

Louisville and Jefferson County Wet Weather Consent Decree Quarterly Report #47



Reporting Period:

April 1, 2017 through June 30, 2017

Submitted To:

Kentucky Department of Environmental Protection
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Submitted By:

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

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INTRODUCTION

The Louisville and Jefferson County Metropolitan Sewer District (MSD) is currently under an Amended Consent Decree with the Kentucky Department of Environmental Protection (KDEP), the United States Environmental Protection Agency (EPA), and the United States Department of Justice. 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.

Quarterly Reporting Period

This is the forty-seventh Quarterly Report submitted in accordance with Paragraph 29 of the Amended Consent Decree. This report covers the time period from April 1, 2017, through June 30, 2017. The structure for this report is outlined as follows:

Section 1: Program Activities for Nine Minimum Controls (NMC) – This section describes the data collected for NMC 2 – Maximization of Storage in the Collection System, and NMC 4 – Maximization of Flow at the Morris Forman Water Quality Treatment Center (WQTC) that were active during the reporting period.

Section 2: Program Activities for Sewer Overflow Response Protocol (SORP) – This section describes the training attendance records, overflow data, and overflow reconnaissance inspection routes related to SORP that were active during the reporting period.

Section 3: Program Activities for Discharge Abatement Plans (DAP) – This section describes the schedule and status for projects related to the DAP by means of an updated Gantt chart for active DAP projects during the reporting period. This section also includes the anticipated projects and activities that are scheduled for continued compliance with the Amended Consent Decree.

Section 4: Program Activities for Public Outreach, Education, Notification and Participation – This section describes the activities related to public outreach that were active during the reporting period.

Section 5: Capacity Management Operations and Maintenance (CMOM) Report – The CMOM program activities and programmatic activities for WQTCs generating capital projects are reported in a Gantt chart for the reporting period. This section also includes the schedule for activities planned for the next reporting period are included in this section for continued compliance with the Amended Consent Decree.

Section 6: Project Waterway Improvements Now (WIN) Performance Overview – This section provides an accounting of unauthorized discharges from the separate sanitary and combined sewer systems, and the estimated volumes along with performance information on bypasses at WQTCs. A discussion of the probable reductions in both unauthorized discharge points and the discharges from MSD's Combined Sewer Overflow (CSO) locations, identified in the Morris Forman Water Quality Treatment Center Kentucky Pollutant Discharge Elimination System (KPDES) permit, that are expected to result from MSD's projects and activities during the reporting period are also contained in this section.

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SECTION 1: PROGRAM ACTIVITIES FOR NINE MINIMUM CONTROLS (NMC)

1.1. NINE MINIMUM CONTROLS PROGRAM BACKGROUND

Per Paragraph 24.a. of the Amended Consent Decree, the Nine Minimum Controls (NMC) Compliance Report was initially submitted to EPA and KDEP on February 10, 2006. MSD received approval of the report on February 22, 2007. The approved NMC compliance document can be viewed on the MSD Project Waterway Improvements Now (WIN) website, available at www.msdpowerwin.org. Highlights of the NMC program implementation over this reporting period are outlined below.

1.2. NMC 2: MAXIMIZATION OF STORAGE IN THE COLLECTION SYSTEM

MSD has continued operation of Phase 1 and Phase 2 of the Real Time Control (RTC) system. During this reporting period, approximately 290 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 1.1 at the end of this section for a detailed report.

The following identifies on-going activities; those completed during the current period (April – June, 2017); and those anticipated to be completed during the next period (July – September, 2017):

- RTC Integration – MSD and the RTC consultant continue to implement the Wet Weather Standard Operating Procedures (SOP) incrementally, starting with a period of manual operation to validate the control assumptions, 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.

During this reporting period, the new RTC servers were setup and deployment of the latest version of Csoft utilizing the Infoworks Integrated Catchment Model (ICM) RTC model was completed. Testing of the software was initiated including running of the Infoworks ICM RTC hydraulic model, Csoft, and Gorubi software. MSD began testing the data scripting and transfer process utilizing the iFix software to transfer field data collected at local stations to the RTC system. Based on results from testing the Infoworks ICM RTC model and the optimization software, MSD and the RTC consultant established key parameters for operation of the system including the length of the control horizon and the time step utilized for optimization.

Staff completed the development of the RTC process layer controls and SOPs for the Bells Lane Wet Weather Treatment Facility, including the Southwestern Pump Station, the High-Rate Treatment Basin, and the flow equalization basin; Logan and Breckinridge CSO Basin and CSO interceptor; and upgraded Nightingale Pump Station facilities. The SOPs have been integrated into the master RTC SOP document.

MSD anticipates completing testing of the data script transfer process utilizing iFix and Process Control Network testing to ensure proper field communications and commissioning readiness as well as beginning on-line testing for the phase 1 and 2 facilities during the third quarter of 2017. The

revised SOPs will be implemented after the Csoft and InfoWorks ICM RTC hydraulic model is completely integrated and as new and upgraded facilities are brought into service. MSD will initiate updates to the master RTC SOP for FY18 including the finalization of draft SOPs as new and upgraded facilities are brought on line and commissioned into the RTC network. Additionally, draft SOPs will be developed for the Southwestern Parkway and Clifton Heights CSO storage basins.

- RTC Performance Assessment and Improvements – The main objective of the RTC Performance Assessment is to determine whether the available flow and storage capacities within the system are being utilized to their full potential. MSD staff continues to review and prioritize strategies for performance improvement. During the next reporting period, MSD staff and the RTC consultant will continue working to implement hardware, software and set-point changes as applicable on a site-by-site basis.

During this period, two initiatives at the Southwestern Outfall Retention Phase 2 (SWOR2) site, including a simplified human-machine interface (HMI) program and adjustment to position and flow deadband parameters aimed at reducing the number of gate movements and improving site performance, remained on hold until downstream improvements at the SWPS are completed and the need can be fully assessed. The SWOR2 backup generator installation project continued to move forward.

MSD completed the preliminary evaluation of potential equipment upgrades and site improvements at the Sneads Branch facility. Based on the preliminary design report, MSD identified an option to eliminate the Sneads Branch pumping facility by installing an actuated gate that will enable transfer of stored volumes to existing infrastructure and utilization of the Logan CSO basin pumps for dewatering purposes.

The design for the Ashland Avenue gate structure upgrades was completed. The design includes replacing the single-gate system with a dual-gate, single-actuator system, installing new check valves to prevent backflow, and installing a backup generator.

During the next reporting period, MSD will initiate field survey and geotechnical exploration to verify the constructability of the proposed Sneads Branch modifications and expects to complete the installation of the SWOR2 backup generator.

- Southwest Sluice Gate / Southwestern Outfall Retention Phase 1 (SWSG/SWOR1) – A gate failure at the SWSG facility on April 1, 2016, has impacted the ability of the RTC system to fully utilize storage. The center gate (one of three) broke loose and is inoperable in the closed position. A hydraulic analysis indicates the two remaining gates are capable of handling most events; however, it is necessary to limit the maximum storage level to 10 feet to ensure safe operations and reduce risks for flooding and basement surcharging. Consequently, the available storage has been temporarily reduced from 14.5 MG to 2.2 MG.

This change has impacted the ability to dewater upstream storage including SWOR2, Brady Lake, Executive Inn, and Ashland Avenue as effectively. The dewatering of these facilities is dependent on the available downstream storage at SWSG. Therefore, dewatering of these sites may be delayed to allow wet weather flow rates to decrease sufficiently to allow the process to begin safely, stored volumes may be released more slowly to ensure available storage volumes are not exceeded, and the risk of required dewatering during periods of overflow at SWSG are increased as well. MSD has adjusted Csoft parameters to improve the Southwestern Outfall dewatering process and has made

temporary code revisions to the local programmable logic controller (PLC) to improve management during this period. Repairs and upgrades to the SWSG are in progress and anticipated to be completed in the upcoming reporting period. Once complete, MSD will begin a stepwise process of increasing the storage to the previous set-point levels. This process testing is weather-dependent due to the need for wet weather flows for testing, but is anticipated to begin by September 1, 2017 and take approximately two months to complete.

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

Plant Outages

The Morris Forman WQTC Headworks Replacement Project is nearing completion. The West Headworks was in service for the entire reporting period. Channels 3 and 4 in the East Headworks were put back into service with Channels 1 and 2 being taken out of service near the end of the reporting period for construction. The Final Effluent Pump Station (FEPS) was in service 28 days of the reporting period. Plant capacity was 185 MGD while FEPS was in service. Otherwise, plant capacity was 225 MGD. Flows at Morris Forman WQTC were sustained between 185 and 225 MGD as shown in Figures 1.2 through 1.4, depending on equipment in service, before allowing overflows at CSO211 due to rain events during the reporting period. MSD anticipates work in the East Headworks will obtain substantial completion during the next reporting period.

Morris Forman WQTC Projects

- Morris Forman WQTC Headworks Replacement – Major construction on the East and West Headworks is complete. Contractors will be finishing punch list items during the next reporting period.
- Morris Forman WQTC FEPS Generator – Generator installation is complete. Equipment and installation delays prevented electrical work from being completed during the reporting period. MSD anticipates all work to be complete by the end of the next reporting period.
- Morris Forman WQTC High Yard Modifications – Work on the north side is near completion with power being provided to the facility by the north side. Work on the south side will continue during the next reporting period.
- Morris Forman WQTC Centrifuge Electrical Controls – Construction continues on the project.
- Morris Forman WQTC Oxygen Generation Plants 1 and 2 Replacement – System installation is complete and has been providing 100% of the oxygen demand to the facility. Contractors will finish instrumentation and controls work during the next reporting period.

Morris Forman WQTC Performance

Figures 1.2 through 1.4 located at the end of this section illustrate performance in maximizing flow during wet weather to the Morris Forman WQTC. The top of the chart shows rainfall in inches per day. The middle part of the chart shows Morris Forman WQTC effluent flow and secondary treatment flow. The difference between these flows is the secondary bypass flow. The bottom of the chart shows days with a CSO activation at the five CSOs in the vicinity of the Morris Forman WQTC (CSOs 015, 016, 191, 210, and 211). Note that the flow meter downstream from CSO211 is known to be affected by Ohio River backwater effects and the ultrasonic

signal is sometimes blocked by mist and condensation when air and sewage temperatures are significantly different. Therefore, 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 CSO. 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 in Appendix B. There are occasions in which a communications failure with telemetry has led to short-term gaps in the data, as illustrated by the negative spikes in secondary flow shown on June 16, 2017, when the secondary bypass flow meter was taken out of service for repair. When FEPS is not in service, secondary flow is a direct measurement from the effluent flume; when FEPS is in service, the flow is calculated. During this time, FEPS was not in service, and the directly-measured flow was not available. In addition, indications of rainfall and CSO activations are shown on the day they happened, but are not aligned with the exact time, so the effluent flow graph (which is tied to actual time) may show peaks that are offset from the indicated rain or CSO events by as much as 24 hours.

For the month of March 2017, Morris Forman WQTC did not meet the Seven and 30 Day Secondary Effluent Total Suspended Solids (TSS) limits and the Seven and 30 Day Secondary Effluent Biochemical Oxygen Demand (BOD) limits. For the month of April 2017, Morris Forman WQTC did not meet the Seven and 30 Day Secondary Effluent TSS limits.

These permit issues can be attributed to ongoing capital construction involving process area shutdowns that impact plant performance at the Morris Forman WQTC. Compromised solids processing capability and a failing oxygen generation system contributed to the exceedances. Morris Forman WQTC continues to employ additional solids removal strategies to meet solids removal demands. The new oxygen generation system at Morris Forman went online during the month of May.

For May and June 2017, all effluent parameters were met.

1.4. NMC ACTIVITY SCHEDULE

NMC capital project milestones for the current reporting period as well as a look-ahead for the upcoming reporting period are provided in Figure 1.5.

Figure 1.1. 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 :	04/01/2017
To :	06/30/2017

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										
2017-020	4/3/17 19:45	4/4/17 7:40	11:55:00	0.28	0.68	TR15	1.60	0.65	0.35	1.15	0.15	3.30	0.00	7.20	No	Moderate storm cells homogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-023	4/11/17 6:50	4/11/17 23:10	16:20:00	0.52	0.75	TR15	2.25	0.90	0.90	1.90	0.30	4.10	0.00	10.35	No	Moderate storm cells homogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-024	4/16/17 5:05	4/18/17 4:35	47:30:00	1.49	2.16	TR15	6.95	5.15	6.95	5.70	0.85	6.95	1.80	34.35	No	Large back-to-back storm cells homogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-028	4/21/17 10:45	4/22/17 21:45	35:00:00	0.66	0.75	TR04	3.30	2.90	1.15	3.50	0.65	5.15	0.25	16.90	No	Moderate storm cells homogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-029	4/27/17 6:55	4/27/17 16:05	9:10:00	0.25	0.34	TR11	3.20	1.95	1.15	3.15	0.35	4.55	0.30	14.65	No	Moderate storm cells homogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-030	4/28/17 23:20	5/2/17 23:35	96:15:00	1.73	1.79	TR13	11.80	5.25	7.50	6.90	0.60	4.50	2.70	39.25	No	Large back-to-back storm cells homogeneously distributed over the service area (characteristic of a 2-year return period). The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-033	5/4/17 3:45	5/7/17 9:30	77:45:00	1.99	3.22	TR14	10.30	5.70	10.95	3.90	1.20	4.15	2.20	38.40	No	Large storm cells homogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2. SWOR2 was controlled manually in part.
2017-037	5/19/17 18:05	5/22/17 4:15	58:10:00	1.38	1.82	TR04	10.40	5.45	6.95	9.00	1.00	6.00	3.30	42.10	No	Large back-to-back storm cells homogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-038	5/24/17 10:15	5/27/17 2:10	63:55:00	0.81	1.18	TR15	6.70	3.10	2.50	3.75	0.85	4.00	0.55	21.45	No	Moderate storm cells homogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-040	6/5/17 1:50	6/6/17 3:45	25:55:00	0.34	0.57	TR04	4.10	2.25	0.95	5.25	0.75	5.00	1.00	19.30	No	Moderate and back-to-back storm cells heterogeneously distributed over the service area. SWOR2 was controlled manually in part. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-041	6/12/17 12:50	6/12/17 21:35	8:45:00	0.14	0.50	TR15	1.70	0.50	0.10	0.70	0.05	2.55	0.00	5.60	No	Small storm cell heterogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-044	6/18/17 7:25	6/19/17 8:00	24:35:00	0.25	0.35	TR11	2.25	0.85	0.20	1.85	0.05	3.00	0.10	8.30	No	Small storm cells homogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
2017-045	6/22/17 15:55	6/25/17 3:10	59:15:00	1.57	2.14	TR15	9.55	5.15	3.80	5.85	0.75	5.70	2.05	32.85	No	Large storm cells homogeneously distributed over the service area. The SWSG site was controlled manually. The storage capacity at the SWSG site is restricted due to the damaged Gate 2.
TOTAL							74.10	39.80	43.45	52.60	7.55	58.95	14.25	290.70		

* 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 controlled manually by the operator

+ The capacity has been restricted since April 1st 2016 due to the damaged Gate 2 at SWSG (7.7 MG total = 5.5 MG (storage volume before RTC) + 2.2 MG (storage volume for RTC)).

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Figure 1.2. Morris Forman WQTC – Plant Flows and Associated CSO Activations – April 2017

Morris Forman WQTC - Bypass vs. Large CSOs
 (04/01/17 to 05/01/17)

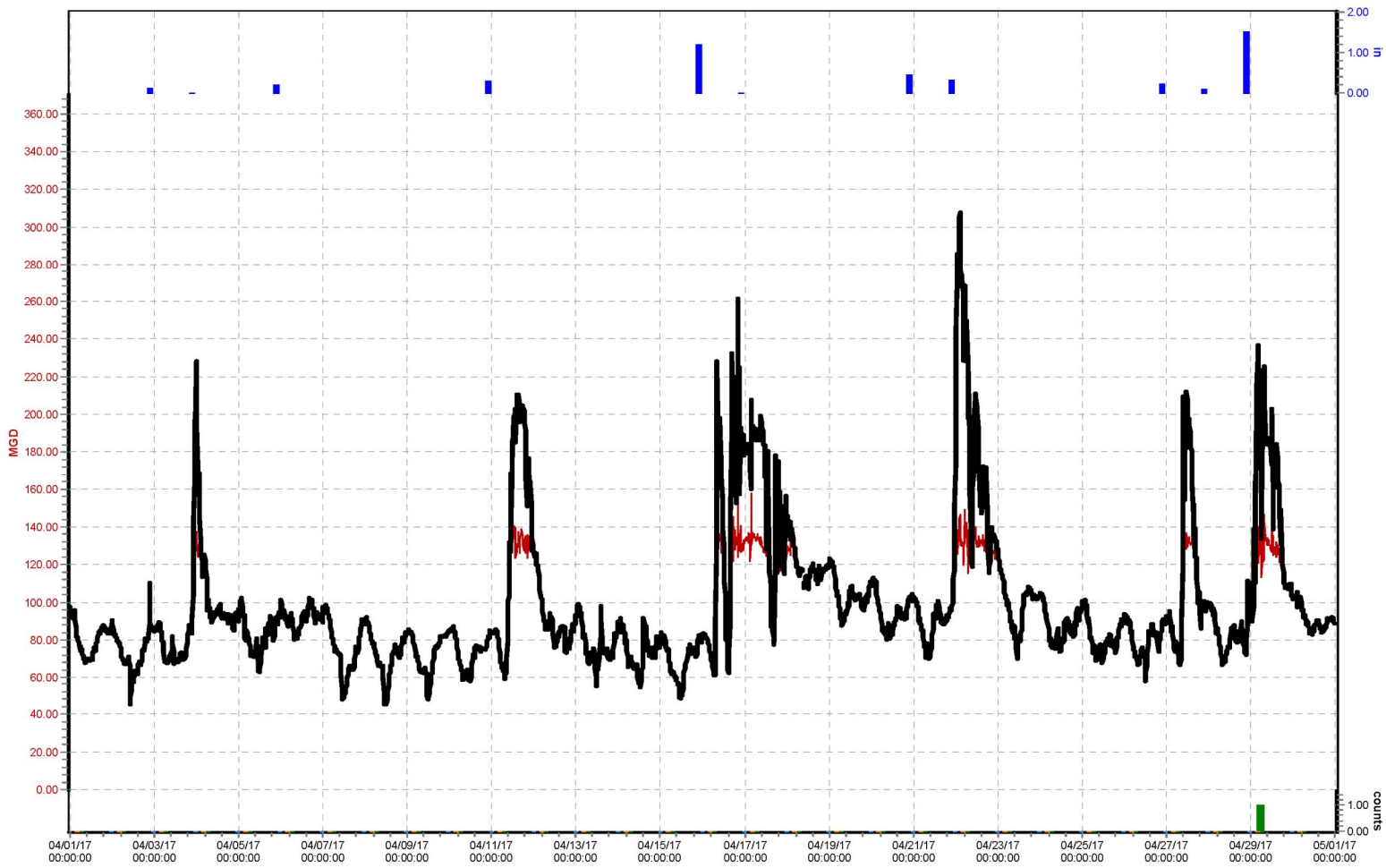


Figure 1.3. Morris Forman WQTC – Plant Flows and Associated CSO Activations – May 2017

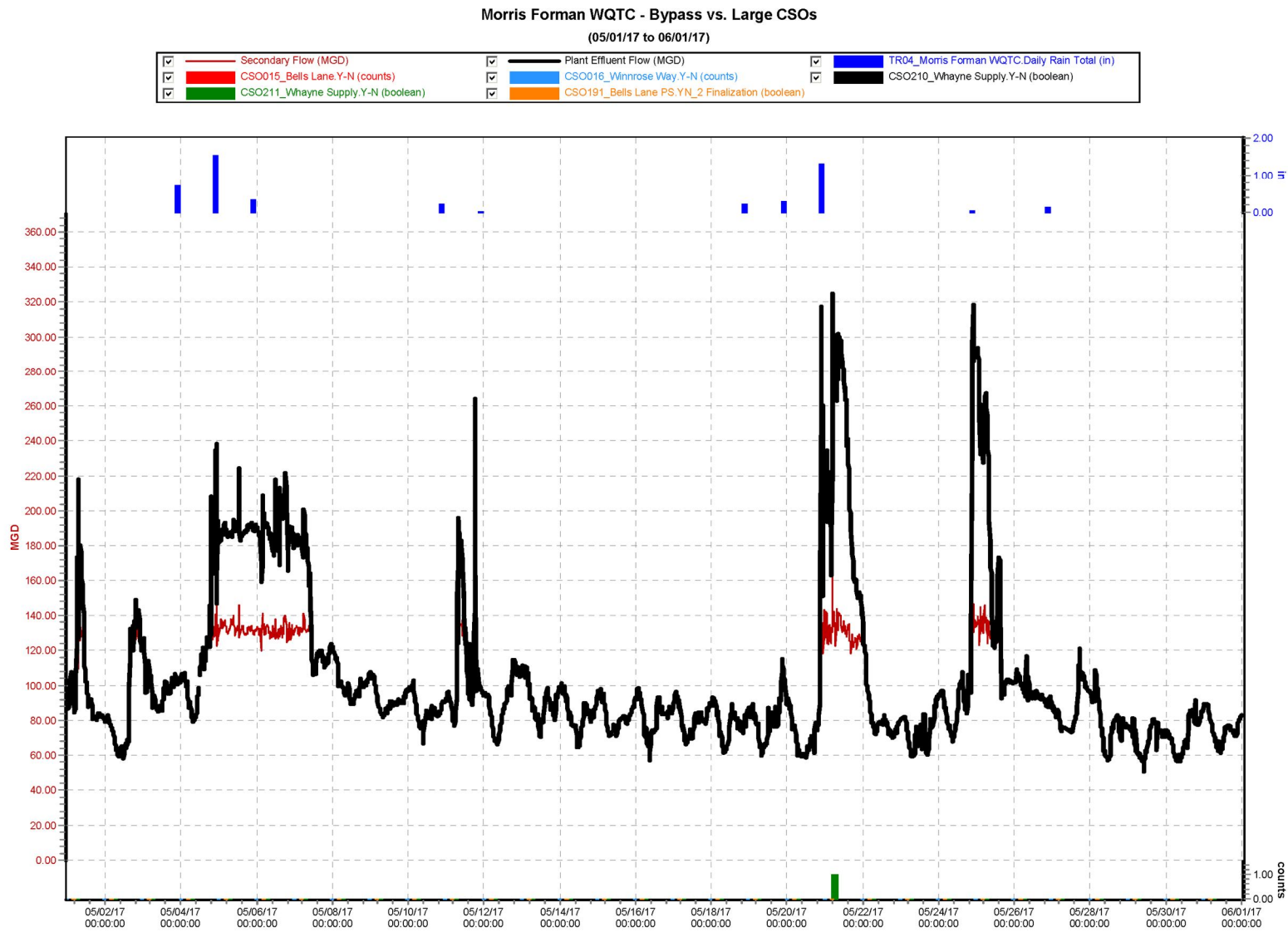


Figure 1.4. Morris Forman WQTC – Plant Flows and Associated CSO Activations – June 2017

Morris Forman WQTC - Bypass vs. Large CSOs
(06/01/17 to 07/01/17)

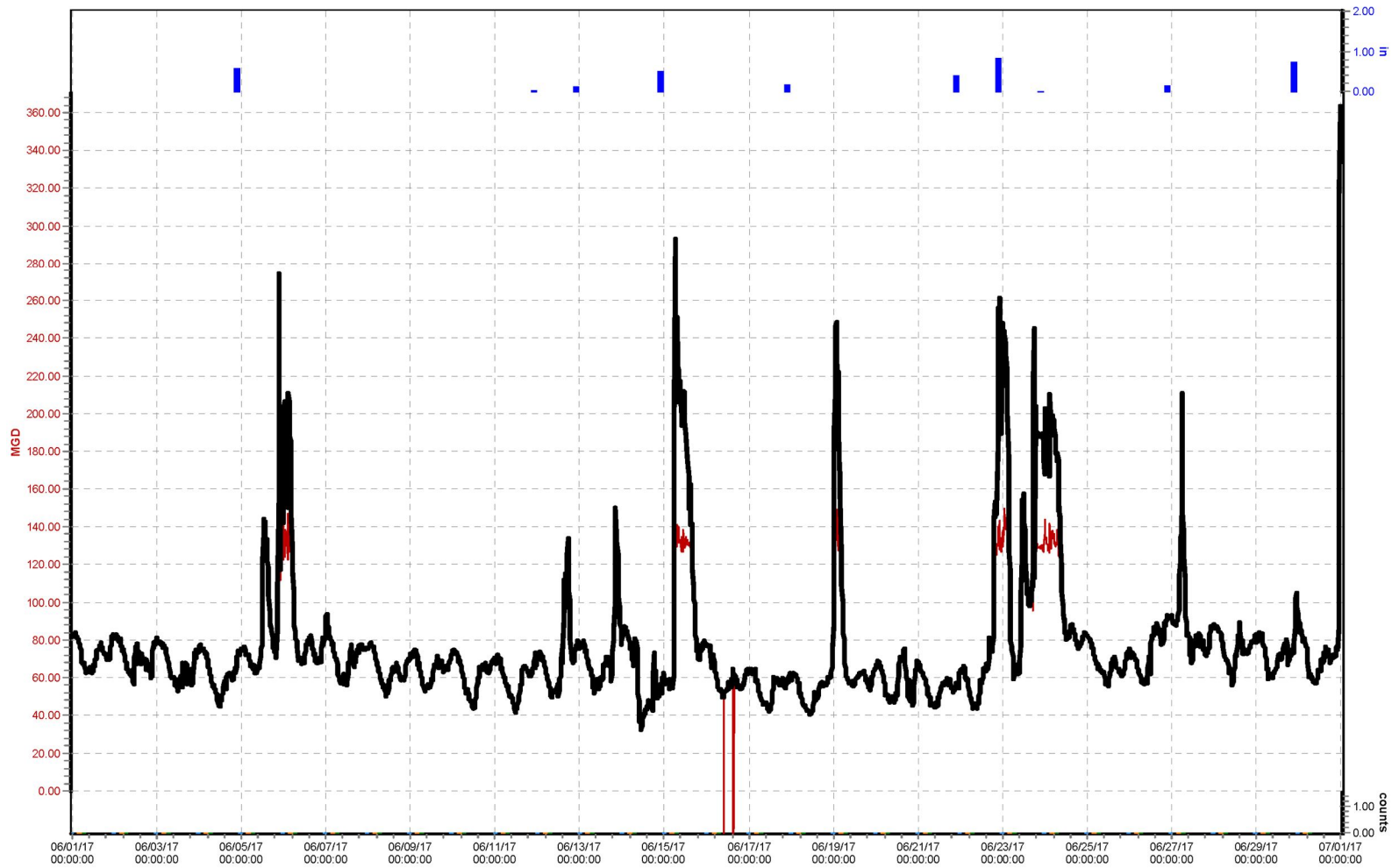
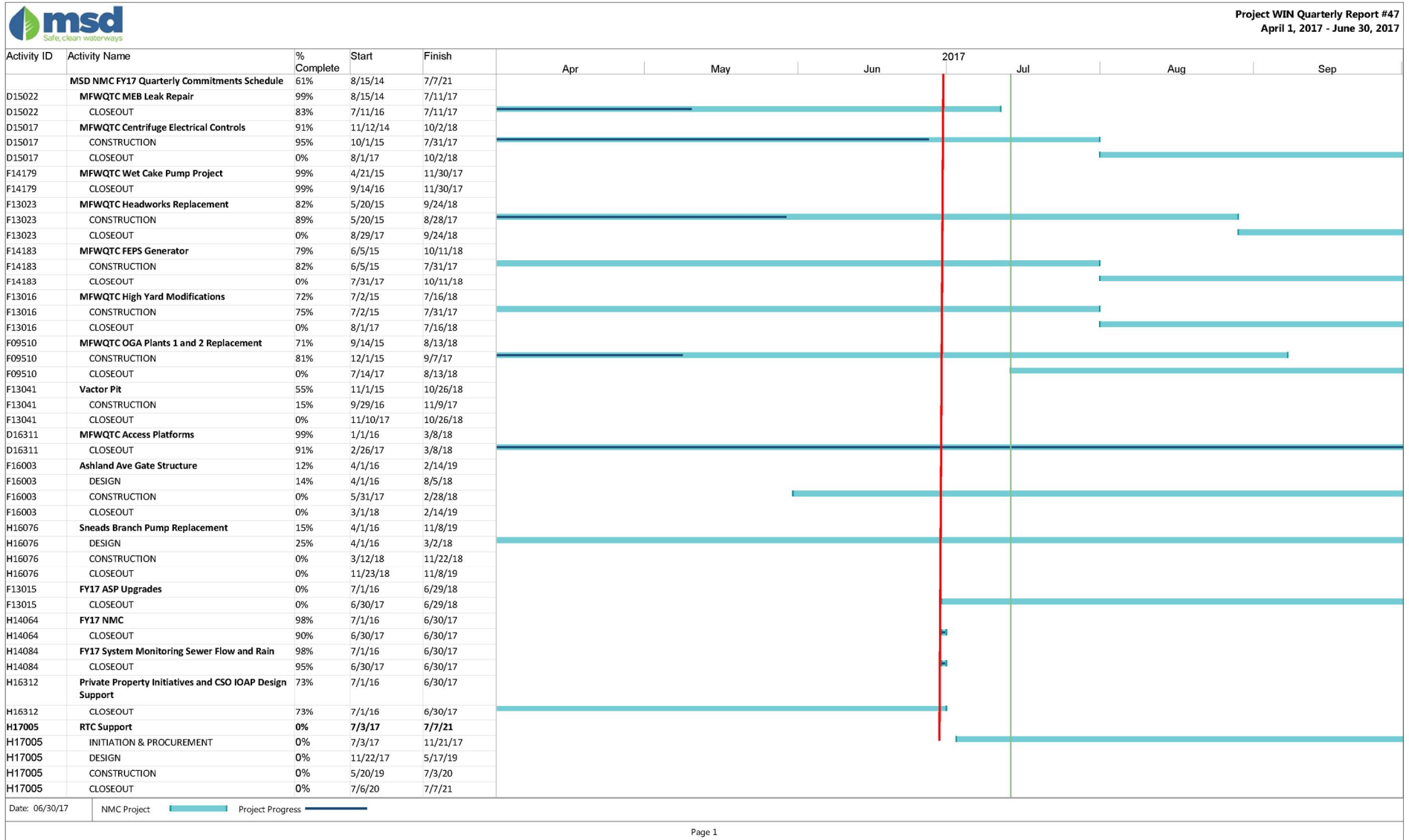


Figure 1.5. NMC Quarterly Commitments Schedule



SECTION 2: PROGRAM ACTIVITIES FOR SEWER OVERFLOW RESPONSE PROTOCOL (SORP)

2.1. PROGRAM BACKGROUND

Per Paragraph 24.d. of the Amended Consent Decree, MSD initially submitted the Sewer Overflow Response Protocol (SORP) to EPA and KDEP on February 10, 2006, and received comments on March 13, 2006.

MSD completely revised the SORP documentation in 2011. The draft of this revised document was submitted for comment on August 22, 2011. Comments from EPA and KDEP were received and addressed, and the document was resubmitted October 28, 2011. Final approval of the updated SORP document was received February 21, 2012. Modifications were made to the document in 2016 to reflect the elimination of the Jeffersontown WQTC, and were approved on July 21, 2017. A hard copy of the approved document has been distributed to each division throughout MSD and a viewable, downloadable electronic version has been posted to the MSD Project WIN website, available at www.msprojectwin.org. The following activities were performed during this reporting period.

2.2. OVERFLOW MANAGEMENT AND FIELD DOCUMENTATION

MSD monitored approximately 143 sanitary sewer overflow (SSO) sites, which have been grouped into routes based on the range of rainfall rates necessary to cause a SSO. These routes are monitored during rain events depending on the magnitude and location of the storm. If an overflow is observed, a Discharge Work Order is created to document the event. During this quarter, 19 unauthorized discharges were identified through route reconnaissance. Inspection routes were run during rain events, as described in Table 2.1.

MSD Operations staff hauled 15,800 gallons due to capacity-related issues during this reporting period. Hauling was also initiated due to other issues as indicated in Table 2.2.

Table 2.1. Rain Event Inspection Routes

ROUTE DESCRIPTION	APRIL 16, 2017	APRIL 22, 2017	APRIL 29, 2017	MAY 4, 2017	MAY 24, 2017
ENGINEERING RAIN EVENT SSO INSPECTION ROUTE	X	X	X	X	X
HIKES POINT RAIN EVENT SSO INSPECTION ROUTE	X	X	X	X	X
JEFFERSONTOWN RAIN EVENT SSO INSPECTION ROUTE (JTOWN MANHOLES WITHIN 2000 LF OF HEADWORKS)	X	X	X	X	X
JEFFERSONTOWN/FERN CREEK RAIN EVENT SSO INSPECTION ROUTE	X	X	X	X	X
MIDDLE/MUDDY FORK RAIN EVENT SSO INSPECTION ROUTE	X	X	X	X	X

Table 2.2. Hauled Volumes in Gallons

PROBLEM	APRIL	MAY	JUNE
LACK OF SYSTEM CAPACITY	4,000	11,800	0
MECHANICAL FAILURE	2,000	0	6,000
UTILITY DAMAGE	0	1,000	0

2.3. STAFF TRAINING AND COMMUNICATION

Reviewed and updated the training documentation for the 2017 second quarter SORP training that included Overflow Assessment, Establishing Control Zones, Mitigation and Documentation. Conducted the following SORP Quarterly training sessions which were attended by 252 employees. Details are shown in Table 2.3.

Table 2.3. Staff Training Participation – Current Reporting Period

Date	Intended Audience	Location	Module	Attendees
June 7, 2017	Derek R. Guthrie WQTC	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	8
June 14, 2017	Cedar Creek WQTC	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	20
June 14, 2017	Floyds Fork WQTC	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	18
June 16, 2017	CMF	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	18
June 16, 2017	CMF	Operations and Engineering Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	61
June 21, 2017	Morris Forman WQTC	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	10
June 21, 2017	Morris Forman WQTC	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	16
June 23, 2017	CMF	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	18
June 23, 2017	CMF	Operations and Engineering Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	14
June 27, 2017	Morris Forman WQTC	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	25
June 28, 2017	Morris Forman WQTC	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	4
June 28, 2017	Morris Forman WQTC	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	31
June 28, 2017	Morris Forman WQTC	Operations Staff	Overflow Assessment, Establishing Control Zones, Mitigation and Documentation	9

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SECTION 3: PROGRAM ACTIVITIES FOR DISCHARGE ABATEMENT PLANS (DAP)

3.1. INTEGRATED OVERFLOW ABATEMENT PLAN (IOAP)

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

The Final Sanitary Sewer Discharge Plan (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, and was entered into public record on February 15, 2010.

MSD submitted an IOAP modification request to EPA/KDEP on September 20, 2012, with partial approval granted via certified letter on October 25, 2012. The modified project package, including program descriptions, progress, and updated supporting text, was submitted to EPA/KDEP for approval on June 14, 2013. On June 19, 2014, MSD received approval of the 2012 IOAP Modification from EPA/KDEP. The project and program modifications proposed within this submittal resulted from additional information gathered from ongoing system monitoring, hydraulic modeling and best professional judgment. MSD's adaptive management approach to overflow abatement has justified modifications which provide a higher level of overflow control. These modifications will be completed faster than originally proposed for approximately the same overall budget.

Since the June 19, 2014 approval of the 2012 IOAP Modification, minor project modification requests have been submitted and approved on an individual project basis.

3.2. SANITARY SEWER DISCHARGE PLAN (SSDP)

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

3.2.1. UPDATED SANITARY SEWER OVERFLOW PLAN (SSOP) 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.

3.2.2. INTERIM SANITARY SEWER DISCHARGE PLAN (ISSDP)

MSD submitted an Interim Sanitary Sewer Discharge Plan (ISSDP) for approval 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 document can be viewed on the MSD Project WIN website, available at www.msprojectwin.org.

All projects required by the ISSDP have been completed and certified. The Derek R. Guthrie WQTC Project's completion was delayed in accordance with the construction contract documents due to existing litigation and performance by the general contractor. However, the full functionality and capacity of the plant upgrades under this project met the demands of the service area. With this understanding, a revised certification letter dated October 19, 2015, was submitted certifying that the Derek R. Guthrie WQTC Project is performing in accordance with its stated intent and purpose, and is in compliance with the Consent Decree requirements.

3.2.3. FINAL SANITARY SEWER DISCHARGE PLAN (SSDP)

MSD submitted for approval a Final 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 on February 15, 2010. A revised SSDP was included in the 2012 IOAP Modification, submitted on June 14, 2013. On June 19, 2014, MSD received approval of the 2012 IOAP Modification from EPA/KDEP. The approved document can be viewed on the MSD Project WIN website, available at www.msprojectwin.org.

3.3. CSO LONG TERM CONTROL PLAN (LTCP)

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

3.3.1. INTERIM CSO LONG TERM CONTROL PLAN (LTCP)

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

3.3.2. FINAL CSO LONG TERM CONTROL PLAN (LTCP)

MSD submitted for approval the Final CSO LTCP on December 19, 2008, as Volume 2 of the Integrated Overflow Abatement Plan. 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 on February 15, 2010. A revised LTCP was included in the 2012 IOAP Modification, submitted June 14, 2013. On June 19, 2014, MSD received approval of the 2012 IOAP Modification from EPA/KDEP. The approved document can be viewed on the MSD Project WIN website, available at www.msprojectwin.org.

3.3.3. GREEN PROGRAM UPDATE

Green Program projects procured during the current reporting period are shown in Table 3.1. These projects provide additional overflow volume reduction benefits to complement LTCP projects, and were selected for incentive by providing high value for residual AAOV reduction based on the latest modeling results.

Table 3.1. Green Program Projects – Current Reporting Period

PROJECT NAME	SEWERSHED	AAOV REDUCTION	INCENTIVE VALUE
Neighborhood House	CSO019	85,000 gal. (est.)	\$42,981
Healthy House	CSO190	8,900 gal (est.)	\$3,203

3.4. DISCHARGE ABATEMENT PLAN PROJECT STATUS

3.4.1. SANITARY SEWER DISCHARGE PLAN (SSDP)

There were no SSDP projects completed or certified during the current reporting period. Per the current approved schedule, no SSDP projects will be completed or certified during the next reporting period.

3.4.2. COMBINED SEWER OVERFLOW LONG TERM CONTROL PLAN (LTCP)

Table 3.2 details CSO LTCP projects completed and certified during the current reporting period. Table 3.3 details CSO LTCP projects that are required to be completed and certified during the next reporting period.

Table 3.2. IOAP Project Completion Dates – CSO LTCP – Current Reporting Period

BUDGET ID	ACD PROJECT NUMBER	PROJECT NAME	ASSOCIATED CSOs	LEVEL OF CONTROL (TYPICAL YEAR)	ACD DATE	CERTIFIED COMPLETION DATE
H09140	L_SO_MF_018_S_03_A_A	Nightingale Pump Station Replacement	CSO018	0	June 30, 2017	June 29, 2017

Table 3.3. IOAP Project Completion Dates – CSO LTCP – Upcoming Reporting Period

BUDGET ID	ACD PROJECT NUMBER	PROJECT NAME	ASSOCIATED CSOs	LEVEL OF CONTROL (TYPICAL YEAR)	ACD DATE	CERTIFIED COMPLETION DATE
H09124	L_OR_MF_015_M_13_B_B_8	Bells Lane Wet Weather Treatment Facility (Formerly Known as Paddy's Run)	CSO015 CSO191	8	September 30, 2017	Under Construction

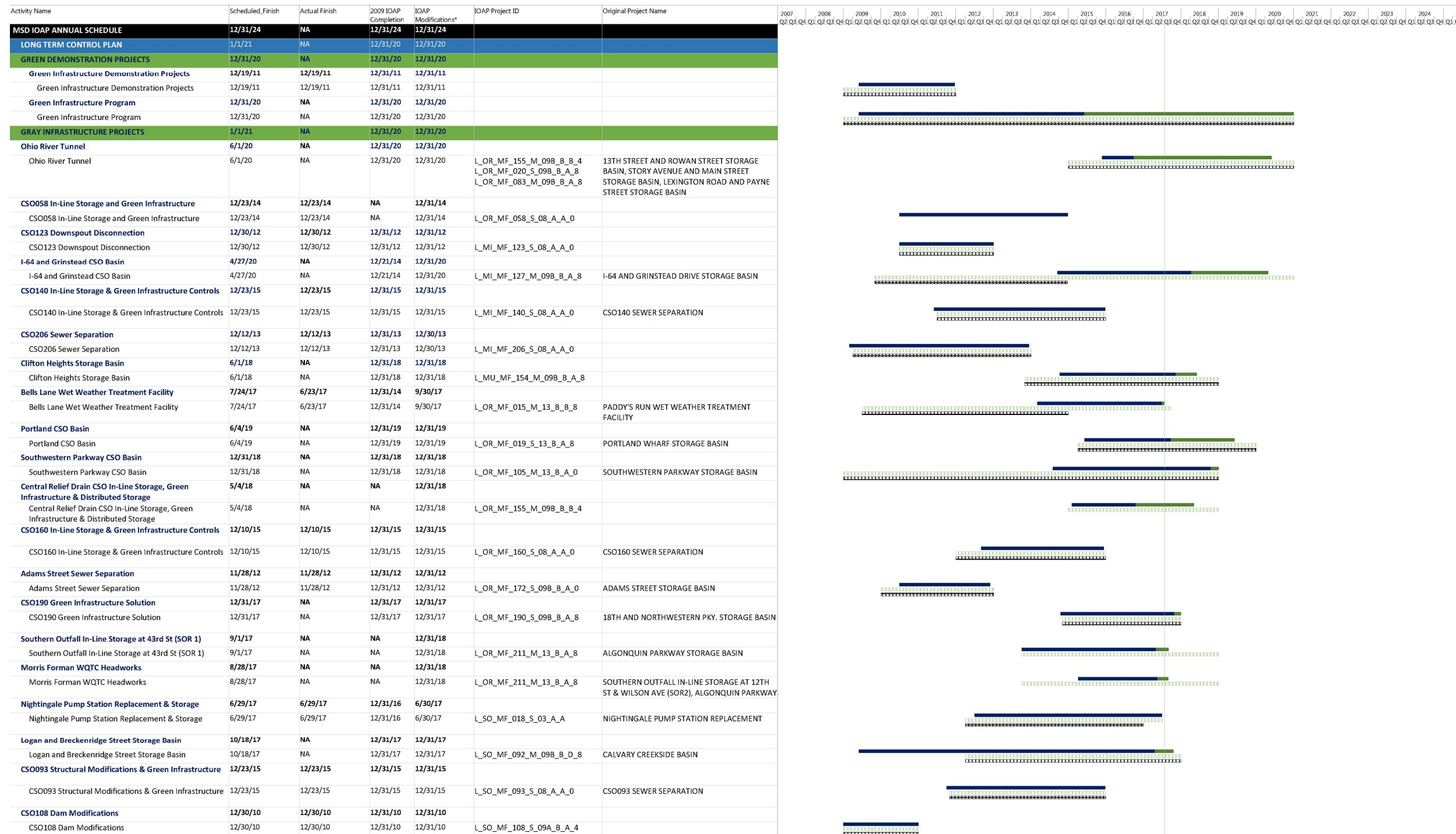
3.4.3. ACTIVITY PROGRESS CHART

A Gantt chart showing the 2012 IOAP Modification project schedules and subsequent approved minor modifications for the entire program is provided in Figure 3.1. Refer to IOAP, Volume 1 – Figure 6.3.1 for the previous chart.

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Figure 3.1. MSD Integrated Overflow Abatement Plan Implementation Schedule

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

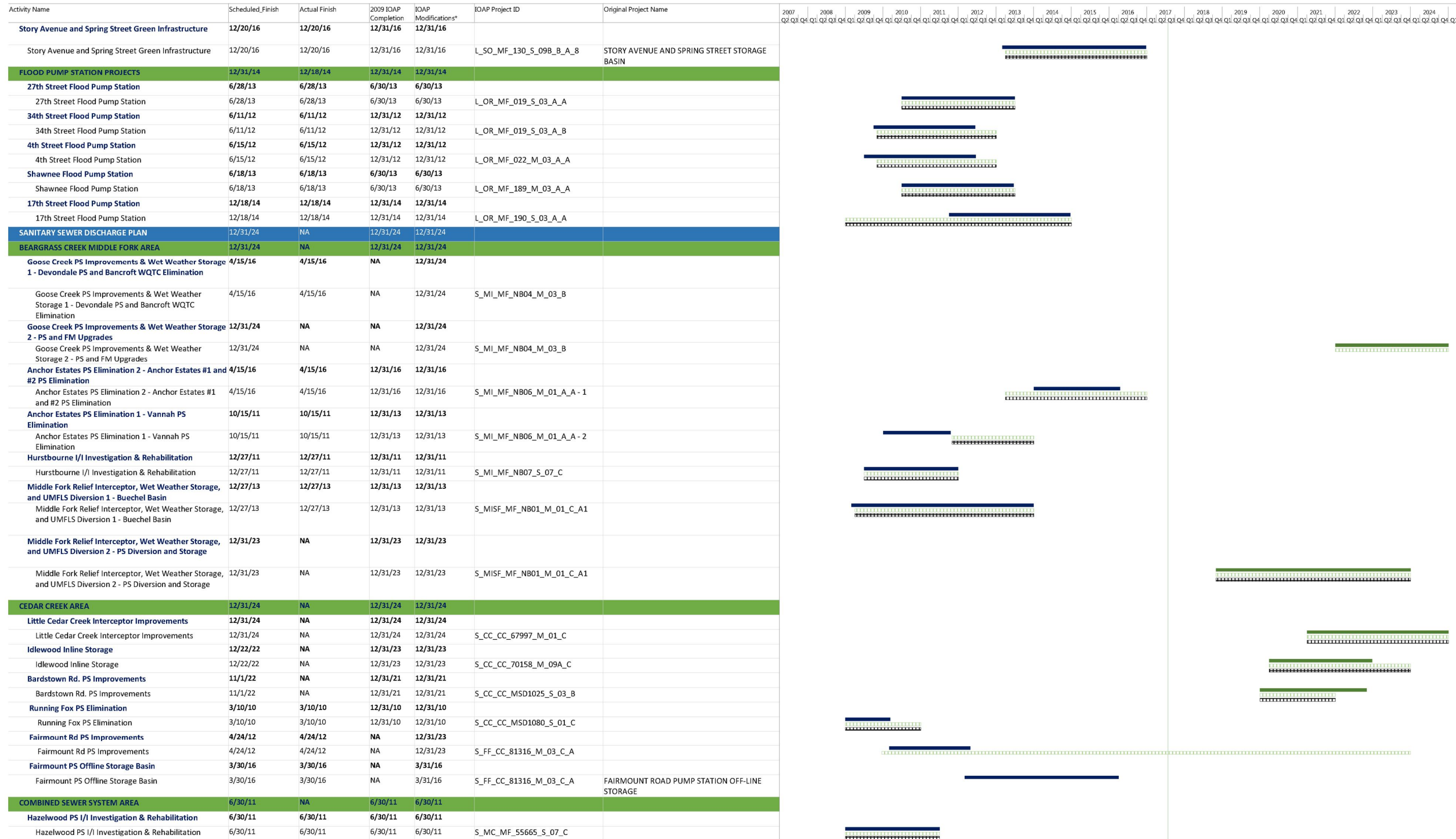


Approved 2009 IOAP [XXXXXXXXXX] IOAP Modifications [XXXXXXXXXX] Remaining Work [XXXXXXXXXX] Completed Work [XXXXXXXXXX]

Includes 2014 approval of 2012 IOAP Modification as well as all minor mod letter approvals to date.

Figure 3.1. MSD Integrated Overflow Abatement Plan Implementation Schedule

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

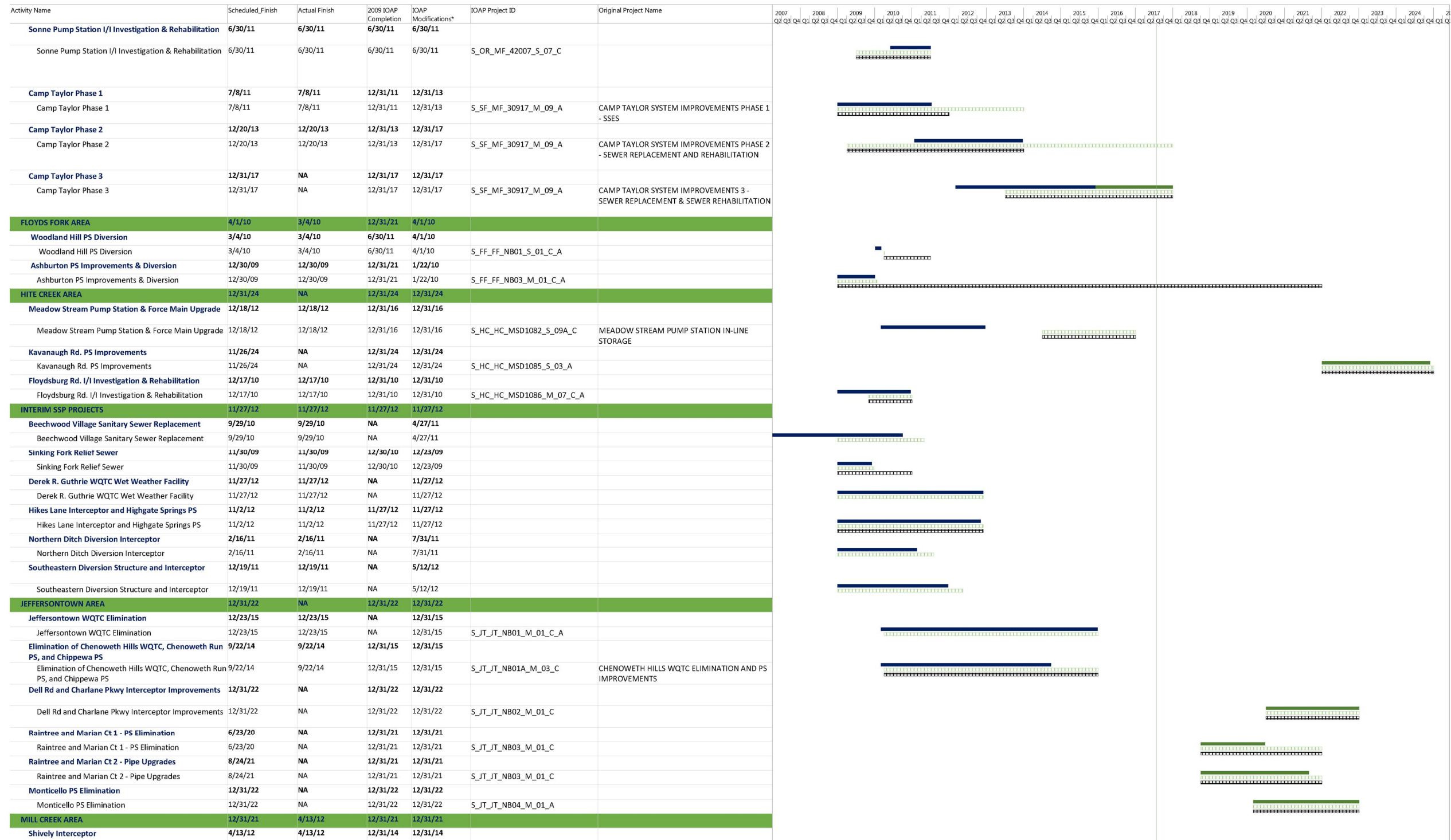


Approved 2009 IOAP: ██████████ IOAP Modifications: ██████████ Remaining Work: ██████████ Completed Work: ██████████

Includes 2014 approval of 2012 IOAP Modification as well as all minor mod letter approvals to date.

Figure 3.1. MSD Integrated Overflow Abatement Plan Implementation Schedule

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

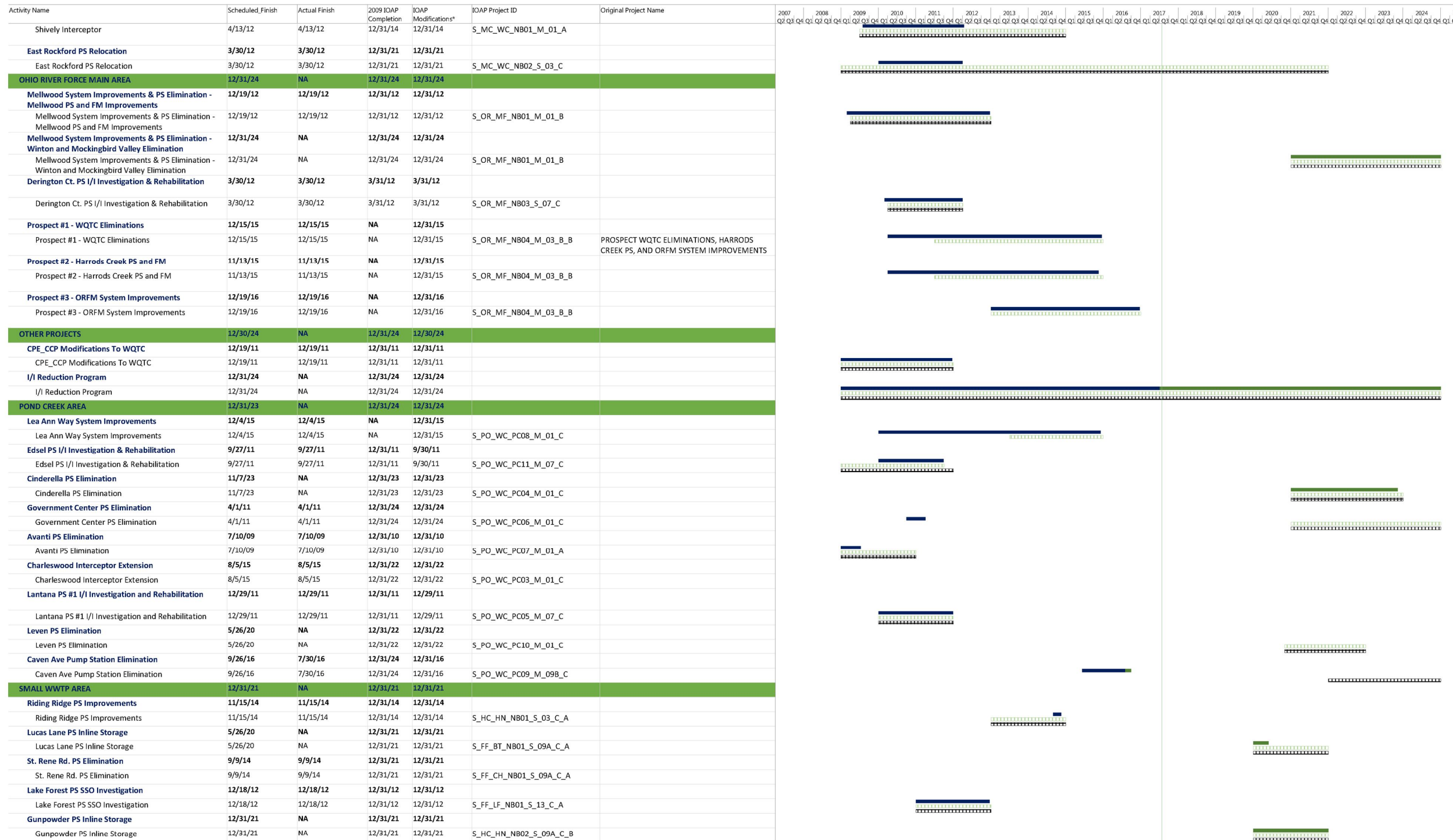


Approved 2009 IOAP: [Legend] IOAP Modifications: [Legend] Remaining Work: [Legend] Completed Work: [Legend]

Includes 2014 approval of 2012 IOAP Modification as well as all minor mod letter approvals to date.

Figure 3.1. MSD Integrated Overflow Abatement Plan Implementation Schedule

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

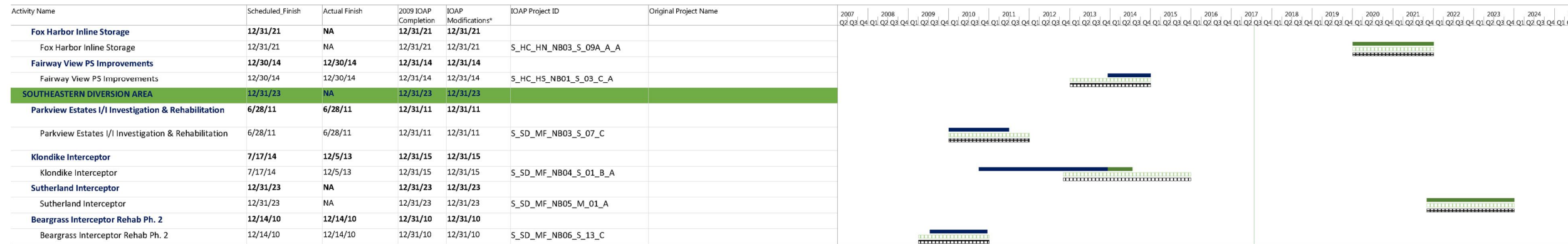


Approved 2009 IOAP ***** IOAP Modifications ***** Remaining Work ***** Completed Work *****

Includes 2014 approval of 2012 IOAP Modification as well as all minor mod letter approvals to date.

Figure 3.1. MSD Integrated Overflow Abatement Plan Implementation Schedule

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



Approved 2009 IOAP ***** IOAP Modifications ***** Remaining Work ----- Completed Work -----

Includes 2014 approval of 2012 IOAP Modification as well as all minor mod letter approvals to date.

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SECTION 4: PROGRAM ACTIVITIES FOR PUBLIC OUTREACH, EDUCATION, NOTIFICATION AND PARTICIPATION

4.1. PUBLIC NOTIFICATION PROGRAM

MSD has developed a program aimed at notifying the community of the objectives of Project WIN and how to lessen the risks associated with coming into contact with sewage overflows.

4.2. PUBLIC EDUCATION PROGRAMS

A public education program aimed at disseminating information to the public on MSD’s primary business functions with emphasis on wastewater, stormwater and flood protection has been developed and implemented. Efforts continued to utilize various media outlets, including television, radio, magazines and newspapers, social media, and MSD websites, to serve as a conduit for circulating information to the public. This included 244 tweets (35 retweets) and 164 Facebook posts.

MSD included Consent Decree compliance, wastewater facility upgrades, and aging infrastructure as key topics in its Critical Repair & Reinvestment Plan. Public education about this initiative included public meetings,

Finally, MSD has created water quality sampling videos and partnered with educational organizations to assist with watershed videos. These efforts were finalized March 31, 2017, will be made available to the public and are currently aired on the video wall located in MSD’s main office lobby.

During the reporting period, MetroTV aired the programs listed in Table 4.1.

Table 4.1. Metro TV Broadcasts

DATE	PROGRAM TITLE	ORIGINAL MEETING DATE
April 2, 2017	I-64 & Grinstead CSO Basin: Advanced Design Meeting	November 15, 2016
April 9, 2017	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
April 12, 2017	Portland CSO Basin: Conceptual Design Meeting	January 26, 2016
April 14, 2017	Lexington & Payne CSO Basin: Update Meeting	October 18, 2016
April 21, 2017	I-64 & Grinstead CSO Basin: Advanced Design Meeting	November 15, 2016
May 12, 2017	Story & Main CSO Basin: Update Meeting	October 11, 2016
May 12, 2017	Clifton Heights CSO Basin: Advanced Design Meeting	September 15, 2015
June 2, 2017	I-64 & Grinstead CSO Basin: Advanced Design Meeting	November 15, 2016
June 11, 2017	Lexington & Payne CSO Basin: Update Meeting	October 18, 2016
June 25, 2017	Lexington & Payne CSO Basin: Update Meeting	October 18, 2016

4.3. PUBLIC OUTREACH PROGRAMS

MSD has developed a public education program aimed at expanding the public's knowledge of MSD's primary business functions of wastewater, stormwater and flood protection, with an emphasis on Project WIN Program elements.

4.3.1. IOAP PROJECT AND PROGRAM MEETINGS

MSD facilitates meetings for the Wet Weather Team (WWT) and the public to review regulatory commitments, update progress on projects and initiatives, and to gather public input on efforts.

MSD has developed a partnership with Louisville Metro for providing project information and soliciting feedback from stakeholders using a Structured Public Involvement approach. Structured Public Involvement is meant to facilitate relevant input on the design process as MSD prepares to design and construct CSO basins. The current IOAP outreach activities and public meetings are using this process to elicit qualitative and quantitative information and enhance engagement with customers. Additional information regarding the Structured Public Involvement Process and meetings held during this reporting period may be found at the Project WIN Public Input Website, available at <http://www.msdpwin.org/Public-Input.aspx>.

During the reporting period, MSD facilitated and planned for the meetings shown in Table 4.2. Meetings planned for the upcoming reporting period are listed in Table 4.3.

Table 4.2. IOAP Project and Program Meetings – Current Reporting Period

DATE	EVENT
April 18, 2017	Wet Weather Stakeholder Team Meeting
April 18, 2017	Southwestern Parkway CSO Basin: Construction Meeting
May 30, 2017	Clifton Heights CSO Basin Force Main Extension: Construction Meeting
June 1, 2017	Camp Taylor Sanitary Sewer Replacement Project: Construction Meeting
June 27, 2017	Portland CSO Basin: Construction Meeting

Table 4.3. Anticipated IOAP Project and Program Meetings – Upcoming Reporting Period

DATE	EVENT
July 11, 2017	Ohio River Tunnel: Advanced Design Meeting
July 19, 2017	Ohio River Tunnel: Advanced Design Meeting
July 25, 2017	I-64 & Grinstead CSO Basin: Construction Meeting
August 23, 2017	Wet Weather Team Meeting

SECTION 5: CAPACITY MANAGEMENT OPERATIONS AND MAINTENANCE (CMOM) REPORT

Per Paragraph 24.c. of the Amended Consent Decree, the Capacity Management Operations and Maintenance (CMOM) Self Assessment Report was submitted to EPA and KDEP on February 10, 2006. MSD received a letter of approval on August 22, 2006. The approved CMOM document can be viewed on the MSD Project WIN website, available at www.msprojectwin.org.

The primary objectives of CMOM are as follows:

- **Capacity** – Ensuring that adequate wet and dry weather capacity is maintained in existing and new infrastructure.
- **Management** – Implementing programs in support of operations and maintenance activities required to ensure KPDES permit compliance and promote public health by remedying design, construction and operational deficiencies; training staff; and performing activities in a safe manner.
- **Operations** – Implementing written standard operating procedures to operate system components as designed to meet permit requirements.
- **Maintenance** – Implementing systematic, comprehensive asset maintenance and rehabilitation programs to prevent overflows, maximize system reliability, and ensure system sustainability.

Although the program implementation deadlines from the CMOM Self Assessment Report were previously met, MSD continued to enhance the activities. Highlights of the CMOM program implementation over this reporting period are outlined below.

5.1. MANAGEMENT PROGRAMS

M-E-9 Infrastructure Rehabilitation

Refer to the CMOM activity schedule provided in Section 5.4.

M-E-10 System Capacity Assurance Program

Included in the goals of the CMOM Self-Assessment Report, the System Capacity Assurance Plan (SCAP) is the basis for applying capacity decision criteria to support watershed community values. It provides a programmatic approach for confirming available capacity within MSD's sanitary sewer system, creating capacity credits through system improvement and rehabilitation, identifying hydraulic constrictions, and proposing capacity improvements that support interim and long-term performance objectives. SCAP revisions, including credit and balance projections and discussion of approach for multi-family residential unit populations, were discussed with EPA and KDEP and submitted electronically for review on July 21, 2014. The final SCAP revision was submitted for approval on December 9, 2014, and approval was received February 5, 2015. A copy of the approved SCAP can be found on the Project WIN website, available at www.msprojectwin.org.

A current copy of the SCAP Credit Balance is included as Appendix B.

5.2. OPERATIONS PROGRAMS

O-A-1 Pump Station Operations Programs (Routine Operating Programs)

O-A-2 Pump Station Operations Programs (Emergency Operating Programs)

Refer to the CMOM activity schedule provided in Section 5.4.

5.3. COMPREHENSIVE PERFORMANCE EVALUATIONS AND COMPOSITE CORRECTION PLANS (CPE/CCP)

Per requirements of MSD's 2009 Amended Consent Decree, MSD implemented a Comprehensive Performance Evaluation (CPE) and Composite Correction Plan (CCP) program for the District's WQTCs. Although the IOAP CPE assessments that defined specific WQTC improvements were completed by December 31, 2011, MSD will continue to implement CPE/CCP activities as part of the District's CMOM Program. This section lists activities per WQTC as they occur during the reporting period.

5.3.1. HITE CREEK WATER QUALITY TREATMENT CENTER

The Hite Creek WQTC Expansion project, to expand the capacity of the Hite Creek WQTC from 6 MGD to 9 MGD, is underway and will continue during the next reporting period. The 60% design documents will be submitted in the next reporting period. The project is expected to be ready for bidding for construction in early 2018.

Refer to the CMOM activity schedule provided in Section 5.4 for CPE/CCP-related capital projects.

5.3.2. FLOYDS FORK WATER QUALITY TREATMENT CENTER

During this reporting period, there is no activity to report for the Floyds Fork WQTC.

Refer to the CMOM activity schedule provided in Section 5.4 for CPE/CCP-related capital projects.

5.3.3. DEREK R. GUTHRIE WATER QUALITY TREATMENT CENTER

During this reporting period, construction for the Secondary Clarifiers 1, 2 and 3 collection mechanisms replacement project reached final completion and is now in the warranty phase.

Instrumentation and Controls (I&C) testing of the Wet Weather Pumps was conducted. Additional I&C testing and also Vibration testing of the Wet Weather Pumps will be conducted during the next reporting period.

MSD has met with KDOW and submitted the draft Facility Plan for review and received comments to address. In the next reporting period, MSD will send the plan to the state multi-agency clearing house and KDOW for final review.

Construction for the removal and upgrade of RAS Pumps 1 and 4, including the replacement of variable frequency drives on pumps 1 through 4, will begin during the next reporting period.

Refer to the CMOM activity schedule provided in Section 5.4 for CPE/CCP-related capital projects.

5.3.4. CEDAR CREEK WATER QUALITY TREATMENT CENTER

The design of the Cedar Creek WQTC Influent Pump Station Motor Controls Upgrade Project has been completed and is anticipated to be publicly bid and awarded during the next reporting period.

The CCWQTC Influent Gate Repair and the CCWQTC UV Gates Project were completed during this reporting period.

Refer to the CMOM activity schedule provided in Section 5.4 for CPE/CCP-related capital projects.

5.3.5. PROSPECT AREA WATER QUALITY TREATMENT CENTER UPDATES

An elimination plan for the five WQTCs serving Prospect (Timberlake, Hunting Creek North, Hunting Creek South, Ken Carla, and Shadow Wood) was submitted to EPA/KDEP on March 31, 2009. Approval of this plan was received on September 24, 2009, and work is now complete. A certification letter dated December 15, 2015, was submitted finalizing the completion of the project.

5.3.6. JEFFERSONTOWN WATER QUALITY TREATMENT CENTER

A certification letter dated December 23, 2015, was submitted finalizing the completion of the Jeffersontown WQTC Elimination Project.

5.3.7. OTHER WATER QUALITY TREATMENT CENTERS

All non-regional WQTCs owned or operated by MSD have been eliminated as of May 27, 2016.

5.4. CMOM ACTIVITY SCHEDULE

CMOM capital project milestones for the current reporting period as well as a look-ahead for the upcoming reporting period are provided in **Figure 5.1**.

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Figure 5.1. CMOM Quarterly Commitments Schedule

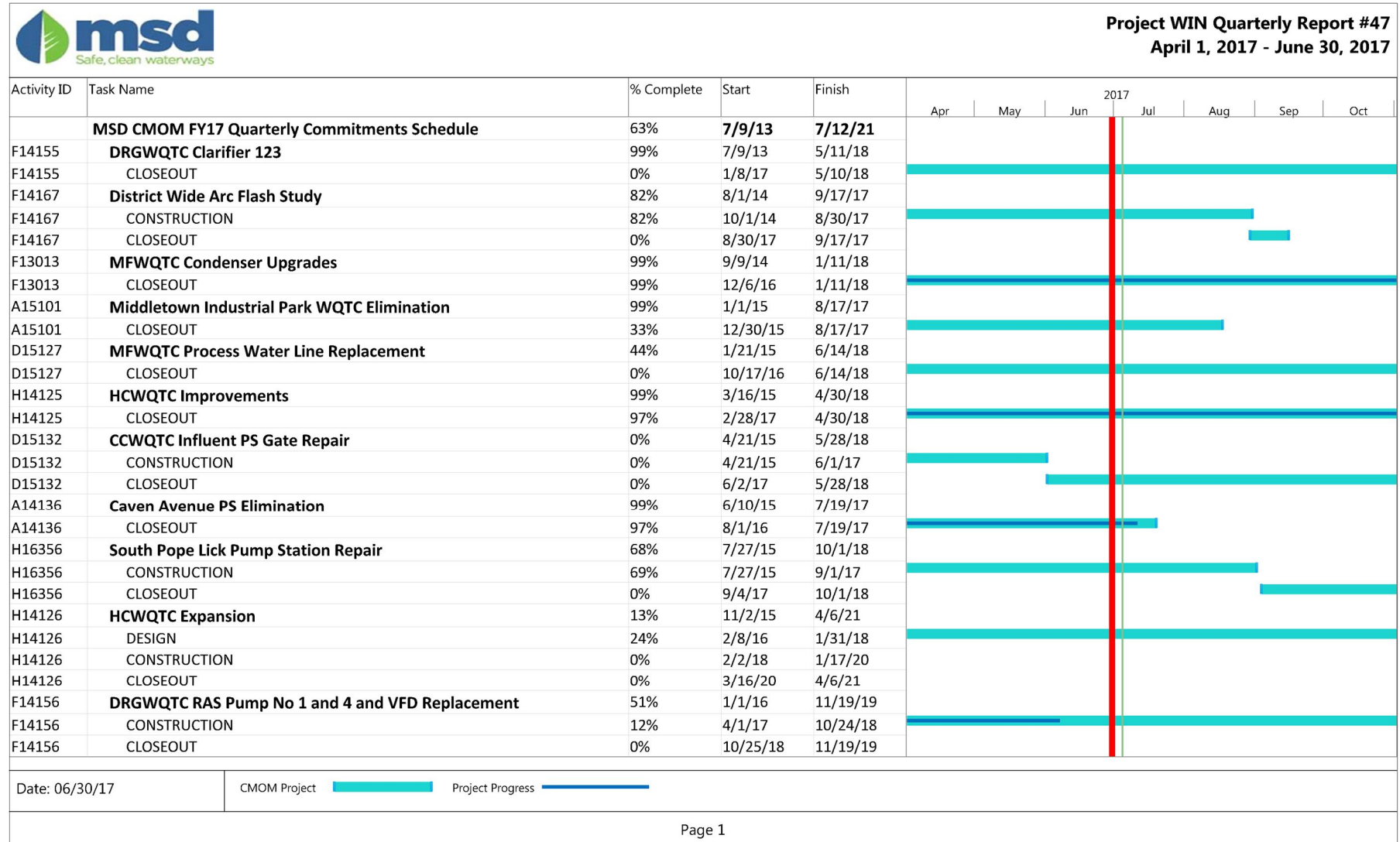


Figure 5.1. CMOM Quarterly Commitments Schedule



SECTION 6: PROJECT WATERWAY IMPROVEMENTS NOW (WIN) PERFORMANCE OVERVIEW

6.1. 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 CSOs and eliminate SSOs.

6.1.1. SANITARY SEWER OVERFLOW ELIMINATION ACTIVITIES

Refer to Section 3.4.1 for Final SSDP project updates.

6.1.2. COMBINED SEWER OVERFLOW REDUCTION AND CONTROL ACTIVITIES

Refer to Section 3.4.2 for CSO LTCP project updates.

6.2. SYSTEMWIDE PERFORMANCE

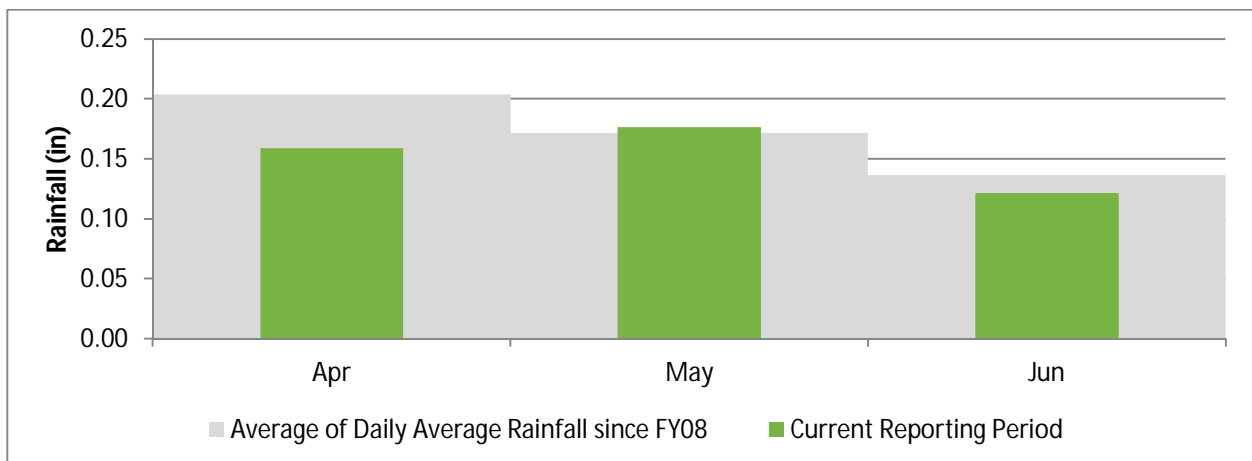
6.2.1. RAINFALL

The number and the volume of wet weather overflows are directly related to the amount of rain that has fallen during the reporting period. Figure 6.1 shows the Jefferson County daily average rainfall amounts for each month of the last quarter, compared with the average of the daily average rainfall since FY08. Data was pulled from MSD’s Rain Gauge Network.

Weather Event Summary

Daily average rainfall was below the previous fiscal year average for the month of April and near the previous fiscal year average for the months of May and June.

Figure 6.1. Daily Average Rainfall by Month



6.3. WATER QUALITY TREATMENT CENTER PERFORMANCE

6.3.1. BYPASSES

No bypass events occurred during this reporting period.

6.3.2. JEFFERSONTOWN WATER QUALITY TREATMENT CENTER

A letter dated December 23, 2015 certified the elimination of the Jeffersontown WQTC. Inspections were conducted upstream of what was previously the Jeffersontown WQTC Headworks during the reporting period. There were no overflows reported as a result of these inspections. Refer to Section 2.2 for SSO Route information.

6.3.3. PHOSPHORUS MONITORING AT THE PROSPECT WQTCs

All Prospect Treatment Plants have been eliminated per the Amended Consent Decree. These plants were offline as of September 2015.

6.4. COMBINED SEWER OVERFLOW PERFORMANCE

6.4.1. AUTHORIZED DISCHARGES – WET WEATHER CSOs

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. This data is included as Appendix B.

6.4.2. UNAUTHORIZED DISCHARGES – DRY WEATHER CSOs

MSD recorded information related to dry weather overflows from permitted combined sewer overflow outfalls. This information is entered and maintained in Hansen utilizing procedures reviewed and improved through efforts associated with various components of the Amended Consent Decree. A detailed report of these overflows will be included in the Annual Report for the period of July 1, 2016, through June 30, 2017. There were six dry weather overflows reported at a CSO during the reporting period, as shown in Table 6.1 and detailed in Appendix A-1 .

Table 6.1. Unauthorized Discharges – Dry Weather CSOs

CSO	START DATE & TIME	VOLUME (GAL)	CAUSE	PROBLEM
CSO151	4/13/17 9:00 AM	124,387	FLOWABLE FILL FOUND IN SEWER MAIN UPSTREAM AND DOWNSTREAM OF CSO DAM.	OBSTRUCTION-NOT GREASE / ROOTS
CSO151	5/9/17 12:17 PM	25,400	CONTRACTOR CREW WORKING TO REMOVE FLOWABLE FILL IN SEWER MAIN.	OBSTRUCTION-NOT GREASE / ROOTS
CSO151	5/15/17 10:30 AM	15,975	CONTRACTOR CREW WORKING TO REMOVE FLOWABLE FILL IN SEWER MAIN.	OBSTRUCTION-NOT GREASE / ROOTS
CSO197	6/2/17 11:20 AM	306	OBSTRUCTION DOWNSTREAM OF WEIR.	OBSTRUCTION-NOT GREASE / ROOTS
CSO197	6/9/17 12:00 PM	2,925	OBSTRUCTION DOWNSTREAM OF WEIR.	OBSTRUCTION-NOT GREASE / ROOTS
CSO151	6/28/17 5:06 PM	111,260	CONTRACTOR CREW WORKING TO REMOVE FLOWABLE FILL IN SEWER MAIN.	OBSTRUCTION-NOT GREASE / ROOTS

6.4.3. 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.

A workgroup was established to review CSO flow monitoring and resolve potential over-reporting of overflow volumes. Initial findings indicated that potentially significant discrepancies between modeling and monitoring data existed at 33 of MSD's 100 CSO locations. This set of 33 CSOs was the highest priority to review, correct data, document SOPs, and implement changes. For these CSO locations, MSD performed site visits including elevation surveys, performed detailed analysis, investigated equipment configurations, and investigated PLC programming or monitoring program logic. This has led to the development of an SOP for each CSO that describes the existing monitoring equipment, configuration, and flow calculation in use as of December 31, 2016, and evaluates the effectiveness of the existing setup. If a more effective arrangement was recommended, MSD added the proposed arrangement to the SOP for implementation and determined if historical data could be updated. In cases where the historical data could be updated, MSD has developed revised volumes for reporting. Locations for which revised volumes have been developed are detailed in Table 6.2. In some cases, historical volumes could not be recalculated based on the available data. For instance, CSOs influenced by river or creek elevation for which there was no available historic level data could not be recalculated for historical volumes but will be calculated or measured according to the revised SOPs as they are implemented.

To date, SOPs have been drafted and historical volume data corrections (where possible) have been made for all of the 33 initial CSO locations. These changes have also been made for two additional CSO locations included in the review due to interaction with priority CSOs. Multiple SOPs require programming or equipment changes in order to implement the final SOPs. During the upcoming reporting period, MSD will continue working to procure and replace equipment as required and update the programming at the PLC or with monitoring program logic, as shown in Table 6.2, to complete implementation of the SOPs.

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". As changes are made to flow meter locations and or flow meter calculation algorithms, 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 for the 33 CSO locations initially reviewed will be included as an appendix to the FY17 Consent Decree Annual Report.

The remaining 67 CSO locations will be reviewed during the upcoming fiscal year. In the upcoming reporting period, MSD will develop a schedule for review of these sites, begin the analysis, and provide a status update in future quarterly reports.

Table 6.2. CSO Flow Monitoring Quality Improvement – Review Status

CSO	FINAL SOP COMPLETED	HISTORICAL VOLUME REVISED	PROGRAMMING CHANGES COMPLETED	EQUIPMENT CHANGES COMPLETED
015	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
016	6/30/2017	N/A	TO BE COMPLETED	N/A
018	6/30/2017	N/A	TO BE COMPLETED	N/A
020	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
036	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
054	6/30/2017	N/A	N/A	N/A
058	6/30/2017	COMPLETED	N/A	N/A
088	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
093	6/30/2017	COMPLETED	N/A	N/A
104	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
105	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
106	6/30/2017	COMPLETED	N/A	N/A
108	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
109	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
110	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
118	6/30/2017	N/A	TO BE COMPLETED	TO BE COMPLETED
121	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
125	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
126	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
127	6/30/2017	N/A	N/A	N/A
130	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
132	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
140	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
146	6/30/2017	N/A	TO BE COMPLETED	TO BE COMPLETED
149	6/30/2017	N/A	TO BE COMPLETED	TO BE COMPLETED
154	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
160	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
166	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
167	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
189	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
190	6/30/2017	COMPLETED	TO BE COMPLETED	N/A
191	6/30/2017	COMPLETED	TO BE COMPLETED	TO BE COMPLETED
206	6/30/2017	COMPLETED	N/A	TO BE COMPLETED
210	6/30/2017	N/A	TO BE COMPLETED	N/A
211	6/30/2017	COMPLETED	TO BE COMPLETED	N/A

6.5. COLLECTION SYSTEM OVERFLOW PERFORMANCE

6.5.1. UNAUTHORIZED DISCHARGES TO WATERS OF US

MSD recorded information related to overflows reaching Waters of the United States (WUS) for the reporting period. This information is entered and maintained in Hansen utilizing procedures reviewed and improved through efforts associated with various components of the Amended Consent Decree. Details of these overflows are included in Appendix A-3 . During this quarter, 29 unauthorized discharges to WUS have been reported, summarized in Table 6.3.

Table 6.3. Dry and Wet Weather SSOs by Cause – Unauthorized Discharges to Waters of US

PROBLEM	DRY WEATHER	WET WEATHER
ELECTRICAL PROBLEMS AT MSD	0	2
LACK OF SYSTEM CAPACITY	0	19
MECHANICAL FAILURE	0	1
OBSTRUCTION-NOT GREASE / ROOTS	4	0
STRUCTURAL FAILURE	2	0
UTILITY DAMAGED MSD ASSET	1	0

6.5.2. OVERFLOWS TO THE EXTERIOR

MSD recorded information related to overflows to the ground that did not reach Waters of the United States for the reporting period. This information is entered and maintained in Hansen utilizing procedures reviewed and improved through efforts associated with various components of the Amended Consent Decree. These overflows will be included in the Annual Report for the period of July 1, 2016, through June 30, 2017.

6.5.3. OVERFLOWS TO INTERIOR

MSD recorded information related to overflows to building interiors for the reporting period. This information is entered and maintained in Hansen utilizing procedures reviewed and improved through efforts associated with various components of the Amended Consent Decree. These overflows, that are the result of an issue in the main line, will be included in the Annual Report for the period of July 1, 2016, through June 30, 2017.

6.6. GRAVITY LINE PREVENTIVE MAINTENANCE (GLPM)

Each quarter, data and statistics relating to the cleaning, inspection and maintenance of sewer assets performed under the Gravity Line Preventive Maintenance are reported. Data for the current and previous three reporting periods are shown in Table 6.4.

Targets have been developed for planned maintenance (PM) only, which includes any activities that are routinely scheduled to maintain asset condition and decrease its likelihood of failure. Unscheduled maintenance (UM) activities include those activities performed as a reaction to correct asset deficiencies.

Table 6.4. Rolling Quarterly GLPM Performance – By Activity

ACTIVITY	ACTIVITY TYPE	AREA	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	TOTAL	TARGET/QTR	% OF ANNUAL TARGET
Catch Basins Cleaned	PM	Combined System	3,610	3,921	6,995	6,799	21,325	4,460	38%
		Separate System	1,212	1,070	45	2,551	4,878	1,144	56%
	UM	Combined System	404	359	323	259	1,345	-	-
		Separate System	71	59	94	49	273	-	-
CSO Inspections	PM	Combined System	1,279	1,289	1,276	1,273	5,117	1,272	25%
CSO Debris Removal WO	UM		165	143	132	177	617	-	-
Sewer Main Chemical Root Treatment (LF)	UM	Combined System	0	60,912	602	0	61,514	-	-
		Separate System	0	60,069	267,194	0	327,263	-	-
Sewer Main Flushing and Cleaning (LF)	UM	Combined System	2,725	2,490	2,735	2,624	10,575	-	-
		Separate System	25,680	52,496	154,286	61,634	294,095	-	-
Sewer Main Inspections (LF)	PM	County Wide	90,162	486,473	265,419	235,246	1,077,299	396,000	15%
Sewer Main Root Cutting (LF)	UM	Combined System	250	0	0	1,067	1,317	-	-
		Separate System	7,200	7,098	13,357	13,357	21,865	-	-

APPENDICES

Appendix A	Discharge Work Orders
Appendix A-1	Discharge Work Orders – Dry Weather CSOs
Appendix A-2	Discharge Work Orders – Bypass
Appendix A-3	Discharge Work Orders – Unauthorized Discharges
Appendix B	CSO Flow Monitoring Data
Appendix C	Acronyms
Appendix D	SCAP Balance
Appendix E	IOAP Project Crosswalk
Appendix F	CSO108 Semi-Annual Report

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Appendix A-1 Discharge Work Orders – Dry Weather CSOs

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Appendix A-1 Discharge Work Orders – Dry Weather CSOs

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	1316 CASTLEWOOD DELL	4/13/17 9:00 AM	4/14/2017	124,387	SEWER MANHOLE	CSO151	STREAM	SOUTH FORK BEARGRASS CREEK	FLOWABLE FILL FOUND IN SEWER MAIN UPSTREAM AND DOWNSTREAM OF CSO DAM. SOURCE IDENTIFIED AS A REPAIR ON THE LWC MAIN AT EASTERN PARKWAY & QUADRANT AVE.	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2716342	NO CLEANUP PERFORMED - DISCHARGE DIRECTLY TO CREEK.	REMOVED FLOWABLE FILL FROM BAR SCREEN AND SIPHON TO RESTORE FLOW.
MORRIS FORMAN	KY0022411	1316 CASTLEWOOD DELL	5/9/17 12:17 PM	5/9/2017	25,400	SEWER MANHOLE	CSO151	STREAM	SOUTH FORK BEARGRASS CREEK	MSD CONTRACTOR CREW WORKING TO REPAIR OBSTRUCTION IN CSO151 IDENTIFIED OVERFLOW WHILE REMOVING MATERIAL FROM CSO CHAMBER.	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2728688	NO CLEANUP PERFORMED - DISCHARGE DIRECTLY TO CREEK.	SET PUMP TO PUMP CHAMBER BACK TO SANITARY SEWER.
MORRIS FORMAN	KY0022411	1316 CASTLEWOOD DELL	5/15/17 10:30 AM	5/17/2017	15,975	SEWER MANHOLE	CSO151	STREAM	SOUTH FORK BEARGRASS CREEK	POSSIBLY DUE TO MSD CONTRACTOR REMOVING HEAVY DEBRIS FROM DOWN STREAM SANITARY LINE.	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2731895	NO CLEANUP PERFORMED - DISCHARGE DIRECTLY TO CREEK.	MSD CONTRACTORS CONTINUE WORKING ON THE DOWN STREAM LINE.
MORRIS FORMAN	KY0022411	1218 S 3RD ST	6/2/17 11:20 AM	6/22/2017	306	SEWER MANHOLE	CSO197	STREAM	OHIO RIVER	OBSTRUCTION DOWNSTREAM OF WEIR.	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2743455	NO CLEAN UP PERFORMED - PIPE DISCHARGING TO CENTRAL RELIEF DRAIN.	MSD CREWS FLUSHED DOWNSTREAM LINE.
MORRIS FORMAN	KY0022411	1218 S 3RD ST	6/9/17 12:00 PM	6/11/2017	2,925	SEWER MANHOLE	CSO197	STREAM	OHIO RIVER	OBSTRUCTION	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2749987	NO CLEAN UP PERFORMED - PIPE DISCHARGING TO CENTRAL RELIEF DRAIN	MSD CREWS FLUSHED DOWNSTREAM LINE.
MORRIS FORMAN	KY0022411	1316 CASTLEWOOD DELL	6/28/17 5:06 PM	6/29/2017	111,260	SEWER MANHOLE	CSO151	STREAM	SOUTH FORK BEARGRASS CREEK	CONTRACTOR REMOVING HEAVY DEBRIS FROM DOWN STREAM SANITARY LINE.	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2768074	NO CLEAN UP REQUIRED DISCHARGING TO NEW IMPROVED CHANNEL	CONTRACTOR ARE WORKING ON REMOVING THE CUTTER FROM THE LINE

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Appendix A-2 Discharge Work Orders – Bypass

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Appendix A-2 Discharge Work Orders – Bypass

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

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 No Bypasses Occurred

 During the Reporting

 Period

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Appendix A-3 Discharge Work Orders – Unauthorized Discharges

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Appendix A-3 Discharge Work Orders – Unauthorized Discharges

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	10801 FAIRMOUNT RD	5/1/17 1:30 PM	5/1/2017	3,200	SEWER MAIN	78207	STREAM	CEDAR CREEK	STRUCTURAL FAILURE - FORCE MAIN BREAK - FAIRMOUNT ROAD FORCE MAIN.	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2725228	CLEAN AND SANITIZE THE IMPACTED AREA WHEN REPAIR IS COMPLETED.	PUMPS TURNED OFF AND WASTEWATER STORED DURING REPAIR. MSD CREWS AND CONTRACTOR ONSITE FOR REPAIRS.
CEDAR CREEK	KY0098540	9898 FAIRMOUNT RD	5/5/17 9:30 PM	5/5/2017	1,600	SEWER MANHOLE	78208	DITCH	CEDAR CREEK	LACK OF SYSTEM CAPACITY DUE TO RAIN EVENT	MECHANICAL FAILURE	DISREV RAIN EVENT DISCHARGE	2727535	MSD CLEANED AND SANITIZED AREA	FAIRMOUNT RD PUMPS TURNED OFF TO MINIMIZE FLOW DURING REV
DEREK R. GUTHRIE	KY0078956	5206 STONY BROOK DR	4/26/17 5:15 PM	4/26/2017	50	SEWER MANHOLE	99049	GROUND	WALNUT HILL BRANCH	OBSTRUCTION IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2721551	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	FLUSHED OBSTRUCTION FROM MAIN SEWER
HITE CREEK	KY0022420	6331 RIVER RD	5/17/17 5:43 PM	5/17/2017	100	SEWER MAIN	41872-V	CATCH BASIN	HARRODS CREEK	UTILITY (OR CONTRACTOR) DAMAGED MSD ASSET	UTILITY DAMAGED MSD ASSET	DISDW DRY WEATHER DISCHARGE	2733522	MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA	HAULED SEWAGE UNTIL FORCE MAIN COULD BE REPAIRED
MORRIS FORMAN	KY0022411	5233 ROLLINGWOOD TRL	4/10/17 11:07 AM	4/10/2017	175	SEWER MANHOLE	55082	DITCH	NORTHERN DITCH	ROOTS IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2714934	MSD PERSONNEL CLEANED AND SANITIZED IMPACTED AREA	REFERRED TO CREW TO REPAIR SEWER
MORRIS FORMAN	KY0022411	1726 FRASER DR	4/16/17 7:00 PM	4/16/2017	177,877	SEWER MANHOLE	16649	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2717514	WO# 2717530	CAUTION TAPE AND TEMPORARY SIGNS PLACED.
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	4/16/17 9:13 PM	4/17/2017	54,000	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2717467	WO# 2718272	CAUTION TAPE AND TEMPORARY SIGNS PLACED.
MORRIS FORMAN	KY0022411	1011 ALTA CIR	4/16/17 9:30 PM	4/17/2017	200,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2717468	WO# 2718346	CAUTION TAPE AND TEMPORARY SIGNS PLACED.
MORRIS FORMAN	KY0022411	1726 FRASER DR	4/29/17 3:45 AM	4/29/2017	3,500	SEWER MANHOLE	16649	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2724327	WO# 2724328	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	4/29/17 5:19 AM	4/29/2017	187,278	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2724325	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM.	LOCATION INCLUDED IN IOAP.
MORRIS FORMAN	KY0022411	2120 INDIAN HILLS TRL	4/29/17 6:53 AM	4/29/2017	6,630	SEWER MANHOLE	40871	DITCH	MIDDLE FORK BEARGRASS CREEK	ELECTRICAL PROBLEMS AT MSD	ELECTRICAL PROBLEMS AT MSD	DISREV RAIN EVENT DISCHARGE	2724286	MSD CLEANED AND SANITIZED AREA	MANUALLY STARTED TWO MORE PUMPS
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	4/29/17 8:00 AM	4/29/2017	36,000	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2724312	WO# 2724388	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	4/29/17 8:15 AM	4/29/2017	10,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2724315	WO# 2724389	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	201 BULLITT LN	4/29/17 8:50 AM	4/29/2017	20,000	SEWER MANHOLE	47582	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2724318	WO# 2724391	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	202 OXMOOR LN	4/29/17 8:50 AM	4/29/2017	20,000	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2724317	WO# 2724390	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	2105 INDIAN HILLS TRL	4/29/17 12:40 PM	4/29/2017	525	SEWER MANHOLE	40872	GROUND	MIDDLE FORK BEARGRASS CREEK	ELECTRICAL PROBLEMS AT MSD	ELECTRICAL PROBLEMS AT MSD	DISREV RAIN EVENT DISCHARGE	2724335	MSD CLEANED AREA	MANUALLY STARTED TWO MORE PUMPS
MORRIS FORMAN	KY0022411	1726 FRASER DR	5/4/17 9:30 PM	5/5/2017	48,000	SEWER MANHOLE	16649	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2726777	WO# 2727557	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	5/5/17 7:06 AM	5/6/2017	43,200	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2726810	WO# 2727558	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	5/5/17 7:20 AM	5/6/2017	216,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2726811	WO# 2727559	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1012 ALTA CIR	5/5/17 7:30 AM	5/5/2017	7,500	SEWER MANHOLE	40559	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2726814	WO# 2727507	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1700 SULGRAVE RD	5/5/17 7:30 AM	5/5/2017	37,500	SEWER MANHOLE	72289	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2726812	WO# 2727506	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	5/5/17 7:57 AM	5/6/2017	1,697,213	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2726804	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	202 OXMOOR LN	5/5/17 8:13 AM	5/6/2017	144,000	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2726815	WO# 2727560	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	5/5/17 9:18 AM	5/5/2017	21,000	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2726830	WO# 2727510	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	5/5/17 10:20 AM	5/5/2017	3,600	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2727376	WO# 2727512	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	3506 CHARLANE PKY	5/5/17 10:42 AM	5/5/2017	9,000	SEWER MANHOLE	28250	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY-HEAVY RAIN.	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2727374	WO# 2727511	LOCATION INCLUDED IN IOAP
MORRIS FORMAN	KY0022411	310 BRUNSWICK RD	5/7/17 5:45 PM	5/7/2017	60	SEWER MANHOLE	21425	GROUND	MIDDLE FORK BEARGRASS CREEK	OBSTRUCTION IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2727751	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	FLUSHED OBSTRUCTION FROM THE MAIN SEWER
MORRIS FORMAN	KY0022411	1926 ARBORO PL	6/10/17 4:22 PM	6/10/2017	50	SEWER MANHOLE	02276	GROUND	SOUTH FORK BEARGRASS CREEK	OBSTRUCTION IN MAIN SEWER	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2750146	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	FLUSHED THE OBSTRUCTION FROM THE SEWER
MORRIS FORMAN	KY0022411	5222 BLAKELY RIDGE RD	6/29/17 11:57 AM	6/29/2017	150,000	SEWER VALVE	69053B-V	GROUND	MIDDLE FORK BEARGRASS CREEK	STRUCTURAL FAILURE (ARV FAILED/BUSTED OUT TOP)	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2768409	WO# 2768437	REPLACED TOP OF FAILED ARV (WO# 2768436)

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Appendix B CSO Flow Monitoring Data

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CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count	
CSO019	4/3/17 7:15 PM	4/3/17 8:15 PM	60	0.20	17,746	0.39	0.11	1	Atlas	3,549.17		
	4/16/17 4:15 AM	4/16/17 11:00 PM	1125	1.23	3,408,108	1.44	0.47	24	Atlas	4,191,973.08		
	4/21/17 10:15 PM	4/22/17 1:15 AM	180	0.72	2,990,363	1.90				2,153,061.12		
	4/27/17 6:30 AM	4/27/17 8:15 AM	105	0.15	3,048,291	0.96	0.09	1	Atlas	457,243.65		
	4/28/17 11:15 PM	4/29/17 2:45 AM	210	2.34	3,585,426	2.54	1.92	6	Cloudburst	8,389,897.38		
	6/30/17 9:00 PM	6/30/17 10:15 PM	75	0.74	1,547,018	0.00				1,144,792.97		
CSO019 Total										16,340,517.36	6	
CSO027	6/30/17 9:15 PM	6/30/17 9:15 PM	0	0.74	4,817	0.00				3,564.28		
CSO027 Total										3,564.28	1	
CSO028	5/21/17 3:00 AM	5/21/17 3:15 AM	15	1.09	2,832	0.79				3,086.92		
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	13,588	0.00				10,055.18		
CSO028 Total										13,142.09	2	
CSO029	4/29/17 1:45 AM	4/29/17 3:00 AM	75	1.10	26,923	1.35				29,614.98		
	5/4/17 8:00 PM	5/5/17 4:45 AM	525	1.56	19,417	2.26				30,289.92		
	5/21/17 2:15 AM	5/21/17 3:00 AM	45	1.09	49,985	0.74				54,484.13		
	5/27/17 2:15 PM	5/27/17 2:15 PM	0	0.12	218,243	1.66	3.13	1	Atlas	26,189.10		
	6/15/17 4:00 AM	6/15/17 4:00 AM	0	0.49	11,077	0.00				5,427.51		
	6/23/17 3:15 PM	6/23/17 4:00 PM	45	1.27	12,979	0.00				16,483.79		
	6/30/17 9:00 PM	6/30/17 9:15 PM	15	0.74	246,389	0.00				182,327.80		
CSO029 Total										344,817.24	7	
CSO031	5/1/17 2:30 AM	5/1/17 4:15 AM	105	0.25	70,999	1.48	22.86	3	Atlas	17,749.67		
	5/4/17 12:30 AM	5/4/17 12:30 AM	0	0.01	102,118	1.51				1,021.18		
	6/18/17 10:30 PM	6/18/17 10:30 PM	0	0.14	20,609	0.00				2,885.27		
CSO031 Total										21,656.11	3	
CSO034	4/29/17 1:45 AM	4/29/17 2:45 AM	60	1.10	7,780	1.34				8,557.83		
	5/21/17 3:00 AM	5/21/17 3:00 AM	0	1.09	5,627	0.74				6,133.75		
	5/27/17 2:15 PM	5/27/17 2:15 PM	0	0.12	32,304	1.66	3.13	1	Atlas	3,876.47		
	6/5/17 6:30 PM	6/5/17 6:30 PM	0	0.42	8,528	0.01				3,581.80		
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	37,557	0.00				27,792.25		
CSO034 Total										49,942.10	5	
CSO035	4/16/17 1:30 PM	4/16/17 5:45 PM	255	1.16	24,439	0.77	5.12	6	Cloudburst	28,348.98		
	4/29/17 1:45 AM	4/29/17 3:00 AM	75	0.90	970,776	1.17	4.02	6	Cloudburst	873,698.00		
	5/4/17 8:00 PM	5/4/17 8:00 PM	0	1.60	5,438	1.68	7.90	24	Cloudburst	8,700.90		
	5/5/17 4:45 AM	5/5/17 4:45 AM	0	1.60	5	2.13	7.90	24	Cloudburst	7.98		
	5/20/17 6:45 PM	5/21/17 5:45 AM	660	0.98	972,669	1.01	3.40	12	Cloudburst	953,215.40		
	5/27/17 2:15 PM	5/27/17 2:15 PM	0	0.12	1,797,758	1.58	0.26	1	Atlas	215,730.98		
	6/5/17 8:45 AM	6/5/17 9:00 AM	15	0.15	874,302	0.01				131,145.23		
	6/5/17 6:30 PM	6/5/17 6:30 PM	0	0.42	485,252	0.01				203,805.94		
	6/15/17 3:15 AM	6/15/17 4:00 AM	45	0.49	475,676	0.00				233,081.03		
	6/23/17 3:30 PM	6/23/17 4:00 PM	30	1.27	114,585	0.00				145,522.74		
	6/30/17 9:00 PM	6/30/17 9:15 PM	15	0.74	651,511	0.00				482,117.96		
	CSO035 Total										3,275,375.13	11
	CSO036	4/27/17 2:15 PM	4/28/17 7:45 AM	1050	0.16	240,046	0.85	0.34	1	Atlas	38,407.38	
4/28/17 11:30 PM		4/29/17 1:30 PM	840	0.90	520,396	1.29	4.02	6	Cloudburst	468,356.67		
5/1/17 4:00 AM		5/1/17 4:00 AM	0	0.30	12,105	1.34	0.50	3	Atlas	3,631.36		
5/4/17 7:45 PM		5/5/17 10:15 AM	870	1.60	66,626	2.64	7.90	24	Cloudburst	106,601.93		
5/20/17 7:00 PM		5/21/17 5:45 AM	645	0.98	70,380	1.01	3.40	12	Cloudburst	68,972.86		
6/5/17 6:45 PM		6/5/17 6:45 PM	0	0.42	7,584	0.01				3,185.16		
6/27/17 1:15 AM		6/27/17 1:15 AM	0	0.16	48,565	0.00				7,770.32		
6/30/17 9:00 PM		6/30/17 10:45 PM	105	0.74	1,188,318	0.00				879,355.17		
CSO036 Total										1,576,280.85	8	
CSO051	4/16/17 5:30 AM	4/16/17 5:30 PM	720	1.26	5,569	0.91	19.07	24	Atlas	7,016.84		
	4/28/17 11:15 PM	4/29/17 3:45 AM	270	1.28	51,136	1.63	98.04	6	Cloudburst	65,454.66		
	4/29/17 5:45 PM	4/29/17 5:45 PM	0	1.28	280	1.44	98.04	6	Cloudburst	358.51		
	5/4/17 8:30 PM	5/4/17 8:30 PM	0	1.66	2,950	1.99	39.47	24	Atlas	4,896.82		
	5/5/17 4:45 AM	5/5/17 4:45 AM	0	1.66	999	2.33	39.47	24	Atlas	1,658.64		
	5/20/17 6:45 PM	5/21/17 4:30 AM	585	1.46	36,391	1.31	98.46	12	Atlas	53,131.08		

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
CSO051	5/27/17 2:00 PM	5/27/17 2:00 PM	0	0.27	48,576	2.26	0.87	1	Atlas	13,115.44	
	6/5/17 6:15 PM	6/5/17 6:15 PM	0	0.42	25,604	0.01				10,753.84	
	6/13/17 4:45 PM	6/13/17 4:45 PM	0	0.13	91,230	0.00				11,859.95	
	6/15/17 3:00 AM	6/15/17 3:45 AM	45	0.49	81,745	0.00				40,054.88	
	6/23/17 3:15 PM	6/23/17 5:15 PM	120	1.27	4,014	0.00				5,097.58	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	6,512	0.00				4,818.90	
CSO051 Total										218,217.14	12
CSO053	4/16/17 7:30 PM	4/16/17 7:30 PM	0	1.24	1,384	1.16	435.55	24	Cloudburst	1,715.77	
	5/25/17 2:30 PM	5/25/17 3:30 PM	60	0.47	2,636	1.86	1.98	24	Cloudburst	1,238.97	
	6/5/17 6:15 PM	6/5/17 6:30 PM	15	0.42	1,642	0.02				689.74	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	216	0.00				159.83	
CSO053 Total									3,804.31	4	
CSO055	4/3/17 7:30 PM	4/4/17 1:15 PM	1065	0.21	185,710	0.47	0.79	1	Atlas	38,999.19	
	4/11/17 6:15 AM	4/11/17 6:15 AM	0	0.39	1,241	0.19	2.68	12	Cloudburst	484.11	
	4/16/17 5:30 AM	4/16/17 9:30 PM	960	1.24	57,456	1.58	435.55	24	Cloudburst	71,245.44	
	4/21/17 10:30 PM	4/21/17 10:30 PM	0	0.73	567	1.74				414.25	
	4/29/17 1:45 AM	4/29/17 8:00 AM	375	1.25	117,194	1.52				146,492.92	
	5/1/17 3:45 AM	5/1/17 3:45 AM	0	0.24	1,932	1.61	0.93	3	Atlas	463.56	
	5/4/17 8:00 PM	5/5/17 3:00 PM	1140	1.66	88,454	3.09				146,834.14	
	5/11/17 3:45 AM	5/11/17 3:45 AM	0	0.20	20,948	1.88				4,189.51	
	5/20/17 6:45 PM	5/21/17 6:15 AM	690	1.34	140,752	1.37				188,607.92	
	5/27/17 2:00 PM	5/27/17 2:15 PM	15	0.19	35,332	1.98	1.17	1	Atlas	6,713.00	
	6/5/17 8:45 AM	6/5/17 8:45 AM	0	0.15	171,666	0.02				25,749.88	
	6/13/17 5:00 PM	6/13/17 5:15 PM	15	0.13	8,722	0.00				1,133.88	
	6/15/17 3:00 AM	6/15/17 5:45 AM	165	0.49	8,758	0.00				4,291.36	
	6/23/17 3:15 PM	6/23/17 8:15 PM	300	1.27	31,106	0.00				39,504.52	
6/30/17 9:00 PM	6/30/17 9:15 PM	15	0.74	73,806	0.00				54,616.55		
CSO055 Total									729,740.23	15	
CSO058	4/3/17 7:15 PM	4/3/17 7:45 PM	30	0.16	25,208	0.38	0.10	1	Atlas	4,033.29	
	4/11/17 6:15 AM	4/11/17 12:00 PM	345	0.33	121,424	0.38	0.15	12	Atlas	40,069.80	
	4/16/17 4:30 AM	4/16/17 9:15 PM	1005	1.13	16,623	1.42	0.43	24	Atlas	18,783.69	
	4/21/17 8:45 PM	4/22/17 12:15 AM	210	0.71	46,674	1.75				33,138.28	
	4/28/17 11:15 PM	4/29/17 3:15 AM	240	1.07	41,506	1.41	0.55	6	Atlas	44,411.71	
	5/1/17 2:15 AM	5/1/17 4:00 AM	105	0.23	7,365	1.41	0.13	3	Atlas	1,693.99	
	5/4/17 2:45 PM	5/5/17 11:45 AM	1260	1.66	4,134	2.85	0.56	24	Atlas	6,861.85	
	5/6/17 8:45 AM	5/6/17 8:45 AM	0	0.09	68	1.99	0.05	3	Atlas	6.10	
	5/11/17 3:45 AM	5/11/17 5:30 AM	105	0.18	41,830	1.90				7,529.43	
	5/20/17 6:45 PM	5/21/17 7:00 AM	735	1.08	22,464	1.13	0.49	12	Atlas	24,261.57	
	5/24/17 3:45 PM	5/25/17 9:15 AM	1050	0.49	41,994	1.61	0.17	24	Atlas	20,577.01	
	5/27/17 1:45 PM	5/27/17 2:30 PM	45	0.35	87,576	1.90	0.29	1	Atlas	30,651.52	
	6/5/17 8:45 AM	6/5/17 8:45 AM	0	0.15	2,124	0.00				318.65	
	6/5/17 6:15 PM	6/5/17 6:30 PM	15	0.42	3,119	0.00				1,310.09	
	6/13/17 5:00 PM	6/13/17 5:00 PM	0	0.13	1,899	0.00				246.92	
	6/15/17 3:00 AM	6/15/17 10:00 AM	420	0.49	105,538	0.00				51,713.57	
	6/18/17 9:30 PM	6/18/17 10:15 PM	45	0.16	3,335	0.00				533.65	
	6/22/17 3:45 PM	6/22/17 7:00 PM	195	0.41	2,662	0.00				1,091.31	
	6/23/17 7:45 AM	6/23/17 5:45 PM	600	1.27	1,723	0.00				2,187.73	
6/27/17 2:00 AM	6/27/17 2:00 AM	0	0.16	982	0.00				157.06		
6/30/17 9:00 PM	6/30/17 9:15 PM	15	0.74	681	0.00				504.23		
CSO058 Total									290,081.45	21	
CSO082	4/29/17 1:45 AM	4/29/17 4:00 AM	135	0.90	305,374	1.14	55.88	6	Cloudburst	274,836.46	
	5/4/17 8:15 PM	5/5/17 10:00 AM	825	1.69	92,269	2.66	183.41	24	Cloudburst	155,933.96	
	5/21/17 3:00 AM	5/21/17 5:45 AM	165	1.04	102,277	1.06	53.85	12	Atlas	106,368.30	
	6/15/17 4:00 AM	6/15/17 4:00 AM	0	0.83	317	0.00				263.49	
CSO082 Total									537,402.21	4	
CSO083	4/29/17 2:00 AM	4/29/17 2:30 AM	30	0.89	68,984	1.06	55.88	6	Cloudburst	61,395.86	
	5/21/17 3:00 AM	5/21/17 3:30 AM	30	1.04	32,912	0.81	50.00	12	Atlas	34,228.39	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
CSO083	6/5/17 6:15 PM	6/5/17 6:15 PM	0	0.42	3,845	0.01				1,614.92	
CSO083 Total										97,239.16	3
CSO084	4/16/17 1:15 PM	4/16/17 8:30 PM	435	1.20	2,105	1.41	60.78	6	Cloudburst	2,525.76	
	4/27/17 6:45 AM	4/27/17 7:00 AM	15	0.21	9,847	0.81	0.78	1	Atlas	2,067.90	
	4/29/17 3:15 AM	4/29/17 3:15 AM	0	0.89	673	1.21	55.88	6	Cloudburst	598.57	
	5/4/17 7:45 PM	5/5/17 6:45 AM	660	1.70	2,880	2.42				4,896.16	
	5/20/17 6:30 PM	5/21/17 5:45 AM	675	1.04	5,893	1.05	50.00	12	Atlas	6,128.48	
	5/24/17 6:30 PM	5/24/17 7:00 PM	30	0.56	3,726	1.47	1.04	24	Cloudburst	2,086.66	
	5/27/17 2:15 PM	5/27/17 2:15 PM	0	0.22	6,292	1.80	0.87	1	Atlas	1,384.30	
	6/5/17 9:15 AM	6/5/17 9:15 AM	0	0.15	6,695	0.01				1,004.22	
	6/15/17 4:30 AM	6/15/17 4:30 AM	0	0.49	1,674	0.00				820.03	
	6/22/17 7:00 PM	6/22/17 7:15 PM	15	0.36	9,205	0.00				3,313.85	
	6/23/17 4:15 PM	6/23/17 4:15 PM	0	1.27	618	0.00				784.67	
CSO084 Total										25,610.59	11
CSO088	4/16/17 1:45 PM	4/16/17 8:45 PM	420	1.12	8,877	1.34	88.12	24	Cloudburst	9,942.59	
	4/29/17 2:15 AM	4/29/17 4:00 AM	105	1.12	64,275	1.38				71,988.43	
	5/4/17 8:30 PM	5/5/17 5:30 AM	540	1.69	32,984	2.50	462.09	24	Cloudburst	55,743.45	
	5/21/17 3:30 AM	5/21/17 6:00 AM	150	1.05	44,902	1.07	216.36	12	Cloudburst	47,147.18	
	5/27/17 2:30 PM	5/27/17 2:45 PM	15	0.35	48,253	1.96	10.91	1	Atlas	16,888.62	
	6/15/17 3:15 AM	6/15/17 3:30 AM	15	0.49	97,018	0.00				47,538.58	
	6/23/17 3:30 PM	6/23/17 4:00 PM	30	1.27	25,840	0.00				32,816.84	
	6/30/17 9:15 PM	6/30/17 9:15 PM	0	0.74	12,857	0.00				9,513.94	
CSO088 Total										291,579.65	8
CSO092	4/29/17 1:45 AM	4/29/17 2:30 AM	45	0.97	721	1.10	111.88	3	Cloudburst	699.31	
	5/20/17 6:30 PM	5/20/17 6:30 PM	0	1.11	379	0.33	73.08	12	Atlas	420.93	
	6/5/17 8:45 AM	6/5/17 8:45 AM	0	0.15	3,603	0.00				540.52	
	6/5/17 6:15 PM	6/5/17 6:15 PM	0	0.42	1,428	0.00				599.94	
	6/15/17 3:00 AM	6/15/17 3:00 AM	0	0.49	709	0.00				347.48	
	6/23/17 3:15 PM	6/23/17 3:45 PM	30	1.27	242	0.00				307.42	
CSO092 Total										2,915.59	6
CSO104	4/29/17 2:15 AM	4/29/17 3:45 AM	90	1.64	306,444	1.85	71.57	6	Cloudburst	502,568.00	
	5/21/17 3:00 AM	5/21/17 5:45 AM	165	1.09	420,569	1.20	4.71	12	Cloudburst	458,420.09	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	10,918	0.00				8,079.23	
CSO104 Total										969,067.31	3
CSO105	4/3/17 7:15 PM	4/3/17 9:30 PM	135	0.22	74,005	0.35	0.37	1	Atlas	16,281.00	
	4/6/17 1:30 AM	4/6/17 4:45 AM	195	0.05	315,869	0.47				15,793.43	
	4/11/17 6:00 AM	4/11/17 2:00 PM	480	0.27	60,723	0.40	0.37	12	Atlas	16,395.19	
	4/21/17 7:30 PM	4/22/17 1:00 PM	1050	0.74	2,325,393	1.75				1,720,791.16	
	4/27/17 6:15 AM	4/27/17 8:30 AM	135	0.20	734,688	0.98	0.37	1	Atlas	146,937.50	
	4/28/17 10:30 PM	4/29/17 11:30 AM	780	1.64	8,793,326	2.17	71.57	6	Cloudburst	14,421,054.70	
	5/1/17 2:00 AM	5/1/17 5:00 AM	180	0.24	145,394	2.08	0.36	3	Atlas	34,894.63	
	5/4/17 2:45 AM	5/5/17 2:15 PM	2130	2.15	7,889,502	4.15	32.89	24	Atlas	16,962,428.24	
	5/6/17 3:45 PM	5/6/17 4:30 PM	45	0.19	54,713	2.58	0.29	1	Atlas	10,395.54	
	5/11/17 3:45 AM	5/11/17 5:45 AM	120	0.17	80,766	2.46				13,730.24	
	5/19/17 5:30 PM	5/19/17 6:15 PM	45	0.12	187,578	0.13				22,509.40	
	5/20/17 4:00 AM	5/20/17 4:00 AM	0	0.01	82,667	0.14				826.67	
	5/20/17 6:30 PM	5/21/17 8:45 AM	855	1.09	18,961,585	1.23	4.71	12	Cloudburst	20,668,128.17	
	5/24/17 9:30 AM	5/25/17 10:30 AM	1500	0.65	890,592	1.88	0.72	24	Atlas	578,884.72	
	5/27/17 1:45 PM	5/27/17 4:30 PM	165	0.12	8,097,305	1.84	0.23	1	Atlas	971,676.62	
	6/5/17 8:30 AM	6/5/17 8:45 AM	15	0.15	82,828	0.01				12,424.22	
	6/5/17 6:15 PM	6/6/17 2:00 AM	465	0.42	3,005,736	0.01				1,262,409.03	
	6/14/17 9:00 PM	6/15/17 6:30 AM	570	0.49	4,602,214	0.00				2,255,084.93	
	6/18/17 8:45 PM	6/18/17 11:15 PM	150	0.16	100,500	0.00				16,080.04	
	6/22/17 3:30 PM	6/23/17 7:30 PM	1680	0.41	11,152,953	0.00				4,572,710.69	
	6/24/17 4:00 AM	6/24/17 4:15 AM	15	1.27	19,205	0.00				24,389.91	
	6/27/17 1:15 AM	6/27/17 2:15 AM	60	0.16	29,485	0.00				4,717.64	
	6/30/17 9:00 PM	6/30/17 11:45 PM	165	0.74	5,063,468	0.00				3,746,966.46	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
CSO105 Total										67,495,510.13	23
CSO108	4/16/17 5:45 PM	4/16/17 10:00 PM	255	1.27	84,784	1.80	0.60	3	Atlas	107,675.90	
	4/29/17 2:15 AM	4/29/17 11:45 AM	570	1.50	297,952	2.15	0.90	1	Atlas	446,927.42	
	6/5/17 6:30 PM	6/5/17 6:30 PM	0	0.42	207,170	0.00				87,011.61	
	6/23/17 4:00 PM	6/24/17 6:30 AM	870	1.27	28,344	0.00				35,996.37	
	6/30/17 9:15 PM	6/30/17 9:15 PM	0	0.74	39,405	0.00				29,159.74	
CSO108 Total										706,771.03	5
CSO109	4/16/17 1:30 PM	4/16/17 7:30 PM	360	1.19	541,291	1.28	1.58	6	Cloudburst	644,136.41	
	4/27/17 7:00 AM	4/27/17 7:00 AM	0	0.35	181,869	0.92	0.49	1	Atlas	63,654.11	
	4/29/17 2:00 AM	4/29/17 3:15 AM	75	1.34	1,206,304	1.80	9.23	1	Atlas	1,616,447.76	
	5/4/17 8:00 PM	5/4/17 8:30 PM	30	1.75	185,152	2.46	1.71	24	Cloudburst	324,015.73	
	5/5/17 4:45 AM	5/5/17 4:45 AM	0	1.75	5,114	2.92	1.71	24	Cloudburst	8,949.15	
	5/21/17 4:00 AM	5/21/17 4:15 AM	15	1.19	38,536	0.85	0.97	12	Atlas	45,858.29	
	6/5/17 6:30 PM	6/5/17 6:30 PM	0	0.42	671,364	0.01				281,973.03	
	6/15/17 3:15 AM	6/15/17 3:15 AM	0	0.49	416,756	0.00				204,210.28	
	6/23/17 3:45 PM	6/23/17 4:15 PM	30	1.27	345,611	0.00				438,926.20	
	6/30/17 9:15 PM	6/30/17 9:15 PM	0	0.74	402,867	0.00				298,121.28	
CSO109 Total										3,926,292.23	10
CSO110	4/11/17 11:30 AM	4/11/17 12:45 PM	75	0.37	87	0.37	0.34	12	Atlas	32.24	
	4/16/17 5:45 PM	4/16/17 10:30 PM	285	1.18	868	1.53	1.64	6	Cloudburst	1,024.43	
	4/22/17 12:30 AM	4/22/17 12:45 AM	15	0.58	22	1.65				13.01	
	4/27/17 7:00 AM	4/27/17 7:45 AM	45	0.16	718	0.77	0.17	6	Atlas	114.88	
	4/29/17 2:00 AM	4/29/17 7:00 AM	300	0.91	2,400	1.20	1.27	3	Atlas	2,184.19	
	5/1/17 4:00 AM	5/1/17 5:00 AM	60	0.30	728	1.37	0.33	3	Atlas	218.44	
	5/4/17 8:15 PM	5/5/17 9:15 PM	1500	1.85	1,097	3.06	2.36	24	Cloudburst	2,030.18	
	5/6/17 9:00 AM	5/6/17 10:00 AM	60	0.10	378	2.24	0.11	3	Atlas	37.77	
	5/20/17 7:00 PM	5/21/17 8:45 AM	825	1.14	1,123	1.16	1.05	12	Cloudburst	1,280.70	
	5/24/17 6:15 PM	5/24/17 10:15 PM	240	0.72	746	1.78	0.52	24	Atlas	537.24	
	6/5/17 9:15 AM	6/5/17 10:00 AM	45	0.15	1,147	0.00				172.11	
	6/5/17 6:45 PM	6/5/17 7:30 PM	45	0.42	359	0.00				150.68	
	6/15/17 3:15 AM	6/15/17 6:45 AM	210	0.49	1,265	0.00				619.71	
	6/22/17 7:00 PM	6/22/17 8:15 PM	75	1.27	169	0.00				214.17	
	6/23/17 3:30 PM	6/23/17 7:30 PM	240	1.27	742	0.00				942.78	
	6/30/17 9:15 PM	6/30/17 10:15 PM	60	0.74	1,516	0.00				1,121.64	
CSO110 Total										10,694.16	16
CSO111	4/16/17 6:00 PM	4/16/17 7:30 PM	90	1.18	1,275	1.15	1.64	6	Cloudburst	1,504.51	
	4/29/17 2:00 AM	4/29/17 2:45 AM	45	0.91	24,927	1.14	1.27	3	Atlas	22,683.92	
	6/15/17 3:15 AM	6/15/17 3:15 AM	0	0.49	19,789	0.00				9,696.59	
	6/30/17 9:15 PM	6/30/17 9:30 PM	15	0.74	54,220	0.00				40,122.60	
CSO111 Total										74,007.63	4
CSO118	4/3/17 7:15 PM	4/3/17 11:15 PM	240	0.11	473,819	0.63	0.35	1	Atlas	52,120.09	
	4/11/17 4:30 AM	4/11/17 3:00 PM	630	0.35	12,929	0.43	0.80	12	Atlas	4,525.16	
	4/16/17 4:30 AM	4/16/17 9:30 PM	1020	1.20	1,797,078	1.50	60.78	6	Cloudburst	2,156,493.02	
	4/21/17 7:30 PM	4/22/17 1:15 PM	1065	0.59	842,679	1.82				497,180.70	
	4/27/17 6:30 AM	4/27/17 7:30 AM	60	0.21	1,213,883	0.81	0.78	1	Atlas	254,915.42	
	4/28/17 10:45 PM	4/29/17 8:45 AM	600	0.89	6,431,671	1.37	55.88	6	Cloudburst	5,724,187.25	
	5/1/17 2:15 AM	5/1/17 4:15 AM	120	0.19	502,109	1.29				95,400.69	
	5/4/17 8:30 AM	5/5/17 10:15 AM	1545	1.70	2,495,026	2.66				4,241,544.93	
	5/6/17 8:45 AM	5/6/17 8:45 AM	0	0.09	595	1.98	0.23	3	Atlas	53.55	
	5/11/17 3:45 AM	5/11/17 5:45 AM	120	0.16	8,255	1.91	0.38	6	Atlas	1,320.78	
	5/19/17 6:00 PM	5/19/17 6:30 PM	30	0.03	33,241	0.03				997.24	
	5/20/17 6:30 PM	5/21/17 7:00 AM	750	1.04	6,494,859	1.08	50.00	12	Atlas	6,754,653.66	
	5/24/17 10:30 AM	5/25/17 10:00 AM	1410	0.56	750,016	1.64	1.04	24	Cloudburst	420,009.15	
	5/27/17 2:00 PM	5/27/17 2:45 PM	45	0.22	3,921,435	1.80	0.87	1	Atlas	862,715.79	
	6/5/17 8:45 AM	6/5/17 10:00 AM	75	0.15	12,498,081	0.01				1,874,712.15	
	6/5/17 6:15 PM	6/5/17 7:00 PM	45	0.42	2,351,740	0.01				987,730.84	
	6/13/17 5:00 PM	6/13/17 5:30 PM	30	0.13	13,896	0.00				1,806.45	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
CSO118	6/15/17 3:00 AM	6/15/17 6:45 AM	225	0.49	4,425,485	0.00				2,168,487.84	
	6/18/17 9:30 PM	6/18/17 10:00 PM	30	0.16	9,344	0.00				1,495.01	
	6/22/17 3:15 PM	6/22/17 7:45 PM	270	1.27	253,876	0.00				322,423.03	
	6/23/17 7:45 AM	6/23/17 6:30 PM	645	1.27	1,466,936	0.00				1,863,008.17	
	6/27/17 1:30 AM	6/27/17 2:30 AM	60	0.16	8,333	0.00				1,333.27	
	6/30/17 9:00 PM	6/30/17 9:45 PM	45	0.74	2,449,143	0.00				1,812,365.67	
CSO118 Total										30,099,479.84	23
CSO119	4/16/17 5:15 AM	4/16/17 8:30 PM	915	1.20	160,612	1.41	60.78	6	Cloudburst	192,734.42	
	4/21/17 11:15 PM	4/22/17 12:00 AM	45	0.59	41,518	1.65				24,495.53	
	4/27/17 6:45 AM	4/27/17 7:00 AM	15	0.21	132,179	0.81	0.78	1	Atlas	27,757.53	
	4/29/17 1:30 AM	4/29/17 3:15 AM	105	0.89	297,050	1.21	55.88	6	Cloudburst	264,374.47	
	5/1/17 3:45 AM	5/1/17 3:45 AM	0	0.19	99,330	1.29				18,872.77	
	5/4/17 7:45 PM	5/5/17 9:00 AM	795	1.70	189,803	2.62				322,665.90	
	5/20/17 6:30 PM	5/21/17 5:45 AM	675	1.04	467,578	1.05	50.00	12	Atlas	486,281.49	
	5/24/17 6:15 PM	5/24/17 7:00 PM	45	0.56	102,592	1.47	1.04	24	Cloudburst	57,451.78	
	5/27/17 2:00 PM	5/27/17 2:15 PM	15	0.22	182,382	1.80	0.87	1	Atlas	40,123.97	
	6/5/17 8:30 AM	6/5/17 9:00 AM	30	0.15	586,754	0.01				88,013.14	
	6/5/17 6:00 PM	6/5/17 6:30 PM	30	0.42	123,970	0.01				52,067.39	
	6/15/17 2:45 AM	6/15/17 4:15 AM	90	0.49	305,686	0.00				149,786.31	
	6/22/17 6:30 PM	6/22/17 7:15 PM	45	0.36	153,881	0.00				55,397.09	
	6/23/17 3:00 PM	6/23/17 4:15 PM	75	0.69	213,773	0.00				147,503.03	
	6/30/17 8:45 PM	6/30/17 9:15 PM	30	0.74	118,166	0.00				87,443.00	
CSO119 Total										2,014,967.83	15
CSO120	4/3/17 7:30 PM	4/3/17 7:30 PM	0	0.15	58,168	0.43	0.48	1	Atlas	8,725.17	
	4/11/17 4:45 AM	4/11/17 4:45 AM	0	0.34	64,065	0.10	0.78	12	Atlas	21,782.08	
	4/16/17 1:30 PM	4/16/17 8:30 PM	420	1.29	164,732	1.49	71.25	24	Cloudburst	212,503.92	
	4/21/17 11:45 PM	4/21/17 11:45 PM	0	0.67	8,546	1.79				5,725.61	
	4/27/17 6:45 AM	4/27/17 7:00 AM	15	0.10	393,804	0.79	0.27	6	Atlas	39,380.39	
	4/29/17 12:15 AM	4/29/17 3:15 AM	180	0.90	397,093	1.14	55.88	6	Cloudburst	357,383.55	
	5/1/17 4:00 AM	5/1/17 4:00 AM	0	0.24	125,593	1.22	0.63	3	Atlas	30,142.42	
	5/4/17 7:45 PM	5/5/17 9:00 AM	795	1.69	207,330	2.63	183.41	24	Cloudburst	350,387.50	
	5/11/17 3:45 AM	5/11/17 3:45 AM	0	0.18	24,774	1.88				4,459.32	
	5/20/17 6:45 PM	5/21/17 5:45 AM	660	1.04	506,358	1.06	53.85	12	Atlas	526,611.98	
	5/24/17 6:30 PM	5/24/17 7:00 PM	30	0.54	82,858	1.43	0.96	24	Atlas	44,743.42	
	5/27/17 2:15 PM	5/27/17 2:15 PM	0	0.29	450,293	1.85	1.87	1	Atlas	130,584.87	
	6/5/17 9:00 AM	6/5/17 9:00 AM	0	0.15	240,365	0.01				36,054.78	
	6/5/17 6:30 PM	6/5/17 6:30 PM	0	0.42	13,790	0.01				5,791.71	
	6/15/17 3:15 AM	6/15/17 4:15 AM	60	0.49	275,965	0.00				135,222.80	
	6/22/17 6:45 PM	6/22/17 7:15 PM	30	1.27	38,658	0.00				49,096.05	
	6/23/17 3:30 PM	6/23/17 4:15 PM	45	1.27	154,352	0.00				196,027.43	
6/30/17 9:00 PM	6/30/17 9:15 PM	15	0.74	149,354	0.00				110,521.69		
CSO120 Total										2,265,144.70	18
CSO121	5/21/17 3:45 AM	5/21/17 3:45 AM	0	1.04	4,660	0.83	53.85	12	Atlas	4,846.78	
	6/5/17 8:45 AM	6/5/17 9:15 AM	30	0.15	933,495	0.01				140,024.19	
	6/5/17 6:15 PM	6/5/17 6:30 PM	15	0.42	23,276	0.01				9,776.06	
	6/13/17 5:15 PM	6/13/17 5:15 PM	0	0.13	79	0.00				10.33	
	6/15/17 3:00 AM	6/15/17 4:00 AM	60	0.49	25,936	0.00				12,708.60	
	6/18/17 9:45 PM	6/18/17 9:45 PM	0	0.16	1,318	0.00				210.96	
	6/22/17 3:30 PM	6/22/17 7:15 PM	225	1.27	8,179	0.00				10,387.29	
	6/23/17 8:00 AM	6/23/17 4:15 PM	495	1.27	87,776	0.00				111,475.72	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	100,740	0.00				74,547.94	
	CSO121 Total										363,987.87
CSO125	4/11/17 9:15 AM	4/11/17 9:15 AM	0	0.36	19,402	0.32	0.33	12	Atlas	6,984.57	
	4/16/17 5:45 AM	4/16/17 9:00 PM	915	1.10	652,258	1.39	0.90	6	Atlas	717,483.43	
	4/21/17 10:15 PM	4/21/17 10:15 PM	0	0.57	30,812	1.43	0.42	24	Atlas	17,562.68	
	4/27/17 7:00 AM	4/27/17 7:30 AM	30	0.19	823,896	0.77	0.26	1	Atlas	156,540.23	
	4/29/17 12:30 AM	4/29/17 1:00 PM	750	1.43	1,095,063	1.77	8.06	3	Atlas	1,565,940.55	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count	
CSO125	5/1/17 4:00 AM	5/1/17 4:15 AM	15	0.32	302,509	1.92	0.35	3	Atlas	96,802.89		
	5/4/17 7:45 PM	5/5/17 10:00 AM	855	1.95	934,817	3.59				1,822,893.83		
	5/11/17 4:00 AM	5/11/17 4:15 AM	15	0.14	490,506	2.11				68,670.89		
	5/20/17 7:15 PM	5/21/17 6:15 AM	660	1.21	688,567	1.22	1.42	12	Cloudburst	833,165.49		
	5/24/17 6:15 PM	5/24/17 7:45 PM	90	0.92	278,834	1.85	0.68	24	Atlas	256,526.88		
	5/27/17 2:30 PM	5/27/17 2:45 PM	15	0.38	314,211	2.49	0.64	1	Atlas	119,400.09		
	6/5/17 6:30 PM	6/5/17 6:30 PM	0	0.42	216,827	0.01				91,067.34		
	6/15/17 3:15 AM	6/15/17 4:30 AM	75	0.49	709,526	0.00				347,667.57		
	6/22/17 6:45 PM	6/22/17 7:30 PM	45	1.27	174,614	0.00				221,759.19		
	6/23/17 3:30 PM	6/23/17 6:15 PM	165	1.27	528,576	0.00				671,291.82		
	6/30/17 9:15 PM	6/30/17 9:30 PM	15	0.74	367,127	0.00				271,674.16		
	CSO125 Total										7,265,431.60	16
	CSO127	4/11/17 9:00 AM	4/11/17 11:15 AM	135	0.38	98,987	0.39	0.70	12	Atlas	37,615.21	
4/16/17 5:30 AM		4/16/17 9:00 PM	930	1.10	768,393	1.43	20.41	3	Atlas	845,232.30		
4/21/17 10:00 PM		4/22/17 12:30 AM	150	0.56	195,098	1.53	0.80	24	Atlas	109,255.11		
4/27/17 6:45 AM		4/27/17 7:15 AM	30	0.24	202,193	0.80	0.63	1	Atlas	48,526.38		
4/29/17 12:30 AM		4/29/17 4:00 AM	210	1.30	6,125,385	1.66	373.27	3	Cloudburst	7,963,001.02		
5/1/17 4:00 AM		5/1/17 4:00 AM	0	0.26	1,308,463	1.77	0.56	3	Atlas	340,200.38		
5/4/17 7:45 PM		5/5/17 9:45 AM	840	1.88	3,679,733	3.33				6,917,897.64		
5/11/17 4:00 AM		5/11/17 4:00 AM	0	0.14	870,014	2.01	0.29	3	Atlas	121,801.91		
5/21/17 2:15 AM		5/21/17 7:15 AM	300	1.21	1,529,697	1.24	31.25	12	Atlas	1,850,933.59		
5/24/17 5:15 PM		5/24/17 8:30 PM	195	0.85	3,198,374	1.86	2.60	24	Cloudburst	2,718,617.85		
5/27/17 2:15 PM		5/27/17 2:30 PM	15	0.22	1,602,535	2.25	0.70	1	Atlas	352,557.61		
6/5/17 9:00 AM		6/5/17 9:15 AM	15	0.15	6,758,773	0.01				1,013,815.96		
6/5/17 6:15 PM		6/5/17 6:45 PM	30	0.42	5,291,727	0.01				2,222,525.46		
6/15/17 3:00 AM		6/15/17 4:30 AM	90	0.49	2,971,566	0.00				1,456,067.52		
6/18/17 9:45 PM		6/18/17 9:45 PM	0	0.16	389,575	0.00				62,331.96		
6/22/17 6:30 PM		6/22/17 7:30 PM	60	1.27	148,366	0.00				188,424.28		
6/23/17 3:00 PM		6/23/17 6:30 PM	210	0.69	4,877,749	0.00				3,365,646.98		
6/27/17 2:15 AM		6/27/17 2:30 AM	15	0.16	7,503	0.00				1,200.48		
6/30/17 9:00 PM		6/30/17 10:00 PM	60	0.74	1,595,854	0.00				1,180,932.06		
CSO127 Total										30,796,583.71	19	
CSO130	4/29/17 2:15 AM	4/29/17 2:45 AM	30	1.12	1,388	1.36				1,555.10		
	5/4/17 8:15 PM	5/4/17 8:15 PM	0	1.69	317	2.02	462.09	24	Cloudburst	535.56		
	5/21/17 2:15 AM	5/21/17 5:45 AM	210	1.05	13,429	1.07	216.36	12	Cloudburst	14,100.49		
	5/24/17 6:00 PM	5/24/17 8:30 PM	150	0.59	54,771	1.47	2.84	24	Cloudburst	32,315.14		
	6/5/17 6:15 PM	6/5/17 6:15 PM	0	0.42	28,045	0.01				11,778.77		
	6/15/17 3:15 AM	6/15/17 3:15 AM	0	0.49	30,430	0.00				14,910.59		
	6/27/17 2:15 AM	6/27/17 2:30 AM	15	0.36	2,555	0.00				919.96		
CSO130 Total										76,115.61	7	
CSO131	4/29/17 1:30 AM	4/29/17 2:45 AM	75	1.12	96,228	1.36				107,774.90		
	5/21/17 3:15 AM	5/21/17 3:15 AM	0	1.05	26,311	0.76	216.36	12	Cloudburst	27,626.95		
	5/27/17 2:00 PM	5/27/17 2:00 PM	0	0.35	33,396	1.97	10.91	1	Atlas	11,688.56		
	6/5/17 6:00 PM	6/5/17 6:00 PM	0	0.42	21,605	0.01				9,074.30		
	6/15/17 2:45 AM	6/15/17 3:00 AM	15	0.49	145,408	0.00				71,250.00		
	6/30/17 8:45 PM	6/30/17 8:45 PM	0	0.74	48,142	0.00				35,625.00		
CSO131 Total										263,039.72	6	
CSO132	4/3/17 7:30 PM	4/3/17 7:45 PM	15	0.12	201,286	0.41	0.21	1	Atlas	24,154.38		
	4/11/17 4:45 AM	4/11/17 4:45 AM	0	0.31	14,161	0.09	0.43	12	Atlas	4,389.84		
	4/16/17 5:30 AM	4/16/17 9:30 PM	960	1.04	3,635,024	1.31	2.98	6	Cloudburst	3,780,425.25		
	4/21/17 10:15 PM	4/22/17 12:45 AM	150	0.56	1,586,156	1.47				888,247.60		
	4/27/17 6:45 AM	4/27/17 7:30 AM	45	0.18	3,919,534	0.75	0.39	1	Atlas	705,516.14		
	4/29/17 12:15 AM	4/29/17 5:15 AM	300	1.28	4,860,641	1.57	24.49	6	Cloudburst	6,221,620.99		
	5/1/17 3:45 AM	5/1/17 4:15 AM	30	0.23	1,110,981	1.68				255,525.73		
	5/4/17 7:45 PM	5/5/17 1:15 PM	1050	1.83	1,316,449	3.28	15.11	24	Atlas	2,409,101.13		
	5/11/17 4:00 AM	5/11/17 4:15 AM	15	0.14	435,725	1.98				61,001.45		
	5/20/17 7:00 PM	5/21/17 6:30 AM	690	1.10	1,509,935	1.13				1,660,928.96		

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
	5/24/17 5:15 PM	5/25/17 3:00 AM	585	0.72	894,189	1.80	0.78	24	Atlas	643,816.26	
	5/27/17 2:00 PM	5/27/17 2:45 PM	45	0.37	54,849	2.18	0.91	1	Atlas	20,294.13	
	6/5/17 8:45 AM	6/5/17 8:45 AM	0	0.15	83,352	0.01				12,502.79	
	6/5/17 6:00 PM	6/5/17 6:30 PM	30	0.42	395,148	0.01				165,962.22	
	6/22/17 6:45 PM	6/22/17 7:30 PM	45	1.27	379,686	0.00				482,201.66	
	6/23/17 3:00 PM	6/23/17 6:30 PM	210	1.27	1,156,333	0.00				1,468,542.65	
	6/30/17 9:00 PM	6/30/17 9:30 PM	30	0.74	674,052	0.00				498,798.65	
CSO132 Total										19,303,029.84	17
CSO140	4/29/17 1:45 AM	4/29/17 3:15 AM	90	0.96	1,769,559	1.18	24.24	6	Cloudburst	1,698,776.94	
	5/1/17 3:45 AM	5/1/17 3:45 AM	0	0.24	969,673	1.28	0.51	3	Atlas	232,721.50	
	5/4/17 7:45 PM	5/5/17 8:45 AM	780	1.82	1,638,174	2.85	63.13	24	Cloudburst	2,981,475.95	
	5/20/17 6:30 PM	5/21/17 5:45 AM	675	1.02	2,629,877	1.04	15.63	12	Atlas	2,682,474.91	
	5/24/17 5:00 PM	5/24/17 6:45 PM	105	0.58	1,165,701	1.41	0.83	24	Atlas	676,106.61	
	5/27/17 2:00 PM	5/27/17 2:15 PM	15	0.30	1,375,615	1.88	0.97	1	Atlas	412,684.37	
	6/5/17 6:15 PM	6/5/17 6:15 PM	0	0.42	545,388	0.01				229,062.88	
	6/15/17 3:00 AM	6/15/17 4:00 AM	60	0.49	953,022	0.00				466,980.75	
	6/22/17 6:45 PM	6/22/17 6:45 PM	0	1.27	147,047	0.00				186,749.88	
	6/23/17 7:45 AM	6/23/17 4:00 PM	495	1.27	846,419	0.00				1,074,951.73	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	263,901	0.00				195,286.72	
CSO140 Total										10,837,272.22	11
CSO142	4/16/17 5:30 PM	4/16/17 5:45 PM	15	1.09	19,705	0.77				21,478.06	
	4/29/17 2:00 AM	4/29/17 3:00 AM	60	1.01	54,153	1.31				54,695.01	
	5/4/17 8:00 PM	5/4/17 8:30 PM	30	1.73	1,746	1.83				3,020.82	
	5/5/17 4:45 AM	5/5/17 4:45 AM	0	1.73	208	2.33				360.34	
	5/20/17 6:45 PM	5/21/17 4:15 AM	570	1.03	35,580	0.93				36,646.96	
	6/5/17 8:45 AM	6/5/17 9:00 AM	15	0.15	153,042	0.01				22,956.24	
	6/5/17 6:30 PM	6/5/17 6:30 PM	0	0.42	18,661	0.01				7,837.51	
	6/15/17 3:15 AM	6/15/17 4:00 AM	45	0.49	50,490	0.00				24,740.00	
	6/23/17 3:30 PM	6/23/17 4:00 PM	30	1.27	13,839	0.00				17,575.90	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	131,140	0.00				97,043.84	
CSO142 Total										286,354.68	10
CSO144	4/29/17 1:45 AM	4/29/17 1:45 AM	0	1.14	1,882	0.86	0.60	6	Atlas	2,145.18	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	2,397	0.00				1,773.81	
CSO144 Total										3,918.99	2
CSO148	4/16/17 5:30 AM	4/16/17 5:30 AM	0	1.23	3,331	0.48	54.90	6	Cloudburst	4,097.51	
	4/16/17 5:30 PM	4/16/17 8:15 PM	165	1.23	43,800	1.47	54.90	6	Cloudburst	53,874.17	
	4/21/17 10:00 PM	4/21/17 10:00 PM	0	0.56	2,436	1.51				1,364.23	
	4/27/17 6:45 AM	4/27/17 7:00 AM	15	0.21	25,826	0.78	0.56	1	Atlas	5,423.46	
	4/29/17 12:15 AM	4/29/17 3:15 AM	180	0.97	163,044	1.31	45.51	3	Cloudburst	158,152.68	
	5/1/17 3:45 AM	5/1/17 3:45 AM	0	0.40	14,900	1.56	0.85	3	Atlas	5,960.11	
	5/4/17 7:45 PM	5/5/17 6:45 AM	660	1.83	19,689	2.80				36,030.77	
	5/11/17 3:45 AM	5/11/17 3:45 AM	0	0.14	16,308	2.00				2,283.17	
	5/20/17 6:45 PM	5/20/17 6:45 PM	0	1.21	1,540	0.28	29.58	12	Atlas	1,863.23	
	5/21/17 3:30 AM	5/21/17 4:30 AM	60	1.21	23,443	1.03	29.58	12	Atlas	28,365.44	
	5/24/17 6:00 PM	5/24/17 6:45 PM	45	0.77	3,092	1.74	1.67	24	Cloudburst	2,380.67	
	6/5/17 9:00 AM	6/5/17 9:00 AM	0	0.15	44,519	0.00				6,677.81	
	6/5/17 6:15 PM	6/5/17 6:30 PM	15	0.42	6,665	0.00				2,799.44	
	6/15/17 3:00 AM	6/15/17 4:00 AM	60	0.49	55,963	0.00				27,421.94	
	6/22/17 6:45 PM	6/22/17 6:45 PM	0	1.27	1,769	0.00				2,246.16	
	6/23/17 3:30 PM	6/23/17 4:00 PM	30	1.27	17,226	0.00				21,877.40	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	179,079	0.00				132,518.67	
CSO148 Total										493,336.85	17
CSO150	4/11/17 6:00 AM	4/11/17 6:00 AM	0	0.39	5,058	0.18	2.68	12	Cloudburst	1,972.75	
	4/16/17 1:00 PM	4/16/17 9:45 PM	525	1.24	68,793	1.58	435.55	24	Cloudburst	85,303.24	
	4/29/17 1:45 AM	4/29/17 9:00 AM	435	1.25	153,966	1.56				192,457.37	
	5/4/17 8:45 PM	5/5/17 1:30 PM	1005	1.66	206,147	3.06				342,204.81	
	5/21/17 3:00 AM	5/21/17 7:30 AM	270	1.34	108,550	1.39				145,456.42	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
CSO150	6/5/17 6:15 PM	6/5/17 6:15 PM	0	0.42	14,732	0.02				6,187.41	
	6/15/17 3:00 AM	6/15/17 5:15 AM	135	0.49	37,286	0.00				18,270.01	
	6/23/17 4:15 PM	6/23/17 8:00 PM	225	1.27	121,165	0.00				153,879.25	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	2,726	0.00				2,016.92	
CSO150 Total										947,748.18	9
CSO151	4/3/17 7:45 PM	4/3/17 8:15 PM	30	0.12	73,832	0.92	0.07	1	Atlas	8,859.84	
	4/5/17 4:45 PM	4/5/17 5:15 PM	30	0.02	182,304	0.98				3,646.08	
	4/8/17 10:00 AM	4/8/17 10:00 AM	0	Discharge		0.19				50.65	
	4/9/17 10:00 AM	4/9/17 8:00 PM	600	Discharge		0.19				253.97	
	4/11/17 7:30 AM	4/11/17 9:45 PM	855	0.38	563,423	0.45	0.17	12	Atlas	214,100.79	
	4/12/17 7:00 AM	4/12/17 8:30 AM	90	Discharge		0.45				1,299.71	
	4/14/17 8:00 AM	4/14/17 10:45 AM	165	Discharge		0.38				929.45	
	4/16/17 4:45 AM	4/17/17 9:15 PM	2430	1.14	1,005,481	1.55	0.50	6	Atlas	1,146,247.87	
	4/18/17 8:45 AM	4/18/17 8:45 AM	0	Discharge		1.36				10.28	
	4/18/17 9:15 PM	4/18/17 9:15 PM	0	Discharge		1.17				10.70	
	4/19/17 11:00 AM	4/19/17 11:00 AM	0	Discharge		1.17				15.86	
	4/19/17 9:15 PM	4/19/17 9:15 PM	0	Discharge		1.17				10.16	
	4/20/17 8:00 AM	4/20/17 8:00 AM	0	Discharge		1.17				0.79	
	4/21/17 9:15 PM	4/22/17 2:45 PM	1050	0.55	73,718	1.73				40,545.10	
	4/23/17 11:15 AM	4/23/17 11:15 AM	0	Discharge		1.56				15.41	
	4/27/17 6:45 AM	4/29/17 11:15 PM	3870	0.17	17,986,387	1.76	0.10	1	Atlas	3,057,685.77	
	4/30/17 8:15 AM	5/1/17 9:45 AM	1530	Discharge		1.49				247,877.38	
	5/4/17 7:30 AM	5/8/17 12:30 PM	6060	1.90	986,415	3.31	0.63	24	Atlas	1,874,188.83	
	5/9/17 6:45 AM	5/9/17 7:45 AM	60	Discharge		2.00				1,151.14	
	5/9/17 8:00 PM	5/9/17 10:00 PM	120	Discharge		2.00				803.07	
	5/10/17 7:00 AM	5/11/17 7:00 AM	1440	Discharge		2.13				69,943.09	
	5/12/17 11:15 AM	5/12/17 11:30 AM	15	0.04	30,084	0.38	0.02	6	Atlas	1,203.36	
	5/13/17 9:00 AM	5/13/17 9:00 AM	0	Discharge		0.22				104.73	
	5/15/17 9:30 AM	5/15/17 4:15 PM	405	Discharge		0.20				360.24	
	5/16/17 8:00 AM	5/16/17 1:30 PM	330	Discharge		0.19				92.07	
	5/20/17 7:00 PM	5/21/17 12:45 PM	1065	1.31	994,841	1.34	0.58	12	Atlas	1,303,241.76	
	5/24/17 5:30 PM	5/25/17 10:45 AM	1035	0.70	1,060,145	2.05	0.26	6	Atlas	742,101.51	
	5/27/17 2:30 PM	5/27/17 2:45 PM	15	0.11	12,158	2.11	0.09	1	Atlas	1,337.35	
	6/5/17 9:15 AM	6/5/17 10:30 AM	75	0.15	2,210,137	0.01				331,520.50	
	6/5/17 6:45 PM	6/5/17 8:00 PM	75	0.42	643,116	0.01				270,108.65	
	6/15/17 3:30 AM	6/15/17 8:00 AM	270	0.49	718,068	0.00				351,853.44	
	6/16/17 2:45 PM	6/16/17 2:45 PM	0	Discharge		0.00				151.91	
	6/18/17 10:00 PM	6/19/17 12:30 AM	150	0.16	631,685	0.00				101,069.57	
6/22/17 3:45 PM	6/22/17 9:00 PM	315	1.27	223,783	0.00				284,204.82		
6/23/17 2:30 PM	6/23/17 10:00 PM	450	1.27	618,046	0.00				784,918.62		
6/27/17 2:15 AM	6/27/17 3:15 AM	60	0.16	218,866	0.00				35,018.57		
6/28/17 2:45 PM	6/29/17 1:30 PM	1365	Discharge		0.00				6,721.56		
6/30/17 9:15 PM	6/30/17 11:30 PM	135	0.74	1,070,472	0.00				792,149.43		
CSO151 Total										11,673,804.03	38
CSO152	4/11/17 9:15 AM	4/11/17 12:45 PM	210	0.36	116,145,059	0.37	0.83	12	Atlas	41,812,221.20	
	4/16/17 5:45 AM	4/16/17 9:45 PM	960	1.12	360,434,357	1.44	100.00	6	Cloudburst	403,686,480.00	
	4/21/17 10:15 PM	4/22/17 1:00 AM	165	0.58	221,373,122	1.58				128,396,410.70	
	4/27/17 7:00 AM	4/27/17 7:45 AM	45	0.18	578,964,172	0.77	0.61	1	Atlas	104,213,551.00	
	4/29/17 12:30 AM	4/29/17 4:15 AM	225	0.97	245,541,342	1.25	111.88	3	Cloudburst	238,175,102.00	
	5/1/17 4:00 AM	5/1/17 4:30 AM	30	0.22	347,588,745	1.37				76,469,524.00	
	5/4/17 7:45 PM	5/5/17 10:15 AM	870	1.85	367,930,001	2.92	306.64	24	Cloudburst	680,670,502.50	
	5/11/17 4:00 AM	5/11/17 4:30 AM	30	0.16	204,353,019	2.02	0.38	6	Atlas	32,696,483.00	
	5/20/17 7:00 PM	5/21/17 7:45 AM	765	1.11	572,738,316	1.13	73.08	12	Atlas	635,739,531.10	
	5/24/17 6:15 PM	5/24/17 10:00 PM	225	0.64	338,593,887	1.69	1.82	24	Cloudburst	216,700,087.70	
	5/27/17 2:30 PM	5/27/17 2:45 PM	15	0.12	318,265,192	1.84	0.43	1	Atlas	38,191,823.00	
	6/5/17 9:00 AM	6/5/17 9:45 AM	45	0.15	447,634,013	0.00				67,145,102.00	
	6/15/17 3:15 AM	6/15/17 6:30 AM	195	0.49	249,242,465	0.00				122,128,808.00	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
	6/18/17 10:00 PM	6/18/17 10:45 PM	45	0.16	258,370,643	0.00				41,339,302.80	
	6/22/17 6:45 PM	6/22/17 8:00 PM	75	1.27	103,156,037	0.00				131,008,166.50	
	6/23/17 3:00 PM	6/23/17 7:00 PM	240	1.27	111,807,005	0.00				141,994,896.00	
	6/27/17 2:30 AM	6/27/17 2:30 AM	0	0.16	53,323,163	0.00				8,531,706.00	
	6/30/17 9:15 PM	6/30/17 10:00 PM	45	0.74	359,969,038	0.00				266,377,088.00	
CSO152 Total										3,375,276,785.50	18
CSO153	4/3/17 7:15 PM	4/3/17 7:15 PM	0	0.15	182,857	0.42	0.48	1	Atlas	27,428.62	
	4/11/17 4:30 AM	4/11/17 8:45 AM	255	0.34	62,481	0.26	0.78	12	Atlas	21,243.46	
	4/16/17 5:15 AM	4/16/17 8:30 PM	915	1.29	165,892	1.49	71.25	24	Cloudburst	214,000.84	
	4/21/17 10:00 PM	4/22/17 12:15 AM	135	0.67	72,014	1.82				48,249.51	
	4/27/17 6:30 AM	4/27/17 7:00 AM	30	0.10	236,926	0.79	0.27	6	Atlas	23,692.60	
	4/28/17 11:15 PM	4/29/17 3:00 AM	225	0.90	549,534	1.21	55.88	6	Cloudburst	494,580.95	
	5/1/17 2:15 AM	5/1/17 3:45 AM	90	0.24	115,921	1.22	0.63	3	Atlas	27,820.96	
	5/4/17 7:30 PM	5/5/17 9:00 AM	810	1.69	321,667	2.63	183.41	24	Cloudburst	543,617.56	
	5/11/17 3:45 AM	5/11/17 3:45 AM	0	0.18	34,288	1.88				6,171.90	
	5/20/17 6:30 PM	5/21/17 6:00 AM	690	1.04	718,003	1.06	53.85	12	Atlas	746,722.73	
	5/24/17 6:00 PM	5/24/17 7:30 PM	90	0.54	95,646	1.45	0.96	24	Atlas	51,649.07	
	5/27/17 2:00 PM	5/27/17 2:15 PM	15	0.29	498,426	1.85	1.87	1	Atlas	144,543.46	
	6/5/17 8:45 AM	6/5/17 8:45 AM	0	0.15	309,299	0.01				46,394.88	
	6/5/17 6:15 PM	6/5/17 6:15 PM	0	0.42	91,169	0.01				38,291.14	
	6/15/17 3:00 AM	6/15/17 4:30 AM	90	0.49	612,192	0.00				299,974.00	
	6/18/17 9:30 PM	6/18/17 9:30 PM	0	0.16	48,620	0.00				7,779.24	
	6/22/17 6:30 PM	6/22/17 7:30 PM	60	1.27	28,023	0.00				35,588.61	
	6/23/17 7:45 AM	6/23/17 6:00 PM	615	1.27	198,599	0.00				252,220.97	
	6/30/17 9:00 PM	6/30/17 9:15 PM	15	0.74	105,385	0.00				77,984.98	
CSO153 Total										3,107,955.47	19
CSO154	4/2/17 12:00 AM	4/12/17 2:00 AM	14520	0.36	49,992,038	1.52				17,997,133.69	
	4/29/17 2:00 AM	4/30/17 7:00 PM	2460	1.28	2,315,952	1.64	24.49	6	Cloudburst	2,964,419.19	
	5/5/17 9:45 AM	5/5/17 10:15 AM	30	1.83	4,393	3.23	15.11	24	Atlas	8,039.81	
	5/6/17 12:30 PM	5/6/17 6:00 PM	330	0.07	270,280	2.14	0.14	3	Atlas	18,919.63	
	5/9/17 3:00 AM	5/12/17 7:15 AM	4575	0.01	594,210,616	2.06	0.03	1	Atlas	5,942,106.16	
	5/21/17 3:45 AM	5/21/17 4:15 AM	30	1.10	11,092	1.00				12,201.42	
	5/27/17 2:15 PM	5/27/17 2:15 PM	0	0.37	6,392	2.17	0.91	1	Atlas	2,365.16	
CSO154 Total										26,945,185.06	7
CSO155	4/16/17 5:15 AM	4/16/17 5:30 PM	735	1.26	20,320	0.91	19.07	24	Atlas	25,602.60	
	4/28/17 11:15 PM	4/29/17 8:15 AM	540	1.28	47,232	1.68	98.04	6	Cloudburst	60,456.34	
	5/4/17 7:45 PM	5/5/17 4:45 AM	540	1.66	11,389	2.33	39.47	24	Atlas	18,905.82	
	5/21/17 2:00 AM	5/21/17 5:30 AM	210	1.46	65,356	1.47	98.46	12	Atlas	95,419.22	
	5/27/17 1:45 PM	5/27/17 2:00 PM	15	0.27	37,092	2.26	0.87	1	Atlas	10,014.93	
	6/5/17 6:00 PM	6/5/17 6:15 PM	15	0.42	2,800	0.01				1,176.12	
	6/13/17 4:45 PM	6/13/17 4:45 PM	0	0.13	41,547	0.00				5,401.09	
	6/15/17 3:00 AM	6/15/17 4:00 AM	60	0.49	14,536	0.00				7,122.66	
	6/23/17 3:00 PM	6/23/17 3:15 PM	15	1.27	1,745	0.00				2,215.67	
	6/30/17 8:45 PM	6/30/17 9:00 PM	15	0.74	3,061	0.00				2,265.09	
CSO155 Total										228,579.52	10
CSO160	4/11/17 6:15 AM	4/11/17 2:30 PM	495	0.34	14,571	0.42	0.62	12	Atlas	4,954.16	
	4/16/17 5:30 AM	4/16/17 7:45 PM	855	1.04	11,224	1.04	8.14	6	Cloudburst	11,673.29	
	4/27/17 6:30 AM	4/27/17 6:30 AM	0	0.15	1,638	0.92	0.33	6	Atlas	245.75	
	4/28/17 10:45 PM	4/29/17 3:00 AM	255	1.16	11,453	1.55	66.67	6	Cloudburst	13,285.77	
	5/1/17 3:45 AM	5/1/17 3:45 AM	0	0.22	2,263	1.51	0.48	3	Atlas	497.86	
	5/4/17 4:15 AM	5/4/17 4:15 AM	0	1.67	171	1.51	39.47	24	Atlas	286.03	
	5/4/17 2:45 PM	5/4/17 8:30 PM	345	1.67	1,084	1.96	39.47	24	Atlas	1,810.66	
	5/5/17 4:45 AM	5/5/17 4:45 AM	0	1.67	216	2.34	39.47	24	Atlas	361.13	
	5/11/17 3:45 AM	5/11/17 5:30 AM	105	0.18	7,267	1.91				1,308.04	
	5/19/17 6:15 PM	5/19/17 6:30 PM	15	0.04	18,288	0.04				731.52	
	5/20/17 7:00 PM	5/21/17 7:30 AM	750	1.07	13,965	1.12	19.79	12	Atlas	14,942.64	
	5/24/17 6:15 PM	5/24/17 6:15 PM	0	0.47	417	1.36	0.66	24	Atlas	196.20	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
CSO160	5/27/17 2:00 PM	5/27/17 2:30 PM	30	0.37	7,787	1.89	2.19	1	Atlas	2,881.12	
	5/30/17 4:15 AM	5/30/17 4:15 AM	0	0.01	60,625	0.85	0.03	1	Atlas	606.25	
	6/5/17 9:00 AM	6/5/17 9:30 AM	30	0.15	50,334	0.01				7,550.08	
	6/5/17 6:30 PM	6/5/17 7:00 PM	30	0.42	17,386	0.01				7,302.32	
	6/13/17 5:30 PM	6/13/17 5:30 PM	0	0.13	1,308	0.00				170.05	
	6/15/17 3:30 AM	6/15/17 6:45 AM	195	0.49	5,765	0.00				2,824.78	
	6/18/17 9:15 PM	6/18/17 11:30 PM	135	0.16	16,590	0.00				2,654.48	
	6/22/17 4:00 PM	6/23/17 7:15 PM	1635	1.27	13,880	0.00				17,627.46	
	6/27/17 2:15 AM	6/27/17 2:30 AM	15	0.16	3,317	0.00				530.74	
	6/30/17 9:15 PM	6/30/17 9:30 PM	15	0.74		0.00				6,888.92	
CSO160 Total										99,329.25	22
CSO161	4/16/17 5:30 AM	4/16/17 5:30 AM	0	1.04	3,714	0.54	8.14	6	Cloudburst	3,863.02	
	4/29/17 1:45 AM	4/29/17 3:00 AM	75	1.16	25,493	1.42	66.67	6	Cloudburst	29,571.33	
	5/21/17 3:00 AM	5/21/17 3:30 AM	30	1.07	16,459	0.82	19.79	12	Atlas	17,610.95	
	6/5/17 8:45 AM	6/5/17 8:45 AM	0	0.15	28,347	0.01				4,252.08	
	6/13/17 5:00 PM	6/13/17 5:00 PM	0	0.13	2,855	0.00				371.15	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	6,680	0.00				4,943.16	
CSO161 Total										60,611.68	6
CSO167	4/3/17 7:15 PM	4/3/17 7:30 PM	15	0.12	13,319	0.40	0.21	1	Atlas	1,598.28	
	4/16/17 5:45 AM	4/16/17 9:15 PM	930	1.04	290,559	1.30	2.98	6	Cloudburst	302,181.24	
	4/21/17 10:30 PM	4/22/17 12:30 AM	120	0.56	41,255	1.47				23,102.55	
	4/27/17 6:45 AM	4/27/17 7:15 AM	30	0.18	420,971	0.75	0.39	1	Atlas	75,774.87	
	4/29/17 12:15 AM	4/29/17 4:15 AM	240	1.28	529,397	1.57	24.49	6	Cloudburst	677,627.91	
	5/1/17 4:00 AM	5/1/17 4:15 AM	15	0.23	120,451	1.68				27,703.62	
	5/4/17 8:00 PM	5/5/17 10:15 AM	855	1.83	368,577	3.23	15.11	24	Atlas	674,495.76	
	5/11/17 4:00 AM	5/11/17 4:00 AM	0	0.14	27,748	1.97				3,884.76	
	5/21/17 2:00 AM	5/21/17 6:00 AM	240	1.10	411,451	1.12				452,596.19	
	5/24/17 5:30 PM	5/24/17 8:45 PM	195	0.72	162,052	1.63	0.78	24	Atlas	116,677.10	
	5/27/17 2:15 PM	5/27/17 2:30 PM	15	0.37	178,812	2.17	0.91	1	Atlas	66,160.44	
	6/5/17 6:00 PM	6/5/17 6:30 PM	30	0.42	113,229	0.01				47,556.31	
	6/15/17 3:15 AM	6/15/17 4:30 AM	75	0.49	443,170	0.00				217,153.27	
	6/22/17 6:45 PM	6/22/17 7:30 PM	45	1.27	40,411	0.00				51,322.18	
	6/23/17 3:00 PM	6/23/17 6:15 PM	195	1.27	195,741	0.00				248,591.29	
	6/30/17 9:00 PM	6/30/17 9:30 PM	30	0.74	118,822	0.00				87,928.16	
CSO167 Total										3,074,353.95	16
CSO174	4/16/17 5:30 PM	4/16/17 8:15 PM	165	1.09	483,665	1.31				527,194.47	
	4/27/17 7:00 AM	4/27/17 7:00 AM	0	0.21	194,598	0.86	4.06	1	Atlas	40,865.57	
	4/29/17 1:45 AM	4/29/17 3:30 AM	105	1.01	1,805,635	1.31				1,823,691.11	
	5/1/17 4:00 AM	5/1/17 4:00 AM	0	0.25	163,977	1.45	3.43	3	Atlas	40,994.26	
	5/4/17 8:00 PM	5/5/17 6:45 AM	645	1.73	206,177	2.55				356,686.29	
	5/20/17 6:45 PM	5/21/17 5:45 AM	660	1.03	1,114,809	1.03				1,148,252.89	
	5/24/17 6:15 PM	5/24/17 7:00 PM	45	0.58	133,858	1.47	28.29	24	Atlas	77,637.58	
	6/5/17 8:45 AM	6/5/17 9:00 AM	15	0.15	770,105	0.01				115,515.78	
	6/5/17 6:30 PM	6/5/17 6:45 PM	15	0.42	391,547	0.01				164,449.72	
	6/15/17 3:00 AM	6/15/17 4:15 AM	75	0.49	1,367,465	0.00				670,057.63	
	6/22/17 6:45 PM	6/22/17 7:15 PM	30	1.27	58,406	0.00				74,175.99	
	6/23/17 3:30 PM	6/23/17 4:15 PM	45	1.27	397,612	0.00				504,967.61	
	6/30/17 9:00 PM	6/30/17 9:30 PM	30	0.74	2,058,077	0.00				1,522,976.95	
	CSO174 Total										7,067,465.86
CSO179	4/20/17 5:30 PM	4/20/17 5:30 PM	0	0.01	52,745	1.12				527.45	
	4/22/17 3:30 PM	4/22/17 3:30 PM	0	0.64	824	1.76				527.21	
	4/29/17 2:45 AM	4/29/17 2:45 AM	0	1.01	11,141	1.29				11,252.48	
	5/21/17 3:30 AM	5/21/17 3:30 AM	0	1.03	6,499	0.79				6,693.89	
	6/30/17 9:00 PM	6/30/17 9:15 PM	15	0.74	78,713	0.00				58,247.75	
CSO179 Total										77,248.77	5
CSO180	4/16/17 5:30 AM	4/16/17 5:30 AM	0	1.09	8,767	0.48				9,555.52	
	4/16/17 5:30 PM	4/16/17 7:15 PM	105	1.09	53,554	0.96				58,374.30	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
CSO180	4/27/17 6:45 AM	4/27/17 6:45 AM	0	0.21	34,163	0.86	4.06	1	Atlas	7,174.15	
	4/29/17 1:45 AM	4/29/17 3:00 AM	75	1.01	204,354	1.31				206,397.68	
	5/1/17 3:45 AM	5/1/17 3:45 AM	0	0.25	83,167	1.45	3.43	3	Atlas	20,791.83	
	5/4/17 7:45 PM	5/4/17 8:15 PM	30	1.73	13,046	1.81				22,568.75	
	5/5/17 4:30 AM	5/5/17 4:30 AM	0	1.73	4,530	2.30				7,837.10	
	5/20/17 6:45 PM	5/21/17 5:30 AM	645	1.03	141,233	1.03				145,469.71	
	6/5/17 8:45 AM	6/5/17 8:45 AM	0	0.15	347,569	0.01				52,135.29	
	6/5/17 6:15 PM	6/5/17 6:15 PM	0	0.42	101,011	0.01				42,424.77	
	6/15/17 3:00 AM	6/15/17 4:00 AM	60	0.49	302,325	0.01				148,139.33	
	6/22/17 6:45 PM	6/22/17 7:00 PM	15	1.27	2,542	0.00				3,228.27	
	6/23/17 3:15 PM	6/23/17 4:00 PM	45	1.27	49,951	0.00				63,437.34	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	157,320	0.00				116,416.90	
	CSO180 Total										903,950.95
CSO181	4/29/17 2:00 AM	4/29/17 3:00 AM	60	0.90	165,582,125	1.17	4.02	6	Cloudburst	149,023,912.90	
	5/21/17 3:15 AM	5/21/17 3:45 AM	30	0.98	119,763,545	0.85	3.40	12	Cloudburst	117,368,274.00	
	5/27/17 2:30 PM	5/27/17 2:30 PM	0	0.12	63,852,479	1.58	0.26	1	Atlas	7,662,297.50	
	6/5/17 9:00 AM	6/5/17 9:15 AM	15	0.15	193,031,800	0.01				28,954,770.00	
	6/5/17 6:30 PM	6/5/17 6:45 PM	15	0.42	70,482,976	0.01				29,602,850.00	
	6/15/17 3:15 AM	6/15/17 3:30 AM	15	0.49	223,881,580	0.00				109,701,974.00	
	6/30/17 9:15 PM	6/30/17 9:30 PM	15	0.74	129,726,511	0.00				95,997,618.00	
	CSO181 Total									538,311,696.40	7
CSO182	4/3/17 7:30 PM	4/3/17 7:45 PM	15	0.12	105,868	0.66	0.14	1	Atlas	12,704.19	
	4/11/17 9:00 AM	4/11/17 2:45 PM	345	0.35	96,942	0.41	0.32	12	Atlas	33,929.73	
	4/16/17 5:45 AM	4/16/17 6:00 AM	15	1.18	15,705	0.44	1.64	6	Cloudburst	18,532.28	
	4/16/17 5:45 PM	4/16/17 9:15 PM	210	1.18	49,207	1.50	1.64	6	Cloudburst	58,064.50	
	4/21/17 10:00 PM	4/22/17 12:45 AM	165	0.59	110,657	1.65				65,287.63	
	4/22/17 1:00 PM	4/22/17 1:00 PM	0	0.59	779	1.82				459.81	
	4/27/17 7:15 AM	4/27/17 7:30 AM	15	0.15	33,203	0.76	0.17	1	Atlas	4,980.49	
	4/29/17 12:30 AM	4/29/17 4:30 AM	240	0.89	35,425	1.18	0.97	3	Atlas	31,528.05	
	5/1/17 2:30 AM	5/1/17 4:15 AM	105	0.21	133,484	1.24	0.21	3	Atlas	28,031.73	
	5/4/17 7:45 PM	5/5/17 6:30 PM	1365	1.81	113,176	2.91	2.28	24	Cloudburst	204,848.47	
	5/6/17 9:00 AM	5/6/17 9:15 AM	15	0.10	39,911	2.11	0.11	3	Atlas	3,991.13	
	5/11/17 4:00 AM	5/11/17 6:00 AM	120	0.19	43,879	2.06				8,336.92	
	5/20/17 7:00 PM	5/21/17 7:30 AM	750	1.03	61,601	1.04	0.91	12	Atlas	63,448.82	
	5/24/17 6:00 PM	5/25/17 3:00 AM	540	0.62	39,538	1.63	0.45	24	Atlas	24,513.40	
	6/5/17 8:45 AM	6/5/17 9:30 AM	45	0.15	128,572	0.01				19,285.73	
	6/5/17 7:00 PM	6/5/17 7:00 PM	0	0.42	6,390	0.01				2,683.79	
	6/12/17 12:15 PM	6/12/17 12:30 PM	15	0.03	506,241	0.00				15,187.24	
	6/15/17 3:00 AM	6/15/17 5:00 AM	120	0.49	36,259	0.00				17,767.04	
	6/18/17 9:45 PM	6/18/17 10:15 PM	30	0.16	33,394	0.00				5,342.98	
	6/22/17 4:00 PM	6/22/17 7:30 PM	210	1.27	6,294	0.00				7,993.25	
6/23/17 2:45 PM	6/23/17 6:45 PM	240	1.27	41,314	0.00				52,469.18		
6/30/17 9:30 PM	6/30/17 9:45 PM	15	0.74	16,056	0.00				11,881.47		
CSO182 Total										691,267.83	22
CSO185	4/16/17 5:30 PM	4/16/17 7:30 PM	120	1.17	14,013	1.16	9.30	6	Cloudburst	16,394.85	
	4/27/17 7:00 AM	4/27/17 7:00 AM	0	0.17	15,965	0.74	0.31	1	Atlas	2,714.02	
	4/29/17 2:00 AM	4/29/17 3:15 AM	75	0.85	110,981	1.16	5.00	3	Atlas	94,333.71	
	5/1/17 4:00 AM	5/1/17 4:00 AM	0	0.22	12,483	1.24				2,746.26	
	5/4/17 8:00 PM	5/4/17 8:00 PM	0	1.82	702	1.68	13.63	24	Atlas	1,277.78	
	5/5/17 4:45 AM	5/5/17 4:45 AM	0	1.82	1,864	2.21	13.63	24	Atlas	3,391.77	
	5/20/17 6:45 PM	5/20/17 6:45 PM	0	1.22	9,854	0.31	7.31	12	Cloudburst	12,021.70	
	5/21/17 3:30 AM	5/21/17 4:30 AM	60	1.22	31,392	1.07	7.31	12	Cloudburst	38,297.66	
	6/5/17 6:30 PM	6/5/17 6:30 PM	0	0.42	80,615	0.00				33,858.43	
	6/30/17 9:00 PM	6/30/17 9:15 PM	15	0.74	287,990	0.00				213,112.60	
	CSO185 Total									418,148.78	10
CSO186	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	136,671	0.00				101,136.25	
CSO186 Total										101,136.25	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
CSO187	4/29/17 1:30 AM	4/29/17 2:15 AM	45	1.01	32,376	0.99				32,699.55	
	6/5/17 8:30 AM	6/5/17 8:30 AM	0	0.15	14,582	0.01				2,187.36	
	6/15/17 2:45 AM	6/15/17 2:45 AM	0	0.49	10,224	0.00				5,009.81	
CSO187 Total										39,896.73	3
CSO188	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	16,358	0.00				12,104.78	
CSO188 Total										12,104.78	1
CSO189	4/16/17 5:30 AM	4/16/17 6:30 AM	60	0.95	470,419	0.40	1.53	24	Cloudburst	446,898.29	
	4/16/17 6:15 PM	4/16/17 10:15 PM	240	0.95	1,182,213	1.19	1.53	24	Cloudburst	1,123,101.95	
	4/21/17 10:30 PM	4/22/17 1:15 AM	165	0.74	1,109,692	1.58				821,171.99	
	4/28/17 11:30 PM	4/29/17 6:00 AM	390	1.64	7,472,963	1.94	71.57	6	Cloudburst	12,255,659.82	
	5/4/17 8:00 PM	5/5/17 2:45 PM	1125	2.15	4,223,421	3.96	32.89	24	Atlas	9,080,354.31	
	5/20/17 7:15 PM	5/21/17 8:15 AM	780	1.09	6,928,225	1.23	4.71	12	Cloudburst	7,551,765.18	
	5/24/17 8:15 PM	5/24/17 8:45 PM	30	0.65	20,806	1.72	0.72	24	Atlas	13,523.59	
	5/27/17 2:15 PM	5/27/17 3:15 PM	60	0.12	1,995,104	1.84	0.23	1	Atlas	239,412.42	
	6/5/17 6:45 PM	6/5/17 7:45 PM	60	0.42	1,099,188	0.01				461,659.13	
	6/15/17 3:30 AM	6/15/17 5:45 AM	135	0.49	1,129,061	0.00				553,239.72	
	6/22/17 8:15 PM	6/22/17 9:00 PM	45	1.27	19,894	0.00				25,265.18	
	6/23/17 3:15 PM	6/23/17 7:15 PM	240	1.27	1,311,767	0.00				1,665,943.78	
	6/30/17 9:15 PM	6/30/17 10:30 PM	75	0.74	972,808	0.00				719,878.13	
	CSO189 Total										34,957,873.50
CSO190	4/16/17 4:15 AM	4/16/17 8:45 PM	990	1.26	249,636	1.46	19.07	24	Atlas	314,541.24	
	4/21/17 9:45 AM	4/22/17 12:00 AM	135	0.74	62,577	1.86				46,307.23	
	4/27/17 7:00 AM	4/27/17 7:15 AM	15	0.15	34,179	0.92	0.33	6	Atlas	5,126.80	
	4/29/17 12:00 AM	4/29/17 10:00 AM	2835	1.85	735,403	2.12				1,360,495.74	
	5/1/17 3:00 AM	5/1/17 6:15 AM	195	0.24	20,795	1.67	0.48	6	Atlas	4,990.89	
	5/4/17 6:45 PM	5/5/17 11:45 AM	1020	1.66	386,342	3.01	39.47	24	Atlas	641,327.76	
	5/11/17 3:30 AM	5/11/17 3:45 AM	15	0.18	761	1.85				136.90	
	5/20/17 6:30 PM	5/21/17 6:45 AM	735	1.46	1,700,725	1.51	98.46	12	Atlas	2,483,057.96	
	5/24/17 6:15 PM	5/25/17 2:00 AM	465	0.55	375	1.98	0.78	24	Atlas	206.34	
	5/27/17 2:00 PM	5/27/17 2:15 PM	15	0.27	693,539	2.26	0.87	1	Atlas	187,255.50	
	6/5/17 6:15 PM	6/5/17 6:30 PM	15	0.42	533,046	0.01				223,879.44	
	6/13/17 5:00 PM	6/13/17 5:15 PM	15	0.13	743,445	0.00				96,647.91	
	6/15/17 3:15 AM	6/15/17 4:45 AM	90	0.49	572,469	0.00				280,509.73	
	6/18/17 8:45 PM	6/18/17 10:30 PM	105	0.16	12,532	0.00				2,005.06	
	6/22/17 6:30 PM	6/22/17 8:30 PM	120	1.27	51	0.00				64.97	
	6/23/17 7:45 AM	6/23/17 6:15 PM	630	1.27	128,596	0.00				163,316.90	
6/27/17 1:45 AM	6/27/17 1:45 AM	0	0.16	781	0.00				124.98		
6/30/17 9:00 PM	6/30/17 9:30 PM	30	0.74	146,190	0.00				108,180.28		
CSO190 Total										5,918,175.62	18
CSO196	5/4/17 8:00 PM	5/4/17 8:00 PM	0	1.58	704	1.74				1,112.89	
	5/5/17 4:45 AM	5/5/17 4:45 AM	0	1.58	605	2.21				956.07	
	5/20/17 6:45 PM	5/21/17 5:45 AM	660	1.01	46,120	1.04				46,581.38	
	5/27/17 2:15 PM	5/27/17 2:15 PM	0	0.15	256	1.65	0.94	1	Atlas	38.45	
	6/5/17 6:30 PM	6/5/17 6:30 PM	0	0.42	152	0.00				63.65	
	6/15/17 3:15 AM	6/15/17 4:15 AM	60	0.49	7,032	0.00				3,445.72	
	6/22/17 6:45 PM	6/22/17 6:45 PM	0	1.27	2	0.00				3.10	
	6/23/17 3:30 PM	6/23/17 4:00 PM	30	1.27	2,911	0.00				3,697.60	
	6/30/17 9:15 PM	6/30/17 9:15 PM	0	0.74	2,172	0.00				1,607.15	
CSO196 Total										57,506.01	9
CSO197	5/12/17 10:00 AM	5/12/17 10:00 AM	0	0.04	1,029	0.47	0.20	6	Atlas	41.15	
	5/13/17 8:30 AM	5/13/17 8:30 AM	0	Discharge		0.27				131.38	
	5/14/17 9:45 AM	5/14/17 10:00 AM	15	Discharge		0.24				172.52	
	5/18/17 12:15 PM	5/19/17 7:15 AM	1140	Discharge		0.07				9,769.79	
	5/19/17 5:45 PM	5/19/17 5:45 PM	0	0.03	4,379	0.04				131.38	
	5/20/17 6:30 PM	5/21/17 7:30 AM	780	1.01	224,870	1.06				227,118.97	
	5/24/17 9:00 AM	5/25/17 9:45 AM	1485	0.52	86,272	1.58	8.87	24	Cloudburst	44,861.51	
	5/27/17 2:00 PM	5/27/17 2:30 PM	30	0.15	86,635	1.65	0.94	1	Atlas	12,995.18	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
CSO197	6/2/17 8:00 AM	6/2/17 9:45 AM	105	Discharge		0.15				1,772.88	
	6/3/17 12:45 PM	6/3/17 7:30 PM	405	Discharge		0.15				4,761.39	
	6/4/17 12:30 PM	6/4/17 7:15 PM	405	Discharge		0.00				3,678.54	
	6/5/17 7:30 AM	6/5/17 7:45 PM	735	0.15	95,995	0.00				14,399.20	
	6/9/17 7:30 AM	6/9/17 12:00 PM	270	Discharge		0.00				468.48	
	6/10/17 9:30 AM	6/10/17 9:30 AM	0	Discharge		0.00				41.15	
	6/11/17 11:45 AM	6/11/17 11:45 AM	0	Discharge		0.00				41.15	
	6/12/17 12:30 PM	6/12/17 12:30 PM	0	0.03	1,372	0.00				41.15	
	6/13/17 5:00 PM	6/13/17 5:00 PM	0	0.13	317	0.00				41.15	
	6/15/17 3:00 AM	6/15/17 6:15 AM	195	0.49	101,314	0.00				49,643.98	
	6/18/17 11:00 AM	6/18/17 11:00 AM	0	0.02	2,057	0.00				41.15	
	6/18/17 9:15 PM	6/18/17 11:30 PM	135	0.16	36,003	0.00				5,760.54	
	6/22/17 3:15 PM	6/22/17 8:00 PM	285	1.27	21,946	0.00				27,870.81	
	6/23/17 7:45 AM	6/23/17 7:00 PM	675	1.27	36,073	0.00				45,812.99	
	6/27/17 1:45 AM	6/27/17 2:15 AM	30	0.16	8,667	0.00				1,386.71	
	6/30/17 8:45 PM	6/30/17 10:15 PM	90	0.74	150,827	0.00				111,611.98	
CSO197 Total										562,595.09	24
CSO198	4/3/17 7:15 PM	4/3/17 7:45 PM	30	0.16	63,132	0.52	0.94	1	Atlas	10,101.17	
	4/11/17 4:30 AM	4/11/17 12:15 PM	465	0.36	54,236	0.40	5.29	12	Cloudburst	19,524.99	
	4/16/17 5:15 AM	4/16/17 9:15 PM	960	1.16	118,985	1.48				138,023.12	
	4/21/17 8:45 PM	4/22/17 12:45 AM	240	0.68	60,663	1.72				41,250.77	
	4/27/17 6:30 AM	4/27/17 7:30 AM	60	0.15	130,194	0.85	0.86	1	Atlas	19,529.15	
	4/29/17 12:00 AM	4/29/17 3:45 AM	225	1.02	138,037	1.31				140,797.88	
	5/1/17 3:45 AM	5/1/17 4:15 AM	30	0.25	29,969	1.40	1.72	6	Cloudburst	7,492.18	
	5/4/17 7:30 PM	5/5/17 10:15 AM	885	1.58	125,171	2.69				197,770.16	
	5/11/17 3:45 AM	5/11/17 4:15 AM	30	0.18	41,623	1.77				7,492.18	
	5/20/17 6:30 PM	5/21/17 7:00 AM	750	1.01	212,164	1.06				214,285.61	
	5/24/17 5:45 PM	5/25/17 3:00 AM	555	0.52	80,240	1.54	8.87	24	Cloudburst	41,724.98	
	5/27/17 2:00 PM	5/27/17 2:15 PM	15	0.15	48,521	1.65	0.94	1	Atlas	7,278.13	
	6/5/17 8:30 AM	6/5/17 9:15 AM	45	0.15	106,667	0.00				16,000.00	
	6/5/17 6:15 PM	6/5/17 7:00 PM	45	0.42	74,918	0.00				31,465.36	
	6/15/17 3:00 AM	6/15/17 6:00 AM	180	0.49	157,083	0.00				76,970.53	
	6/18/17 9:30 PM	6/18/17 10:15 PM	45	0.16	48,777	0.00				7,804.29	
	6/22/17 3:30 PM	6/22/17 7:45 PM	255	1.27	22,621	0.00				28,728.50	
	6/23/17 7:45 AM	6/23/17 6:45 PM	660	1.27	77,031	0.00				97,829.11	
	6/27/17 1:45 AM	6/27/17 2:15 AM	30	0.16	37,852	0.00				6,056.25	
	6/30/17 8:45 PM	6/30/17 10:00 PM	75	0.74	498,339	0.00				368,770.61	
CSO198 Total										1,478,894.98	20
CSO199	4/4/17 6:45 AM	4/4/17 6:45 AM	0	0.16	68,655	0.56	0.94	1	Atlas	10,984.77	
	4/16/17 5:30 AM	4/16/17 5:45 AM	15	1.16	1,886	0.54				2,188.32	
	4/16/17 5:30 PM	4/16/17 7:30 PM	120	1.16	15,000	1.09				17,399.67	
	4/29/17 1:45 AM	4/29/17 3:15 AM	90	1.02	19,052	1.28				19,433.06	
	5/4/17 8:00 PM	5/4/17 8:30 PM	30	1.58	1,600	1.78				2,528.00	
	5/5/17 4:45 AM	5/5/17 4:45 AM	0	1.58	499	2.21				788.86	
	5/5/17 6:15 PM	5/5/17 6:15 PM	0	1.58	6,485	2.83				10,246.00	
	5/6/17 5:00 AM	5/6/17 5:00 AM	0	Discharge		1.88				9,480.35	
	5/20/17 6:45 PM	5/21/17 5:45 AM	660	1.01	38,267	1.04				38,649.21	
	6/5/17 6:30 PM	6/5/17 6:45 PM	15	0.42	18,204	0.00				7,645.82	
	6/15/17 3:15 AM	6/15/17 4:15 AM	60	0.49	16,013	0.00				7,846.57	
	6/15/17 1:30 PM	6/15/17 4:00 PM	150	0.49	17,036	0.00				8,347.75	
	6/23/17 3:30 PM	6/24/17 1:00 PM	1290	1.27	210,098	0.00				266,824.38	
	6/30/17 9:00 PM	6/30/17 9:15 PM	15	0.74	59,841	0.00				44,282.21	
CSO199 Total										446,644.99	14
CSO200	4/16/17 5:15 PM	4/16/17 5:45 PM	30	1.16	14,915	0.82				17,301.46	
	4/29/17 1:45 AM	4/29/17 3:00 AM	75	1.02	38,220	1.28				38,984.53	
	5/4/17 7:45 PM	5/4/17 7:45 PM	0	1.58	109	1.70				172.56	
	5/20/17 6:30 PM	5/20/17 6:30 PM	0	1.01	530	0.28				534.88	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Volume per Inch	Antecedent Rain	Frequency	Period	Standard	Sum of Total Volume (Gal)	Count
CSO200	5/21/17 2:45 AM	5/21/17 5:30 AM	165	1.01	20,622	1.04				20,828.70	
	6/5/17 6:15 PM	6/5/17 6:15 PM	0	0.42	40,071	0.00				16,829.65	
	6/15/17 3:00 AM	6/15/17 4:00 AM	60	0.49	10,697	0.00				5,241.73	
	6/23/17 3:30 PM	6/23/17 4:00 PM	30	1.27	1,694	0.00				2,151.02	
	6/30/17 9:00 PM	6/30/17 9:15 PM	15	0.74	89,995	0.00				66,596.60	
CSO200 Total										168,641.13	9
CSO202	4/16/17 5:30 AM	4/16/17 5:30 AM	0	1.16	3,774	0.54				4,378.09	
	4/16/17 5:30 PM	4/16/17 5:45 PM	15	1.16	9,206	0.82				10,679.35	
	4/27/17 6:45 AM	4/27/17 6:45 AM	0	0.15	8,971	0.85	0.86	1	Atlas	1,345.63	
	4/29/17 1:45 AM	4/29/17 3:00 AM	75	1.02	23,790	1.28				24,265.68	
	5/20/17 6:45 PM	5/20/17 6:45 PM	0	1.01	2,089	0.29				2,110.05	
	5/21/17 3:00 AM	5/21/17 4:15 AM	75	1.01	23,526	0.94				23,760.88	
	6/5/17 6:30 PM	6/5/17 6:30 PM	0	0.42	11,737	0.00				4,929.54	
	6/15/17 3:15 AM	6/15/17 4:00 AM	45	0.49	16,505	0.00				8,087.61	
	6/23/17 3:30 PM	6/23/17 4:00 PM	30	1.27	6,549	0.00				8,316.72	
	6/30/17 9:00 PM	6/30/17 9:00 PM	0	0.74	7,496	0.00				5,547.09	
CSO202 Total										93,420.65	10
CSO203	4/16/17 5:45 PM	4/16/17 5:45 PM	0	1.16	3,240	0.82				3,758.96	
	4/29/17 1:45 AM	4/29/17 3:00 AM	75	1.02	4,788	1.28				4,883.59	
	5/21/17 3:00 AM	5/21/17 3:45 AM	45	1.01	34,431	0.84				34,775.68	
	6/5/17 6:30 PM	6/6/17 2:00 AM	450	0.42	87,742	0.00				36,851.53	
	6/15/17 3:15 AM	6/15/17 3:15 AM	0	0.49	2,266	0.00				1,110.24	
	6/23/17 3:30 PM	6/23/17 11:30 PM	480	1.27	9,410	0.00				11,950.52	
CSO203 Total										93,330.52	6
CSO205	4/29/17 2:30 AM	4/29/17 2:30 AM	0	0.89	237	1.00	0.97	3	Atlas	211.33	
CSO205 Total										211.33	1
Grand Total										4,213,887,454.26	703

Appendix C

Acronyms

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Appendix C Acronyms

ACD	Amended Consent Decree
BOD	Biological Oxygen Demand
CCP	Composite Correction Plan
CMF	Central Maintenance Facility
CMOM	Capacity Management Operations and Maintenance
CPE	Comprehensive Performance Evaluations
CSO	Combined Sewer Overflow
CSOFT	Software Name
CSS	Combined Sewer System
DWO	Dry Weather Overflow
EPA	Environmental Protection Agency
FEPS	Final Effluent Pump Station
FY	Fiscal Year
GLPM	Gravity Line Preventive Maintenance
HMI	Human Machine Interface
ICM	Integrated Catchment Model
ID	Identification
IOAP	Integrated Overflow Abatement Plan
ISSDP	Interim Sanitary Sewer Discharge Plan
KDEP	Kentucky Department of Environmental Protection
KPDES	Kentucky Pollutant Discharge Elimination System
LTCP	Long Term Control Plan
MG	Million Gallons
MGD	Million Gallons per Day
MSD	Metropolitan Sewer District (Louisville and Jefferson County)
NMC	Nine Minimum Controls
PLC	Programmable Logic Controller
PM	Preventive Maintenance
PS	Pump Station
RAS	Return Activated Sludge
RTC	Real Time Control
SCAP	System Capacity Assurance Plan
SOP	Standard Operating Procedure
SORP	Sewer Overflow Response Protocol
SSDP	Sanitary Sewer Discharge Plan
SSO	Sanitary Sewer Overflow
SSOP	Sanitary Sewer Overflow Plan
SWOR1	Southwestern Outfall Retention – Phase 1
SWOR2	Southwestern Outfall Retention – Phase 2

Appendix C Acronyms

SWSG	Southwest Sluice Gate
TSS	Total Suspended Solids
TV	Television
WIN	Waterway Improvements Now
WQTC	Water Quality Treatment Center
WUS	Waters of the United States
WWT	Wet Weather Team

Appendix D SCAP Balance

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Capacity Credit Balance Sheet per Credit Basin

<u>APNO</u>	<u>APNAME</u>	<u>APTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
CCREEK						
235533	MAINTENANCE WORK FY06 AUG-FY09	SCAPCREDIT		11/1/08	6,521	6,521
362688	MAINTENANCE WORK FY09A - CEDAR	SCAPCREDIT		12/31/08	5	6,526
236380	FAIRMOUNT ROAD MH REHAB	SCAPCREDIT		6/5/09	10,734	17,260
362689	MAINTENANCE WORK FY09B - CEDAR	SCAPCREDIT		6/30/09	201	17,461
SC1011254	MAINTENANCE WORK FY10A - CEDAR	SCAPCREDIT		12/31/09	347	17,808
SC1011255	MAINTENANCE WORK FY10B - CEDAR	SCAPCREDIT		6/30/10	194	18,002
SC1011259	MAINTENANCE WORK FY11A - CEDAR	SCAPCREDIT		12/31/10	1,720	19,722
SC1011262	MAINTENANCE WORK FY11B - CEDAR	SCAPCREDIT		6/30/11	934	20,656
SC1011264	MAINTENANCE WORK FY12A - CEDAR	SCAPCREDIT		12/31/11	269	20,925
SC1011267	MAINTENANCE WORK FY12B - CEDAR	SCAPCREDIT		6/30/12	814	21,739
SC1005519	CONTRACTED WORK FY12 - CEDAR	SCAPCREDIT		9/10/12	21,321	43,060
320989	LITTLE CEDAR CREEK I/I REHABIL	SCAPCREDIT		9/27/12	652,907	695,967
263934	ST JAMES CROSSINGS	LAT EXT	9,000	11/30/12	-19,575	676,392
196927	SONIC SPRINGS	LAT EXT	3,600	12/5/12	-7,830	668,562
SC1005524	CONTRACTED WORK FY13 - CEDAR	SCAPCREDIT		8/19/13	425	668,987
14SC1000	MAINTENANCE WORK FY13A - CEDAR	SCAPCREDIT		12/31/13	2,220	671,207
13LE1155	RAISING CANE'S CEDARLOOK DRIVE	LAT EXT	1,175	5/23/14	-2,556	668,651
239030	POPLAR LAKES PH 1	LAT EXT	18,000	1/26/15	-39,150	629,501
13LE1003	Bardstown Woods Sec 6	LAT EXT	5,200	5/26/15	-11,310	618,191
LE916330	Altawood Development	LAT EXT	1,600	9/14/15	-3,480	614,711
SC1003694	CONTRACTED WORK FY16 - CEDAR	SCAPCREDIT		9/25/15	328	615,039
SC1006188	CONTRACTED WORK FY15 - CEDAR	SCAPCREDIT		9/25/15	1	615,040
LE915727	BARDSTOWN WOODS SEC 7	LAT EXT	4,400	5/25/16	-9,570	605,470
SC1006171	CONTRACTED WORK FY14 - CEDAR	SCAPCREDIT		10/26/16	45,900	651,370

<u>APNO</u>	<u>APNAME</u>	<u>APTTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
FFORK						
235557	MAINTENANCE WORK FY06 AUG-FY09	SCAPCREDIT		11/1/08	14,540	14,540
362638	MAINTENANCE WORK FY09A - FLOYDS	SCAPCREDIT		12/31/08	1	14,541
362647	MAINTENANCE WORK FY09B - FLOYDS	SCAPCREDIT		6/30/09	4	14,545
362651	MAINTENANCE WORK FY10A - FLOYDS	SCAPCREDIT		12/31/09	524	15,069
230379	SHAKES RUN SECTION 4	LAT EXT	3,770	1/5/10	-8,200	6,869
362655	MAINTENANCE WORK FY10B - FLOYDS	SCAPCREDIT		6/30/10	82	6,951
362661	MAINTENANCE WORK FY11A - FLOYDS	SCAPCREDIT		12/31/10	14,163	21,114
362669	MAINTENANCE WORK FY11B - FLOYDS	SCAPCREDIT		6/30/11	22,707	43,821
242480	CLAIBOURNE CROSSINGS PHASE 2	LAT EXT	0	10/17/11	0	43,821
359320	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	4,000	47,821
362674	MAINTENANCE WORK FY12A - FLOYDS	SCAPCREDIT		12/31/11	317	48,138
362678	MAINTENANCE WORK FY12B - FLOYDS	SCAPCREDIT		6/30/12	338	48,476
332823	SINGLE FAMILY HOME	LAT EXT	400	7/13/12	-870	47,606
315945	BROOKFIELD SEC 3	LAT EXT	12,800	10/26/12	-27,840	19,766
361689	LAKE FOREST REHAB PH1	SCAPCREDIT		12/18/12	174,769	194,535
362683	MAINTENANCE WORK FY13A - FLOYDS	SCAPCREDIT		12/31/12	10	194,545
331397	BROOKFIELD SEC 2A	LAT EXT	14,400	5/8/13	-31,320	163,225
13SC1000	FY14 STARVIEW REHABILITATION	SCAPCREDIT		6/30/13	14,183	177,408
13LE1062	SPEEDWAY #9451	LAT EXT	540	2/18/15	-1,175	176,234
SC1003809	BERRYTOWN WQTC I/I REMEDIATION	SCAPCREDIT		6/30/15	116,834	293,068
SC1003723	MIDDLETOWN SSR P2S2 I/I REMEDIATION	SCAPCREDIT		11/6/15	102	293,170
LE941673	Locust Creek Section 8B	LAT EXT	2,000	1/7/16	-4,350	288,820
SC1003331	CONTRACTED WORK FY16 - FLOYDS	SCAPCREDIT		7/7/16	35	288,855
LE932677	Shakes Run Sec 9	LAT EXT	12,000	9/20/16	-26,100	262,755

<u>APNO</u>	<u>APNAME</u>	<u>APTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
LE945783	Urton Woods, Section 2B	LAT EXT	17,200	1/4/17	-37,410	225,345
LE971261	Notting Hills Section 4 and Clubhouse	LAT EXT	10,400	2/27/17	-22,620	202,725
HCREEK						
SC1006307	CONTRACTED WORK FY06 - HITE CREEK	SCAPCREDIT		5/15/06	656	656
235561	MAINTENANCE WORK FY06 AUG-FY09	SCAPCREDIT		11/1/08	6,404	7,060
362641	MAINTENANCE WORK FY09A - HITE	SCAPCREDIT		12/31/08	2	7,062
SC1006214	CONTRACTED WORK FY09 - HITE CREEK	SCAPCREDIT		6/1/09	328	7,390
362648	MAINTENANCE WORK FY09B - HITE	SCAPCREDIT		6/30/09	7	7,397
362652	MAINTENANCE WORK FY10A - HITE	SCAPCREDIT		12/31/09	10	7,407
362657	MAINTENANCE WORK FY10B - HITE	SCAPCREDIT		6/30/10	332	7,739
320906	FLOYDSBURG ROAD I/I REHABILITA	SCAPCREDIT		12/17/10	28,437	36,176
362662	MAINTENANCE WORK FY11A - HITE	SCAPCREDIT		12/31/10	9	36,185
362670	MAINTENANCE WORK FY11B - HITE	SCAPCREDIT		6/30/11	9	36,194
SC1011058	Meadow Stream Pump Station & Force Main	SCAPCREDIT		9/7/11	2,304,000	2,340,194
246638	CHAPMAN COURT S/S	LAT EXT	800	9/28/11	-1,740	2,338,454
362675	MAINTENANCE WORK FY12A - HITE	SCAPCREDIT		12/31/11	340	2,338,794
362679	MAINTENANCE WORK FY12B - HITE	SCAPCREDIT		6/30/12	5,007	2,343,801
290181	CAMDEN WOOD APARTMENTS	LAT EXT	12,400	8/31/12	-26,970	2,316,831
304536	MAGNOLIA SPRINGS EAST PRIV P/S	LAT EXT	9,500	12/1/12	-20,663	2,296,169
335610	ROCK SPRINGS FARM SEC 4B	LAT EXT	6,400	12/7/12	-13,920	2,282,249
362684	MAINTENANCE WORK FY13A - HITE	SCAPCREDIT		12/31/12	7	2,282,256
SC1005530	CONTRACTED WORK FY13 - HITE CREEK	SCAPCREDIT		4/11/13	1,442	2,283,698
SC1006178	CONTRACTED WORK FY14 - HITE CREEK	SCAPCREDIT		1/27/15	77,660	2,361,358
SC983697	MEADOWSTREAM REHABILITATION -	SCAPCREDIT		3/13/15	448,447	2,809,805
LE943178	Rock Springs Farm Section 5A	LAT EXT	6,800	9/13/16	-14,790	2,795,015



Capacity Credit Balance Sheet per Credit Basin

<u>APNO</u>	<u>APNAME</u>	<u>APTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
SC1006192	CONTRACTED WORK FY15 - HITE CREEK	SCAPCREDIT		10/26/16	1	2,795,016
LE971406	Old Henry Business Park	LAT EXT	930	3/17/17	-2,023	2,792,993
JTOWN						
235563	MAINTENANCE WORK FY06 AUG-FY09	SCAPCREDIT		11/1/08	6,203	6,203
359323	CALENDAR 2008 SUMP PUMP CREDIT	SCAPCREDIT		12/31/08	4,000	10,203
254871	LAKESIDE BAPT CHURCH PRIV PS	LAT EXT	2,500	8/10/10	-5,438	4,766
340213	JEFFERSONTOWN ENG REHAB	SCAPCREDIT		8/11/11	997,448	1,002,214
359324	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	4,000	1,006,214
14SC1002	MAINTENANCE WORK FY13A -	SCAPCREDIT		12/31/12	3,490	1,009,704
337261	SINGLE FAMILY 2909 PELHAM CT	LAT EXT	400	5/28/13	-870	1,008,834
13LE1010	SWOPE HR & TRAINING BLDG	LAT EXT	400	6/28/13	-870	1,007,964
13LE1092	BALE EQUIPMENT	LAT EXT	450	10/25/13	-979	1,006,985
13LE1098	UNIPAK	LAT EXT	720	2/27/14	-1,566	1,005,419
LE924043	Bluegrass Indoor Carting	LAT EXT	400	5/1/14	-870	1,004,549
13LE1067	PARK COMMUNITY	LAT EXT	2,220	12/31/14	-4,829	999,720
14LE1149	Grand Lakes Section 3	LAT EXT	5,600	2/1/16	-12,180	987,540
LE924049	Blankenbaker Road S/S	LAT EXT	9,010	3/10/16	-19,597	967,944
326360	WATTERSON TRAIL CENTER	LAT EXT	2,745	5/4/16	-5,970	961,973
LE930127	Vantage Point Sec 3B	LAT EXT	7,200	6/21/16	-15,660	946,313
14LE1148	Grand Lakes Section 2	LAT EXT	4,400	11/8/16	-9,570	936,743
LE926081	Monticello Manors Sec 2	LAT EXT	7,600	3/23/17	-16,530	920,213
MCREEK						
359380	CALENDAR 2005 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/05	12,000	12,000
359381	CALENDAR 2007 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/07	24,000	36,000

<u>APNO</u>	<u>APNAME</u>	<u>APTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
235568	MAINTENANCE WORK FY06 AUG-FY09	SCAPCREDIT		11/1/08	51,530	87,530
359382	CALENDAR 2008 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/08	16,000	103,530
362642	MAINTENANCE WORK FY09A - MILL	SCAPCREDIT		12/31/08	93	103,623
362649	MAINTENANCE WORK FY09B - MILL	SCAPCREDIT		6/30/09	1,507	105,130
236614	DEVEROES	LAT EXT	960	9/9/09	-2,088	103,042
362653	MAINTENANCE WORK FY10A - MILL	SCAPCREDIT		12/31/09	25,272	128,314
359383	CALENDAR 2009 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/09	32,000	160,314
253586	KINGSFORD RETAIL CENTER	LAT EXT	480	1/6/10	-1,044	159,270
238421	6840 DIXIE HWY OUTLOT	LAT EXT	2,100	4/28/10	-4,568	154,703
362658	MAINTENANCE WORK FY10B - MILL	SCAPCREDIT		6/30/10	6,216	160,919
259408	FAMILY DOLLAR 5105 DIXIE	LAT EXT	1,200	7/2/10	-2,610	158,309
264294	SAINT PETER THE APOSTLE CATHOL	LAT EXT	2,000	7/23/10	-4,350	153,959
276215	FAMILY DOLLAR - KRISTIN WAY	LAT EXT	400	10/12/10	-870	153,089
362664	MAINTENANCE WORK FY11A - MILL	SCAPCREDIT		12/31/10	22,745	175,834
359384	CALENDAR 2010 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/10	4,000	179,834
359325	CALENDAR 2010 SUMP PUMP CREDIT	SCAPCREDIT		12/31/10	8,000	187,834
320916	SONNE AVE PS REHABILITATION -	SCAPCREDIT		6/30/11	120,800	308,634
362671	MAINTENANCE WORK FY11B - MILL	SCAPCREDIT		6/30/11	11,745	320,379
299399	FAMILY DOLLAR - GREENWOOD RD	LAT EXT	800	10/4/11	-1,740	318,639
309018	PRP PERFORMING ARTS ADDITION	LAT EXT	1,134	11/9/11	-2,466	316,172
359385	CALENDAR 2011 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/11	12,000	328,172
362676	MAINTENANCE WORK FY12A - MILL	SCAPCREDIT		12/31/11	4,800	332,972
359326	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	12,000	344,972
318096	CRACKER BARREL OLD COUNTRY	LAT EXT	6,000	1/19/12	-13,050	331,922
SC1005678	CONTRACTED WORK FY12 - MILL CREEK	SCAPCREDIT		3/16/12	22	331,944
262545	DIXIE MANOR SHOPPING CENTER	LAT EXT	965	5/21/12	-2,099	329,845



Capacity Credit Balance Sheet per Credit Basin

<u>APNO</u>	<u>APNAME</u>	<u>APTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
300374	FORT KNOX FEDERAL CREDIT UNION	LAT EXT	400	6/26/12	-870	328,975
362680	MAINTENANCE WORK FY12B - MILL	SCAPCREDIT		6/30/12	4,133	333,108
361693	FY12 MILL CREEK REHAB	SCAPCREDIT		6/30/12	81,675	414,783
231800	PIONEER MOBILE HOME PARK	LAT EXT	11,200	7/24/12	-24,360	390,423
237457	WAVERLY HILLS	LAT EXT	400	9/18/12	-870	389,553
341883	NHK SPRING PRECISION	LAT EXT	17,800	10/19/12	-38,715	350,838
334997	BEECHLAND BAPTIST CHURCH	LAT EXT	2,715	12/5/12	-5,905	344,933
359327	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	148,000	492,933
362685	MAINTENANCE WORK FY13A - MILL	SCAPCREDIT		12/31/12	22,996	515,929
359386	CALENDAR 2012 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/12	4,000	519,929
343763	SOUTHEAST CHRISTIAN CHURCH SW	LAT EXT	6,000	1/18/13	-13,050	506,879
224875	ASHBY GREEN APARTMENT HOMES	LAT EXT	36,400	3/20/13	-79,170	427,709
265944	RIVERPORT PHASE 4A - MICHELIN	LAT EXT	400	6/6/13	-870	426,839
314887	DAYTON FREIGHT	LAT EXT	1,200	9/10/13	-2,610	424,229
13LE1014	LOUISVILLE FREE PUBLIC LIBRARY	LAT EXT	8,200	9/26/13	-17,835	406,394
357140	FAMILY DOLLAR CANE RUN ROAD	LAT EXT	832	10/3/13	-1,810	404,584
13LE1171	SINGLE FAMILY HOME 3700 ROMANIA DR	LAT EXT	400	1/29/14	-870	403,714
SC1005536	ROSA TERRACE I/I REHABILITATION FY13	SCAPCREDIT		3/10/15	156,635	560,349
SC1003690	CONTRACTED WORK FY15 - MILL CREEK	SCAPCREDIT		7/31/15	58	560,407
LE937142	ZAXBYS DIXIE HWY	LAT EXT	924	8/10/15	-2,010	558,398
LE944727	Britz Deer Hollow Lane	LAT EXT	800	7/28/16	-1,740	556,658
MFORK						
359400	CALENDAR 2007 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/07	84,000	84,000
359328	CALENDAR 2007 SUMP PUMP CREDIT	SCAPCREDIT		12/31/07	20,000	104,000
235566	MAINTENANCE WORK FY06 AUG-FY09	SCAPCREDIT		11/1/08	43,779	147,779

Capacity Credit Balance Sheet per Credit Basin

<u>APNO</u>	<u>APNAME</u>	<u>APTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
359329	CALENDAR 2008 SUMP PUMP CREDIT	SCAPCREDIT		12/31/08	8,000	155,779
SC1011287	MAINTENANCE WORK FY09A - MIDDLE	SCAPCREDIT		12/31/08	13	155,792
236517	ANCHOR ESTATES MH REHAB	SCAPCREDIT		1/16/09	15,552	171,344
217235	SINKING FORK ICA PHASE I REHAB	SCAPCREDIT		3/30/09	437,967	609,311
235376	MIDDLE FORK INT REHAB PH1	SCAPCREDIT		5/15/09	487,744	1,097,055
179246	SHADY GLEN OF LYNDON PERSONAL	LAT EXT	-500	5/26/09	1,088	1,098,143
SC1011288	MAINTENANCE WORK FY09B - MIDDLE	SCAPCREDIT		6/30/09	4,208	1,102,351
250572	1316 WITAWANGA AVE	LAT EXT	400	11/4/09	-870	1,101,481
359331	CALENDAR 2009 SUMP PUMP CREDIT	SCAPCREDIT		12/31/09	24,000	1,125,481
359401	CALENDAR 2009 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/09	4,000	1,129,481
SC1011290	MAINTENANCE WORK FY10A - MIDDLE	SCAPCREDIT		12/31/09	50	1,129,531
197432	ALMOST HOME KENNELS - ALL PET	LAT EXT	3,700	3/16/10	-8,048	1,121,483
260064	OXMOOR GOLF FRONT 9	LAT EXT	400	4/15/10	-870	1,120,613
260065	OXMOOR GOLF BACK 9	LAT EXT	400	4/15/10	-870	1,119,743
229834	THE BROOK HOS- DUPONT ADDITION	LAT EXT	1,763	4/27/10	-3,835	1,115,908
SC1011292	MAINTENANCE WORK FY10B - MIDDLE	SCAPCREDIT		6/30/10	1,113	1,117,021
265723	Z-XPRESS CAR WASH	LAT EXT	5,449	7/2/10	-11,852	1,105,170
255793	HERR LANE APARTMENTS - 4 PLEX	LAT EXT	1,200	7/14/10	-2,610	1,102,560
255792	HERR LANE APARTMENTS - 8 PLEX	LAT EXT	2,400	7/14/10	-5,220	1,097,340
274303	FARM CREDIT SERVICES	LAT EXT	525	9/9/10	-1,142	1,096,198
278015	METROPOLITAN UROLOGY	LAT EXT	400	12/15/10	-870	1,095,328
359402	CALENDAR 2010 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/10	8,000	1,103,328
359333	CALENDAR 2010 SUMP PUMP CREDIT	SCAPCREDIT		12/31/10	12,000	1,115,328
SC1011293	MAINTENANCE WORK FY11A - MIDDLE	SCAPCREDIT		12/31/10	1,205	1,116,533
285637	SHELBYHURST OFFICE BUILDING 1	LAT EXT	6,600	1/20/11	-14,355	1,102,178
313465	DORSEY POINTE/CODOMINIUMS 8-13	LAT EXT	2,400	1/27/11	-5,220	1,096,958

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291263	BROWNS LANE BUILDING	LAT EXT	400	4/14/11	-870	1,096,088
293400	FOUR PLEX APARTMENTS	LAT EXT	1,200	6/14/11	-2,610	1,093,478
SC1011294	MAINTENANCE WORK FY11B - MIDDLE	SCAPCREDIT		6/30/11	7,183	1,100,661
330019	FY11 ANCHOR ESTATES REHAB	SCAPCREDIT		8/11/11	1,359	1,102,020
310046	EL NAPEL - MCMAHAN CENTER	LAT EXT	3,100	10/31/11	-6,743	1,095,278
314591	CHOCOLATE MARTINI BAR/REST	LAT EXT	3,275	11/29/11	-7,123	1,088,154
320983	HURSTBOURNE I/I INVESTIGATION	SCAPCREDIT		12/27/11	1,408,279	2,496,433
359335	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	16,000	2,512,433
SC1011295	MAINTENANCE WORK FY12A - MIDDLE	SCAPCREDIT		12/31/11	919	2,513,352
321228	SINGLE FAMILY UNIT	LAT EXT	400	2/15/12	-870	2,512,482
SC1005671	CONTRACTED WORK FY12 - MIDDLE	SCAPCREDIT		3/16/12	7,305	2,519,787
321647	SINGLE FAMILY	LAT EXT	400	3/27/12	-870	2,518,917
328074	SINGLE FAMILY-703 FOUNTAIN AVE	LAT EXT	400	6/22/12	-870	2,518,047
SC1011297	MAINTENANCE WORK FY12B - MIDDLE	SCAPCREDIT		6/30/12	949	2,518,996
193195	CEDAR LAKE LODGE WASHBURN	LAT EXT	1,900	8/20/12	-4,133	2,514,864
320923	ST MATTHEWS I/I REHABILITATION	SCAPCREDIT		8/23/12	20,841	2,535,705
337796	CHAMPPS	LAT EXT	635	9/5/12	-1,381	2,534,324
347126	ADVANCE PRODUCTION SYSTEMS	LAT EXT	400	12/28/12	-870	2,533,454
359336	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	92,000	2,625,454
14SC1003	MAINTENANCE WORK FY13A - MIDDLE	SCAPCREDIT		12/31/12	3,309	2,628,763
339367	BAPTIST RADIATION ONCOLOGY	LAT EXT	1,500	1/4/13	-3,263	2,625,500
340778	PANDA RESTAURANT	LAT EXT	1,725	1/16/13	-3,752	2,621,748
349044	BLAIRWOOD POOL ADDITION	LAT EXT	400	1/29/13	-870	2,620,878
328659	SINGLE FAMILY HOME - 6911 AMBR	LAT EXT	400	2/4/13	-870	2,620,008
352805	POOL HOUSE 9213 REIGATE COURT	LAT EXT	200	2/20/13	-435	2,619,573
14LE1001	MIRANDA LAGRANGE RD	LAT EXT	400	3/19/13	-870	2,618,703

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350246	SINGLE FAMILY - 218 BLISS AVE	LAT EXT	400	3/20/13	-870	2,617,833
349974	SINGLE FAMILY 205 N WATTERSON	LAT EXT	400	3/26/13	-870	2,616,963
342433	SHELBYHURST 700 OFFICE BLDG	LAT EXT	7,500	4/15/13	-16,313	2,600,651
350340	JARED THE GALLERY OF JEWELRY	LAT EXT	770	4/16/13	-1,675	2,598,976
SC1005532	CONTRACTED WORK FY13 - MIDDLE	SCAPCREDIT		5/30/13	6,480	2,605,456
13LE1009	Single family 11716 Wetherby Ave	LAT EXT	400	6/7/13	-870	2,604,586
13LE1001	Single Family 835 Fountain Ave	LAT EXT	400	8/28/13	-870	2,603,716
355162	PROPOSED RESTAURANT	LAT EXT	7,540	9/10/13	-16,400	2,587,317
13LE1045	SINGLE FAMILY 8325 WHIPPS MILL RD	LAT EXT	400	9/30/13	-870	2,586,447
319292	WATERMARK ON HURSTBOURNE	LAT EXT	71,600	10/22/13	-155,730	2,430,717
331542	DENTAL/MEDICAL OFFICE BLDG	LAT EXT	400	10/28/13	-870	2,429,847
13LE1128	SINGLE FAMILY HOME 1327 ETAWAH AVE	LAT EXT	400	11/5/13	-870	2,428,977
13LE1144	SINGLE FAMILY 1329 ETAWAH AVE	LAT EXT	400	11/5/13	-870	2,428,107
13LE1165	SINGLE FAMILY 8504 LORE LANE	LAT EXT	400	11/25/13	-870	2,427,237
13LE1146	CITY OF ST MATTHEWS COMMUNITY CTR	LAT EXT	1,500	11/26/13	-3,263	2,423,974
13LE1099	NICKLIES - ST MATTHEWS	LAT EXT	1,920	12/11/13	-4,176	2,419,798
353963	DORSEY COMMONS TRACTS 1,2,3	LAT EXT	4,335	12/18/13	-9,429	2,410,370
352026	MCMAHAN PLAZA PHASE II BLDG B	LAT EXT	766	12/31/13	-1,666	2,408,703
13LE1117	THE VININGS	LAT EXT	850	4/10/14	-1,849	2,406,855
14LE1021	KODA KENTUCKY ORGAN DONOR	LAT EXT	400	6/18/14	-870	2,405,985
14LE1128	WALDORF SCHOOL OF LOUISVILLE	LAT EXT	400	6/30/14	-870	2,405,115
SC1006201	GOOSE CREEK PLANTATION I/I	SCAPCREDIT		2/10/15	163,919	2,569,034
SC1006179	CONTRACTED WORK FY14 - MIDDLE	SCAPCREDIT		2/11/15	15,043	2,584,077
LE939199	Westport Road Apartments	LAT EXT	62,800	6/8/16	-136,590	2,447,487
LE971405	Lyndon Lane Office Condos	LAT EXT	2,652	8/30/16	-5,768	2,441,719
SC1003387	CONTRACTED WORK FY16 - MIDDLE	SCAPCREDIT		10/18/16	91,264	2,532,983

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SC1006194	CONTRACTED WORK FY15 - MIDDLE	SCAPCREDIT		10/24/16	3	2,532,986
LE938563	The Paddock at Sawyer Park	LAT EXT	99,800	12/20/16	-217,065	2,315,921
NDITCH						
359404	CALENDAR 2007 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/07	28,000	28,000
235569	MAINTENANCE WORK FY06 AUG-FY09	SCAPCREDIT		11/1/08	11,147	39,147
236363	NORTHERN DITCH INT REHAB PH1	SCAPCREDIT		11/25/08	108,760	147,907
SC1011338	MAINTENANCE WORK FY09A -	SCAPCREDIT		12/31/08	11	147,918
SC1011339	MAINTENANCE WORK FY09B -	SCAPCREDIT		6/30/09	1,884	149,802
359339	CALENDAR 2009 SUMP PUMP CREDIT	SCAPCREDIT		12/31/09	4,000	153,802
SC1011340	MAINTENANCE WORK FY10A -	SCAPCREDIT		12/31/09	1,177	154,979
234678	THE LIGHTHOUSE PROMISE COMPLEX	LAT EXT	2,825	3/5/10	-6,144	148,835
SC1011343	MAINTENANCE WORK FY10B -	SCAPCREDIT		6/30/10	2,532	151,367
284728	SUBWAY - NEW CUT RD	LAT EXT	1,314	12/21/10	-2,858	148,509
359340	CALENDAR 2010 SUMP PUMP CREDIT	SCAPCREDIT		12/31/10	4,000	152,509
SC1011344	MAINTENANCE WORK FY11A -	SCAPCREDIT		12/31/10	2,456	154,965
320908	PARKVIEW ESTATES REHABILITATIO	SCAPCREDIT		6/28/11	36	155,001
SC1011345	MAINTENANCE WORK FY11B -	SCAPCREDIT		6/30/11	1,989	156,990
312810	WILLOW PLACE APT COMMUNITY CEN	LAT EXT	400	11/11/11	-870	156,120
359341	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	24,000	180,120
359405	CALENDAR 2011 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/11	12,000	192,120
SC1011346	MAINTENANCE WORK FY12A -	SCAPCREDIT		12/31/11	911	193,031
315723	JCPS EARLY CHILDHOOD DEVELOP	LAT EXT	6,000	1/26/12	-13,050	179,981
312057	DOLLAR GENERAL - MEDALLION CT	LAT EXT	400	3/21/12	-870	179,111
SC1011336	MAINTENANCE WORK FY12B -	SCAPCREDIT		6/30/12	7,893	187,004
312659	KROGER L-350 FUEL STATION	LAT EXT	400	8/20/12	-870	186,134

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359343	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	24,000	210,134
14SC1004	MAINTENANCE WORK FY13A -	SCAPCREDIT		12/31/12	4,239	214,373
13LE1147	CARLON ROOFING	LAT EXT	992	12/5/13	-2,158	212,215
13LE1126	JENNINGS CROSSING TRACT 3	LAT EXT	2,100	12/12/13	-4,568	207,648
SC1006180	CONTRACTED WORK FY14 - NORTHERN	SCAPCREDIT		10/21/14	5	207,653
LE947316	Heimbrock I	LAT EXT	400	8/14/15	-870	206,783
LE947318	Heimbrock II	LAT EXT	400	8/14/15	-870	205,913
ORFM						
359433	CALENDAR 2007 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/07	56,000	56,000
359344	CALENDAR 2007 SUMP PUMP CREDIT	SCAPCREDIT		12/31/07	4,000	60,000
235572	MAINTENANCE WORK FY06 AUG-FY09	SCAPCREDIT		11/1/08	19,826	79,826
362643	MAINTENANCE WORK FY09A - ORFM	SCAPCREDIT		12/31/08	2	79,828
362650	MAINTENANCE WORK FY09B - ORFM	SCAPCREDIT		6/30/09	3,835	83,663
362654	MAINTENANCE WORK FY10A - ORFM	SCAPCREDIT		12/31/09	7,330	90,993
263548	SINGLE FAMILY CONNECTION	LAT EXT	400	5/18/10	-870	90,123
213488	NORTHEAST CHRISTIAN CHURCH	LAT EXT	10,000	6/28/10	-21,750	68,373
362660	MAINTENANCE WORK FY10B - ORFM	SCAPCREDIT		6/30/10	6,773	75,146
362665	MAINTENANCE WORK FY11A - ORFM	SCAPCREDIT		12/31/10	181	75,327
362672	MAINTENANCE WORK FY11B - ORFM	SCAPCREDIT		6/30/11	4,139	79,466
280837	SPRINGHURST TOWNE CTR LOT C	LAT EXT	400	9/20/11	-870	78,596
320920	SHADOW WOOD I/I REHABILITATION	SCAPCREDIT		9/30/11	14,279	92,875
311412	SPRINGHURST CHEVROLET	LAT EXT	855	10/14/11	-1,860	91,015
359345	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	16,000	107,015
359434	CALENDAR 2011 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/11	16,000	123,015
362677	MAINTENANCE WORK FY12A - ORFM	SCAPCREDIT		12/31/11	7,268	130,283

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320921	DERINGTON COURT I/I REHABILITA	SCAPCREDIT		3/1/12	56,208	186,491
187028	GLENVIEW PARK SUBD SECTION 1	LAT EXT	4,400	3/5/12	-9,570	176,921
213450	GLENVIEW PARK SUB, SEC 2	LAT EXT	5,600	3/5/12	-12,180	164,741
322455	FIRST LADY NAILS	LAT EXT	400	3/12/12	-870	163,871
362681	MAINTENANCE WORK FY12B - ORFM	SCAPCREDIT		6/30/12	19,941	183,812
SC1011315	MAINTENANCE WORK FY12B - ORFM	SCAPCREDIT		6/30/12	19,941	203,753
292239	SPRINGHURST RESTAURANT/ RETAIL	LAT EXT	3,440	7/5/12	-7,482	196,271
323821	TIRE DISCOUNTERS WESTPORT RD	LAT EXT	400	12/11/12	-870	195,401
363238	FY13 PROSPECT MANHOLE REHAB	SCAPCREDIT		12/18/12	72,703	268,104
341319	RAISING CANES RETAIL CENTER	LAT EXT	1,225	12/18/12	-2,664	265,440
359346	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	24,000	289,440
363235	FY13 MUDDY FORK MH REHAB	SCAPCREDIT		12/31/12	41,653	331,093
362686	MAINTENANCE WORK FY13A - ORFM	SCAPCREDIT		12/31/12	1,161	332,254
360262	SINGLE FAMILY 3419 HILLVALE RD	LAT EXT	400	5/13/13	-870	331,384
343729	RETAIL & RESTAURANT	LAT EXT	3,500	6/21/13	-7,613	323,772
334154	GLENVIEW PARK SUBD SEC 4	LAT EXT	3,600	11/7/13	-7,830	315,942
13LE1024	Overlook at Beech Spring Farm Sec 4	LAT EXT	5,600	12/31/13	-12,180	303,762
199896	SPRINGDALE OFFICE BUILDING	LAT EXT	4,210	3/11/14	-9,157	294,605
225863	SPRING FARM LAKES SEC 1	LAT EXT	4,800	5/16/14	-10,440	284,165
177756	SUMMIT GARDENS PHASE 1	LAT EXT	32,000	9/22/14	-69,600	214,565
14LE1121	Riverside Sewer Extension	LAT EXT	1,200	11/10/14	-2,610	211,955
SC1006181	CONTRACTED WORK FY14 - ORFM	SCAPCREDIT		12/31/14	1,654	213,609
13LE1071	SPRING FARM LAKE SEC 2	LAT EXT	6,000	1/16/15	-13,050	200,559
352634	BAUER PROPERTY	LAT EXT	2,920	2/12/15	-6,351	194,208
SC983704	PROSPECT I&I REHABILITATION - FY13	SCAPCREDIT		7/12/15	1,034,758	1,228,966
SC1003730	RIVER ROAD I/I REMEDIATION	SCAPCREDIT		8/5/15	120,418	1,349,384

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LE929244	Summit Gardens Phase 2	LAT EXT	18,000	10/21/15	-39,150	1,310,234
SC1006195	CONTRACTED WORK FY15 - ORFM	SCAPCREDIT		11/19/15	1	1,310,235
LE938166	Spring Farm Lake Section 3	LAT EXT	3,200	12/14/15	-6,960	1,303,275
SC1003696	CONTRACTED WORK FY16 - ORFM	SCAPCREDIT		8/10/16	17,566	1,320,841
SC1003728	PROSPECT I&I REHABILITATION - FY16	SCAPCREDIT		10/6/16	199,036	1,519,877
LE923204	Indian Springs Hotel	LAT EXT	13,000	11/16/16	-28,275	1,491,602
PCREEK						
235574	MAINTENANCE WORK FY06 AUG-FY09	SCAPCREDIT		11/1/08	71,782	71,782
359347	CALENDAR 2008 SUMP PUMP CREDIT	SCAPCREDIT		12/31/08	4,000	75,782
359438	CALENDAR 2008 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/08	4,000	79,782
SC1011298	MAINTENANCE WORK FY09A - POND	SCAPCREDIT		12/31/08	1,913	81,695
SC1011299	MAINTENANCE WORK FY09B - POND	SCAPCREDIT		6/30/09	6,403	88,098
359439	CALENDAR 2009 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/09	12,000	100,098
359348	CALENDAR 2009 SUMP PUMP CREDIT	SCAPCREDIT		12/31/09	4,000	104,098
SC1011305	MAINTENANCE WORK FY10A - POND	SCAPCREDIT		12/31/09	22,337	126,435
192513	BANNON CROSSINGS SECTION 3A-1	LAT EXT	800	2/17/10	-1,740	124,695
261115	EMERGENCY RESTORATION	LAT EXT	400	4/27/10	-870	123,825
SC1011307	MAINTENANCE WORK FY10B - POND	SCAPCREDIT		6/30/10	11,060	134,885
276977	DADISMAN BUILDERS-POPLAR TREE	LAT EXT	400	10/13/10	-870	134,015
266833	THORNTONS @ PRESTON HWY	LAT EXT	400	12/1/10	-870	133,145
280751	NOTTINGTON HILLS SEC 1	LAT EXT	4,400	12/29/10	-9,570	123,575
359350	CALENDAR 2010 SUMP PUMP CREDIT	SCAPCREDIT		12/31/10	12,000	135,575
SC1011308	MAINTENANCE WORK FY11A - POND	SCAPCREDIT		12/31/10	19,773	155,348
187739	GLENGARRY INDUSTRIAL PARK	LAT EXT	4,300	1/13/11	-9,353	145,996
277777	TIRE DISCOUNTERS - BOERSTE WAY	LAT EXT	2,960	3/21/11	-6,438	139,558

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SC1011309	MAINTENANCE WORK FY11B - POND	SCAPCREDIT		6/30/11	10,562	150,120
304408	UPS SUPPLY CHAIN SOLUTIONS #7	LAT EXT	2,250	9/14/11	-4,894	145,226
320918	EDSEL I/I REHABILITATION - FY1	SCAPCREDIT		9/27/11	106,700	251,926
313444	PLANET FITNESS - JEFF BLVD	LAT EXT	1,600	11/4/11	-3,480	248,446
312391	LONGHORN STEAKHOUSE RESTAURANT	LAT EXT	4,840	11/29/11	-10,527	237,919
320919	LANTANA I/I REHABILITATION - F	SCAPCREDIT		12/29/11	5,000	242,919
359351	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	20,000	262,919
SC1011310	MAINTENANCE WORK FY12A - POND	SCAPCREDIT		12/31/11	5,380	268,299
310845	ZAXBY'S RESTAURANT	LAT EXT	3,750	2/28/12	-8,156	260,143
255044	ISA-RECYCLING CENTER	LAT EXT	400	3/13/12	-870	259,273
312814	MILLER TRANSPORTATION	LAT EXT	1,800	3/19/12	-3,915	255,358
324554	NORTONS TEMPORARY OFFICE	LAT EXT	900	4/16/12	-1,958	253,400
234102	ETHOS AT VALLEY FARM SR LIVING	LAT EXT	7,050	6/19/12	-15,334	238,066
322367	SHEPHERDS CARE MEMORY HOME	LAT EXT	2,000	6/21/12	-4,350	233,716
SC1011313	MAINTENANCE WORK FY12B - POND	SCAPCREDIT		6/30/12	3,877	237,593
307332	LOUISVILLE INDUSTRIAL BLDG B	LAT EXT	2,520	8/6/12	-5,481	232,112
SC1005684	CONTRACTED WORK FY12 - POND	SCAPCREDIT		8/10/12	3,812	235,924
279860	BANNON CROSSINGS SEC 3B-2	LAT EXT	9,600	8/10/12	-20,880	215,044
312053	DOLLAR GENERAL - CLEARWATER FA	LAT EXT	400	8/13/12	-870	214,174
343455	SINGLE FAMILY 1812 GREYLING DR	LAT EXT	400	10/12/12	-870	213,304
243109	OVERBROOK APARTMENTS	LAT EXT	41,200	11/9/12	-89,610	123,694
359354	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	56,000	179,694
14SC1005	MAINTENANCE WORK FY13A - POND	SCAPCREDIT		12/31/12	25,984	205,678
329624	COPART	LAT EXT	400	2/20/13	-870	204,808
346082	ZAXBYS	LAT EXT	2,065	5/2/13	-4,491	200,317
320924	LEA ANN WAY INTERCEPTOR I&I RE	SCAPCREDIT		6/30/13	1,017,423	1,217,740

<u>APNO</u>	<u>APNAME</u>	<u>APTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
335385	HARRISON LOW PRESSURE S/S	LAT EXT	1,600	7/2/13	-3,480	1,214,260
SC1005534	PICADILLY I/I REHABILITATION FY13	SCAPCREDIT		7/12/13	187,564	1,401,824
320940	4 RESIDENCE SFU 7821 MANSLICK	LAT EXT	400	8/16/13	-870	1,400,954
SC1005538	CONTRACTED WORK FY13 - POND	SCAPCREDIT		8/27/13	18,958	1,419,912
361336	RENAISSANCE SOUTH BUSINESS	LAT EXT	540	9/6/13	-1,175	1,418,737
324886	PNC BANK	LAT EXT	400	9/6/13	-870	1,417,867
13LE1083	SINGLE FAMILY HOME 5402 (H) E	LAT EXT	400	9/26/13	-870	1,416,997
SC1005319	FEGENBUSH I/I REHABILITATION FY13	SCAPCREDIT		11/12/13	226,201	1,643,198
353125	PEGASUS TRANSPORTATION	LAT EXT	250	12/9/13	-544	1,642,655
341439	PRESTON GARDENS APTS	LAT EXT	22,200	12/10/13	-48,285	1,594,370
308206	APPLEGATE FARMS	LAT EXT	57,200	12/10/13	-124,410	1,469,960
13LE1179	TIMBERBEND SUBDIVISION SEC 5B	LAT EXT	6,400	2/14/14	-13,920	1,456,040
13LE1035	RENAISSANCE SOUTH BUSINESS PARK	LAT EXT	5,415	4/10/14	-11,778	1,444,262
13LE1115	VERIZON-OUTER LOOP	LAT EXT	400	4/22/14	-870	1,443,392
348014	ASHTON PARK TOWN HOMES	LAT EXT	9,000	4/24/14	-19,575	1,423,817
280180	LOUISVILLE INDUSTRIAL CTR F	LAT EXT	2,480	5/16/14	-5,394	1,418,423
14LE1085	Williams Properties - Self Storage Facility	LAT EXT	400	5/28/14	-870	1,417,553
13LE1034	6300 GEIL LANE WAREHOUSE	LAT EXT	720	6/9/14	-1,566	1,415,987
284215	HURSTBOURNE POINTE APTS	LAT EXT	9,600	7/7/14	-20,880	1,395,107
344230	AUSTIN PARK APARTMENTS PH6	LAT EXT	27,600	8/25/14	-60,030	1,335,077
13LE1105	JEFFERSON COMMONS	LAT EXT	17,075	11/13/14	-37,138	1,297,939
SC1005323	FERN CREEK I/I REHABILITATION FY13	SCAPCREDIT		11/18/14	551,108	1,849,047
13LE1017	APEX ON PRESTON APT HOMES(Formerly	LAT EXT	84,400	1/13/15	-183,570	1,665,477
SC1005541	STONY BROOK I/I REHABILITATION FY13	SCAPCREDIT		3/10/15	345,397	2,010,874
SC995942	CAVEN AVE I/I REMEDIATION - FY13	SCAPCREDIT		3/11/15	225,645	2,236,519
354207	COOPER FARMS SEC 11B	LAT EXT	12,400	4/29/15	-26,970	2,209,549



Capacity Credit Balance Sheet per Credit Basin

<u>APNO</u>	<u>APNAME</u>	<u>APTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
354209	COOPER FARMS SEC 11A	LAT EXT	13,200	4/29/15	-28,710	2,180,839
LE948692	Jim's Express Wash	LAT EXT	10,500	7/28/15	-22,838	2,158,001
LE951121	Allgeier Site	LAT EXT	400	8/7/15	-870	2,157,131
13LE1086	WOODS OF PENN RUN OFFSITE SS	LAT EXT	1,000	8/25/15	-2,175	2,154,956
13LE1140	JEFFERSON POST APARTMENTS	LAT EXT	28,800	10/2/15	-62,640	2,092,316
14LE1116	CATALPA SPRINGS	LAT EXT	2,800	12/30/15	-6,090	2,086,226
SC939830	Lea Ann Way West Quad 1 & 2 Rehabilitation	SCAPCREDIT		12/31/15	445,911	2,532,137
358356	WOODS OF PENN RUN Section 1	LAT EXT	18,800	2/12/16	-40,890	2,491,247
SC1003699	CONTRACTED WORK FY16 - POND	SCAPCREDIT		5/17/16	36,063	2,527,310
LE936598	Jefferson Commerce Center Tract 1A	LAT EXT	5,250	6/6/16	-11,419	2,515,892
LE918484	AUSTIN PARK SS PHASE 8	LAT EXT	16,800	6/21/16	-36,540	2,479,352
14LE1170	Austin Park Phase 7 & 8	LAT EXT	26,400	6/21/16	-57,420	2,421,932
SC1003087	HILLRIDGE I/I REMEDIATION	SCAPCREDIT		8/5/16	308,184	2,730,116
SC1003292	LEA ANN WAY WEST (LAWW) QUAD 3 I/I	SCAPCREDIT		8/31/16	311,526	3,041,642
SC1006197	CONTRACTED WORK FY15 - POND	SCAPCREDIT		10/24/16	310	3,041,952
SC1006182	CONTRACTED WORK FY14 - POND	SCAPCREDIT		10/26/16	8,390	3,050,342
SC1005639	SILVER HEIGHTS SEWER REHAB	SCAPCREDIT		10/31/16	284,936	3,335,278
SC1005631	LEA ANN WAY WEST (LAWW) QUAD 4 I/I	SCAPCREDIT		10/31/16	692,905	4,028,183
LE954229	Jefferson Commerce Center Bldg.2	LAT EXT	3,150	2/2/17	-6,851	4,021,331
SEDIV						
359355	CALENDAR 2007 SUMP PUMP CREDIT	SCAPCREDIT		12/31/07	8,000	8,000
359440	CALENDAR 2007 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/07	128,000	136,000
235575	MAINTENANCE WORK FY06 AUG-FY09	SCAPCREDIT		11/1/08	71,472	207,472
236214	GOLDSMITH BUECHB ICA PHI REHAB	SCAPCREDIT		12/22/08	314,808	522,280
236296	BEARGRASS INT REHAB PH1 SEDIV	SCAPCREDIT		12/22/08	122,688	644,968

<u>APNO</u>	<u>APNAME</u>	<u>APTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
359441	CALENDAR 2008 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/08	16,000	660,968
359356	CALENDAR 2008 SUMP PUMP CREDIT	SCAPCREDIT		12/31/08	4,000	664,968
SC1011317	MAINTENANCE WORK FY09A - SE	SCAPCREDIT		12/31/08	1,555	666,523
SC1011318	MAINTENANCE WORK FY09B - SE	SCAPCREDIT		6/30/09	2,929	669,452
229854	TINY HANDS DAYCARE	LAT EXT	1,225	10/20/09	-2,664	666,788
359357	CALENDAR 2009 SUMP PUMP CREDIT	SCAPCREDIT		12/31/09	12,000	678,788
359443	CALENDAR 2009 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/09	8,000	686,788
SC1011322	MAINTENANCE WORK FY10A - SE	SCAPCREDIT		12/31/09	16,974	703,762
235291	SULLIVAN COLLEGE OF TECHNOLOGY	LAT EXT	900	2/11/10	-1,958	701,804
238328	LOUISVILLE COLLEGIATE SPORTS	LAT EXT	400	3/1/10	-870	700,934
241759	FRISCHS BIG BOY RESTAURANT	LAT EXT	2,400	3/5/10	-5,220	695,714
257275	LOUISVILLE JUNIOR ACADEMY	LAT EXT	520	4/16/10	-1,131	694,583
SC1011326	MAINTENANCE WORK FY10B - SE	SCAPCREDIT		6/30/10	10,739	705,322
320993	BEARGRASS CREEK PHASE II - FY1	SCAPCREDIT		12/14/10	10,368	715,690
359358	CALENDAR 2010 SUMP PUMP CREDIT	SCAPCREDIT		12/31/10	4,000	719,690
359444	CALENDAR 2010 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/10	24,000	743,690
SC1011328	MAINTENANCE WORK FY11A - SE	SCAPCREDIT		12/31/10	11,090	754,780
286513	GARDINER POINT RESIDENCE HALL	LAT EXT	10,800	2/16/11	-23,490	731,290
276378	TIRE DISCOUNTERS - BARDSTOWN	LAT EXT	1,500	5/6/11	-3,263	728,028
287888	BEVERAGE WAREHOUSE	LAT EXT	1,180	5/30/11	-2,567	725,461
SC1011330	MAINTENANCE WORK FY11B - SE	SCAPCREDIT		6/30/11	3,661	729,122
296295	KEN TOWERY -3800 S HURSTBOURNE	LAT EXT	400	7/1/11	-870	728,252
359445	CALENDAR 2011 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/11	8,000	736,252
359359	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	64,000	800,252
SC1011331	MAINTENANCE WORK FY12A - SE	SCAPCREDIT		12/31/11	5,071	805,323
SC1011316	MAINTENANCE WORK FY12B - SE	SCAPCREDIT		6/30/12	24,202	829,525

Capacity Credit Balance Sheet per Credit Basin

<u>APNO</u>	<u>APNAME</u>	<u>APTTYPE</u>	<u>FLOW</u>	<u>Release Date</u>	<u>Approved Credit Required/ Flow Reduction</u>	<u>Running Total</u>
SC1011333	MAINTENANCE WORK FY12B - SE	SCAPCREDIT		6/30/12	6,141	835,666
307018	HOOK PROPERTY FAMILY DOLLAR	LAT EXT	400	8/10/12	-870	834,796
359361	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	68,000	902,796
359446	CALENDAR 2012 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/12	4,000	906,796
14SC1006	MAINTENANCE WORK FY13A - SE	SCAPCREDIT		12/31/12	24,202	930,998
187741	BROOKSTONE SENIOR APARTMENTS	LAT EXT	16,800	3/11/13	-36,540	894,458
232601	RAINTREE/MARIAN CT P/S ELIM	LAT EXT	105,800	6/14/13	-230,115	664,343
SC1005539	CONTRACTED WORK FY13 - SOUTHEAST	SCAPCREDIT		9/18/13	25,344	689,687
330437	COLLEGIATE ATHLETIC FIELD	LAT EXT	800	11/26/13	-1,740	687,947
SC1006185	CONTRACTED WORK FY14 - SOUTHEAST	SCAPCREDIT		2/11/15	187,478	875,425
SC1006199	CONTRACTED WORK FY15 - SOUTHEAST	SCAPCREDIT		10/20/15	1	875,426
LE919560	Todd's Place Express Car Wash	LAT EXT	4,830	12/22/15	-10,505	864,921
SC1003718	SOUTHEAST DIVERSION AREA G (SEDG)	SCAPCREDIT		2/16/16	75,998	940,919
SC1003704	CONTRACTED WORK FY16 - SOUTHEAST	SCAPCREDIT		5/24/16	66	940,985
LE943171	Costco Wholesale and Fuel Facility	LAT EXT	8,000	7/28/16	-17,400	923,585



System Capacity Planning Projected Credit Needs

<u>Credit Basin</u>	<u>Projected Credit Need</u>
CCREEK	76,343
FFORK	50,504
HCREEK	4,350
JTOWN	1,740
MCREEK	289,036
MFORK	194,010
NDITCH	870
ORFM	18,705
PCREEK	181,743
SEDIV	26,785
	844,085

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Appendix E IOAP Project Crosswalk

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PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO022	L_OR_MF_155_M_09B_B_B_4
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO023	L_OR_MF_155_M_09B_B_B_4
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO050	L_OR_MF_155_M_09B_B_B_4
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO051	L_OR_MF_155_M_09B_B_B_4
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO052	L_OR_MF_155_M_09B_B_B_4
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO053	L_OR_MF_155_M_09B_B_B_4
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO054	L_OR_MF_155_M_09B_B_B_4
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO055	L_OR_MF_155_M_09B_B_B_4
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO056	L_OR_MF_155_M_09B_B_B_4
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO150	L_OR_MF_155_M_09B_B_B_4
13TH STREET AND ROWAN STREET STORAGE BASIN	IOAP	CSO155	L_OR_MF_155_M_09B_B_B_4
17TH STREET FLOOD PUMP STATION DRY WEATHER OVERFLOW ELIMINATION	IOAP	MSD0306-FP	L_OR_MF_190_S_03_A_A
18TH AND NORTHWESTERN PARKWAY STORAGE BASIN	IOAP	CSO190	L_OR_MF_190_S_09B_B_A_8
27TH STREET FLOOD PUMP STATION DRY WEATHER OVERFLOW ELIMINATION	IOAP	MSD0307-FP	L_OR_MF_019_S_03_A_A
34TH STREET FLOOD PUMP STATION DRY WEATHER OVERFLOW ELIMINATION	IOAP	MSD0308-FP	L_OR_MF_019_S_03_A_B
4TH STREET FLOOD PUMP STATION DRY WEATHER OVERFLOW ELIMINATION	IOAP	MSD0303-FP	L_OR_MF_022_M_03_A_A
ADAMS STREET STORAGE BASIN	IOAP	CSO172	L_OR_MF_172_S_09B_B_A_0
ALGONQUIN PKY STORAGE BASIN	IOAP	CSO016	L_OR_MF_211_M_13_B_A_8
ALGONQUIN PKY STORAGE BASIN	IOAP	CSO210	L_OR_MF_211_M_13_B_A_8
ALGONQUIN PKY STORAGE BASIN	IOAP	CSO211	L_OR_MF_211_M_13_B_A_8
ANCHOR ESTATES PUMP STATION ELIMINATIONS 1 - VANNAH PUMP STATION ELIMINATION	IOAP	00056-W	S_MI_MF_NB06_M_01_A_A-2
ANCHOR ESTATES PUMP STATION ELIMINATIONS 1 - VANNAH PUMP STATION ELIMINATION	IOAP	0057-W	S_MI_MF_NB06_M_01_A_A-2

PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
ANCHOR ESTATES PUMP STATION ELIMINATIONS 1 - VANNAH PUMP STATION ELIMINATION	IOAP	00746	S_MI_MF_NB06_M_01_A_A-2
ANCHOR ESTATES PUMP STATION ELIMINATIONS 1 - VANNAH PUMP STATION ELIMINATION	IOAP	00817	S_MI_MF_NB06_M_01_A_A-2
ANCHOR ESTATES PUMP STATION ELIMINATIONS 1 - VANNAH PUMP STATION ELIMINATION	IOAP	MSD0057-LS	S_MI_MF_NB06_M_01_A_A-2
ANCHOR ESTATES PUMP STATION ELIMINATIONS 2 - ANCHOR ESTATES #1 AND #2 PUMP STATION ELIMINATION	IOAP	01106	S_MI_MF_NB06_M_01_A_A - 1
ASHBURTON PUMP STATION IMPROVEMENTS AND DIVERSION	IOAP	MSD0165-PS	S_FF_FF_NB03_M_01_C_A
ASHBURTON PUMP STATION IMPROVEMENTS AND DIVERSION	IOAP	MSD0166-PS	S_FF_FF_NB03_M_01_C_A
AVANTI PUMP STATION ELIMINATION	IOAP	21229	S_PO_WC_PC07_M_01_C
BARDSTOWN ROAD PUMP STATION IMPROVEMENTS	IOAP	88545	S_CC_CC_MSD1025_S_03_B
BEARGRASS INTERCEPTOR REHABILITATION PHASE 2	IOAP	51594	S_SD_MF_NB06_S_13_C
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	ISSDP	21061	BEECHWOOD VILLAGE SEWER REPL
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	ISSDP	21089	BEECHWOOD VILLAGE SEWER REPL
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	ISSDP	21089A	BEECHWOOD VILLAGE SEWER REPL
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	ISSDP	21101	BEECHWOOD VILLAGE SEWER REPL
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	ISSDP	21153	BEECHWOOD VILLAGE SEWER REPL
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	ISSDP	21156	BEECHWOOD VILLAGE SEWER REPL
BELLS LANE WET WEATHER TREATMENT FACILITY (FORMERLY KNOWN AS PADDY'S RUN)	IOAP	CS0015	L_OR_MF_015_M_13_B_B_8
BELLS LANE WET WEATHER TREATMENT FACILITY (FORMERLY KNOWN AS PADDY'S RUN)	IOAP	CS0191	L_OR_MF_015_M_13_B_B_8
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	08717	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	104223	S_SF_MF_30917_M_09_A



PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	104224	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	104231	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	13931	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	13943	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	13946	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	34093542	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	36763	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	44396	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	44397	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	51301	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	66349	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	99259	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	KK14815019	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENTS - PHASES 1 THROUGH 4	IOAP	KK14855239	S_SF_MF_30917_M_09_A
CAVEN AVENUE PUMP STATION ELIMINATION	IOAP	17724	S_PO_WC_PC09_M_09B_C
CAVEN AVENUE PUMP STATION ELIMINATION	IOAP	27116	S_PO_WC_PC09_M_09B_C
CAVEN AVENUE PUMP STATION ELIMINATION	IOAP	61667	S_PO_WC_PC09_M_09B_C
CAVEN AVENUE PUMP STATION ELIMINATION	IOAP	61687	S_PO_WC_PC09_M_09B_C
CAVEN AVENUE PUMP STATION ELIMINATION	IOAP	70212	S_PO_WC_PC09_M_09B_C
CAVEN AVENUE PUMP STATION ELIMINATION	IOAP	MSD0133-PS	S_PO_WC_PC09_M_09B_C
CHARLESWOOD INTERCEPTOR EXTENSION	IOAP	25477	S_PO_WC_PC03_M_01_C
CHARLESWOOD INTERCEPTOR EXTENSION	IOAP	25479	S_PO_WC_PC03_M_01_C
CHARLESWOOD INTERCEPTOR EXTENSION	IOAP	25480	S_PO_WC_PC03_M_01_C
CHARLESWOOD INTERCEPTOR EXTENSION	IOAP	MSD0130-PS	S_PO_WC_PC03_M_01_C
CHENOWETH HILLS WQTC ELIMINATION AND PUMP STATION IMPROVEMENTS	IOAP	64096	S_JT_JT_NB01A_M_03_C
CHENOWETH HILLS WQTC ELIMINATION AND PUMP STATION IMPROVEMENTS	IOAP	86052	S_JT_JT_NB01A_M_03_C

PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
CHENOWETH HILLS WQTC ELIMINATION AND PUMP STATION IMPROVEMENTS	IOAP	92061	S_JT_JT_NB01A_M_03_C
CHENOWETH HILLS WQTC ELIMINATION AND PUMP STATION IMPROVEMENTS	IOAP	MSD0196-PS	S_JT_JT_NB01A_M_03_C
CHENOWETH HILLS WQTC ELIMINATION AND PUMP STATION IMPROVEMENTS	IOAP	MSD0263	S_JT_JT_NB01A_M_03_C
CHENOWETH HILLS WQTC ELIMINATION AND PUMP STATION IMPROVEMENTS	IOAP	MSD0263A-PS	S_JT_JT_NB01A_M_03_C
CHENOWETH HILLS WQTC ELIMINATION AND PUMP STATION IMPROVEMENTS	IOAP	MSD1043-PS	S_JT_JT_NB01A_M_03_C
CINDERELLA PUMP STATION ELIMINATION	IOAP	102339	S_PO_WC_PC04_M_01_C
CINDERELLA PUMP STATION ELIMINATION	IOAP	35309	S_PO_WC_PC04_M_01_C
CINDERELLA PUMP STATION ELIMINATION	IOAP	60679	S_PO_WC_PC04_M_01_C
CINDERELLA PUMP STATION ELIMINATION	IOAP	MSD1013-PS	S_PO_WC_PC04_M_01_C
CLIFTON HEIGHTS STORAGE BASIN	IOAP	CSO083	L_MU_MF_154_M_09B_B_A_8
CLIFTON HEIGHTS STORAGE BASIN	IOAP	CSO088	L_MU_MF_154_M_09B_B_A_8
CLIFTON HEIGHTS STORAGE BASIN	IOAP	CSO131	L_MU_MF_154_M_09B_B_A_8
CLIFTON HEIGHTS STORAGE BASIN	IOAP	CSO132	L_MU_MF_154_M_09B_B_A_8
CLIFTON HEIGHTS STORAGE BASIN	IOAP	CSO154	L_MU_MF_154_M_09B_B_A_8
CLIFTON HEIGHTS STORAGE BASIN	IOAP	CSO167	L_MU_MF_154_M_09B_B_A_8
CSO058 IN-LINE STORAGE AND GREEN INFRASTRUCTURE	IOAP	CSO058	L_OR_MF_058_S_08_A_A_0
CSO093 STRUCTURAL MODIFICATIONS AND GREEN INFRASTRUCTURE	IOAP	CSO093	L_SO_MF_093_S_08_A_A_0
CSO108 DAM MODIFICATIONS	IOAP	CSO108	L_SO_MF_108_S_09A_B_A_4
CSO140 IN-LINE STORAGE AND GREEN INFRASTRUCTURE	IOAP	CSO140	L_MI_MF_140_S_08_A_A_0
CSO160 IN-LINE STORAGE AND GREEN INFRASTRUCTURE	IOAP	CSO160	L_OR_MF_160_S_08_A_A_0
CSO206 SEWER SEPARATION	IOAP	CSO206	L_MI_MF_206_S_08_A_A_0
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	104289	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28249	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28250	S_JT_JT_NB02_M_01_C

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DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28336	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28340	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28413	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28414	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28415	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28416	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28417	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28451	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28453	S_JT_JT_NB02_M_01_C
DELL ROAD AND CHARLAINE PARKWAY INTERCEPTOR IMPROVEMENTS	IOAP	28711	S_JT_JT_NB02_M_01_C
DEREK R GUTHRIE WQTC WET WEATHER FACILITY	ISSDP	22307	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC WET WEATHER FACILITY	ISSDP	22370	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC WET WEATHER FACILITY	ISSDP	22385	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC WET WEATHER FACILITY	ISSDP	32682	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC WET WEATHER FACILITY	ISSDP	32688	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC WET WEATHER FACILITY	ISSDP	59169	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC WET WEATHER FACILITY	ISSDP	MSD0277	DEREK R GUTHRIE WQTC UPGRADES
DERINGTON COURT PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	20154-W	S_OR_MF_NB03_S_07_C
DERINGTON COURT PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	20155	S_OR_MF_NB03_S_07_C
DERINGTON COURT PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	MSD0095-PS	S_OR_MF_NB03_S_07_C



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EAST ROCKFORD PUMP STATION RELOCATION	IOAP	04699-W	S_MC_WC_NB02_S_03_C
EDEN CARE PUMP STATION SSO INVESTIGATION	IOAP	MSD1105-PS	S_FF_FF_NB02_S_13_C
EDSEL PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	92098	S_PO_WC_PC11_M_07_C
EDSEL PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	92099	S_PO_WC_PC11_M_07_C
EDSEL PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	94009	S_PO_WC_PC11_M_07_C
EDSEL PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	MSD1048-PS	S_PO_WC_PC11_M_07_C
FAIRMOUNT ROAD PUMP STATION IMPROVEMENTS AND OFFLINE STORAGE	IOAP	116106	S_FF_CC_81316_M_03_C_A
FAIRMOUNT ROAD PUMP STATION IMPROVEMENTS AND OFFLINE STORAGE	IOAP	81316	S_FF_CC_81316_M_03_C_A
FAIRMOUNT ROAD PUMP STATION IMPROVEMENTS AND OFFLINE STORAGE	IOAP	97362	S_FF_CC_81316_M_03_C_A
FAIRMOUNT ROAD PUMP STATION IMPROVEMENTS AND OFFLINE STORAGE	IOAP	97363	S_FF_CC_81316_M_03_C_A
FAIRMOUNT ROAD PUMP STATION IMPROVEMENTS AND OFFLINE STORAGE	IOAP	97365	S_FF_CC_81316_M_03_C_A
FAIRWAY VIEW PUMP STATION IMPROVEMENTS	IOAP	MSD1065-PS	S_HC_HS_NB01_S_03_C_A
FLOYDSBURG ROAD I&I INVESTIGATION AND REHABILITATION	IOAP	108953	S_HC_HC_MSD1086_M_07_C_A
FLOYDSBURG ROAD I&I INVESTIGATION AND REHABILITATION	IOAP	108956	S_HC_HC_MSD1086_M_07_C_A
FLOYDSBURG ROAD I&I INVESTIGATION AND REHABILITATION	IOAP	108957	S_HC_HC_MSD1086_M_07_C_A
FLOYDSBURG ROAD I&I INVESTIGATION AND REHABILITATION	IOAP	108958	S_HC_HC_MSD1086_M_07_C_A
FLOYDSBURG ROAD I&I INVESTIGATION AND REHABILITATION	IOAP	90776	S_HC_HC_MSD1086_M_07_C_A
FLOYDSBURG ROAD I&I INVESTIGATION AND REHABILITATION	IOAP	MSD1086-PS	S_HC_HC_MSD1086_M_07_C_A
FOX HARBOR IN-LINE STORAGE	IOAP	62769	S_HC_HN_NB03_S_09A_A_A
GOOSE CREEK PUMP STATION IMPROVEMENTS AND WET WEATHER STORAGE	IOAP	105936	S_MI_MF_NB04_M_03_B
GOOSE CREEK PUMP STATION IMPROVEMENTS AND WET WEATHER STORAGE	IOAP	117721	S_MI_MF_NB04_M_03_B
GOOSE CREEK PUMP STATION IMPROVEMENTS AND WET WEATHER STORAGE	IOAP	43472	S_MI_MF_NB04_M_03_B



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GOOSE CREEK PUMP STATION IMPROVEMENTS AND WET WEATHER STORAGE	IOAP	46891	S_MI_MF_NB04_M_03_B
GOOSE CREEK PUMP STATION IMPROVEMENTS AND WET WEATHER STORAGE	IOAP	62418	S_MI_MF_NB04_M_03_B
GOOSE CREEK PUMP STATION IMPROVEMENTS AND WET WEATHER STORAGE	IOAP	62420	S_MI_MF_NB04_M_03_B
GOOSE CREEK PUMP STATION IMPROVEMENTS AND WET WEATHER STORAGE	IOAP	91629	S_MI_MF_NB04_M_03_B
GOOSE CREEK PUMP STATION IMPROVEMENTS AND WET WEATHER STORAGE	IOAP	91630	S_MI_MF_NB04_M_03_B
GOOSE CREEK PUMP STATION IMPROVEMENTS AND WET WEATHER STORAGE	IOAP	MSD0040-PS	S_MI_MF_NB04_M_03_B
GOOSE CREEK PUMP STATION IMPROVEMENTS AND WET WEATHER STORAGE	IOAP	MSD1024-PS	S_MI_MF_NB04_M_03_B
GOVERNMENT CENTER PUMP STATION ELIMINATION	IOAP	94541	S_PO_WC_PC06_M_01_C
GOVERNMENT CENTER PUMP STATION ELIMINATION	IOAP	94542	S_PO_WC_PC06_M_01_C
GOVERNMENT CENTER PUMP STATION ELIMINATION	IOAP	MSD0180-PS	S_PO_WC_PC06_M_01_C
GUNPOWDER PUMP STATION IN-LINE STORAGE	IOAP	MSD1055-LS	S_HC_HN_NB02_S_09A_C_B
HAZELWOOD PUMP STATION I&I INVESTIGATION & REHABILITATION	IOAP	55665	S_MC_MF_55665_S_07_C
HAZELWOOD PUMP STATION I&I INVESTIGATION & REHABILITATION	IOAP	55667	S_MC_MF_55665_S_07_C
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	17571	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18134	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18297	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18298	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18299	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18302	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18318-W	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18370	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18434	HIKES LN INTER & HIGHGATE SPR



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HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18471	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18483	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18505	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	18595	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	30680	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	30681	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	47960A	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	48885	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	48886	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	48888	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	49224	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	49236	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	49672	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	49673	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	73111	HIKES LN INTER & HIGHGATE SPR
HIKES LANE INTERCEPTOR AND HIGHGATE SPRINGS PUMP STATION	ISSDP	MSD0012-PS	HIKES LN INTER & HIGHGATE SPR
HURSTBOURNE I&I INVESTIGATION AND REHABILITATION	IOAP	01793	S_MI_MF_NB07_S_07_C
HURSTBOURNE I&I INVESTIGATION AND REHABILITATION	IOAP	47650	S_MI_MF_NB07_S_07_C
HURSTBOURNE I&I INVESTIGATION AND REHABILITATION	IOAP	47656	S_MI_MF_NB07_S_07_C
HURSTBOURNE I&I INVESTIGATION AND REHABILITATION	IOAP	67535	S_MI_MF_NB07_S_07_C
I-64 AND GRINSTEAD DRIVE STORAGE BASIN	IOAP	CSO125	L_MI_MF_127_M_09B_B_A_8
I-64 AND GRINSTEAD DRIVE STORAGE BASIN	IOAP	CSO126	L_MI_MF_127_M_09B_B_A_8
I-64 AND GRINSTEAD DRIVE STORAGE BASIN	IOAP	CSO127	L_MI_MF_127_M_09B_B_A_8
I-64 AND GRINSTEAD DRIVE STORAGE BASIN	IOAP	CSO166	L_MI_MF_127_M_09B_B_A_8
IDLEWOOD IN-LINE STORAGE	IOAP	28984	S_CC_CC_70158_M_09A_C
IDLEWOOD IN-LINE STORAGE	IOAP	28985	S_CC_CC_70158_M_09A_C
IDLEWOOD IN-LINE STORAGE	IOAP	28998	S_CC_CC_70158_M_09A_C
IDLEWOOD IN-LINE STORAGE	IOAP	63094	S_CC_CC_70158_M_09A_C



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IDLEWOOD IN-LINE STORAGE	IOAP	63095	S_CC_CC_70158_M_09A_C
IDLEWOOD IN-LINE STORAGE	IOAP	70158	S_CC_CC_70158_M_09A_C
JEFFERSONTOWN WQTC ELIMINATION	IOAP	28173	S_JT_JT_NB01_M_01_C_A
JEFFERSONTOWN WQTC ELIMINATION	IOAP	28390	S_JT_JT_NB01_M_01_C_A
JEFFERSONTOWN WQTC ELIMINATION	IOAP	28391	S_JT_JT_NB01_M_01_C_A
JEFFERSONTOWN WQTC ELIMINATION	IOAP	28392	S_JT_JT_NB01_M_01_C_A
JEFFERSONTOWN WQTC ELIMINATION	IOAP	28395	S_JT_JT_NB01_M_01_C_A
JEFFERSONTOWN WQTC ELIMINATION	IOAP	28551	S_JT_JT_NB01_M_01_C_A
JEFFERSONTOWN WQTC ELIMINATION	IOAP	31733	S_JT_JT_NB01_M_01_C_A
JEFFERSONTOWN WQTC ELIMINATION	IOAP	64505	S_JT_JT_NB01_M_01_C_A
JEFFERSONTOWN WQTC ELIMINATION	IOAP	IS028-SI	S_JT_JT_NB01_M_01_C_A
JEFFERSONTOWN WQTC ELIMINATION	IOAP	MSD0255	S_JT_JT_NB01_M_01_C_A
KAVANAUGH ROAD PUMP STATION IMPROVEMENTS	IOAP	MSD1085-PS	S_HC_HC_MSD1085_S_03_A
KLONDIKE INTERCEPTOR	IOAP	20644	S_SD_MF_NB04_S_01_B_A
KLONDIKE INTERCEPTOR	IOAP	25676	S_SD_MF_NB04_S_01_B_A
KLONDIKE INTERCEPTOR	IOAP	26650	S_SD_MF_NB04_S_01_B_A
KLONDIKE INTERCEPTOR	IOAP	26651	S_SD_MF_NB04_S_01_B_A
KLONDIKE INTERCEPTOR	IOAP	49513	S_SD_MF_NB04_S_01_B_A
KLONDIKE INTERCEPTOR	IOAP	66232	S_SD_MF_NB04_S_01_B_A
LAKE FOREST PUMP STATION SSO INVESTIGATION	IOAP	MSD1169-LS	S_FF_LF_NB01_S_13_C_A
LANTANA #1 PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	25484	S_PO_WC_PC05_M_07_C
LANTANA #1 PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	93719	S_PO_WC_PC05_M_07_C
LANTANA #1 PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	MSD0101-PS	S_PO_WC_PC05_M_07_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	19360	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	19369	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	29933	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	29943	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	29948	S_PO_WC_PC08_M_01_C



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LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	29949	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	31073	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	31074	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	31083	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	31084	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	57874	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	61266	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	79076	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	MSD1010-PS	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENTS	IOAP	MSD1200-PS	S_PO_WC_PC08_M_01_C
LELAND ROAD SSO INVESTIGATION	IOAP	96020	S_OR_MF_NB02_S_13_C
LEVEN PUMP STATION ELIMINATION	IOAP	36419	S_PO_WC_PC10_M_01_C
LEVEN PUMP STATION ELIMINATION	IOAP	MSD1019-PS	S_PO_WC_PC10_M_01_C
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN	IOAP	CSO082	L_SO_MF_083_M_09B_B_A_8
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN	IOAP	CSO084	L_SO_MF_083_M_09B_B_A_8
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN	IOAP	CSO118	L_SO_MF_083_M_09B_B_A_8
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN	IOAP	CSO119	L_SO_MF_083_M_09B_B_A_8
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN	IOAP	CSO120	L_SO_MF_083_M_09B_B_A_8
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN	IOAP	CSO121	L_SO_MF_083_M_09B_B_A_8
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN	IOAP	CSO141	L_SO_MF_083_M_09B_B_A_8
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN	IOAP	CSO153	L_SO_MF_083_M_09B_B_A_8
LITTLE CEDAR CREEK INTERCEPTOR IMPROVEMENTS	IOAP	67997	S_CC_CC_67997_M_01_C
LITTLE CEDAR CREEK INTERCEPTOR IMPROVEMENTS	IOAP	67999	S_CC_CC_67997_M_01_C
LITTLE CEDAR CREEK INTERCEPTOR IMPROVEMENTS	IOAP	86423	S_CC_CC_67997_M_01_C
LITTLE CEDAR CREEK INTERCEPTOR IMPROVEMENTS	IOAP	86424	S_CC_CC_67997_M_01_C
LITTLE CEDAR CREEK INTERCEPTOR IMPROVEMENTS	IOAP	89196	S_CC_CC_67997_M_01_C
LITTLE CEDAR CREEK INTERCEPTOR IMPROVEMENTS	IOAP	89197	S_CC_CC_67997_M_01_C
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO091	L_SO_MF_092_M_09B_B_D_8



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LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO097	L_SO_MF_092_M_09B_B_D_8
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO106	L_SO_MF_092_M_09B_B_D_8
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO110	L_SO_MF_092_M_09B_B_D_8
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO111	L_SO_MF_092_M_09B_B_D_8
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO113	L_SO_MF_092_M_09B_B_D_8
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO137	L_SO_MF_092_M_09B_B_D_8
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO146	L_SO_MF_092_M_09B_B_D_8
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO148	L_SO_MF_092_M_09B_B_D_8
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO149	L_SO_MF_092_M_09B_B_D_8
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO151	L_SO_MF_092_M_09B_B_D_8
LOGAN STREET AND BRECKINRIDGE STREET STORAGE BASIN	IOAP	CSO152	L_SO_MF_092_M_09B_B_D_8
LUCAS LANE PUMP STATION IN-LINE STORAGE	IOAP	MSD0199-LS	S_FF_BT_NB01_S_09A_C_A
MEADOW STREAM PUMP STATION IN-LINE STORAGE	IOAP	91087	S_HC_HC_MSD1082_S_09A_C
MEADOW STREAM PUMP STATION IN-LINE STORAGE	IOAP	MSD1082-PS	S_HC_HC_MSD1082_S_09A_C
MELLWOOD SYSTEM IMPROVEMENTS AND PUMP STATION ELIMINATIONS	IOAP	24152-W	S_OR_MF_NB01_M_01_B
MELLWOOD SYSTEM IMPROVEMENTS AND PUMP STATION ELIMINATIONS	IOAP	24472	S_OR_MF_NB01_M_01_B
MELLWOOD SYSTEM IMPROVEMENTS AND PUMP STATION ELIMINATIONS	IOAP	26752	S_OR_MF_NB01_M_01_B
MELLWOOD SYSTEM IMPROVEMENTS AND PUMP STATION ELIMINATIONS	IOAP	41374	S_OR_MF_NB01_M_01_B
MELLWOOD SYSTEM IMPROVEMENTS AND PUMP STATION ELIMINATIONS	IOAP	41416	S_OR_MF_NB01_M_01_B
MELLWOOD SYSTEM IMPROVEMENTS AND PUMP STATION ELIMINATIONS	IOAP	MSD0006-PS	S_OR_MF_NB01_M_01_B
MELLWOOD SYSTEM IMPROVEMENTS AND PUMP STATION ELIMINATIONS	IOAP	MSD0007-PS	S_OR_MF_NB01_M_01_B
MELLWOOD SYSTEM IMPROVEMENTS AND PUMP STATION ELIMINATIONS	IOAP	MSD0010-PS	S_OR_MF_NB01_M_01_B
MELLWOOD SYSTEM IMPROVEMENTS AND PUMP STATION ELIMINATIONS	IOAP	MSD0023-PS	S_OR_MF_NB01_M_01_B
MELLWOOD SYSTEM IMPROVEMENTS AND PUMP STATION ELIMINATIONS	IOAP	MSD0024-PS	S_OR_MF_NB01_M_01_B
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	02932	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	02933	S_MISF_MF_NB01_M_01_C_A1

PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	02935	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	08537	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	08935-SM	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	115183	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	115184	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	115185	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	15194	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	15195	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	23211	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	23212	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	24553	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	27005	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	27007	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	30376	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	40471	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	40559	S_MISF_MF_NB01_M_01_C_A1

PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	45796	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	45829	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	45835	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	45900	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	47034	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	47582	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	47583	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	47593	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	47596	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	47603	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	47604	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	51160	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	51161	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	51180	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	51221	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	72288	S_MISF_MF_NB01_M_01_C_A1

PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	72289	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	74513	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	84155	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	90700	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	96672	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	96673	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION	IOAP	IS021A-SI	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 2 - PUMP STATION DIVERSION AND STORAGE	IOAP	43726	S_MISF_MF_NB01_M_01_C_A1-2
MONTICELLO PUMP STATION ELIMINATION	IOAP	27969	S_JT_JT_NB04_M_01_A
MONTICELLO PUMP STATION ELIMINATION	IOAP	MSD0151-PS	S_JT_JT_NB04_M_01_A
NIGHTINGALE PUMP STATION REPLACEMENT	IOAP	CSO018	L_SO_MF_018_S_03_A_A
NORTHERN DITCH DIVERSION INTERCEPTOR	ISSDP	MSD0271	NORTHERN DITCH DIVERSION INTER
PARKVIEW ESTATES I&I INVESTIGATION AND REHABILITATION	IOAP	47250	S_SD_MF_NB03_S_07_C
PORTLAND WHARF STORAGE BASIN	IOAP	CSO019	L_OR_MF_019_S_13_B_A_8
PROSPECT SYSTEM IMPROVEMENTS	IOAP	16455	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	22436	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	40870	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	40871	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	40872	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	40879	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	40880	S_OR_MF_NB04_M_03_B_B

PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
PROSPECT SYSTEM IMPROVEMENTS	IOAP	42675	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	42680	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	46621	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	46623	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	46627	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	65606	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	65610	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	65623	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	65633	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	65635	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	89646	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	89791	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	MSD0123-PS	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	MSD0183-PS	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	MSD0186-PS	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	MSD0192-PS	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	MSD0193-PS	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	MSD0291	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	MSD0292	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	MSD1044-PS	S_OR_MF_NB04_M_03_B_B
PROSPECT SYSTEM IMPROVEMENTS	IOAP	MSD1063-PS	S_OR_MF_NB04_M_03_B_B
RAINTREE DRIVE AND MARIAN COURT SYSTEM IMPROVEMENTS	IOAP	28729-W	S_JT_JT_NB03_M_01_C
RAINTREE DRIVE AND MARIAN COURT SYSTEM IMPROVEMENTS	IOAP	MSD0149-PS	S_JT_JT_NB03_M_01_C
RIDING RIDGE PUMP STATION IMPROVEMENTS	IOAP	MSD1060-LS	S_HC_HN_NB01_S_03_C_A
RUNNING FOX PUMP STATION ELIMINATION	IOAP	MSD1080-LS	S_CC_CC_MSD1080_S_01_C
SHAWNEE FLOOD PUMP STATION DRY WEATHER OVERFLOW ELIMINATION	IOAP	MSD0309-FP	L_OR_MF_189_M_03_A_A
SHIVELY INTERCEPTOR	IOAP	04498	S_MC_WC_NB01_M_01_A
SHIVELY INTERCEPTOR	IOAP	04542	S_MC_WC_NB01_M_01_A

PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
SHIVELY INTERCEPTOR	IOAP	81814-W	S_MC_WC_NB01_M_01_A
SHIVELY INTERCEPTOR	IOAP	MSD0016-PS	S_MC_WC_NB01_M_01_A
SHIVELY INTERCEPTOR	IOAP	MSD0043-PS	S_MC_WC_NB01_M_01_A
SHIVELY INTERCEPTOR	IOAP	MSD0044-PS	S_MC_WC_NB01_M_01_A
SHIVELY INTERCEPTOR	IOAP	MSD0047-PS	S_MC_WC_NB01_M_01_A
SHIVELY INTERCEPTOR	IOAP	MSD0049-PS	S_MC_WC_NB01_M_01_A
SHIVELY INTERCEPTOR	IOAP	MSD0050-PS	S_MC_WC_NB01_M_01_A
SINKING FORK RELIEF SEWER	IOAP	21103	SINKING FORK RELIEF SEWER
SINKING FORK RELIEF SEWER	IOAP	25012	SINKING FORK RELIEF SEWER
SINKING FORK RELIEF SEWER	IOAP	63319	SINKING FORK RELIEF SEWER
SONNE PUMP STATION I&I INVESTIGATION AND REHABILITATION	IOAP	MSD0042-PS	S_OR_MF_42007_S_07_C
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	08426	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	08427	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	08430	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	08431	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	18654	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	30701	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	30702	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	30704	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	49647	SOUTHEASTERN DIVERSION STRUCT



PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	63779	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE AND INTERCEPTOR	IOAP	72571-X	SOUTHEASTERN DIVERSION STRUCT
SOUTHWESTERN PARKWAY STORAGE BASIN	IOAP	CSO104	L_OR_MF_105_M_13_B_A_0
SOUTHWESTERN PARKWAY STORAGE BASIN	IOAP	CSO105	L_OR_MF_105_M_13_B_A_0
SOUTHWESTERN PARKWAY STORAGE BASIN	IOAP	CSO189	L_OR_MF_105_M_13_B_A_0
ST RENE ROAD PUMP STATION IN-LINE STORAGE	IOAP	94187	S_FF_CH_NB01_S_09A_C_A
STORY AVENUE AND MAIN STREET STORAGE BASIN	IOAP	CSO020	L_OR_MF_020_S_09B_B_A_8
SUTHERLAND INTERCEPTOR	IOAP	16649	S_SD_MF_NB05_M_01_A
WOODLAND HILLS PUMP STATION DIVERSION	IOAP	33003	S_FF_FF_NB01_S_01_C_A
WOODLAND HILLS PUMP STATION DIVERSION	IOAP	65516	S_FF_FF_NB01_S_01_C_A
WOODLAND HILLS PUMP STATION DIVERSION	IOAP	65531	S_FF_FF_NB01_S_01_C_A

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Appendix F CSO108 Semi-Annual Report

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700 West Liberty Street | Louisville, KY 40203-1911
Phone: 502.540.6000 | LouisvilleMSD.org

June 30, 2017

Joyce Bender
Nature Preserves and Natural Areas Branch Manager
Kentucky State Nature Preserve Commission
801 Schenkel Lane
Frankfort, KY 40601

Subject: CSO 108 Semi-Annual Report #18

Dear Ms. Bender

As required in Paragraph #10 of the document titled "Memorandum of Understanding by and between the Kentucky State Nature Preserve Commission and the Louisville and Jefferson County Metropolitan Sewer District", MSD submits to you the MOU Semi-Annual Report #18. This report summarizes activities at the CSO 108 CDS Site during the reporting period of January 1, 2017 to June 30, 2017.

Should you have any questions or comments, please feel free to contact me via email at heather.dodds@louisvillemad.org or phone at (502) 540-6961.

Sincerely,

Heather Dodds, PE
Regulatory Compliance Administrator





INTRODUCTION

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

This is the 18th Semi-Annual Report submitted in accordance with Paragraph 10 of the MOU. This report covers the time period of January 1, 2017 to June 30, 2017.

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

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

1.1. PARAGRAPH #10 OF THE MOU

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

1.2. MSD RESPONSE

This document is the 18th semi-annual report to the Commission since the completion of the Project.

1.2.1 CLEANING AND INSPECTION ACTIVITIES

The CSO108 CDS Unit is inspected weekly and cleaned on an as-needed basis. During the reporting period, MSD cleaned the CDS Unit bar racks **three** times. The information, shown in Table 1, is generated from work orders initiated whenever the CDS Unit is inspected and needs to be cleaned. Cleaning consists of either washing debris off of the bar racks or hauling the solids and floatables from the site. Both operations result in removing debris that would otherwise overflow into Beargrass Creek. When cleaning the bar racks, the debris is reintroduced into the sewer system, and as a result, is difficult to accurately estimate the amount removed during the maintenance process. The Crystal Report often indicates the quantity removed as “unknown”.

Table 1: CSO108 CDS Unit Debris Removal

ACTIVITY	QUANTITY	COMMENTS	COMPLETED DATE
Debris	Unknown	Cleaned heavy debris off rack bars	03/02/17
Debris	Unknown	Cleaned medium debris off rack bars	04/05/17
Debris	Unknown	Cleaned medium debris off rack bars	05/17/17

1.2.2 MAINTENANCE ACTIVITIES

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

1.2.3 CAPTURED FLOW

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

In an effort to estimate the volume of debris captured by the CDS Unit and kept within the sewer system, a study of the efficiency of the unit was performed in the early 2002. The results of the study indicated that the concentration of solids kept within the sewer system was approximately 1ml/l. Using pump run times and knowing the efficiency of the pumps, MSD was able to determine a volume of solids captured by the CDS technology. MSD estimates that the CDS Unit captured 47.67 tons of solids during the reporting period. Attachment "B" lists the pump run times and calculations MSD used to determine the amount of debris captured by the CDS Unit and sent to the MFWQTC for treatment.



ATTACHMENT "A" – PHOTOS OF AREA ADJACENT TO
CSO 108 AND THE CDS UNIT
(DATED JUNE 26, 2017)



Figure 1. Entrance to CDS Unit



Figure 2. Entrance to CDS Unit



Figure 3. Area Adjacent to the CDS Unit



Figure 4. Area Adjacent to the CDS Unit



Figure 5. Area Adjacent to the Creek

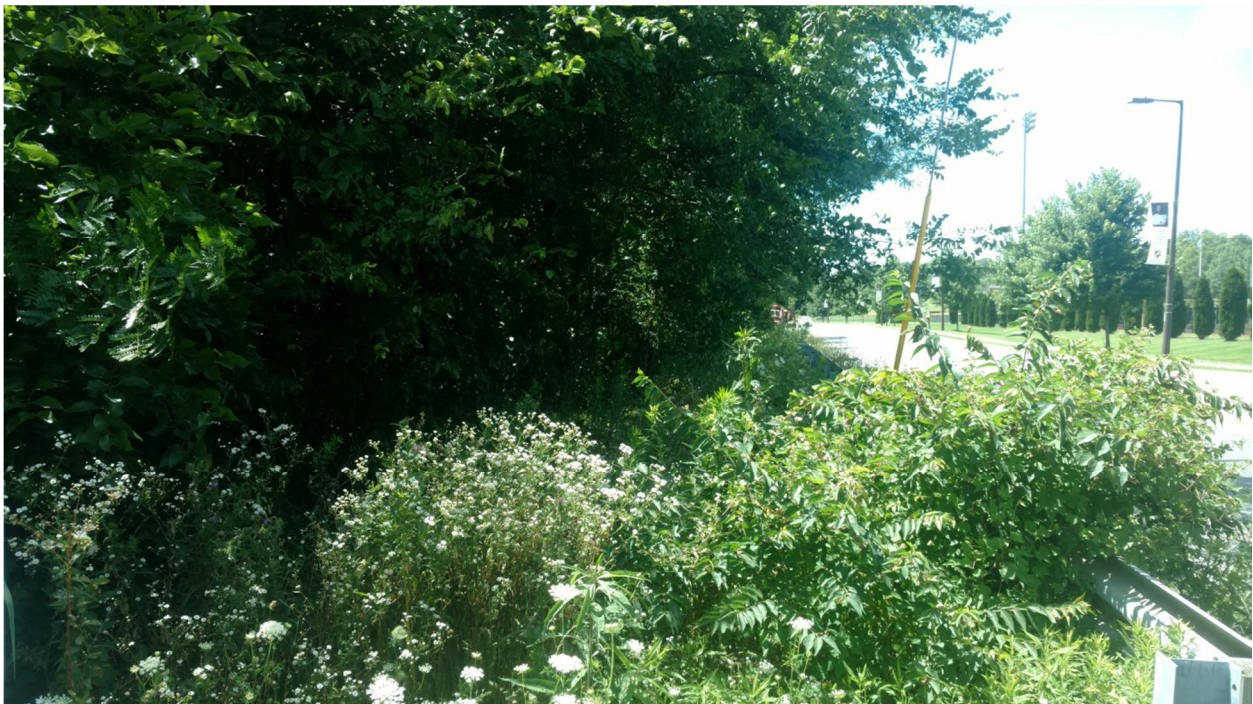


Figure 6. Area Adjacent to the Creek



ATTACHMENT "B" -CDS UNIT PUMP RUN TIMES



CDS Unit Pump Runtimes

DATE	PUMP 1 RUN HOURS	PUMP 2 RUN HOURS	PUMP 3 RUN HOURS
December 20, 2016	0.00	0.00	5.35
December 21, 2016	0.00	0.00	0.13
December 22, 2016	0.00	0.00	0.03
December 23, 2016	0.00	0.00	0.05
December 24, 2016	0.00	0.00	0.00
December 25, 2016	0.00	0.00	0.00
December 26, 2016	0.00	0.00	0.03
December 27, 2016	0.00	0.00	0.05
December 28, 2016	0.00	0.00	0.05
December 29, 2016	0.00	0.00	0.03
December 30, 2016	0.00	0.00	0.05
December 31, 2016	0.00	0.00	0.00
January 1, 2017	0.00	0.00	0.03
January 2, 2017	0.00	0.00	0.00
January 3, 2017	0.00	0.00	0.00
January 4, 2017	0.00	0.00	0.05
January 5, 2017	0.00	0.00	0.00
January 6, 2017	0.00	0.00	0.05
January 7, 2017	0.00	0.00	0.00
January 8, 2017	0.00	0.00	0.00
January 9, 2017	0.00	0.00	0.03
January 10, 2017	0.00	0.00	0.00
January 11, 2017	0.00	0.00	0.00
January 12, 2017	0.00	0.00	0.00
January 13, 2017	0.00	0.00	0.05
January 14, 2017	0.00	0.00	0.03
January 15, 2017	0.00	0.00	0.13
January 16, 2017	0.00	0.00	0.08
January 17, 2017	0.00	0.00	0.13
January 18, 2017	0.00	0.00	0.05
January 19, 2017	0.00	0.00	0.27
January 20, 2017	0.00	0.00	0.08
January 21, 2017	0.00	0.00	0.08
January 22, 2017	0.00	0.00	0.58



CDS Unit Pump Runtimes

DATE	PUMP 1 RUN HOURS	PUMP 2 RUN HOURS	PUMP 3 RUN HOURS
January 23, 2017	0.00	0.00	0.17
January 24, 2017	0.00	0.00	0.13
January 25, 2017	0.00	0.00	0.08
January 26, 2017	0.00	0.00	0.05
January 27, 2017	0.00	0.00	0.03
January 28, 2017	0.00	0.00	0.00
January 29, 2017	0.00	0.00	0.05
January 30, 2017	0.00	0.00	0.00
January 31, 2017	0.00	0.00	0.00
February 1, 2017	0.00	0.00	0.05
February 2, 2017	0.00	0.00	0.00
February 3, 2017	0.00	0.00	0.00
February 4, 2017	0.00	0.00	0.00
February 5, 2017	0.00	0.00	0.00
February 6, 2017	0.00	0.00	0.00
February 7, 2017	0.00	0.00	0.00
February 8, 2017	0.00	0.00	0.03
February 9, 2017	0.00	0.00	0.00
February 10, 2017	0.00	0.00	0.00
February 11, 2017	0.00	0.00	0.00
February 12, 2017	0.00	0.00	0.00
February 13, 2017	0.00	0.00	0.05
February 14, 2017	0.00	0.00	0.00
February 15, 2017	0.00	0.00	0.00
February 16, 2017	0.00	0.00	0.00
February 17, 2017	0.00	0.00	0.00
February 18, 2017	0.00	0.00	0.00
February 19, 2017	0.00	0.00	0.00
February 20, 2017	0.00	0.00	0.03
February 21, 2017	0.00	0.00	0.00
February 22, 2017	0.00	0.00	0.00
February 23, 2017	0.00	0.00	0.00
February 24, 2017	0.00	0.00	0.00
February 25, 2017	0.00	0.00	0.00



CDS Unit Pump Runtimes

DATE	PUMP 1 RUN HOURS	PUMP 2 RUN HOURS	PUMP 3 RUN HOURS
February 26, 2017	0.00	0.00	0.62
February 27, 2017	0.00	0.00	0.03
February 28, 2017	0.00	0.00	0.05
March 1, 2017	0.00	0.00	0.00
March 2, 2017	0.00	0.00	0.00
March 3, 2017	0.08	0.03	5.03
March 4, 2017	0.00	0.00	0.27
March 5, 2017	0.00	0.00	0.12
March 6, 2017	0.00	0.00	0.10
March 7, 2017	0.00	0.00	0.03
March 8, 2017	0.00	0.00	0.08
March 9, 2017	0.00	0.00	0.10
March 10, 2017	0.00	0.00	0.08
March 11, 2017	0.00	0.00	0.05
March 12, 2017	0.00	0.00	0.03
March 13, 2017	0.00	0.00	0.05
March 14, 2017	0.00	0.00	0.03
March 15, 2017	0.00	0.00	0.05
March 16, 2017	0.00	0.00	0.00
March 17, 2017	0.00	0.00	0.00
March 18, 2017	0.00	0.00	0.05
March 19, 2017	0.00	0.00	0.00
March 20, 2017	0.00	0.00	0.00
March 21, 2017	0.00	0.00	0.00
March 22, 2017	0.00	0.00	0.00
March 23, 2017	0.00	0.00	0.00
March 24, 2017	0.00	0.00	0.03
March 25, 2017	0.00	0.00	0.00
March 26, 2017	0.00	0.00	0.00
March 27, 2017	0.00	0.00	0.00
March 28, 2017	0.00	0.00	0.05
March 29, 2017	0.00	0.00	0.00
March 30, 2017	0.00	0.00	0.33
March 31, 2017	0.00	0.00	0.00



CDS Unit Pump Runtimes

DATE	PUMP 1 RUN HOURS	PUMP 2 RUN HOURS	PUMP 3 RUN HOURS
April 1, 2017	0.00	0.00	0.00
April 2, 2017	0.00	0.00	0.00
April 3, 2017	0.00	0.00	0.00
April 4, 2017	0.00	0.00	0.00
April 5, 2017	0.00	0.00	0.00
April 6, 2017	0.00	0.00	0.00
April 7, 2017	0.00	0.00	0.00
April 8, 2017	0.00	0.00	0.00
April 9, 2017	0.00	0.00	0.00
April 10, 2017	0.00	0.00	0.00
April 11, 2017	0.00	0.00	0.00
April 12, 2017	0.00	0.00	0.00
April 13, 2017	0.00	0.00	0.03
April 14, 2017	0.00	0.00	0.00
April 15, 2017	0.00	0.00	0.00
April 16, 2017	0.00	0.00	0.00
April 17, 2017	0.00	0.00	0.05
April 18, 2017	0.18	0.50	1.03
April 19, 2017	0.00	0.00	0.17
April 20, 2017	0.00	0.00	0.05
April 21, 2017	0.00	0.00	0.05
April 22, 2017	0.00	0.00	0.03
April 23, 2017	0.00	0.00	0.05
April 24, 2017	0.00	0.00	0.03
April 25, 2017	0.00	0.00	0.05
April 26, 2017	0.00	0.00	0.00
April 27, 2017	0.00	0.00	0.03
April 28, 2017	0.00	0.00	0.00
April 29, 2017	0.00	0.00	0.00
April 30, 2017	0.00	0.00	0.05
May 1, 2017	1.43	0.48	2.22
May 2, 2017	0.00	0.00	0.13
May 3, 2017	0.00	0.00	0.08
May 4, 2017	0.00	0.00	0.03



CDS Unit Pump Runtimes

DATE	PUMP 1 RUN HOURS	PUMP 2 RUN HOURS	PUMP 3 RUN HOURS
May 5, 2017	0.00	0.00	0.05
May 6, 2017	0.00	0.28	0.67
May 7, 2017	0.00	0.00	0.60
May 8, 2017	0.00	0.00	0.27
May 9, 2017	0.00	0.00	0.13
May 10, 2017	0.00	0.00	0.08
May 11, 2017	0.00	0.00	0.05
May 12, 2017	0.00	0.00	0.03
May 13, 2017	0.00	0.00	0.05
May 14, 2017	0.00	0.00	0.03
May 15, 2017	0.00	0.00	0.05
May 16, 2017	0.00	0.00	0.03
May 17, 2017	0.00	0.00	0.00
May 18, 2017	0.00	0.00	0.00
May 19, 2017	0.00	0.00	0.05
May 20, 2017	0.00	0.00	0.00
May 21, 2017	0.00	0.00	0.00
May 22, 2017	0.00	0.00	0.05
May 23, 2017	0.00	0.00	0.03
May 24, 2017	0.00	0.00	0.05
May 25, 2017	0.00	0.00	0.00
May 26, 2017	0.00	0.00	0.03
May 27, 2017	0.00	0.00	0.05
May 28, 2017	0.00	0.00	0.03
May 29, 2017	0.00	0.00	0.00
May 30, 2017	0.00	0.00	0.00
May 31, 2017	0.00	0.00	0.05
June 1, 2017	0.00	0.00	0.00
June 2, 2017	0.00	0.00	0.00
June 3, 2017	0.00	0.00	0.05
June 4, 2017	0.00	0.00	0.00
June 5, 2017	0.00	0.00	0.00
June 6, 2017	0.00	0.00	0.00
June 7, 2017	0.25	0.05	0.48

CDS Unit Pump Runtimes

DATE	PUMP 1 RUN HOURS	PUMP 2 RUN HOURS	PUMP 3 RUN HOURS
June 8, 2017	0.00	0.00	0.00
June 9, 2017	0.00	0.00	0.12
June 10, 2017	0.00	0.00	0.00
June 11, 2017	0.00	0.00	0.00
June 12, 2017	0.00	0.00	0.00
June 13, 2017	0.00	0.00	0.00
June 14, 2017	0.00	0.00	0.00
June 15, 2017	0.00	0.00	0.00
June 16, 2017	0.00	0.00	0.00
June 17, 2017	0.00	0.00	0.00
June 18, 2017	0.00	0.00	0.05
June 19, 2017	0.00	0.00	0.00
June 20, 2017	0.00	0.00	0.00
June 21, 2017	0.00	0.00	0.00
June 22, 2017	0.00	0.00	0.05
June 23, 2017	0.00	0.00	0.00
June 24, 2017	0.00	0.00	0.00
June 25, 2017	0.00	0.15	0.72
June 26, 2017	0.00	0.00	0.03
June 27, 2017	0.00	0.00	0.00

CSO108 Underflow Pump Flow Meter Data

DATE	DAILY VOLUME (MG)	DAILY VOLUME (CF)	DAILY VOLUME (GAL)	DAILY VOLUME DEBRIS (GAL)
December 20, 2016	0.5835	78,005.18	583,519.34	583.52
December 21, 2016	0.0519	6,934.88	51,876.53	51.88
December 22, 2016	0.0425	5,678.17	42,475.69	42.48
December 23, 2016	0.0423	5,660.95	42,346.88	42.35
December 24, 2016	0.0379	5,068.55	37,915.39	37.92
December 25, 2016	0.0377	5,040.25	37,703.68	37.70
December 26, 2016	0.0416	5,556.55	41,565.91	41.57
December 27, 2016	0.0414	5,536.57	41,416.46	41.42
December 28, 2016	0.0415	5,550.38	41,519.70	41.52
December 29, 2016	0.0415	5,549.84	41,515.70	41.52
December 30, 2016	0.0417	5,569.61	41,663.57	41.66
December 31, 2016	0.0373	4,981.67	37,265.49	37.27
January 1, 2017	0.0421	5,621.42	42,051.16	42.05
January 2, 2017	0.0377	5,036.16	37,673.09	37.67
January 3, 2017	0.0372	4,974.47	37,211.62	37.21
January 4, 2017	0.0411	5,491.43	41,078.76	41.08
January 5, 2017	0.0370	4,950.66	37,033.53	37.03
January 6, 2017	0.0425	5,679.80	42,487.88	42.49
January 7, 2017	0.0389	5,203.37	38,923.91	38.92
January 8, 2017	0.0398	5,318.95	39,788.50	39.79
January 9, 2017	0.0440	5,887.99	44,045.21	44.05
January 10, 2017	0.0396	5,295.58	39,613.69	39.61
January 11, 2017	0.0383	5,124.99	38,337.56	38.34
January 12, 2017	0.0372	4,967.66	37,160.66	37.16
January 13, 2017	0.0412	5,502.95	41,164.89	41.16
January 14, 2017	0.0412	5,502.76	41,163.50	41.16
January 15, 2017	0.0505	6,745.74	50,461.68	50.46
January 16, 2017	0.0462	6,173.15	46,178.36	46.18
January 17, 2017	0.0500	6,679.32	49,964.80	49.96
January 18, 2017	0.0408	5,455.13	40,807.21	40.81
January 19, 2017	0.0608	8,125.28	60,781.29	60.78
January 20, 2017	0.0437	5,846.04	43,731.40	43.73
January 21, 2017	0.0447	5,971.90	44,672.88	44.67
January 22, 2017	0.0914	12,218.63	91,401.73	91.40

CSO108 Underflow Pump Flow Meter Data

DATE	DAILY VOLUME (MG)	DAILY VOLUME (CF)	DAILY VOLUME (GAL)	DAILY VOLUME DEBRIS (GAL)
January 23, 2017	0.0534	7,132.81	53,357.14	53.36
January 24, 2017	0.0491	6,569.21	49,141.12	49.14
January 25, 2017	0.0449	5,999.99	44,883.04	44.88
January 26, 2017	0.0404	5,395.18	40,358.71	40.36
January 27, 2017	0.0405	5,410.45	40,472.96	40.47
January 28, 2017	0.0375	5,007.72	37,460.35	37.46
January 29, 2017	0.0419	5,602.45	41,909.27	41.91
January 30, 2017	0.0378	5,048.34	37,764.22	37.76
January 31, 2017	0.0380	5,084.44	38,034.23	38.03
February 1, 2017	0.0421	5,631.88	42,129.38	42.13
February 2, 2017	0.0371	4,965.20	37,142.30	37.14
February 3, 2017	0.0371	4,957.53	37,084.87	37.08
February 4, 2017	0.0377	5,038.90	37,693.58	37.69
February 5, 2017	0.0385	5,144.34	38,482.36	38.48
February 6, 2017	0.0385	5,143.73	38,477.77	38.48
February 7, 2017	0.0372	4,972.79	37,199.04	37.20
February 8, 2017	0.0420	5,614.44	41,998.93	42.00
February 9, 2017	0.0371	4,953.92	37,057.89	37.06
February 10, 2017	0.0372	4,978.45	37,241.43	37.24
February 11, 2017	0.0384	5,137.34	38,429.95	38.43
February 12, 2017	0.0380	5,075.05	37,964.04	37.96
February 13, 2017	0.0403	5,386.39	40,292.98	40.29
February 14, 2017	0.0371	4,954.12	37,059.40	37.06
February 15, 2017	0.0374	4,998.08	37,388.22	37.39
February 16, 2017	0.0372	4,971.84	37,191.91	37.19
February 17, 2017	0.0372	4,979.48	37,249.12	37.25
February 18, 2017	0.0375	5,016.51	37,526.07	37.53
February 19, 2017	0.0371	4,962.21	37,119.91	37.12
February 20, 2017	0.0408	5,454.28	40,800.87	40.80
February 21, 2017	0.0370	4,950.47	37,032.07	37.03
February 22, 2017	0.0371	4,964.66	37,138.22	37.14
February 23, 2017	0.0371	4,953.92	37,057.89	37.06
February 24, 2017	0.0371	4,953.92	37,057.89	37.06
February 25, 2017	0.0371	4,953.92	37,057.89	37.06



CSO108 Underflow Pump Flow Meter Data

DATE	DAILY VOLUME (MG)	DAILY VOLUME (CF)	DAILY VOLUME (GAL)	DAILY VOLUME DEBRIS (GAL)
February 26, 2017	0.0537	7,180.31	53,712.48	53.71
February 27, 2017	0.0418	5,586.85	41,792.55	41.79
February 28, 2017	0.0421	5,632.40	42,133.29	42.13
March 1, 2017	0.0371	4,960.04	37,103.71	37.10
March 2, 2017	0.0370	4,951.61	37,040.60	37.04
March 3, 2017	0.1567	20,951.11	156,725.17	156.73
March 4, 2017	0.0626	8,365.57	62,578.80	62.58
March 5, 2017	0.0496	6,624.89	49,557.63	49.56
March 6, 2017	0.0456	6,101.61	45,643.18	45.64
March 7, 2017	0.0406	5,432.82	40,640.35	40.64
March 8, 2017	0.0433	5,785.72	43,280.17	43.28
March 9, 2017	0.0458	6,127.98	45,840.49	45.84
March 10, 2017	0.0440	5,882.69	44,005.59	44.01
March 11, 2017	0.0412	5,501.83	41,156.57	41.16
March 12, 2017	0.0404	5,405.60	40,436.72	40.44
March 13, 2017	0.0419	5,601.75	41,903.99	41.90
March 14, 2017	0.0417	5,570.96	41,673.69	41.67
March 15, 2017	0.0420	5,621.12	42,048.93	42.05
March 16, 2017	0.0380	5,082.70	38,021.25	38.02
March 17, 2017	0.0381	5,094.02	38,105.90	38.11
March 18, 2017	0.0404	5,403.26	40,419.18	40.42
March 19, 2017	0.0373	4,986.41	37,300.95	37.30
March 20, 2017	0.0370	4,939.76	36,951.94	36.95
March 21, 2017	0.0373	4,982.84	37,274.24	37.27
March 22, 2017	0.0371	4,956.66	37,078.40	37.08
March 23, 2017	0.0369	4,936.62	36,928.49	36.93
March 24, 2017	0.0398	5,327.07	39,849.25	39.85
March 25, 2017	0.0373	4,985.03	37,290.60	37.29
March 26, 2017	0.0369	4,936.62	36,928.49	36.93
March 27, 2017	0.0369	4,936.62	36,928.49	36.93
March 28, 2017	0.0410	5,480.96	41,000.40	41.00
March 29, 2017	0.0369	4,936.62	36,928.49	36.93
March 30, 2017	0.0640	8,560.30	64,035.51	64.04
March 31, 2017	0.0369	4,936.62	36,928.49	36.93



CSO108 Underflow Pump Flow Meter Data

DATE	DAILY VOLUME (MG)	DAILY VOLUME (CF)	DAILY VOLUME (GAL)	DAILY VOLUME DEBRIS (GAL)
April 1, 2017	0.0370	4,940.08	36,954.37	36.95
April 2, 2017	0.0369	4,936.62	36,928.49	36.93
April 3, 2017	0.0369	4,936.88	36,930.46	36.93
April 4, 2017	0.0369	4,936.62	36,928.50	36.93
April 5, 2017	0.0369	4,936.62	36,928.49	36.93
April 6, 2017	0.0370	4,940.08	36,954.37	36.95
April 7, 2017	0.0369	4,936.62	36,928.49	36.93
April 8, 2017	0.0369	4,937.07	36,931.87	36.93
April 9, 2017	0.0370	4,945.36	36,993.85	36.99
April 10, 2017	0.0371	4,952.90	37,050.30	37.05
April 11, 2017	0.0369	4,937.65	36,936.17	36.94
April 12, 2017	0.0369	4,936.62	36,928.49	36.93
April 13, 2017	0.0416	5,560.37	41,594.45	41.59
April 14, 2017	0.0369	4,933.16	36,902.61	36.90
April 15, 2017	0.0369	4,936.62	36,928.49	36.93
April 16, 2017	0.0369	4,936.62	36,928.49	36.93
April 17, 2017	0.0412	5,510.13	41,218.61	41.22
April 18, 2017	0.1047	13,998.22	104,713.99	104.71
April 19, 2017	0.0542	7,250.02	54,233.91	54.23
April 20, 2017	0.0411	5,493.73	41,095.93	41.10
April 21, 2017	0.0407	5,440.71	40,699.37	40.70
April 22, 2017	0.0414	5,530.48	41,370.85	41.37
April 23, 2017	0.0412	5,511.44	41,228.42	41.23
April 24, 2017	0.0411	5,496.21	41,114.51	41.11
April 25, 2017	0.0411	5,489.30	41,062.84	41.06
April 26, 2017	0.0370	4,940.08	36,954.37	36.95
April 27, 2017	0.0413	5,518.69	41,282.67	41.28
April 28, 2017	0.0369	4,936.62	36,928.49	36.93
April 29, 2017	0.0369	4,936.62	36,928.49	36.93
April 30, 2017	0.0413	5,525.48	41,333.46	41.33
May 1, 2017	0.2475	33,091.76	247,543.59	247.54
May 2, 2017	0.0498	6,656.43	49,793.58	49.79
May 3, 2017	0.0455	6,082.59	45,500.91	45.50
May 4, 2017	0.0413	5,527.38	41,347.65	41.35

CSO108 Underflow Pump Flow Meter Data

DATE	DAILY VOLUME (MG)	DAILY VOLUME (CF)	DAILY VOLUME (GAL)	DAILY VOLUME DEBRIS (GAL)
May 5, 2017	0.0414	5,530.80	41,373.25	41.37
May 6, 2017	0.0641	8,572.34	64,125.60	64.13
May 7, 2017	0.0949	12,686.30	94,900.10	94.90
May 8, 2017	0.0585	7,820.92	58,504.56	58.50
May 9, 2017	0.0486	6,494.81	48,584.57	48.58
May 10, 2017	0.0449	6,000.41	44,886.19	44.89
May 11, 2017	0.0400	5,348.80	40,011.78	40.01
May 12, 2017	0.0408	5,449.98	40,768.68	40.77
May 13, 2017	0.0409	5,467.75	40,901.59	40.90
May 14, 2017	0.0412	5,511.92	41,232.02	41.23
May 15, 2017	0.0412	5,508.73	41,208.17	41.21
May 16, 2017	0.0410	5,485.52	41,034.55	41.03
May 17, 2017	0.0369	4,936.62	36,928.49	36.93
May 18, 2017	0.0369	4,936.62	36,928.49	36.93
May 19, 2017	0.0413	5,517.35	41,272.62	41.27
May 20, 2017	0.0369	4,936.62	36,928.49	36.93
May 21, 2017	0.0369	4,936.62	36,928.49	36.93
May 22, 2017	0.0410	5,482.10	41,008.98	41.01
May 23, 2017	0.0409	5,465.62	40,885.71	40.89
May 24, 2017	0.0411	5,499.23	41,137.10	41.14
May 25, 2017	0.0370	4,940.08	36,954.37	36.95
May 26, 2017	0.0410	5,486.74	41,043.64	41.04
May 27, 2017	0.0410	5,481.19	41,002.15	41.00
May 28, 2017	0.0411	5,496.61	41,117.52	41.12
May 29, 2017	0.0369	4,936.62	36,928.49	36.93
May 30, 2017	0.0369	4,936.62	36,928.49	36.93
May 31, 2017	0.0409	5,472.26	40,935.36	40.94
June 1, 2017	0.0370	4,940.08	36,954.37	36.95
June 2, 2017	0.0369	4,936.62	36,928.49	36.93
June 3, 2017	0.0409	5,468.68	40,908.59	40.91
June 4, 2017	0.0369	4,936.62	36,928.49	36.93
June 5, 2017	0.0369	4,936.62	36,928.49	36.93
June 6, 2017	0.0369	4,936.62	36,928.49	36.93
June 7, 2017	0.0678	9,059.49	67,769.73	67.77

CSO108 Underflow Pump Flow Meter Data

DATE	DAILY VOLUME (MG)	DAILY VOLUME (CF)	DAILY VOLUME (GAL)	DAILY VOLUME DEBRIS (GAL)
June 8, 2017	0.0369	4,936.62	36,928.49	36.93
June 9, 2017	0.0492	6,580.13	49,222.77	49.22
June 10, 2017	0.0370	4,940.08	36,954.37	36.95
June 11, 2017	0.0369	4,936.62	36,928.49	36.93
June 12, 2017	0.0369	4,936.62	36,928.49	36.93
June 13, 2017	0.0370	4,940.08	36,954.37	36.95
June 14, 2017	0.0369	4,936.62	36,928.49	36.93
June 15, 2017	0.0369	4,936.62	36,928.49	36.93
June 16, 2017	0.0369	4,936.62	36,928.49	36.93
June 17, 2017	0.0369	4,933.16	36,902.61	36.90
June 18, 2017	0.0415	5,542.59	41,461.43	41.46
June 19, 2017	0.0369	4,936.62	36,928.49	36.93
June 20, 2017	0.0369	4,936.62	36,928.49	36.93
June 21, 2017	0.0369	4,936.62	36,928.49	36.93
June 22, 2017	0.0413	5,515.57	41,259.30	41.26
June 23, 2017	0.0369	4,936.62	36,928.49	36.93
June 24, 2017	0.0369	4,936.62	36,928.49	36.93
June 25, 2017	0.0664	8,877.37	66,407.35	66.41
June 26, 2017	0.0415	5,554.08	41,547.39	41.55
June 27, 2017	0.0369	4,936.62	36,928.49	36.93