01/27/16 03:54 PM	1	SEWER SERVICE LINE	75784249			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2494703	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER # 2494702
MORRIS FORMAN	KY0022411	808 RUGBY PL	1/27/16 5:25 PM	01/27/16 06:27 PM	1	SEWER SERVICE LINE	91138			MAIN SEWER HOLDING	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2494725	THE CUSTOMER CLEANED THE IMPACTED AREA	ROOT CUT AND FLUSHED LINE TO OPEN #2494723
MORRIS FORMAN	KY0022411	118 FREEMAN AVE	2/4/16 1:59 PM	02/04/16 03:02 PM	1	SEWER SERVICE LINE	Y11481029			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2499823	CUSTOMER CLEANED AREA	ROOT CUT MAIN #2499838
MORRIS FORMAN	KY0022411	3050 COMMERCE CENTER PL	2/9/16 8:09 AM	02/09/16 08:15 AM	20	SEWER SERVICE LINE	38813050	GROUND	PADDY RUN	REAR DOOR ON VAC-CON TRUCK WAS OPENED	MECHANICAL FAILURE	DISDW DRY WEATHER DISCHARGE	2502690	MSD EMPLOYEES CLEANED THE IMPACTED AREA	REAR DOOR ON VAC=CON TRUCK WAS CLOSED
MORRIS FORMAN	KY0022411	5411 REGAL DR	2/9/16 6:34 PM	02/09/16 07:00 PM	1	SEWER SERVICE LINE	099303480000 A			ROOTS IN MAIN SEWER AS WELL AS MSD'S PORTION OF THE PROPERTY SERVICE CONNECTION	ROOTS	DISDW DRY WEATHER DISCHARGE	2502936	CUSTOMER CLEANED THE IMPACTED AREA	ROOT CUT MAIN SEWER #2503096
MORRIS FORMAN	KY0022411	8700 WESTPORT RD	2/15/16 7:37 PM	02/15/16 07:40 PM	1	SEWER SERVICE LINE	100488700			GREASE BLOCKAGE IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2504519	CUSTOMER CLEAN IMPACTED AREA	FLUSHED LINE #2504518
MORRIS FORMAN	KY0022411	10989 SABLE WING PL	2/20/16 12:45 PM	02/20/16 12:48 PM	1	SEWER SERVICE LINE	144059			ROOT IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2507442	CUSTOMER CLEANED IMPACTED AREA	FLUSHED MAIN SEWER #2507440
MORRIS FORMAN	KY0022411	4420 MANNER DALE DR	2/20/16 4:23 PM	02/20/16 04:26 PM	1	SEWER SERVICE LINE	186004970000 A			ROOTS IN MSD'S MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2507455	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT MAIN SEWER TO REMOVE ROOTS
MORRIS FORMAN	KY0022411	3700 TEMPLEWOOD DR	2/24/16 8:55 AM	02/24/16 09:31 AM	1	SEWER SERVICE LINE	102917			LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511627	CUSTOMER CLEANED THE IMPACTED AREA	INVESTIGATION INDICATED THAT ADDITIONAL REPAIRS WERE NOT REQUIRED
MORRIS FORMAN	KY0022411	1807 MILLGATE RD	2/24/16 9:21 AM	02/24/16 11:29 AM	1	SEWER SERVICE LINE	150062			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2511619	CUSTOMER CLEANED AREA	ROOT CUT LINE #2511709
MORRIS FORMAN	KY0022411	7704 TEMPSCLAIR RD	2/24/16 1:58 PM	02/24/16 03:30 PM	10	SEWER SERVICE LINE	190001000000 A			ROOTS IN THE MAIN SEWER	ROOTS	DISREV RAIN EVENT DISCHARGE	2511800	MSD CONTRACTOR WILL, CLEAN AREA	ROOT CUT MAIN SEWER #2511916
MORRIS FORMAN	KY0022411	4004 HYCLIFFE AVE	3/1/16 12:31 PM	03/01/16 12:31 PM	1	SEWER SERVICE LINE	54465			ROOTS IN MAIN SEWER	ROOTS	DISREV RAIN EVENT DISCHARGE	2515322	CUSTOMER WILL CLEAN IMPACTED AREA	ROOT CUT MAIN SEWER #2515580
MORRIS FORMAN	KY0022411	1805 MILLGATE RD	3/7/16 12:13 PM	03/07/16 12:14 PM	1	SEWER SERVICE LINE	150063			ROOT BLOCKAGE IN THE MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2517147	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT MAIN SEWER
MORRIS FORMAN	KY0022411	5616 RIDGECREST RD	3/10/16 8:50 PM	03/10/16 09:40 PM	1	SEWER SERVICE LINE	PA09577039	GROUND	BLUE SPRING DITCH	ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2521080	MSD WILL FULLY CLEAN IMPACTED AREA	ROOT CUT AND FLUSHED MAIN SEWER
MORRIS FORMAN	KY0022411	3305 CHARLANE PKY	3/11/16 11:28 AM	03/11/16 11:30 AM	10	SEWER SERVICE LINE	JT00939019			CAPACITY ISSUE	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2521355	CUSTOMER CLEANED AREA	REFERRED FOR A BACKFLOW PREVENTER
MORRIS FORMAN	KY0022411	5700 HIGH PINE CT	4/7/16 1:50 PM	04/07/16 02:40 PM	1	SEWER SERVICE LINE	45503			ROOTS IN THE MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2541800	CUSTOMER CLEANED THE IMPACTED AREA	CREW RAN ROOT CUTTER FROM MANHOLE AND OPEN MSD PORTION OF THE LINE
MORRIS FORMAN	KY0022411	1335 MORGAN AVE	4/18/16 4:05 PM	04/18/16 06:22 PM	1	SEWER SERVICE LINE	KK13664029			OBSTRUCTION IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2546271	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER
MORRIS FORMAN	KY0022411	3221 WELLINGMOOR AVE	4/20/16 8:30 PM	04/20/16 09:21 PM	5	SEWER SERVICE LINE	109804			MAIN SEWER WAS STOPPED UP. ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2547248	MSD CALLED CLEANING CREW	FLUSHED THE MAIN SEWER. ROOT CUT MAIN SEWER TO REMOVE ROOTS
MORRIS FORMAN	KY0022411	3817 DARLENE DR	4/21/16 3:12 PM	04/21/16 03:37 PM	1	SEWER SERVICE LINE	54712			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2547568	CUSTOMER CLEANED IMPACTED AREA	FLUSHED MAIN SEWER #2547580
MORRIS FORMAN	KY0022411	3918 MARWOOD PL	4/22/16 9:30 AM	04/22/16 09:55 AM	2	SEWER SERVICE LINE	KK09634039			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2547726	WATER HAS NOT RECEDED,ADVISED CUSTOMER TO CONTACT CUSTOMER RELATIONS WHEN WATER RECEDES	ROOT CUT MAIN SEWER TO REMOVE ROOT BLOCKAGE
MORRIS FORMAN	KY0022411	115 N 29TH ST	4/28/16 9:30 AM	04/28/16 10:36 AM	1	SEWER SERVICE LINE	125513			OBSTRUCTION IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2553322	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER #2553300
MORRIS FORMAN	KY0022411	104 E FAIRMONT AVE	4/28/16 3:45 PM	04/28/16 04:28 PM	1	SEWER SERVICE LINE	055H0034000 0A	GROUND	OHIO RIVER	GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2553562	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER # 2553561
MORRIS FORMAN	KY0022411	3014 UNIVERSITY RD	4/30/16 2:59 PM	04/30/16 03:02 PM	1	SEWER SERVICE LINE	088RQ017000 00A			GREASE BLOCKAGE IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2554045	CUSTOMER CLEANING IMPACTED AREA	FLUSH TO REOPEN MAIN SEWER
MORRIS FORMAN	KY0022411	3047 WEDGEWOOD WAY	4/30/16 4:45 PM	04/30/16 05:33 PM	10	SEWER SERVICE LINE	081G0104000 0A			BLOCKAGE IN THE MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2554054	MSD CONTRACTOR CLEANED IMPACTED AREA	FLUSHED THE MAIN SEWER

Appendix D-3 Discharge Work Orders – Interior

ASSOCIATED WASTEWATER TREATMENT PLANT NAME	ASSOCIATED TREATMENT PLANT KPDES #	OVERFLOW LOCATION	OVERFLOW START DATE & TIME	OVERFLOW STOP DATE & TIME	VOLUME OF OVERFLOW (GAL)	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	4526 JANICE WAY	5/4/16 10:30 PM	05/05/16 12:20 AM	1	SEWER SERVICE LINE	DE33664029			GREASE IN THE MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2555621	CUSTOMER CLEANED IMPACTED AREA	FLUSHED THE MAIN SEWER
MORRIS FORMAN	KY0022411	3512 MAYO DR	5/6/16 10:50 AM	05/06/16 11:32 AM	1	SEWER SERVICE LINE	087F01890000 A			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2556172	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER
MORRIS FORMAN	KY0022411	4249 REGINA AVE	5/10/16 10:30 AM	05/10/16 11:04 AM	1	SEWER SERVICE LINE	75784249			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2557199	CUSTOMER CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER #2557190
MORRIS FORMAN	KY0022411	8904 AYRSHIRE AVE	5/11/16 7:00 PM	05/11/16 07:57 PM	10	SEWER SERVICE LINE	186105470000 A			ROOTS IN THE MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2557734	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT MAIN SEWER #2558050
MORRIS FORMAN	KY0022411	3101 VERNE CT	5/19/16 9:35 PM	05/19/16 09:53 PM	1	SEWER SERVICE LINE	106360			ROOTS IN MAIN SEWER	ROOTS	DISDW DRY WEATHER DISCHARGE	2560618	CUSTOMER CLEANED IMPACTED AREA	REMOVED ROOTS TO RESTORE FLOW #2561271
MORRIS FORMAN	KY0022411	3021 LEMAN DR	5/31/16 10:30 AM	05/31/16 11:10 AM	2	SEWER SERVICE LINE	58714			GREASE OBSTRUCTION IN MAIN SEWER	GREASE BLOCKAGE	DISDW DRY WEATHER DISCHARGE	2567739	MSD CONTRACTOR CLEANED THE IMPACTED AREA	FLUSHED MAIN SEWER #2567711
MORRIS FORMAN	KY0022411	1106 GIRARD DR	6/16/16 12:20 PM	06/16/16 12:57 PM	1	SEWER SERVICE LINE	156802980000 A			MAIN WAS HOLDING	ROOTS	DISDW DRY WEATHER DISCHARGE	2572688	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT THE MAIN
MORRIS FORMAN	KY0022411	9727 BOXFORD WAY	6/16/16 2:20 PM	06/16/16 02:39 PM	3	SEWER SERVICE LINE	HP15858039			MAIN SEWER WAS STOPPED UP	ROOTS	DISDW DRY WEATHER DISCHARGE	2572773	CUSTOMER CLEANED IMPACTED AREA	ROOT CUT MAIN SEWER TO OPEN
MORRIS FORMAN	KY0022411	1915 S HURSTBOURNE PKY	6/29/16 7:50 PM	06/29/16 08:19 PM	1	SEWER SERVICE LINE	JT20266019			PAPER TOWELS IN THE MAIN FROM WAL MART	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2579793	CUSTOMER CLEANED IMPACTED AREA	FLUSHED THE MAIN

Appendix E CSSA Annual Report



**CONTINUOUS
SEWER SYSTEM
ASSESSMENT AND
BLOCKAGE
ABATEMENT PROGRAM**

FISCAL YEAR 2016
ANNUAL REPORT

COMPILED AND SUBMITTED BY:
Louisville and Jefferson County
Metropolitan Sewer District
700 West Liberty Street
Louisville, KY 40203

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ACRONYMS AND ABBREVIATIONS

AAM	Advanced Asset Management
ACD.....	Amended Consent Decree
BAP	Blockage Abatement Program
CCTV	Closed Circuit Television
CIPP.....	Cured-In-Place Pipe
CMOM.....	Capacity, Management, Operations 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.....	Geographic Information Systems
GLPM.....	Gravity Line Preventive Maintenance
I/I	Infiltration and Inflow
ICA	Interceptor Condition and Assessment
IOAP.....	Integrated Overflow Abatement Plan
IT	Information Technology
LF.....	Linear Feet

LOJIC	Louisville and Jefferson County Information Consortium
LTCP	Long-Term Control Plan
MACP	Manhole Assessment Certification and Program
MSD	Louisville and Jefferson County Metropolitan Sewer District
NASSCO	National Association of Sewer Service Companies
NMC	Nine Minimum Controls
PACP	Pipeline Assessment and Certification Program
PM	Preventive Maintenance
PSC	Property Service Connection
QA/QC	Quality Assurance/Quality Control
RS	Regulatory Services
SCAP	System Capacity Assurance Plan
SSSES	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)

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FY16 CSSA ANNUAL REPORT
JULY 1, 2015 - JUNE 30, 2016

CHAPTER 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:

- 68,063 catch basins and yard drains
- 248 sanitary pump stations
- 16 flood pump stations
- 5 regional water quality treatment centers (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 Amended Consent Decree (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 the 2016 Fiscal Year (FY16, July 1, 2015 – June 30, 2016) along with anticipated actions for FY17.

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 fourteen million dollars and inspected approximately 80% of the combined and separate sewer system. Figure 1-1 shows areas where a baseline inspection has been performed and considered complete (at least 85% of line segments and 85% of footage inspected) for pipe 48-inch diameter or less; 20% of the remaining large-diameter lines have been inspected. Table 1-1 shows inspection and cleaning costs per fiscal year. 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.

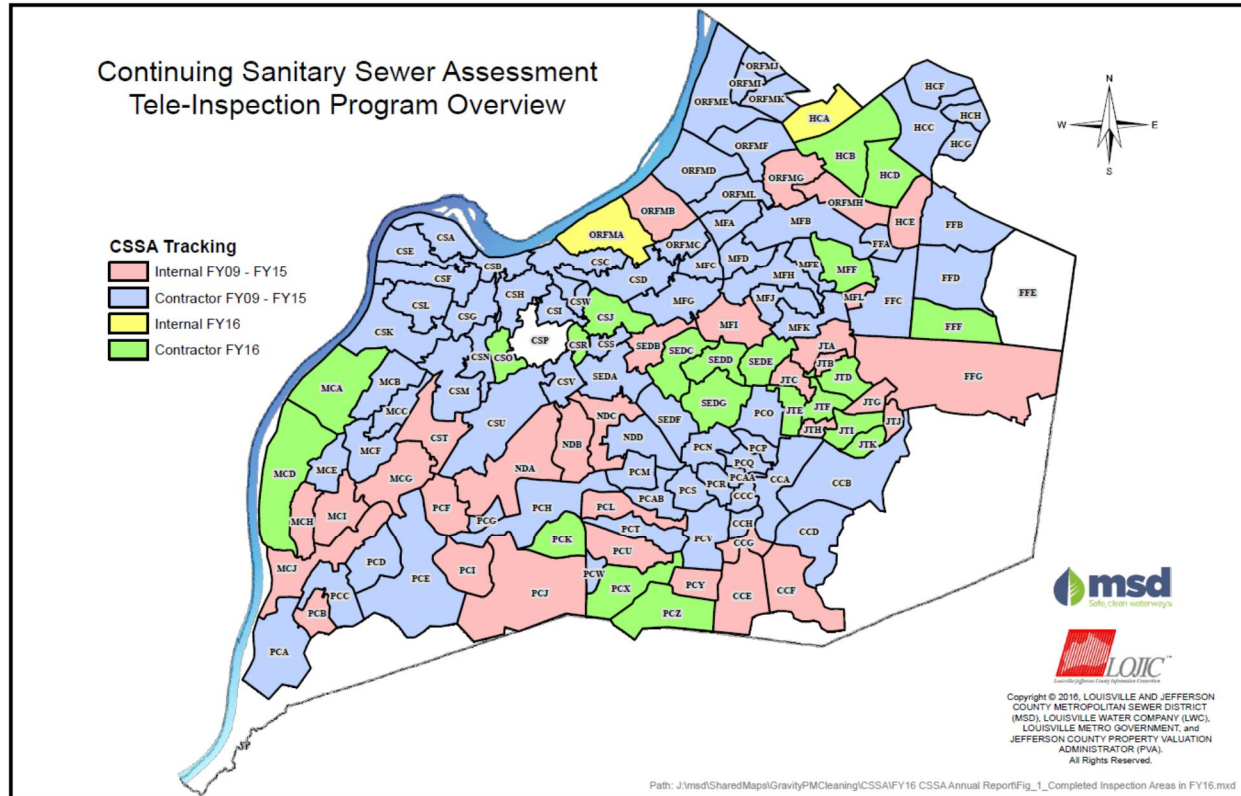


Figure 1-1 Completed Inspection Areas

Table 1-1 Inspection Summary

Fiscal Year	Internal Cleaning	Internal Inspection	Contractor Cleaning and Inspection	Total Cleaning and Inspection
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
FY15	\$80,183	\$211,870	\$937,500	\$1,229,552
FY16	\$134,691	\$177,782	\$700,000	\$1,012,473
Total	\$1,285,738	\$2,259,592	\$10,531,560	\$14,076,889

Once inspection of a study area is complete, inspection data is 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 workflow for the two programs are outlined in the workflow diagram in Figure 1-2.

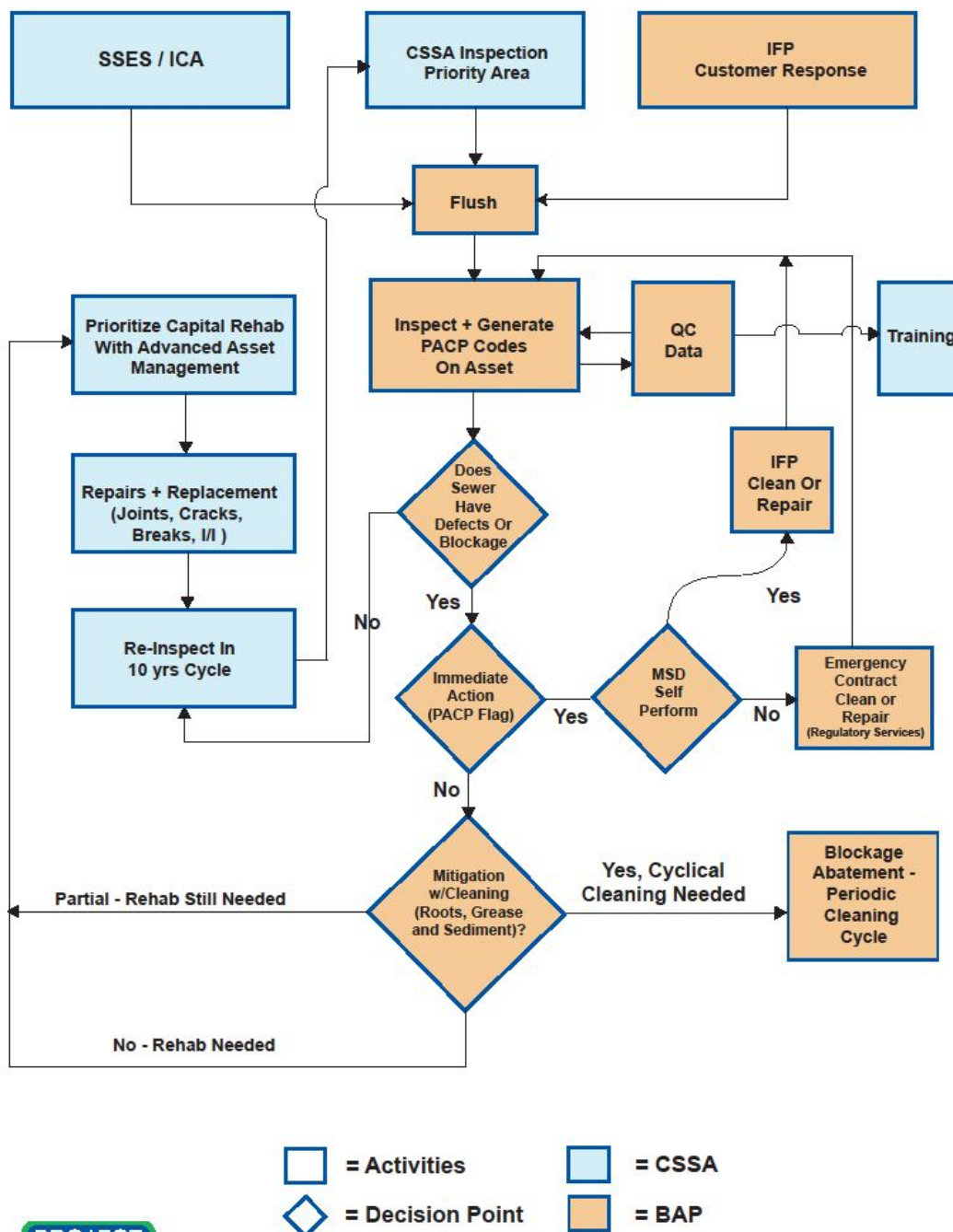
Previous annual reports since FY08 describe the general programmatic structure in more detail and can be referenced in the Project WIN Annual Reports, available on the Project WIN website at <http://www.msdprojectwin.org/Library.aspx> under Consent Decree Reporting and included as an appendix to the Project WIN Annual Report.



Continuing Sewer System Assessment and Gravity Line Preventive Maintenance

CMOM

WORK FLOW AND DECISION FRAMEWORK



CLEAN, GREEN, GROWING COMMUNITY

Figure 1-2 CSSA and BAP Process Workflow

CHAPTER 2 CSSA PROGRAM INSPECTION & REHABILITATION

OVERVIEW

MSD developed a three-pronged approach to gather asset inspection data. Using operational knowledge and various program drivers, MSD staff identified specific areas for the following:

- Sanitary Sewer Evaluation Studies (SSESs) that may include CCTV, smoke and dye testing and manhole inspection.
- Interceptor Condition Assessments (ICAs) for CCTV on large interceptors for CCTV condition assessment. This effort requires higher tech equipment and brighter lighting sources.
- CCTV assessment on select SCAP basins, generally looking at line segments 6" to 48" in diameter. Inspection of sewers in these areas that began in FY11 was continued in FY16 (see Figure 2-1). A map depicting projected inspection areas for FY17 is shown in Figure 2-2. The areas are marked draft as projections are adjusted throughout the year for various reasons.

The following activities were completed during FY16:

- Assigned 220 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.
- Continued to work with MSD IT department in order to develop a strategy for integrating CCTV videos with Hansen 8 and eB.
- Completed three SSES areas involving CCTV and manhole inspections.
- Performed CCTV inspection on an additional 10 miles of collection system sewers.
- Completed assessments of 22 inspection areas and generated recommendation packages.
- Created pilot process to generate recommendations on the fly based on inspections and other data housed in Hansen and GIS.
- Utilized the Neztex 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.

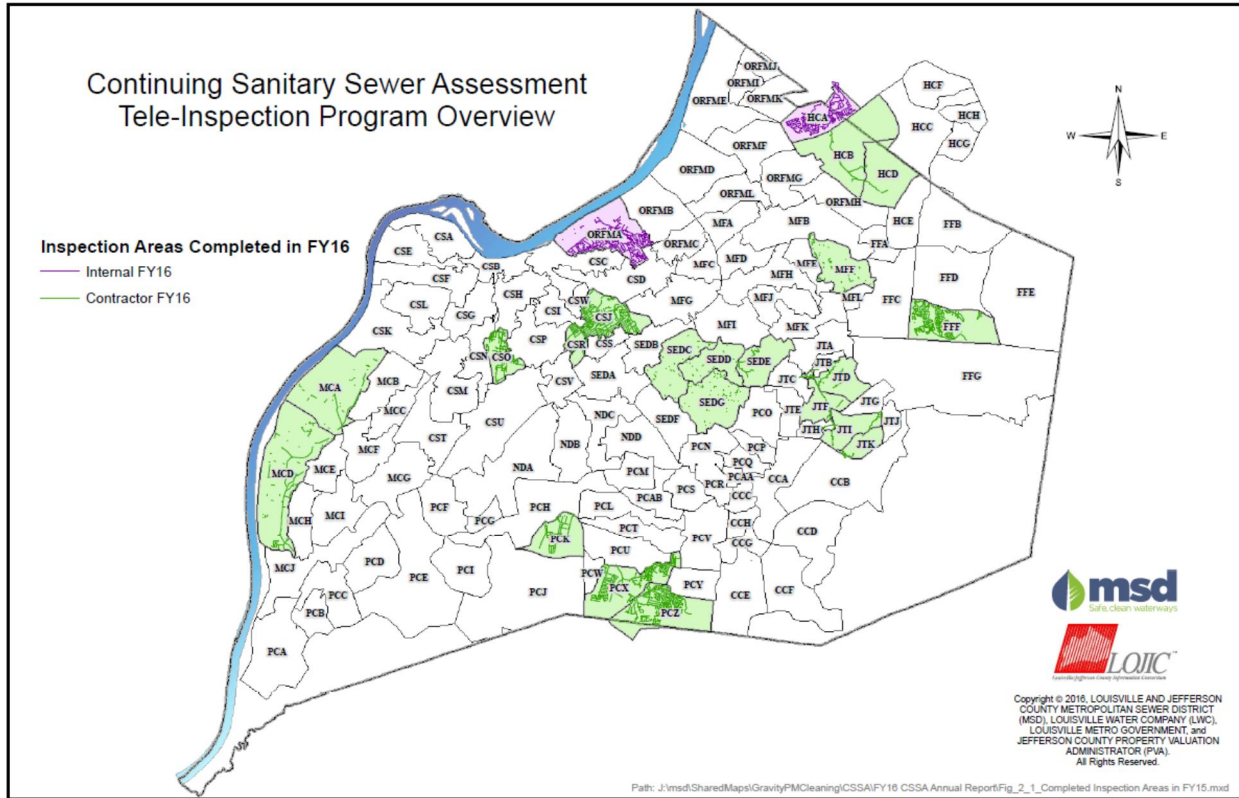


Figure 2-1 Inspection Areas Completed in FY16

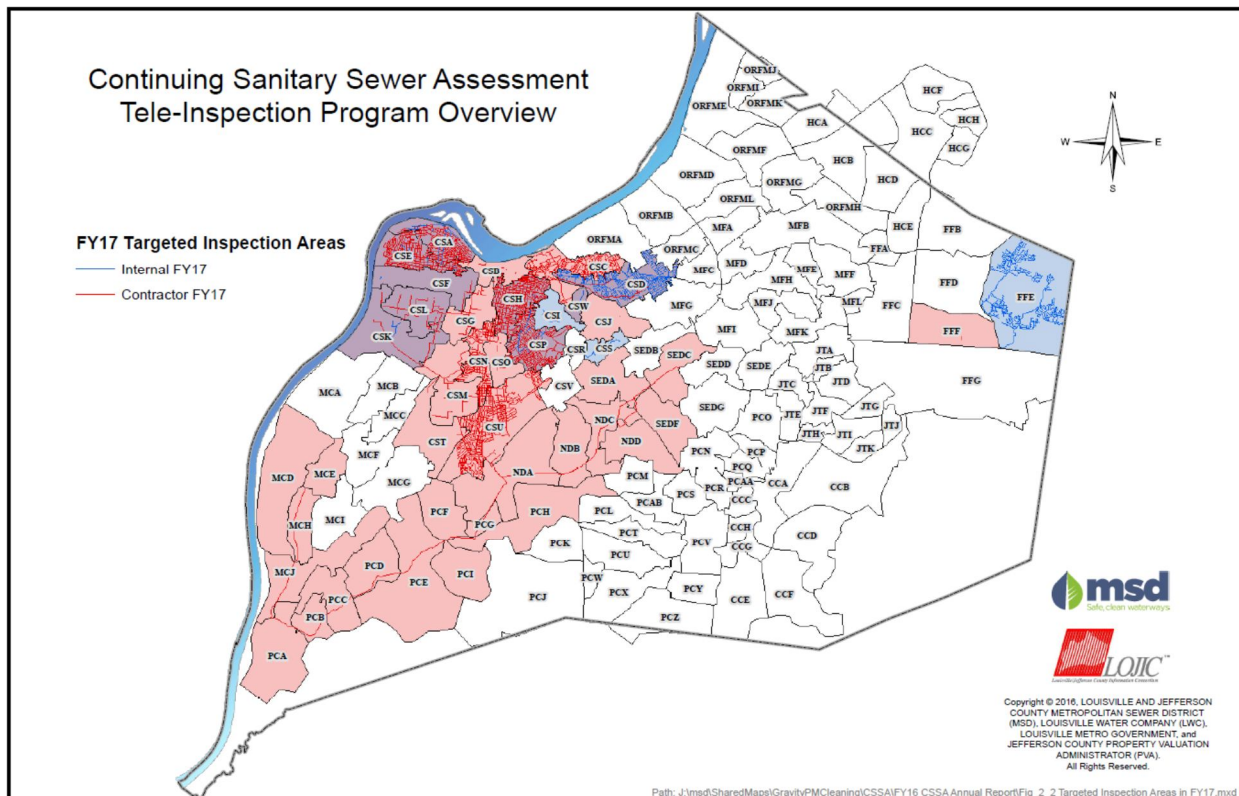


Figure 2-2 Targeted Inspection Areas for FY17

SANITARY SEWER EVALUATION STUDIES (SSES)

Sub-basins are selected for SSES projects to identify the cause of specific sewer overflows, capacity and performance, or Inflow and Infiltration (I/I) problems.

Prior to FY16, each SSES project included CCTV, manhole inspections, smoke testing, private property inspections, and wet weather inspections. In order to maximize the benefit of the CSSA program, MSD moved in FY16 to utilize existing teleinspection reports in conjunction with contracted manhole inspections that will be used to generate recommendation packages. Private property and wet weather inspections may additionally be employed as conditions dictate. Specific data exchange protocols are utilized and data is being captured in MSD's Hansen asset management system.

Three areas were identified for study and completed in FY16 for a total of 41.9 miles of sewer. See Table 2-1 for SSES projects completed during FY16. All final inspection reports for these areas were submitted to MSD during FY16.

MSD has identified four areas for study in FY17 for a total of 65.2 miles of sewer. See Table 2-2 for SSES projects anticipated to be completed in FY17.

Table 2-1 Completed Study Areas

Project	Pipe (LF)	Pipe (Miles)	Manholes	Project Selection Criteria
Admiral Pump Station	166,741	31.6	776	Operations Support
McNeely Lake WQTC	34,536	6.5	211	System Capacity
Mount Washington Road Pump Station	19,923	3.8	101	System Capacity
Total	221,200	41.9	1,088	

Table 2-2 Projected Study Areas

Project	Pipe (LF)	Pipe (Miles)	Manholes	Project Selection Criteria
Bardstown Road Pump Station	31,981	6.1	185	System Capacity
Southeast Diversion Area SEDF	100,956	19.1	415	Post-Construction Compliance
Southeast Diversion Area SE-JTF	6,852	1.3	30	EUM BAP Support
Combined System Area CST	204,437	38.7	825	EUM BAP Support
Total	344,225	65.2	1,455	

INTERCEPTOR CONDITION ASSESSMENTS

MSD plans to complete inspections of Large Diameter and Interceptor/Trunk Sewers through a contract in FY17 & FY18 that will provide CCTV, Sonar, and TISCIT inspections as needed. Similar to SSES efforts, MSD will utilize existing teleinspection reports in conjunction with contracted manhole inspections that will be used to generate recommendation packages. Additional engineering support will be provided as needed to develop rehabilitation solutions on a case-by-case basis. New study areas will be proposed beginning in FY18 as budget allows.

COLLECTION SYSTEM SEWER ASSESSMENTS

During the reporting period, the division of labor related to the assessment of MSD's collection system using internal and external resources, based on pipe diameter and internal resource availability, was managed by Engineering. In FY16, MSD crews inspected 43.4 miles of sewer while contractors inspected 159.0 miles as outlined in Table 2-3. Through these combined efforts, MSD inspected over 202 miles of sewer in FY16 and has averaged 394 miles of sewer per year, well ahead of the 320 mile/year pace needed to inspect the 3,200 mile system as committed to in the CMOM Self-Assessment.

Two MSD TVI field specialists are primarily dedicated to CSSA CCTV work, with the remaining 4 TVI field specialists 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 flusher or combination vacuum cleaner truck when resources allow, so that cleaning is a more timely and responsive aspect of their condition assessment activities.

In FY16, MSD purchased a large transporter for use with its existing inspection equipment that will allow inspection of larger pipe. Prior to this purchase, internal crews could inspect pipe up to 48" diameter; this equipment allows inspection of pipe up to 200" in diameter flowing less than one-third full. This allows MSD the capability of inspecting 99% of its pipe inventory without contractor participation.

Sub-basin inspections that were completed or nearing completion during FY16 as a part of the Collection System Sewer Assessment are summarized in Table 2-3 and projected areas for FY17 are included in Table 2-4.

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 19.

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).

Table 2-3 Completed Collection System Assessment Areas

Project Area	Pipe (LF)	Pipe (Miles)	Internal / Contracted
CSJ	140,500	26.6	Contracted
CSO	62,351	11.8	Contracted
CSR	30,587	5.8	Contracted
FFF	117,008	22.2	Contracted
HCA	106,003	20.1	Internal
HCB HCD Trunk-Interceptor	23,025	4.4	Contracted
Jeffersontown Trunk-Interceptor	47,322	9.0	Contracted
MCA MCD Trunk-Interceptor	53,015	10.0	Contracted
MCD 2 nd Attempt	31,206	5.9	Contracted
MFF 2 nd Attempt	13,962	2.6	Contracted
Mt Washington Rd PS 2 nd Attempt	3,885	0.7	Contracted
ORFMA	123,286	23.3	Internal
PCK	35,238	6.7	Contracted
PCX	125,289	23.7	Contracted
PCZ	129,166	24.5	Contracted
SEDC SEDD SEDG 2nd Attempt	13,393	2.5	Contracted
SEDE Trunk-Interceptor	13,450	2.5	Contracted
Total Assigned	1,068,686	202.4	
Internal Crews	229,289	43.4	Internal Crews completed, on average, 89% of assigned linear footage
Contracted Crews	839,397	159.0	Contractor Crews completed, on average, 96% of assigned linear footage

Table 2-4 Projected Collection System Assessment Areas

Project Area	Pipe (LF)	Pipe (Miles)	Internal / Contracted
21st Street, 23rd Street Relief, 25th Street, & Olive Street	20,083	3.8	Contracted
Beals Branch Trunk	12,276	2.3	Contracted
Beargrass Interceptor	7,098	1.3	Contracted
Black Pond Interceptor & Mill Creek Interceptor	25,677	4.9	Contracted
Cherokee Enterprise	3,892	0.7	Internal
CSA 2 nd Attempt	29,774	5.6	Contracted
CSA Large Diameter	24,601	4.7	Internal
CSC 2 nd Attempt	33,854	6.4	Contracted
CSD 2 nd Attempt	52,790	10.0	Internal
CSE 2 nd Attempt	24,842	4.7	Contracted
CSE Large Diameter	12,887	2.4	Internal
CSH 2 nd Attempt	27,649	5.2	Contracted
CSM, CST & CSU Large Diameter	32,543	6.2	Contracted
CSN 2 nd Attempt	34,809	6.6	Contracted
CSP	219,979	41.7	Contracted
CSO108 Large Diameter	10,356	2.0	Internal
CSU 2 nd Attempt	33,016	6.3	Contracted
Dry Run & Kentucky Street Sewers	13,408	2.5	Contracted
FFE	231,146	43.8	Internal
Floyds Fork Interceptor	665	0.1	Contracted
Middle Fork Trunk & Grinstead Drive	16,820	3.2	Contracted

Table 2-4 Projected Collection System Assessment Areas

Project Area	Pipe (LF)	Pipe (Miles)	Internal / Contracted
Northeastern Interceptor & Brownsboro Road Trunk	11,465	2.2	Contracted
Northern Ditch & Pond Creek Interceptors	80,906	15.3	Contracted
Southeastern Interceptor, Southeastern Interceptor Relief, and Hikes Lane Interceptor	31,226	5.9	Contracted
Southern Outfall and Feeders, Dixie Hwy to CSO211	34,573	6.5	Contracted
Southwestern Outfall, Southwestern Branch Interceptor, 7th Street Road Trunk & Montana Avenue	31,374	5.9	Contracted
Total Assigned	1,057,710	200.3	
Internal Crews	335,674	63.6	Internal Crews have a goal to complete 85% of lines and 85% of assigned linear footage
Contracted Crews	722,037	136.7	Contractor Crews have a goal to complete 85% of lines and 85% of assigned linear footage

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 1-2.

- 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.

In FY16, a pilot process was created to generate recommendations based on inspections and other data housed in Hansen and GIS. This process includes recommendations for rehabilitation and maintenance activities, prioritized based on comparative condition to the rest of the system. In FY17, MSD will work to verify the efficacy of the recommendations and to identify data sources for the criteria associated with critical sewers within Hansen or GIS in an effort to prioritize recommendations based on risk.

Rehabilitation activities are selected and prioritized through the evaluation processes. Utilizing the recommendations, projects are bid and rehabilitation work is completed. During FY16, a total of nine projects were completed in addition to multiple as-needed repairs to support MSD Operations. Table 2-5 summarizes FY16 rehabilitation project areas, linear feet of pipe and estimated costs associated with the rehabilitation projects as well as the as-needed repairs grouped by sewershed. An example of the type of work performed in FY16 is shown in Figure 2-3.

In FY17, 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 and other operational issues. Table 2-6 summarizes work ongoing from FY16 and planned work to begin FY17.



Figure 2-3 Cured-In-Place Pipe (CIPP) Installation

Table 2-5 Completed Rehabilitation Projects

Rehabilitation Area	Pipe (LF)	Pipe (Miles)	Manholes	Estimated Costs
As-Needed - Combined System	158	0.0	-	\$4,298
As-Needed - Middle Fork	906	0.2	19	\$55,453
As-Needed - Mill Creek	240	0.0	-	\$11,061
As-Needed - ORFM	342	0.1	-	\$9,532
As-Needed - Pond Creek	336	0.1	-	\$43,065
As-Needed - Southeast Diversion	4,091	0.8	24	\$208,699
Berrytown	-	-	5	\$8,360
Hillridge Phase II	6,182	1.2	41	\$861,487
Lea Ann Way West Quad 3	15,002	2.8	258	\$1,084,585
Lea Ann Way West Quad 4	14,797	2.8	198	\$739,809
Lea Ann Way West Quads 1 & 2	14,386	2.7	88	\$848,205
Middletown Phase II	545	0.1	-	\$24,253
Park Boundary Road	918	0.2		\$88,449
Phillips Lane	790	0.1	6	\$590,615
Prospect Phase IB	5,288	1.0	-	\$249,239
River Road Interceptor	4,104	0.8	5	\$400,365
Total	68,084	12.9	644	\$5,227,474

Table 2-6 Active and Projected Rehabilitation Projects

Rehabilitation Area	Pipe (LF)	Pipe (Miles)	Manholes	Estimated Costs
Silver Heights WQTC	6,426	1.2	121	\$356,067
Admiral Pump Station	32,361	6.1	486	\$1,751,375
Total	38,787	7.3	607	\$2,107,442

CHAPTER 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.

FY16 ACTIVITIES

The following activities related to BAP accomplishments occurred during the FY16 reporting period:

- Performed chemical root treatment on 333,011 LF (1,673 line segments) of Separate Sanitary Sewer and 53,198 LF (233 line segments) of Combined Sewer.
- Performed sewer flushing and cleaning on 731,804 LF (4,303 line segments) of Separate Sanitary Sewer and 42,809 LF (215 line segments) of Combined Sewer.
- Performed root cutting on 55,358 LF (264 line segments) of Separate Sanitary Sewer and 6,068 LF (28 line segments) of Combined Sewer.

MSD continued a Chemical Grease Treatment program developed in FY13 for sanitary lines. Chemical grease treatment 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 completed several 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 FY16 BAP activities are summarized in Table 3-1.

FY17 ACTIVITIES

MSD is re-evaluating the approach of the Blockage Abatement Program. This new approach will allow MSD to prioritize and schedule maintenance activities such as root cutting, chemical root control, flushing, vacuum cleaning and grease control along with other cleaning activities. In FY16, MSD created pilot process to generate recommendations on the fly based on condition inspections and other data housed in Hansen and GIS. These recommendations include chemical root and

grease treatment and proactive cleaning as required. MSD will use FY17 to field-verify the recommendations and to begin to schedule preventive maintenance on a periodic cycle.

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 3-2.

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.

Table 3-1 Completed BAP Activities

Activity	Pipe (LF)	Pipe (Miles)
Flushing	774,613	146.7
Vacuum Cleaning	4,084	0.8
Root Cutting	61,426	11.6
Chemical Root Treatment	386,209	73.1
Chemical Grease Treatment	-	-
Total	1,226,333	232.3

Table 3-2 Projected BAP Activities

Activity	Pipe (LF)	Pipe (Miles)
Flushing	983,671	186.3
Vacuum Cleaning	3,000	0.6
Root Cutting	74,040	14.0
Chemical Root Treatment	400,000	75.8
Chemical Grease Treatment	5,000	0.9
Total	1,465,710	277.6

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. In FY17, MSD will work to identify any outstanding factors as well as data sources for the criteria within Hansen or GIS in an effort to prioritize recommendations based on risk, and incorporate in to the recommendation process.



700 West Liberty Street
Louisville, KY 40203-1911
LouisvilleMSD.org
24/7 Customer Relations
502.587.0603

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Appendix F

Public Notification



700 West Liberty Street | Louisville, KY 40203-1911
502.540.6000 | louisvillemtd.org

April 27, 2016

Dear Louisville Metro Resident:

Throughout MSD's service area, there are hundreds of points where a combination of wastewater and rainwater may discharge onto streets and into local waterways when it rains. These sewer overflow locations act as relief when the sanitary system becomes overwhelmed with rainwater.

MSD's Project WIN (Waterway Improvements Now) defines a plan to rehabilitate our aging sewer system and reduce the number of overflows that send raw, untreated sewage into our local waterways during rain events. We are past the halfway point of this \$850 million, overflow abatement program and are committed to complete the plan by 2024.

You have received this letter because you live near Beargrass Creek, the Ohio River or one of their tributaries. Because of this, you are more likely to come in contact with polluted water from one of these overflows. As MSD continues its work to reduce sewer overflows, we must caution you to stay out of these waterways during—and for 48-hours after—a rain event.

The enclosed flyer provides important information related to easy steps that you can take to protect your health and safety should you come in contact with sewage-polluted water. It is important to keep children and pets out of these waterways during and following a rain event.

MSD seeks to be a good steward of our ratepayers' dollars and we are committed to providing safe, clean waterways for our community. We continually collect water-quality data and seek ways to improve our creeks, streams and the Ohio River for recreational use, as well as fish and wildlife habitats.

Please call 502.587.0603 or visit us online at www.msdprojectwin.org for more information about Project WIN, and become a part of the WINning team.

Together we can achieve safe, clean waterways for a healthy and vibrant community.

Sincerely,

James A. Parrott
Executive Director



Splashing in the rain is fun ...but what you don't see could harm you!



Those waters could contain harmful bacteria, which can make you sick.

Rainwater runoff can overwhelm the sanitary sewer system and back up into roadways and streams when it rains. You should minimize contact with waterways to be safe during storms and even for 48 hours after the rain has ended. During these times, avoid swimming, fishing, wading and splashing in the water.

MSD has made significant progress in decreasing sewer overflows into our waterways, but there is more work to be done. Please follow the instructions that are posted on our overflow advisory signs. Wash with warm, soapy water if you come into contact with water that may have been contaminated by a sewage overflow.



MSDProjectWIN.org

24/7/365

| 502.587.0603

CustomerRelations@LouisvilleMSD.org



700 West Liberty Street
Louisville, KY 40203-1911

What you don't see can harm you!

**Look inside for safety tips
for those living near
Beargrass Creek
and the Ohio River.**



Changing what it means to be MSD

MSD has launched the beginning of a new era for our organization—one dedicated to inclusion, innovation, responsiveness and transparency as we work together in protecting our community's waterways.

To reflect these changes, we are pleased to reintroduce MSD with a refreshed attitude and an updated identity.

It's an important way to demonstrate our ongoing commitment to the people, neighborhoods and businesses of Louisville Metro.

ROBIN BOWLING
Support Services Administrator
MSD Central Maintenance Facility

24/7/365
502.587.0603
CustomerRelations@
LouisvilleMSD.org





msd
Safe, clean waterways



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TRISH CAPITO
Master Floodwall Maintenance Electrician
MSD Central Maintenance Facility



msd

Safe, clean waterways

Changing what it means to be MSD



ADONIS HENDERSON
Revenue Supervisor
MSD Main Office



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LASHAWN ROBERTS
Utility Worker III
Central Maintenance Facility



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Disconnecting **your downspouts** can **pay big** dividends

MSD offers residential customers a **one-time incentive of \$100 per downspout*** for disconnection from the sewer system.

Downspouts that are connected to the sewer system are usually in older sections of the city.

To see if your downspouts or sump pump connect to the sewer system, residential customers can visit MSDGreen.org, or call MSD at 502.587.0603, or email CustomerRelations@LouisvilleMSD.org.

Minimizing the amount of rainwater entering the sewer system

Keeping rainwater out of the sewer system helps prevent sewer overflows into our local waterways and sewer backups into homes. MSD strives to keep rainwater out of the sewer system through cost-effective methods—like downspout and sump pump disconnections—and redirect the rainwater flow to nonpaved surfaces, such as lawns or rain gardens.

Downspout Disconnection Program

A typical 8-inch neighborhood sanitary sewer pipe can handle wastewater from approximately 200 homes. This pipe can become overwhelmed when as few as six homes have downspouts connected to the sewer line. To relieve this situation, MSD offers residential customers a one-time incentive of **\$100 per downspout*** for disconnection from the sewer system. **Customers must contact MSD in advance of the disconnection.**

Sump Pump Disconnection

The typical 8-inch neighborhood sanitary sewer pipe can become overwhelmed with as few as eight sump pumps connected to the system. MSD's Plumbing Modification Program **pays for a licensed plumber to disconnect the sump pump from the sanitary sewer** and redirect the water in a safe and effective way.



Downspouts connected to the sewer system, such as the one shown above, can overwhelm the system and contribute to sewer overflows.



This downspout is not connected to the sewer system.

*** To be eligible to receive the downspout disconnection incentive payment, MSD MUST INSPECT your downspouts PRIOR to disconnection. Offer expires 11-30-2016.**

Call 502.587.0603—and mention this bill insert—to receive a **FREE Rain Garden Guide!**



CONTACT US 24/7/365
502-587-0603

CustomerRelations@LouisvilleMSD.org

 [@LouisvilleMSD](https://twitter.com/LouisvilleMSD)

'Flushable' wipes... are more expensive than you think

Toss your wipes into the trash— NOT into the toilet!

Wipes do not break down quickly, even if their labels read "flushable." They can cause problems for home plumbing systems and lead to sewer backups. Wipes also clog and damage sewer line pumps, screens and other mechanical parts at water quality treatment centers. This costs wastewater utilities nationwide a great deal of expense. MSD employees must repair clogged pumps an average of two out of every three days. Wipes cause 60 percent of these clogs.



Shawn Smith clears a clog from a pump at MSD's Cedar Creek Water Quality Treatment Center.



Do not flush:

- **Baby and adult diapers**
- **Condoms**
- **Dental floss**
- **Fats, grease and oils**
- **Feminine-hygiene products**
- **Paper towels**
- **Waste from garbage disposals**
- **Wipes**

For more information about how this issue is affecting water quality treatment centers nationwide, type "flushable wipes clog sewer systems" in your search bar.

OUR VISION

Achieving Safe, Clean Waterways
for a Healthy and Vibrant Community

OUR MISSION

Providing Exceptional Wastewater,
Drainage and Flood Protection Services
for Our Community

CONTACT US 24/7/365
502-587-0603

CustomerRelations@
LouisvilleMSD.org

 @LouisvilleMSD





Louisville is enjoying a time of dramatic transformation for economic prosperity and quality of life. Yet as we have seen, our city faces the real possibility of being brought to its knees each



Tony Parrott
MSD Executive
Director

time storm clouds form overhead. Flooded roadways, destroyed homes, and raw sewage overflows remind us that our ability to transform is constrained by the aging system that sustains us.

What value do we as a community place on the public health and safety of families, homes, and businesses across the Louisville area?

Louisville is served by an aging system built to support a community much smaller than our current metropolitan region and economic center. Sewer lines that pre-date the Civil War serve some of our most populous areas. Construction on much of the 29-mile flood protection system that keeps the Ohio River at bay began while Harry S. Truman was President. Our aging system is strained by the increased frequency of extreme storms, and has endured 11 of these events in the past 10 years.

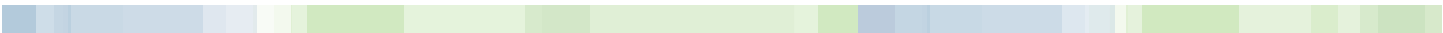
Funding limitations have forced a “band-aid” approach to system repairs rather than permanent fixes. MSD revenue—which is tied

to the amount of customer water consumption—is not keeping pace with our growing community. During the past three decades, the MSD customer base has increased by almost 50 percent while total community water consumption has remained generally flat.

The federally mandated Consent Decree required an \$850 million investment to eliminate raw sewage from entering our waterways. A recent independent third-party review found that MSD has executed the 10 year-old Consent Decree program on time and under budget since its launch in 2005. However, dedicating funding for this initiative has led to deferred maintenance/ replacement of vital infrastructure.

As committed guardians of the community’s wastewater, stormwater and flood protection systems, we have prepared a data-driven comprehensive Facility Plan assessing the condition of these systems and the cost to fund vital repairs.

The continued transformation of our community is dependent on properly functioning sewer, drainage and flood protection systems. We invite you to join us in the coming year for this critical community dialogue.



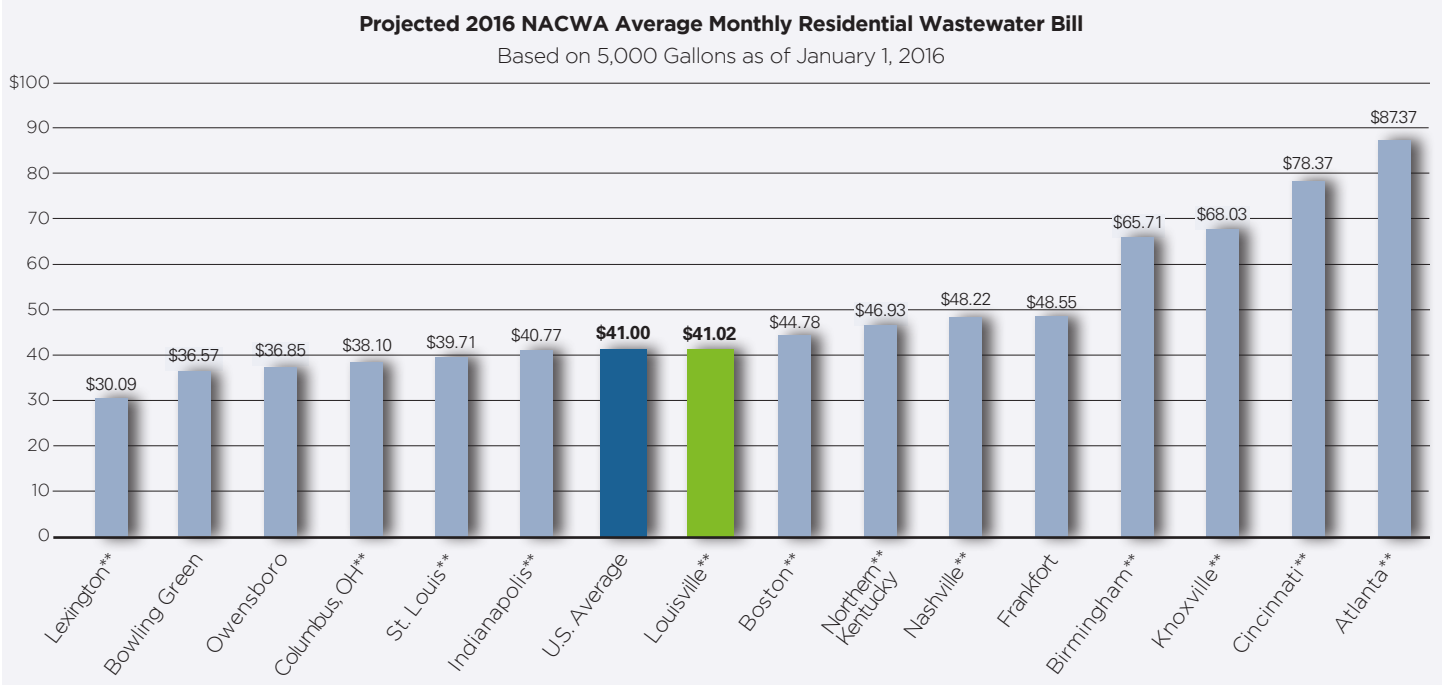
MSD Board endorses rate increase

The MSD Board has approved a rate increase of 6.9 percent for MSD customers for wastewater, drainage and Environmental Protection Agency (EPA) surcharge fees on all bills to take effect **August 1, 2016**. The **average** monthly residential wastewater bill (based on 5,000 gallons per month) issued on or after August 1, 2016, will reflect an **increase of \$2.82—from \$41.02 to \$43.84**. Monthly stormwater drainage fees will **increase by 56 cents—from \$8.10 to \$8.66**.

MSD will continue to offer a 30 percent discount on the surcharge and wastewater charges to qualified senior citizens.*

Wastewater

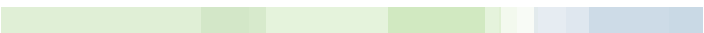
5,000 gallons x \$3.76 (Wastewater rate is \$3.76 per 1,000 gallons)	= \$ 18.80
Monthly service charge	= \$ 13.78
Monthly EPA Consent Decree Surcharge	= \$ 11.26
<hr/>	
Total as of August 1, 2016	\$43.84



Based on information collected as of January 1, 2016, by the National Association of Clean Water Agencies (NACWA), MSD’s wastewater bill of \$41.02 is \$0.02 higher than the national average. Nationally, the average wastewater bill will increase an estimated 5 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, LouisvilleMSD.org, or by calling Customer Relations at 502-587-0603.

** Cities with consent decrees





Splashing in the rain is fun...

but what you don't see could harm you!

Those waters could contain harmful bacteria, which can make you sick.

Rainwater runoff can overwhelm the sanitary sewer system and back up into roadways and streams when it rains. You should minimize contact with waterways to be safe during storms and even for 48 hours after the rain has ended. During these times, avoid swimming, fishing, wading and splashing in the water.

MSD has made significant progress in decreasing sewer overflows into our waterways, but there is more work to be done. Please follow the instructions that are posted on our overflow advisory signs. Wash with warm, soapy water if you come into contact with water that may have been contaminated by a sewage overflow.



MSDProjectWIN.org

'Flushable' wipes... are more expensive than you think

**Avoid a potential backup
in your home by tossing wipes
into the trash.**



Wipes do not break down quickly, even if their labels read "flushable." They can cause problems for home plumbing systems and lead to sewer backups. Wipes also clog and damage sewer line pumps, screens and other mechanical parts at water quality treatment centers. Please toss your wipes into the trash—not into your toilet.



Stopping the rain is impossible...

Protect yourself with flood insurance

To find out if a property is located in a floodplain, visit <http://apps.lojic.org/msdflooddetermination/>.

MSD has earned Louisville Metro a Class 3 status—allowing our residents to automatically receive a 35 percent discount on flood insurance premiums* through the National Flood Insurance Program's Community Rating System.

If you live in a flood-prone area:

- Store important items in airtight containers, place on upper shelves
- Develop an evacuation plan
- Turn off all gas and electric connections if you can **without** wading into water
- Move vehicles to higher ground
- Don't drive or walk into standing water during heavy rains
- If you must evacuate, don't forget prescription medicines and pets

For more information contact MSD Customer Relations at **502-587-0603** or **CustomerRelations@LouisvilleMSD**.



24/7/365

502.587.0603 · CustomerRelations@LouisvilleMSD.org
700 West Liberty Street
Louisville, KY 40203-1911

 @LouisvilleMSD

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(252,000) 07-2016

*Effective October 2015



Splashing in the rain is fun... but what you don't see could harm you!

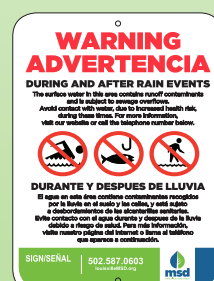


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You can help improve our waterways

What we do on the land affects our waterways.

Rainwater flows over rooftops, lawns, parking lots and roadways as it travels to storm drains and ditches. This water accumulates pollutants along its journey—such as lawn chemicals, oil, litter and pet waste—which flow directly to our waterways.

Help Improve our waterways by:



Compost grass clippings, and decrease use of fertilizer and pesticides.

Wash your car on the grass, and check your vehicle for fluid leaks.



Delay using washing machines and dishwashers during peak rain events—they can fill up the sanitary sewers and contribute to sewer overflows.

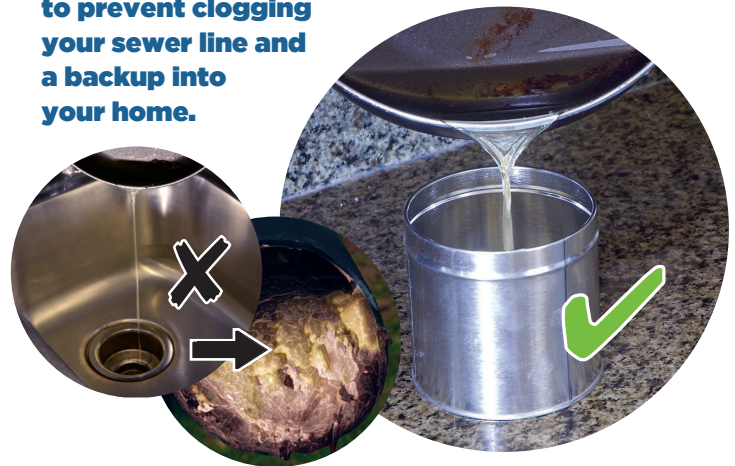


Keep storm drains and ditches free of litter.

Put pet waste in the trash.



Dispose of fats, oils, grease and food scraps in the trash to prevent clogging your sewer line and a backup into your home.



'Flushable' wipes ... are more expensive than you think



Avoid a potential backup in your home by tossing wipes into the trash.

Wipes do not break down quickly, even if their labels read "flushable." They can cause problems for home plumbing systems and lead to sewer backups. Wipes also clog and damage sewer line pumps, screens and other mechanical parts at water quality treatment centers.

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Appendix G Organizational Chart



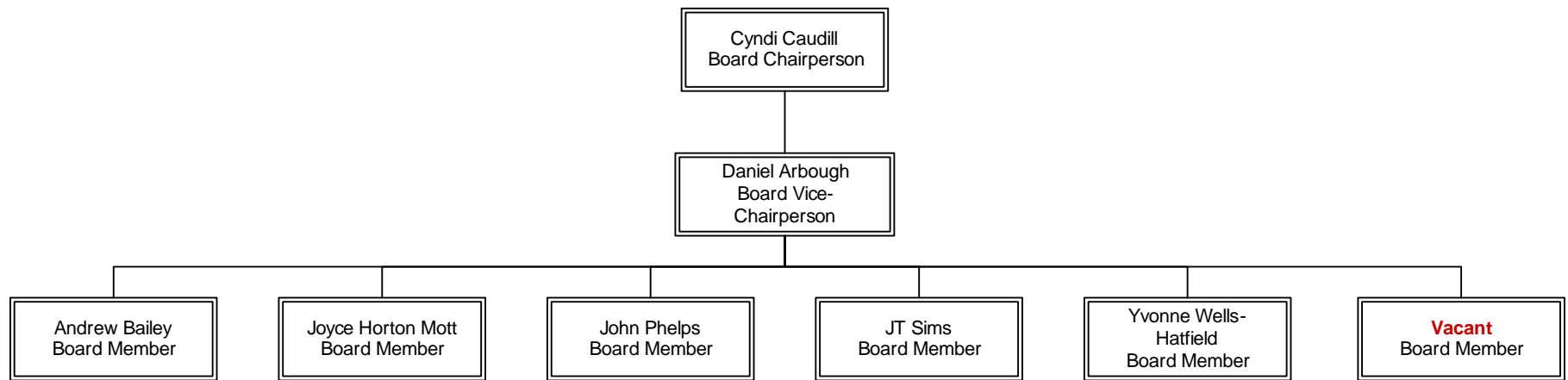
Louisville and Jefferson County Metropolitan Sewer District

Organizational Chart
Effective 07/05/16

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	6	6	0	0	5	1	0	0
Customer Relations	21	19	2	0	4	17	0	0
Facilities, Safety & Security	14	7	7	0	7	7	0	0
Legal Division	9	6	3	0	7	2	0	0
Human Resources Division	16	14	2	0	11	5	0	0
Information Technology Division	33	29	4	0	28	5	0	0
Finance Division	34	24	10	0	15	19	0	0
Engineering Division								
Engineering Admin, Regulatory & GIS	19.5	16	3.5	0	11	8.5	0	0
Engineering Technical Services	37	26	11	0	28	9	0	0
Development & Stormwater Services	43.5	41	2.5	0	19	24.5	0	0
Operations Division								
Administration	2	2	0	0	1	1	0	0
Treatment Facilities	87	83	4	0	18	15	54	0
Treatment Facilities (Maintenance)	38	33	5	0	5	0	33	0
Collections System	86	77	9	0	13	22	51	0
Collections System (Sanitary)	72	68	4	0	8	2	62	0
Drainage and Flood Protection	98	94	4	0	10	4	84	0
Support Services	51	51	0	0	9	26	16	0
Performance Metrics	14	10	4	0	6	8	0	0
DISTRICT TOTAL	681	606	75	0	205	176	300	0

Board Members

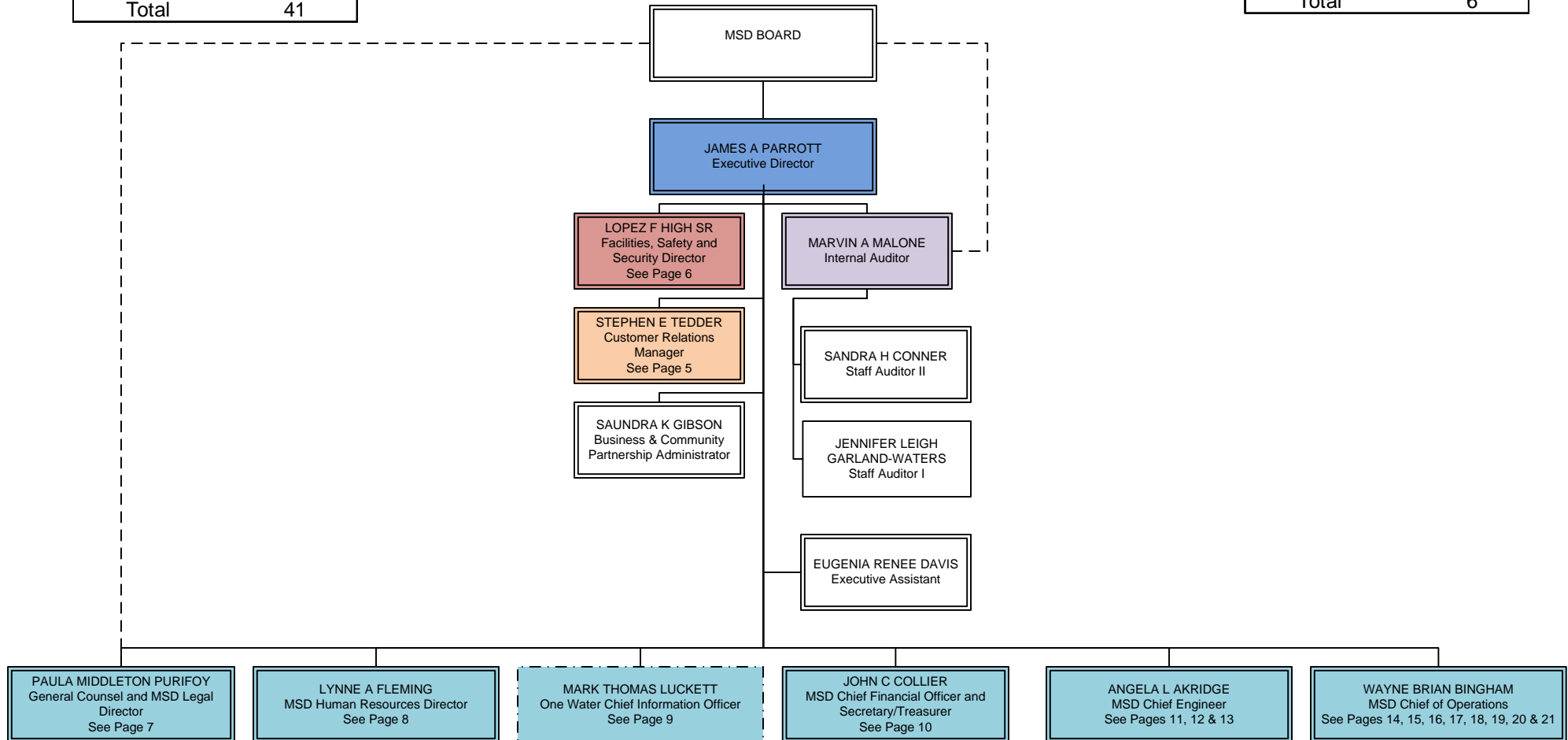


Executive Offices Division

Executive Offices

DIVISION BUDGET STATUS	
Actual	32
Vacant	<u>9</u>
Authorized	41
■ Exempt	16
— Non-Exempt	25
Unit	<u>0</u>
Total	41

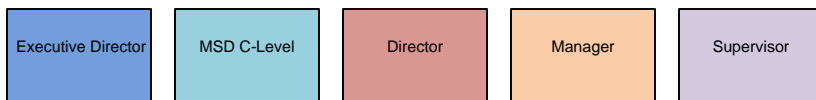
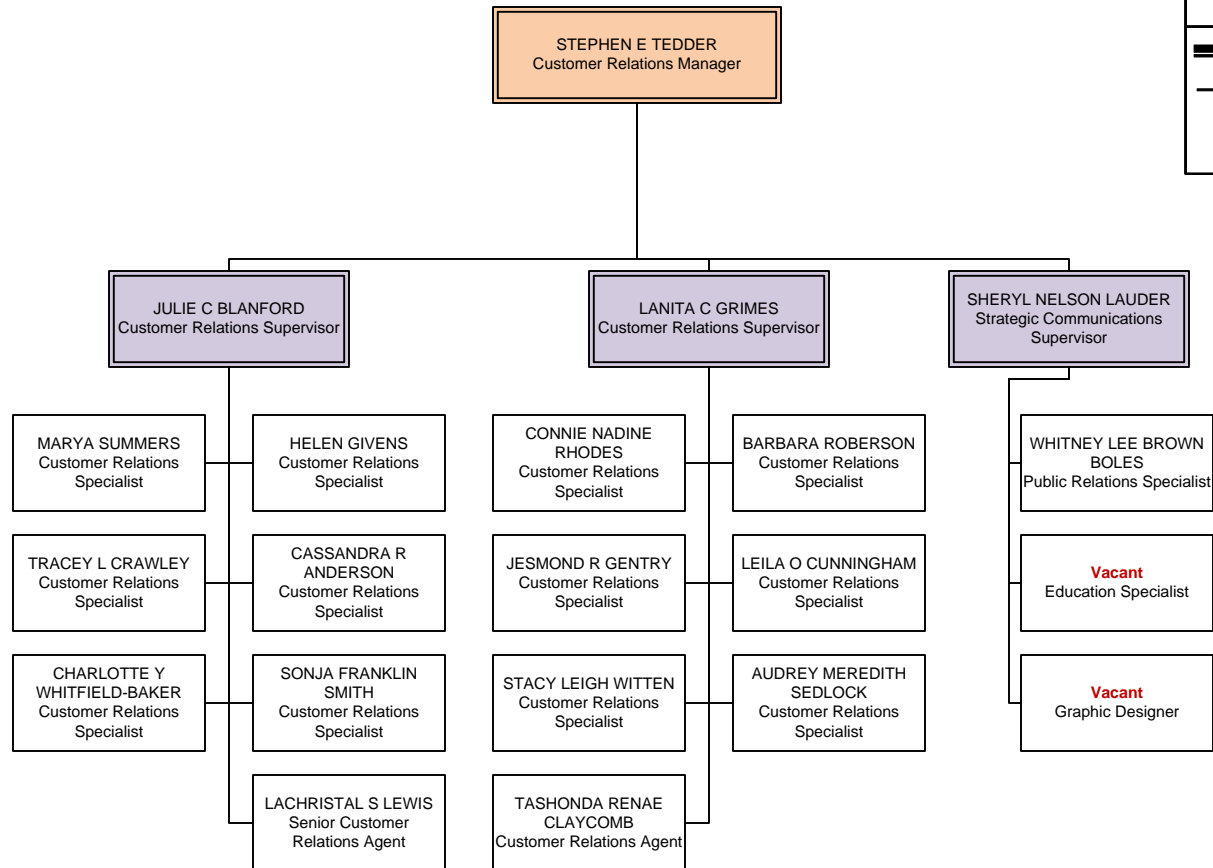
BUDGET STATUS	
Actual	6
Vacant	<u>0</u>
Authorized	6
■ Exempt	5
— Non-Exempt	1
Unit	<u>0</u>
Total	6



Executive Offices Division

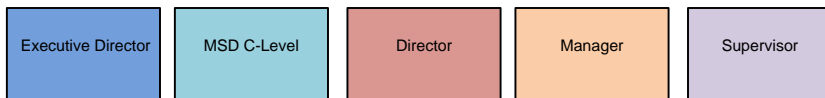
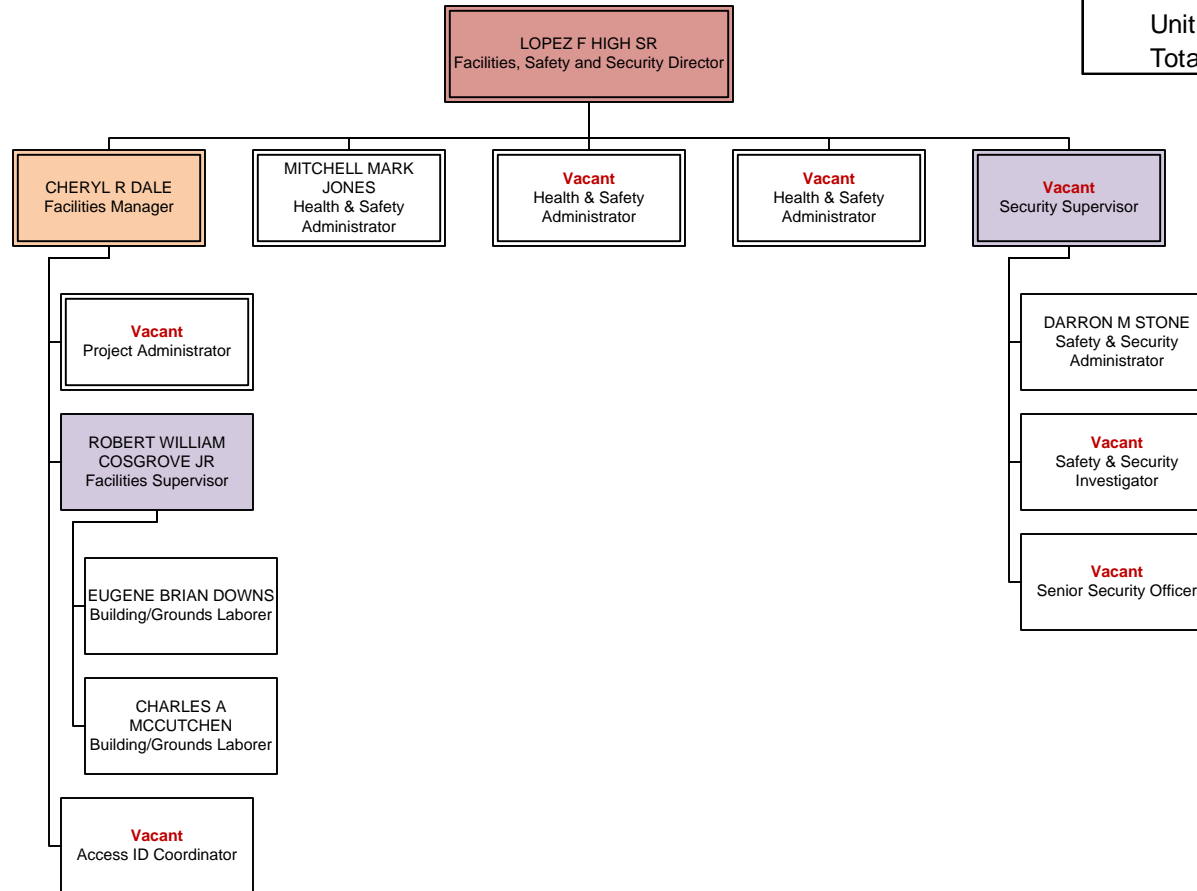
Customer Relations

BUDGET STATUS	
Actual	19
Vacant	<u>2</u>
Authorized	21
Exempt	4
Non-Exempt	17
Unit	<u>0</u>
Total	21





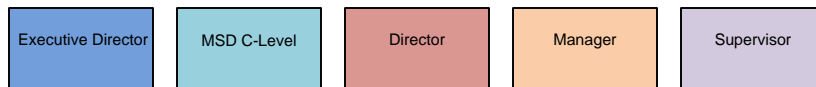
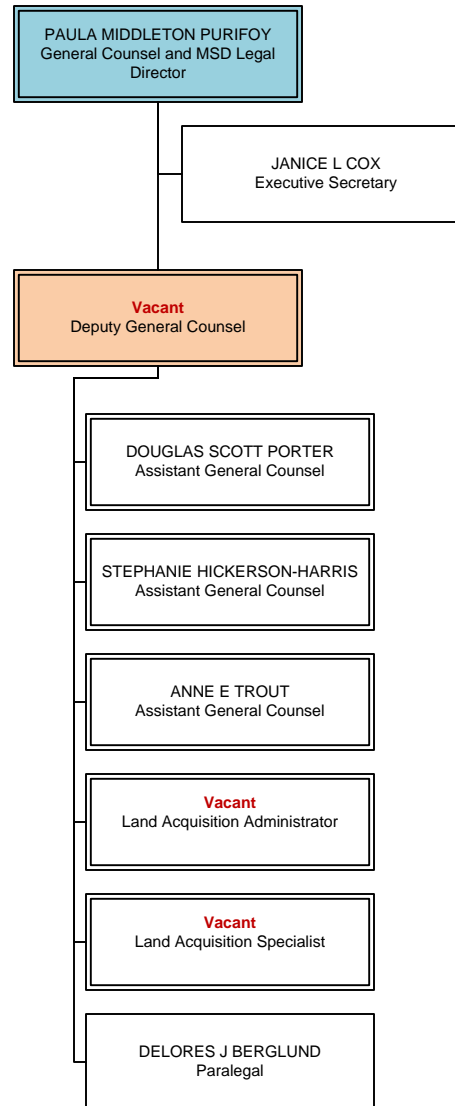
Facilities, Safety & Security

BUDGET STATUS	
Actual	7.0
Vacant	<u>7.0</u>
Authorized	14.0
<hr/>	
Exempt	7.0
Non-Exempt	7.0
Unit	<u>0.0</u>
Total	14.0



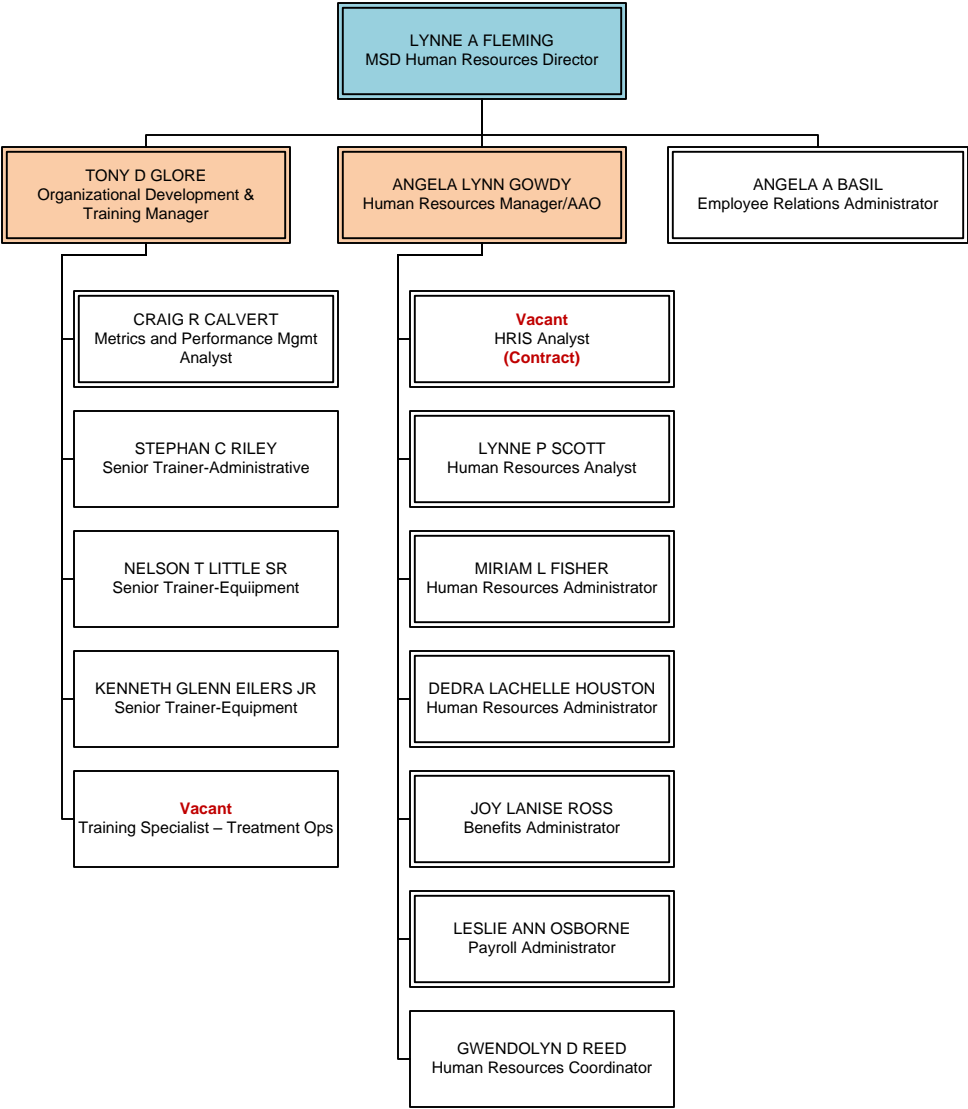
Legal Division

BUDGET STATUS		
Actual		6
Vacant	<u>3</u>	
Authorized		9
 Exempt		7
 Non-Exempt		2
Unit	<u>0</u>	
Total		9

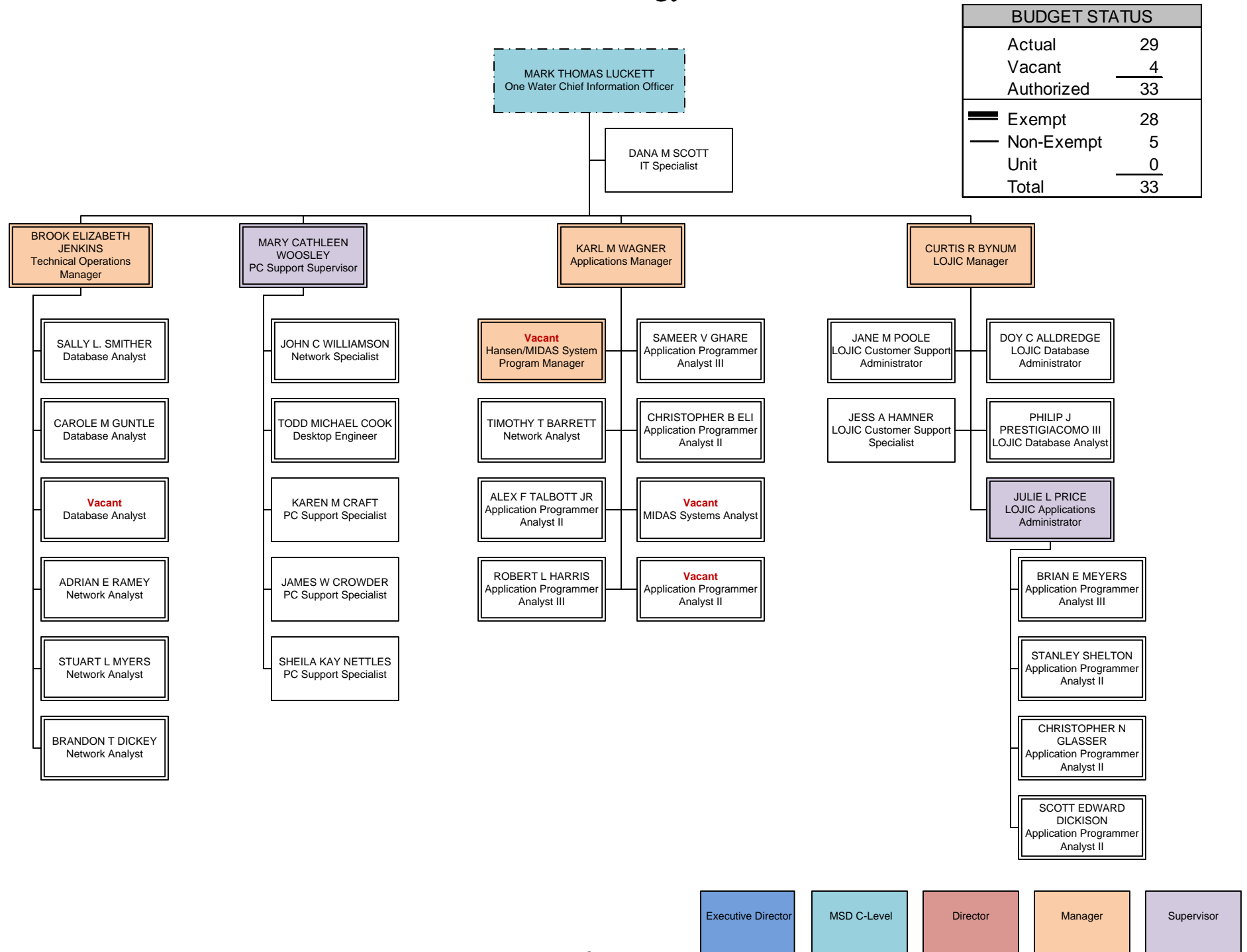


Human Resources Division

BUDGET STATUS	
Actual	14.0
Vacant	<u>2.0</u>
Authorized	16.0
■ Exempt	11.0
— Non-Exempt	5.0
Unit	<u>0.0</u>
Total	16.0

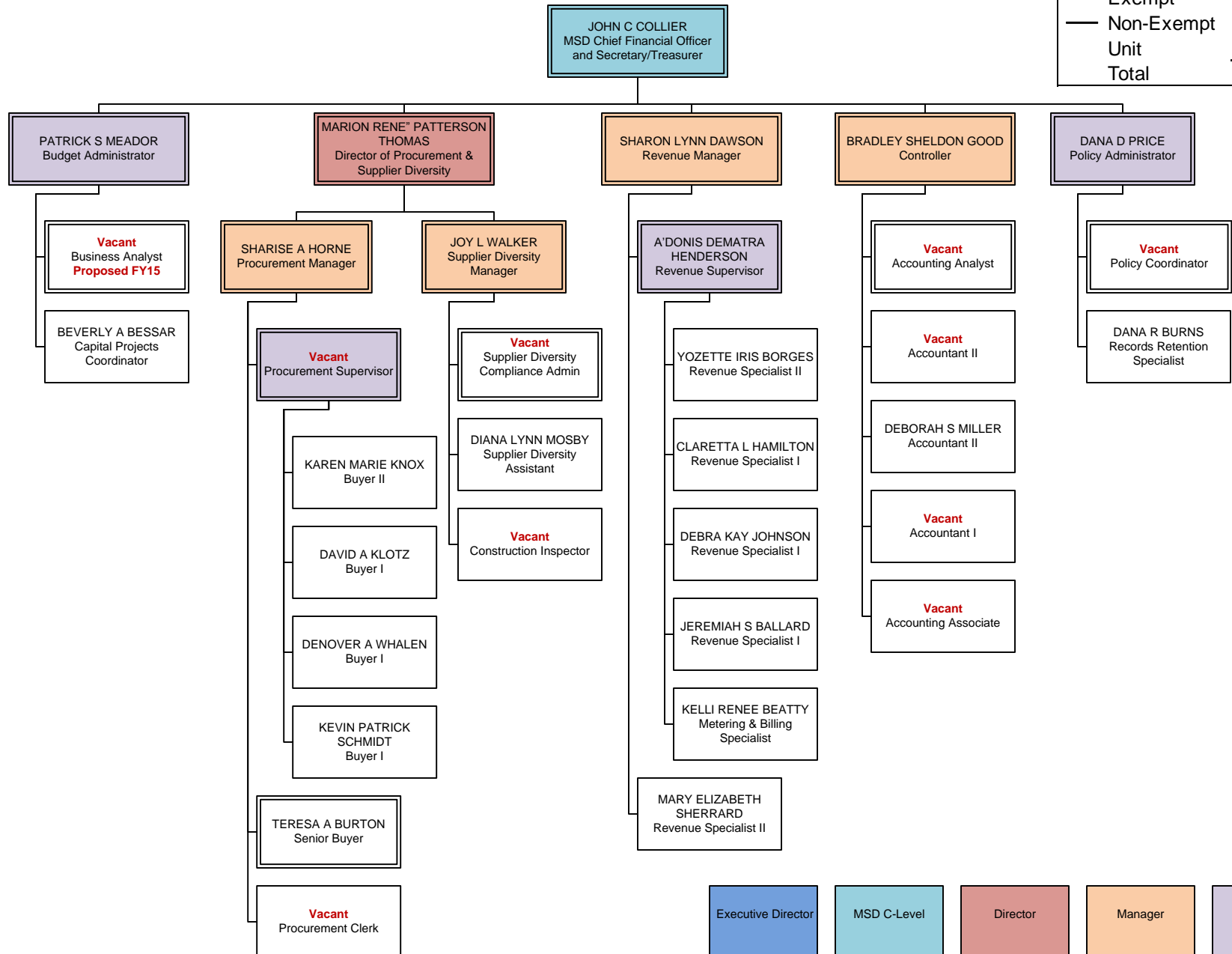


Information Technology Division



Finance Division

BUDGET STATUS	
Actual	24
Vacant	10
Authorized	34
Exempt	15
Non-Exempt	19
Unit	0
Total	34

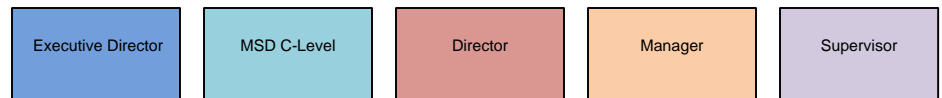
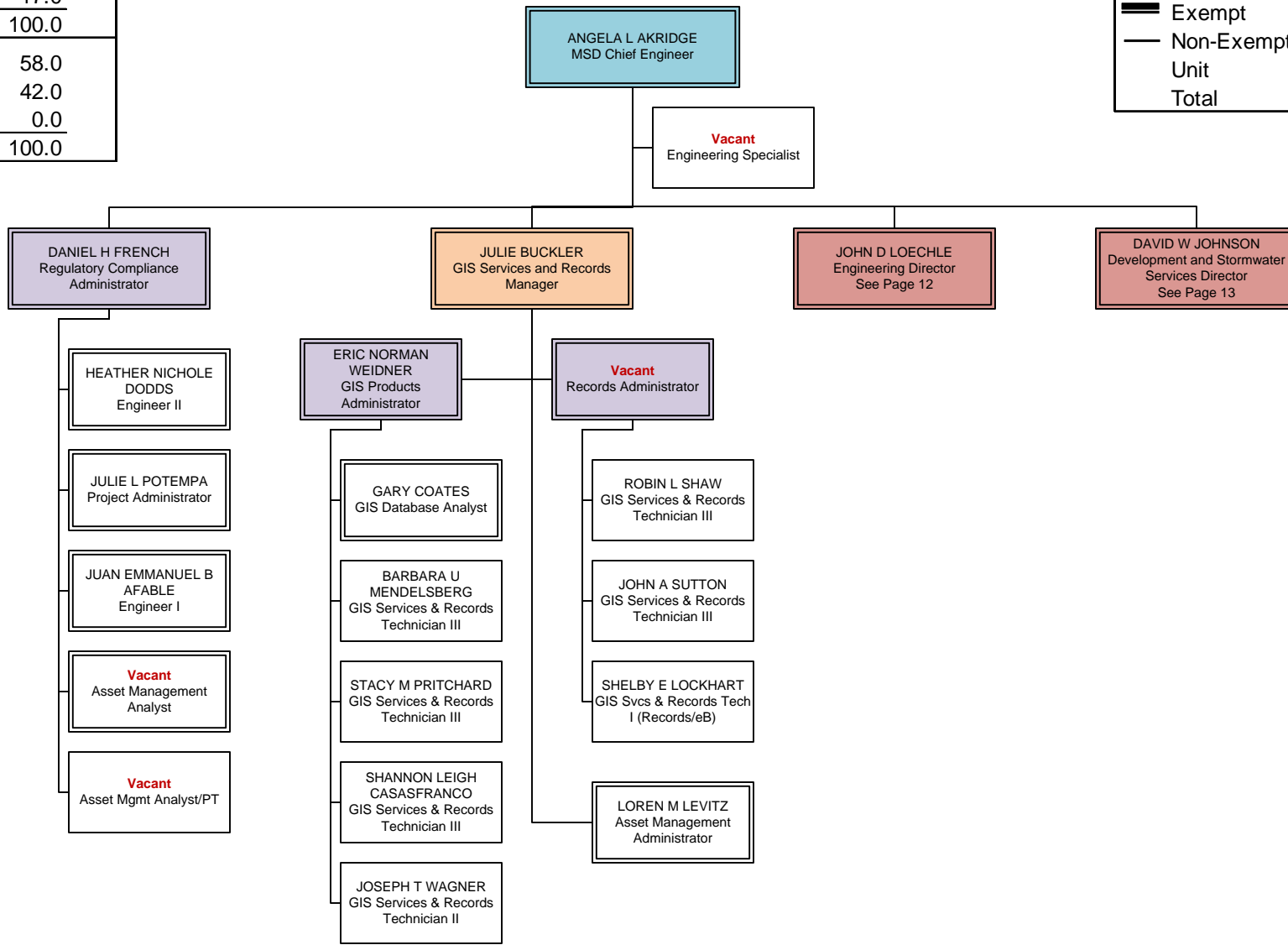


Engineering Division

Engineering Admin, Regulatory and GIS

DIVISION BUDGET STATUS	
Actual	83.0
Vacant	<u>17.0</u>
Authorized	100.0
■ Exempt	58.0
— Non-Exempt	42.0
Unit	<u>0.0</u>
Total	100.0

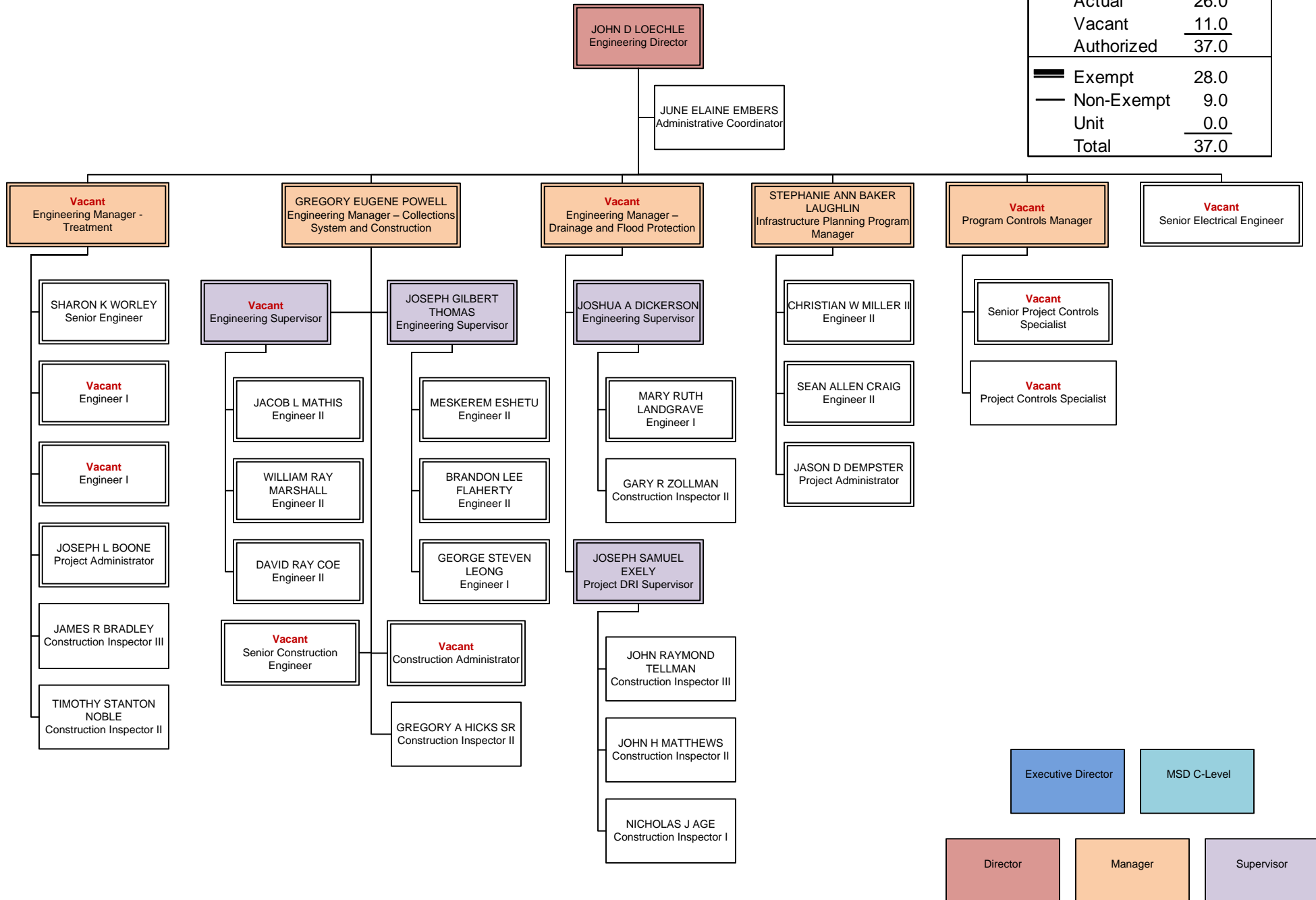
BUDGET STATUS	
Actual	16.0
Vacant	<u>3.5</u>
Authorized	19.5
■ Exempt	11.0
— Non-Exempt	8.5
Unit	<u>0.0</u>
Total	19.5



Engineering Division

Engineering Technical Services

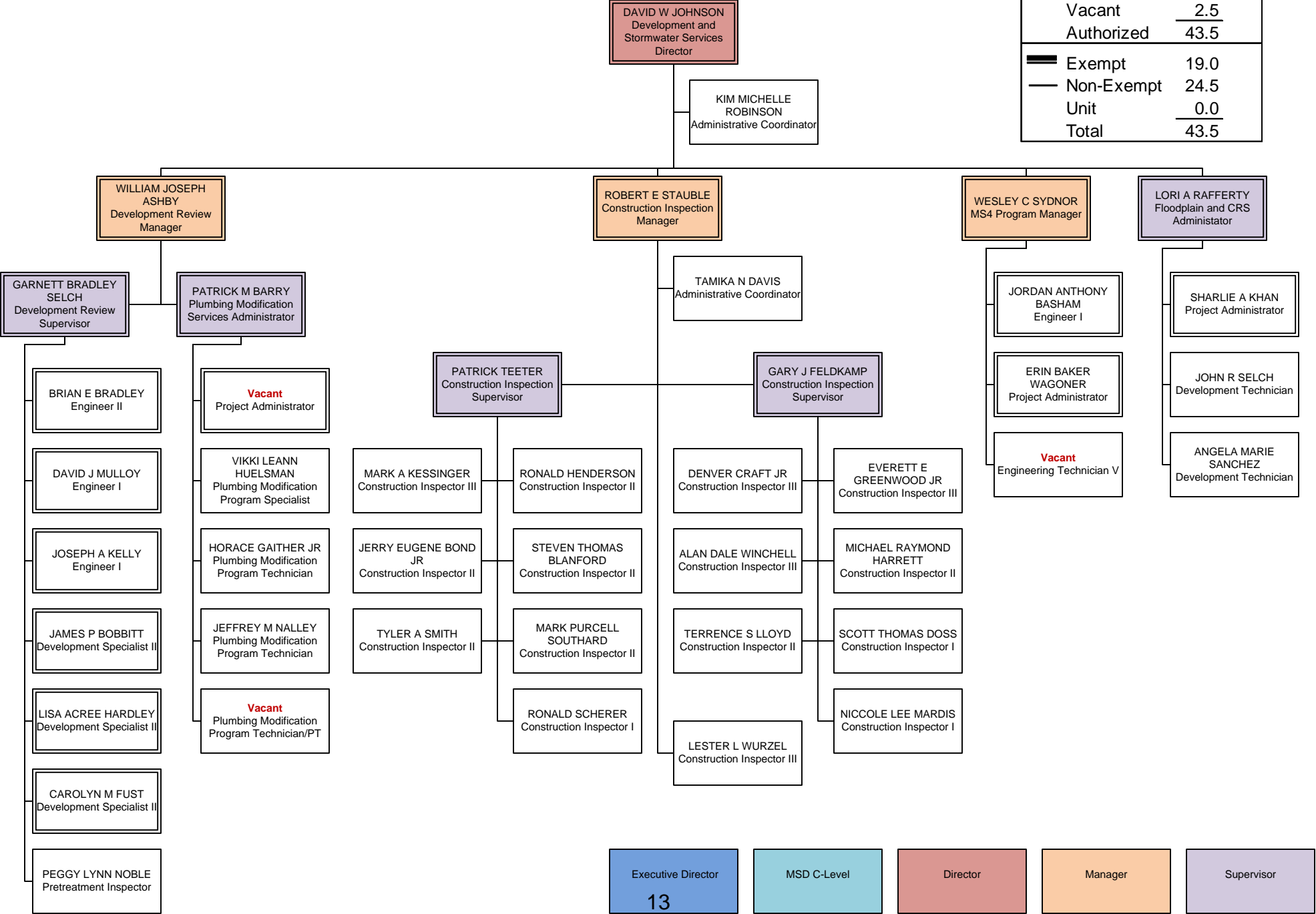
BUDGET STATUS	
Actual	26.0
Vacant	11.0
Authorized	37.0
<hr/>	
Exempt	28.0
Non-Exempt	9.0
Unit	0.0
Total	37.0



Engineering Division

Development & Stormwater Svcs

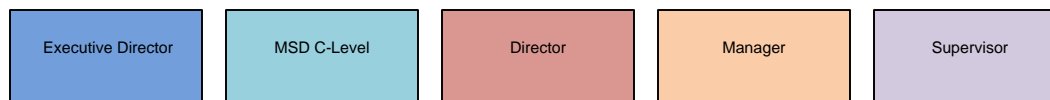
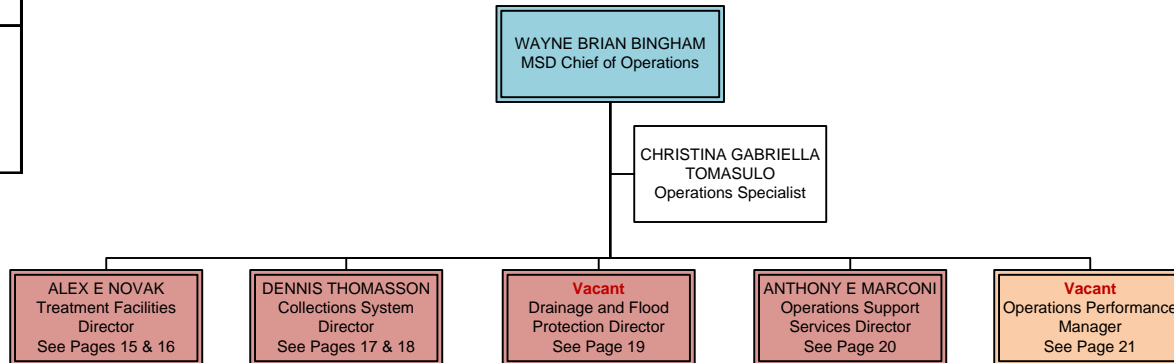
BUDGET STATUS	
Actual	41.0
Vacant	2.5
Authorized	43.5
<hr/>	
Exempt	19.0
Non-Exempt	24.5
Unit	0.0
Total	43.5



Operations Division Administration

DIVISION BUDGET STATUS	
Actual	418
Vacant	<u>30</u>
Authorized	448
█ Exempt	70
— Non-Exempt	78
Unit	<u>300</u>
Total	448

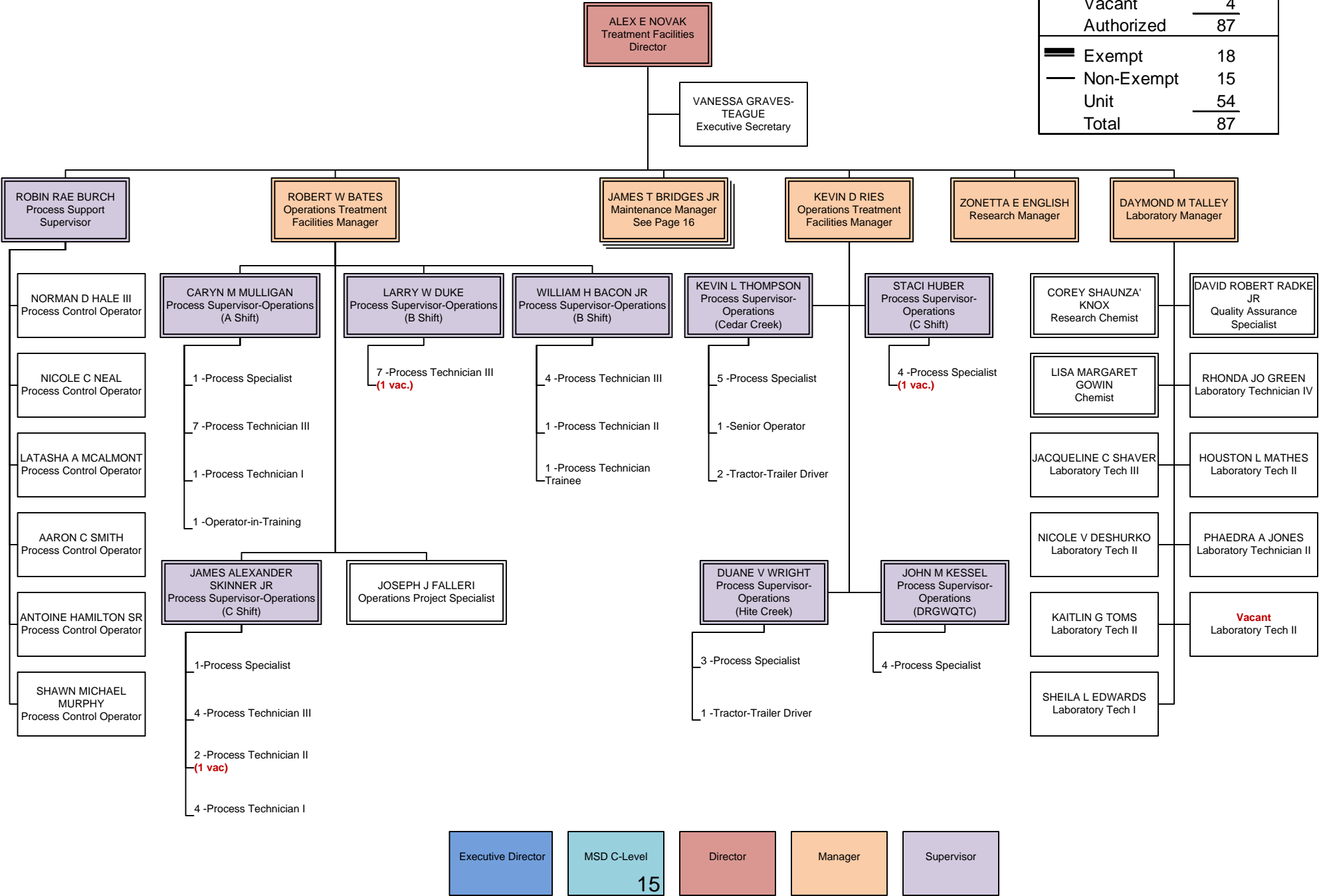
BUDGET STATUS	
Actual	2
Vacant	<u>0</u>
Authorized	2
█ Exempt	1
— Non-Exempt	1
Unit	<u>0</u>
Total	2



Operations Division

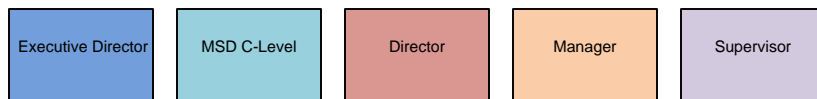
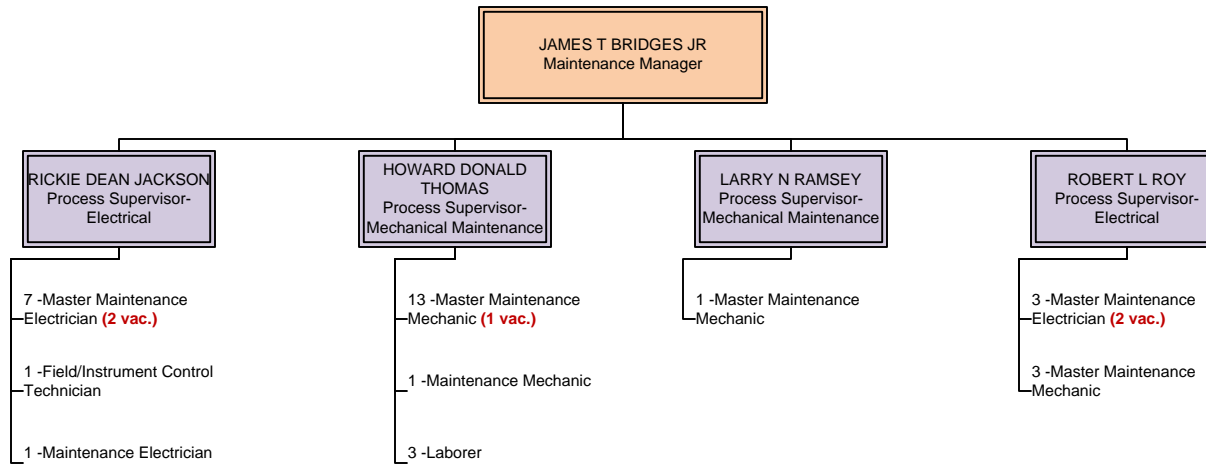
Treatment Facilities

BUDGET STATUS	
Actual	83
Vacant	4
Authorized	87
<hr/>	
Exempt	18
Non-Exempt	15
Unit	54
Total	87



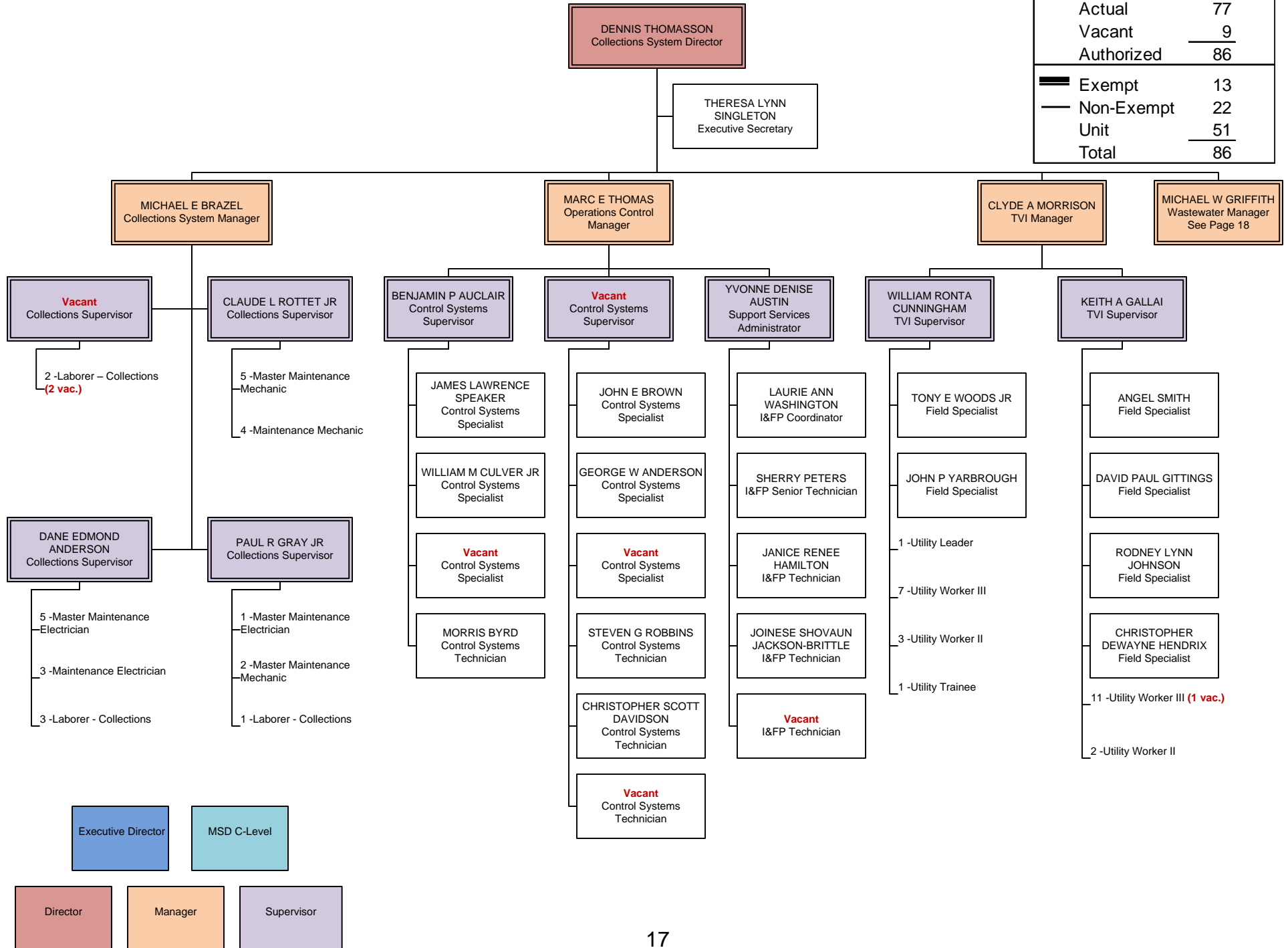
Operations Division Treatment Facilities (Maintenance)

BUDGET STATUS	
Actual	33
Vacant	5
Authorized	38
<hr/>	
Exempt	5
Non-Exempt	0
Unit	33
Total	38



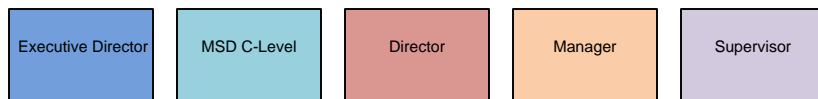
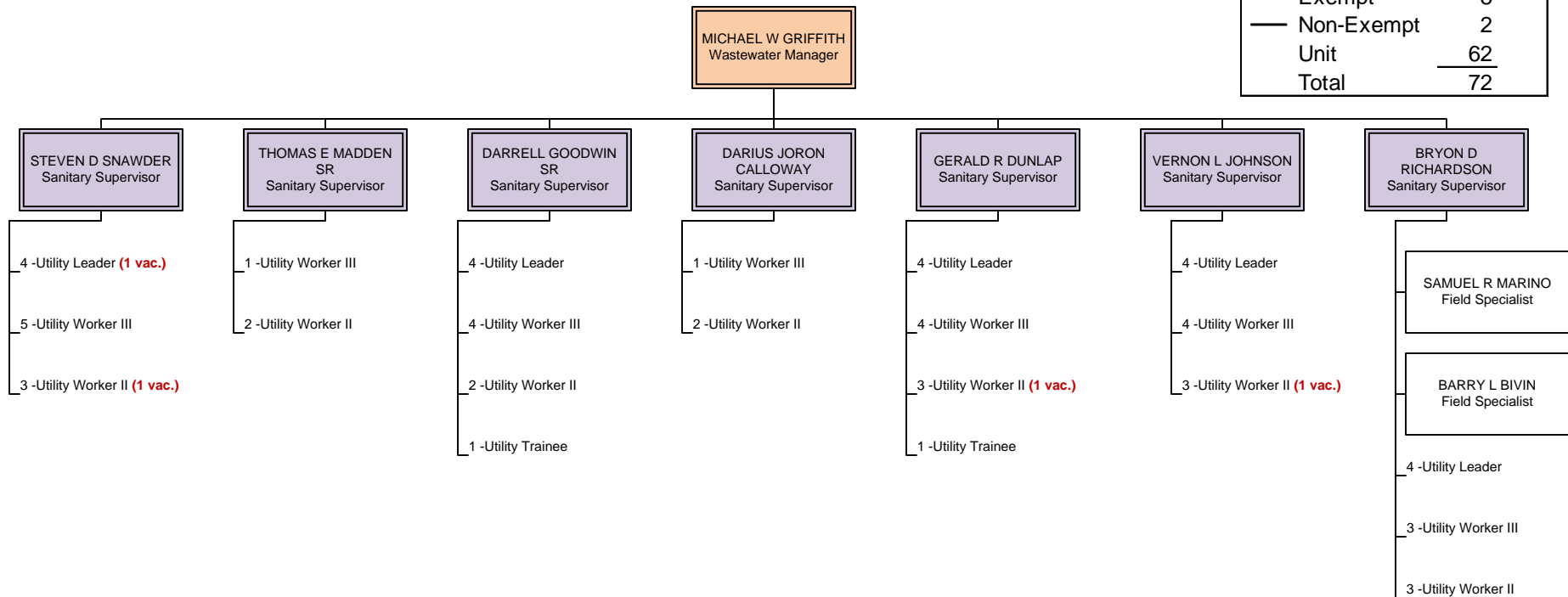
Operations Division Collections System

BUDGET STATUS	
Actual	77
Vacant	9
Authorized	86
Exempt	13
Non-Exempt	22
Unit	51
Total	86



Operations Division Collections System (Sanitary)

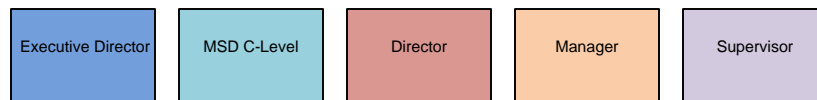
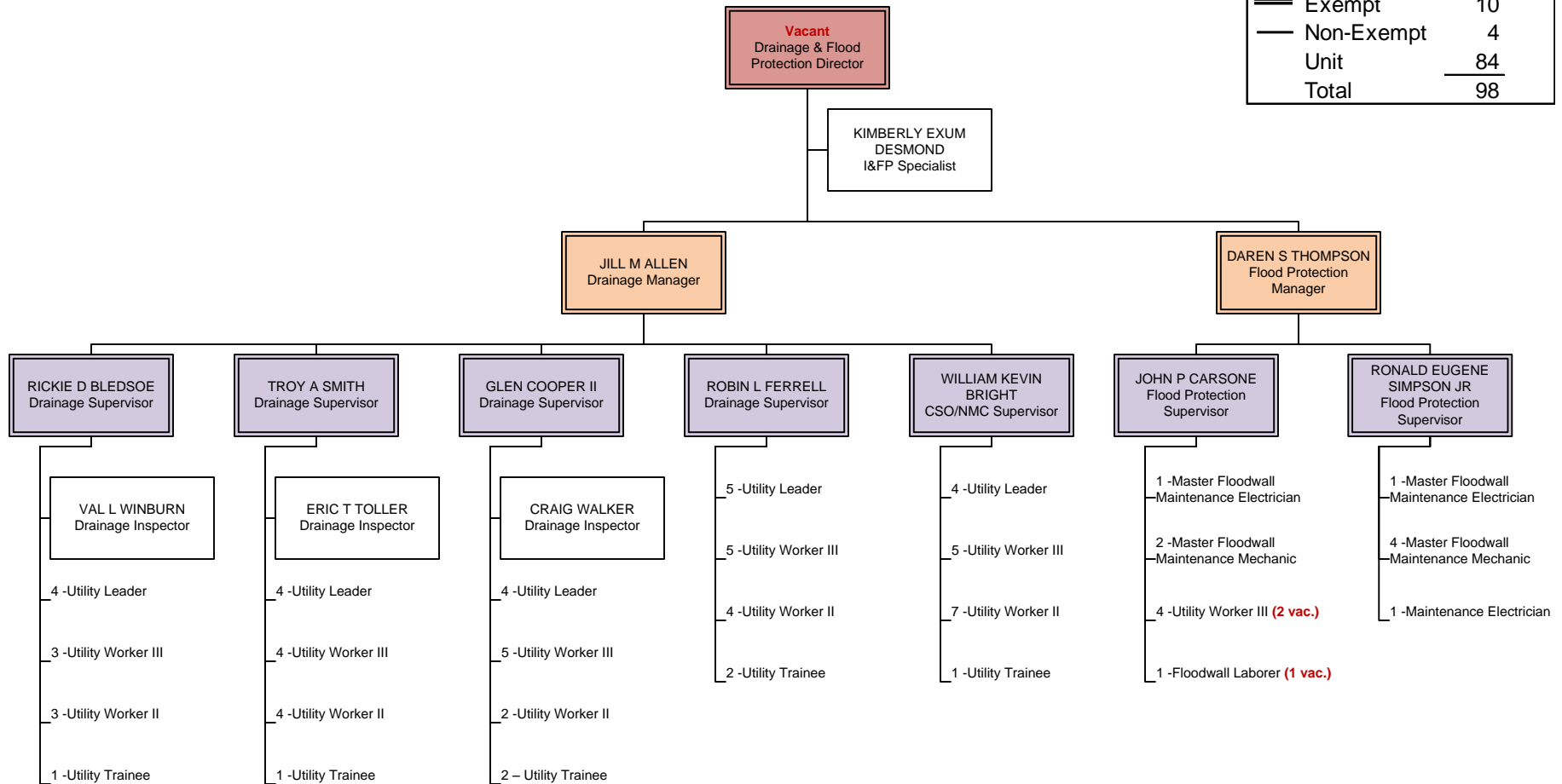
BUDGET STATUS	
Actual	68
Vacant	4
Authorized	72
<hr/>	
Exempt	8
Non-Exempt	2
Unit	62
Total	72



Operations Division

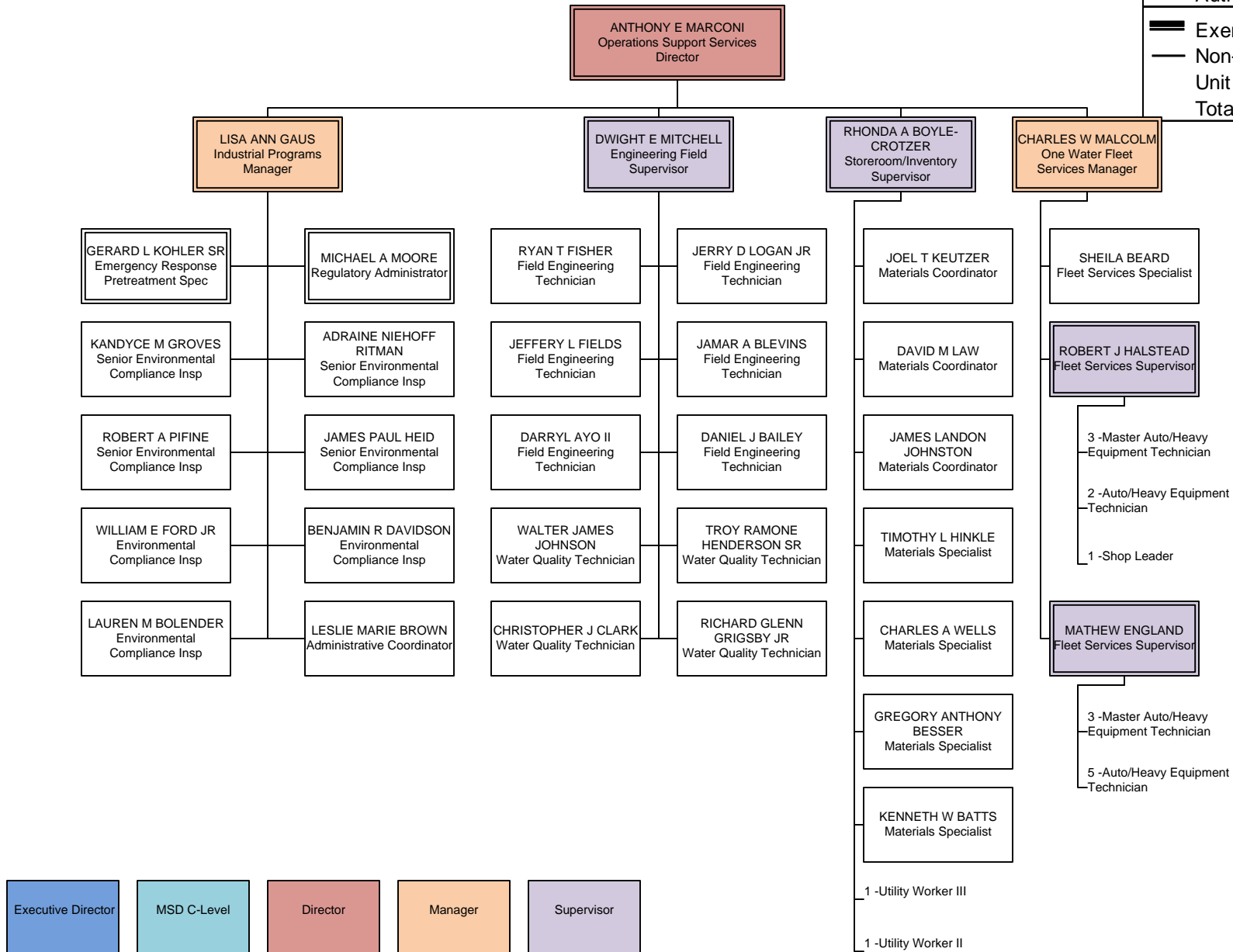
Drainage and Flood Protection

BUDGET STATUS	
Actual	94
Vacant	4
Authorized	98
<hr/>	
■ Exempt	10
— Non-Exempt	4
Unit	84
Total	98



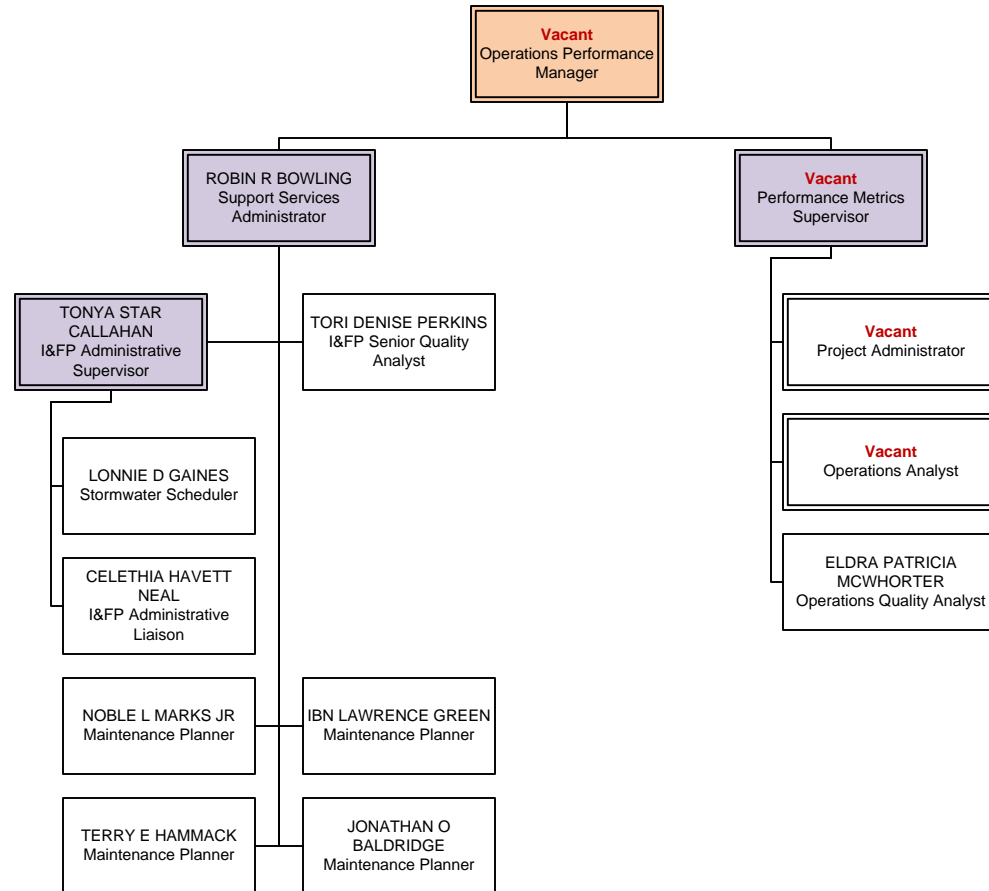
Operations Division Support Services

BUDGET STATUS	
Actual	51
Vacant	0
Authorized	51
<hr/>	
Exempt	9
Non-Exempt	26
Unit	16
Total	51



Operations Division

Performance Metrics



BUDGET STATUS	
Actual	10
Vacant	4
Authorized	14
<hr/>	
Exempt	6
Non-Exempt	8
Unit	0
Total	14

