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October 30, 2018

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Subject: Quarterly Report 52
Civil Action No. 3:08-cv-00608-CRS

Attention Director and Chiefs:

Please find attached our Quarterly Report, prepared in accordance with Paragraph 29 of our Amended Consent Decree. This report is for the period July 1, 2018 – September 30, 2018, pertaining to Consent Decree compliance activities. Included are sections on Project WIN activities related to: NMC, SORP, Discharge Abatement Plans, Public Outreach, Education, Notification and Participation, CMOM and Performance Overview.

I certify under penalty of law that this document and all attachments were prepared under our direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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

Sincerely,

Angela Akridge, PE
Louisville MSD Chief Engineer

cc: James A. Parrott
Paula Purifoy
File

Louisville and Jefferson County Wet Weather Consent Decree Quarterly Report #52



Reporting Period:

July 1, 2018 through September 30, 2018

Submitted To:

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

Submitted By:

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

Submittal Date:

October 30, 2018

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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 fifty-second Quarterly Report submitted in accordance with Paragraph 29 of the Amended Consent Decree. This report covers the time period from July 1, 2018, through September 30, 2018. 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 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.msprojectwin.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 306 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 Table 1.2 at the end of this section for a detailed report.

The following identifies on-going activities; those completed during the current period; and those anticipated to be completed during the next period:

- RTC Integration – MSD and the RTC consultant continue to implement the wet weather standard operating procedures (SOPs) 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, MSD and the RTC consultant commissioned the Derek R. Guthrie (DRG) area (Southeast Diversion 2, Buechel Basin, Northern Ditch Diversion, and the DRG EQ Basin) into the RTC system. Csoft 3 was decommissioned and Csoft 4 placed in full control of the system. MSD and the RTC consultant continue to monitor and evaluate the performance of the RTC system against operational objectives and issue updates to configurations as necessary to improve performance of the newly deployed Csoft 4. This effort included revisions to the configuration of Southwest Interceptor facilities to further optimize storage utilization and facility operations. MSD will continue updating the Master SOP with data gathered during RTC local site start-up of the DRG area.

The Southern Outfall Retention Facility 1 (SOR1) facility is operational in manual mode. MSD continued implementing RTC and local site programming of the SOR1 facility in advance of a period of manual operation followed by local site RTC startup and commissioning into the RTC network.

During the next reporting period, MSD anticipates completing local site startup and RTC commissioning of the Logan & Breckinridge Storage Basin and the SOR1 facility. The FY18 Master RTC SOP document will be released, and FY19 contracting with the RTC consultant will be finalized.

- 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

utilized to their optimal 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 to implement hardware, software, and set-point changes as applicable on a site-by-site basis.

MSD has completed improvements to reduce inflow from the Brady Lake and Executive Inn basins to the collection system, including gate adjustments and installation of new actuators.

The Ashland RTC Facility Upgrade project was awarded. The final design for the Ashland project provides for the replacement of the existing gate, check valves, and actuator, as well as installation of a backup generator. Construction of the Ashland RTC Facility Upgrades will begin.

During the next reporting period, design of the Sneads Branch project will begin, which includes installation of an actuated gate to enable the transfer of stored volumes to existing infrastructure and utilizing the Logan CSO Basin pumps for dewatering the facility.

MSD will continue to monitor the RTC system to ensure proper operation under Csoft 4.

- Southwest Sluice Gate / Southwestern Outfall Retention Phase 1 (SWSG/SWOR1) – MSD continues to work towards the completion of RTC and local site programming to connect the SWSG/SWOR1 facility to the new PLCs at the Southwestern Pump Station. The facility is being operated in manual and local control prior to recommissioning of the site into the RTC system.

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

Plant Outages

The East and West Headworks were in service during the reporting period. Channels were taken out of service due to low flow as appropriate. Channel Two of the West Headworks was taken out of service for the last month of the reporting period for contractor work and inspection. The Final Effluent Pump Station (FEPS) was in service 18 days of the reporting period. Primary Sedimentation Tank #4 was out of service during the reporting period, limiting plant capacity to 280 MGD. Additionally, Battery A was taken out of service during the last month of the quarter, reducing secondary flow to 84 MGD before allowing flow to bypass secondary treatment. Flows at Morris Forman WQTC were sustained between 84 and 130 MGD, with some exceptions discussed below, before allowing flow to bypass secondary treatment during the reporting period. Flows are shown in Figures 1.1 through 1.3.

Morris Forman WQTC Projects

- Morris Forman WQTC Headworks Replacement – Substantial completion on East & West Headworks, which includes improvements to the main diversion structure, is anticipated during the next reporting period.
- Morris Forman WQTC High Yard Modifications – Project reached substantial completion May 9, 2018. Completion is projected for the second quarter of FY19.
- Morris Forman WQTC Oxygen Generation Plants 1 and 2 Replacement – System installation is substantially complete and providing 100% of the oxygen demand to the facility. Plant SCADA system

programming and signal testing of instrumentation and controls are nearly complete. Change orders for piping modifications are expected to extend completion to the second quarter of FY19.

- MCC Replacement for Batteries A & B Clarifiers – Preliminary Engineering Report will be complete in the third quarter of FY19. Design will be underway by the end of FY19.

Morris Forman WQTC Performance

Figures 1.1 through 1.3 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. 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.

There are occasions in which a communications failure with telemetry has led to short-term gaps in the data. This is illustrated by multiple gaps in flow shown in Figure 1.1 on July 4, when an electrical problem occurred; on Figure 1.3 on September 4 and 5 when controls changed the signals to the new motor control center (MCC) building; and on Figure 1.3 on September 22-23 when the SCADA system experienced a failure. On multiple occasions shown in Figures 1.1 through 1.3, secondary effluent flow fell slightly below 120 MGD in July and August, and slightly below 84 MGD in August and September. MSD is investigating options for more reliable plant telemetry to reduce these occurrences.

Morris Forman effluent compliance for the previous three months is summarized in Table 1.1, where a “✓” indicates compliance and an “X” indicates noncompliance. MSD continues to employ additional solids processing methods, including dewatered cake and an outside vendor to assist with solids handling in addition to purchasing additional liquid oxygen in an effort to meet permit requirements.

Table 1.1. Morris Forman WQTC Permit Compliance

PARAMETER	JUL	AUG	SEP
Ammonia Nitrogen, 30 Day Secondary Effluent	✓	✓	✓
Ammonia Nitrogen, 7 Day Secondary Effluent	✓	✓	✓
BOD, 30 Day Secondary Effluent	✓	X	X
BOD, 7 Day Secondary Effluent	X	X	X
BOD, Percent Removal	✓	X	✓
Chlorine, Residual	✓	✓	✓
Dissolved Oxygen	✓	✓	✓
Fecal Coliform, 30 Day Geomean	✓	✓	✓
Fecal Coliform, 7 Day Geomean	✓	✓	✓
pH	✓	✓	✓
TSS, 30 Day Secondary Effluent	✓	X	X
TSS, 7 Day Effluent	X	X	X
TSS, Percent Removal	✓	X	X

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 1.4.

Table 1.2. Wet Weather Storage in the Morris Forman Sewer System via the RTC System

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 (4.1)	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 (43.1)		
				TRFD (in)	TRFD (in)	Rain Gauge										
2018-055	7/2/18 17:20	7/3/18 14:10	20:50:00	0.53	1.28	TR05	8.50	2.65	5.15	2.40	0.65	2.85	0.50	22.70	0	Moderate back-to-back storm cells heterogeneously distributed over the service area. The SWSG site was controlled manually.
2018-056	7/3/18 14:10	7/5/18 10:40	44:30:00	0.47	1.07	TR13	9.60	3.00	1.70	2.50	0.75	2.95	0.75	21.25	0	Moderate storm cells homogeneously distributed over the service area. The SWSG site was controlled manually.
2018-058	7/15/18 14:15	7/17/18 23:50	57:35:00	0.51	1.00	TR13	1.95	2.30	1.95	1.20	1.15	3.20	1.00	12.75	0	Moderate back-to-back storm cells homogeneously distributed over the service area. The SWSG site was controlled manually.
2018-059	7/20/18 4:20	7/22/18 4:25	48:05:00	2.03	2.86	TR11	6.45	5.05	5.25	5.25	1.25	6.10	0.95	30.30	0	Large back-to-back storm cells homogeneously distributed over the service area. The SWSG site was controlled manually.
2018-060	7/22/18 12:30	7/23/18 3:45	15:15:00	0.25	0.81	TR05	0.00	0.25	0.15	0.00	0.05	1.75	0.10	2.30	0	Small back-to-back storm cells homogeneously distributed over the service area. The SWSG site was controlled manually.
2018-065	8/7/18 16:55	8/8/18 15:45	22:50:00	0.32	0.49	TR15	2.40	0.80	0.65	0.30	0.10	2.10	0.20	6.55	0	Small back-to-back storm cells homogeneously distributed over the service area. The SWSG site was controlled manually.
2018-066	8/15/18 12:40	8/17/18 11:35	46:55:00	3.37	4.00	TR12	9.30	2.65	8.05	3.65	0.65	4.30	1.65	30.25	0	Events 2018-066 and 2018-067 were accounted for together. Large back-to-back storm cells homogeneously distributed over the service area. The SWSG site was controlled manually.
2018-067	8/17/18 11:35	8/18/18 2:50	15:15:00	0.00	0.00		-	-	-	-	-	-	-	0.00	0	Analyzed as part of event 2018-066.
2018-068	8/18/18 15:15	8/19/18 3:40	12:25:00	0.03	0.08	TR12	1.40	0.35	0.30	0.00	0.10	0.45	0.00	2.60	0	Small storm cells heterogeneously distributed over the service area. The SWSG site was controlled manually.
2018-069	8/19/18 20:50	8/22/18 4:35	55:45:00	1.02	4.26	TR12	9.80	2.90	0.55	2.75	0.55	3.25	2.15	21.95	0	Large back-to-back storm cells homogeneously distributed over the service area. The SWSG site was controlled manually.
2018-073	8/31/18 15:35	9/1/18 5:50	14:15:00	0.79	1.45	TR13	2.05	1.05	1.40	0.60	0.10	1.75	0.20	7.15	0	Moderate storm cells homogeneously distributed over the service area. The SWSG site was controlled manually.
2018-074	9/6/18 11:10	9/6/18 21:05	9:55:00	0.37	0.65	TR11	9.60	2.25	1.25	0.60	0.65	1.60	0.20	16.15	0	Moderate back-to-back storm cells homogeneously distributed over the service area.
2018-075	9/7/18 19:50	9/10/18 1:25	53:35:00	3.66	4.01	TR04	14.00	3.95	12.95	3.45	0.95	4.05	1.30	40.65	0	Very large back-to-back storm cells homogeneously distributed over the service area. The SWSG site was controlled manually.
2018-078	9/21/18 14:35	9/22/18 3:25	12:50:00	0.31	0.49	TR12	0.05	0.15	0.10	1.20	0.00	2.55	0.50	4.55	0	Small back-to-back storm cells homogeneously distributed over the service area.
2018-079	9/22/18 15:00	9/27/18 13:55	118:55:00	5.56	6.48	TR14	21.95	6.20	20.25	14.60	1.50	17.10	5.90	87.50	0	Events 2018-079 and 2018-080 were accounted for together. Very Large back-to-back storm cells heterogeneously distributed over the service area. The SWSG site was controlled manually.
2018-080	9/27/18 13:55	9/28/18 8:30	18:35:00	0.04	0.07	TR14	-	-	-	-	-	-	-	0.00	0	Analyzed as part of event 2018-079

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

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Figure 1.1. Morris Forman WQTC – Plant Flows and Associated CSO Activations – July

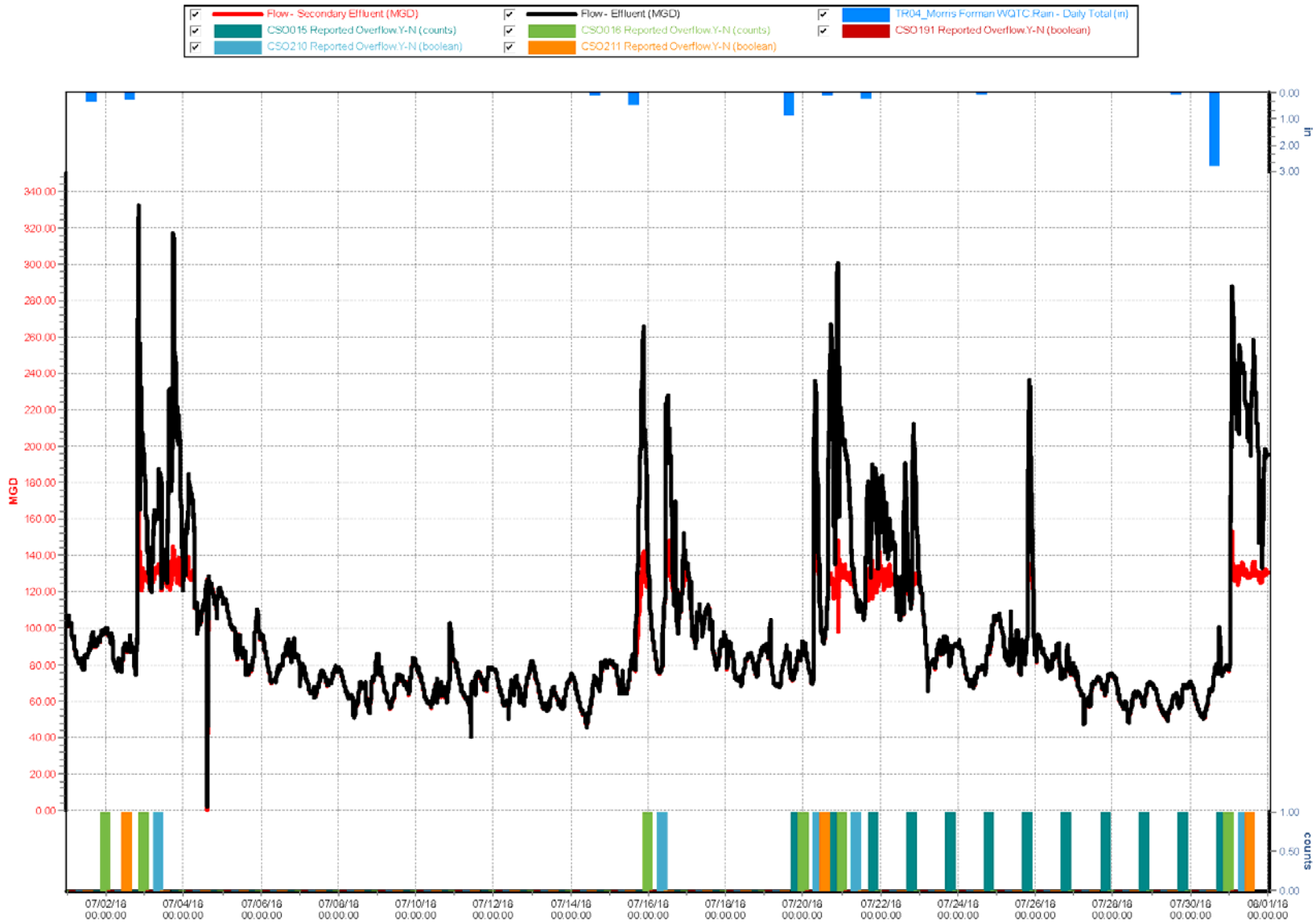


Figure 1.2. Morris Forman WQTC – Plant Flows and Associated CSO Activations – August

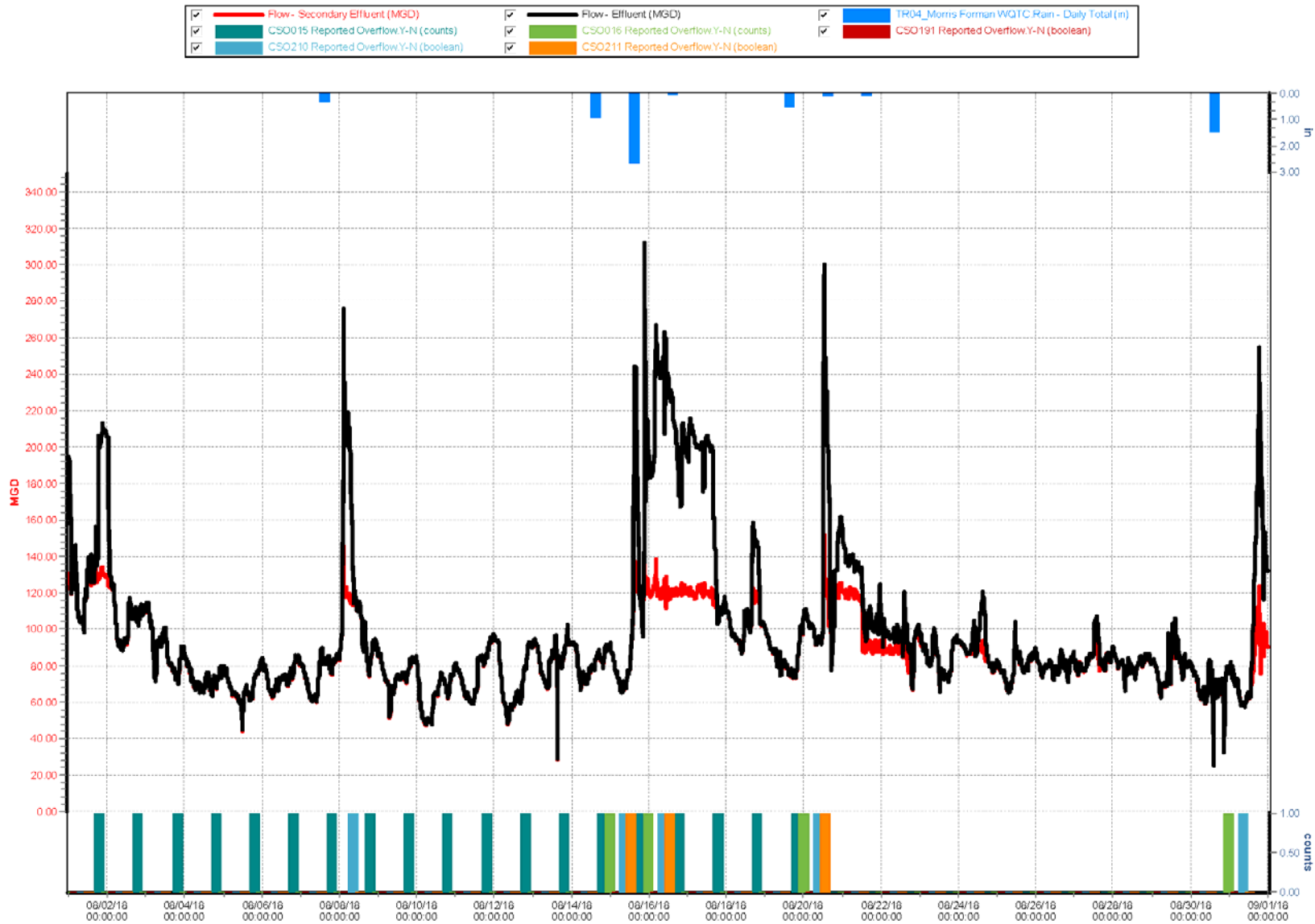


Figure 1.3. Morris Forman WQTC – Plant Flows and Associated CSO Activations – September

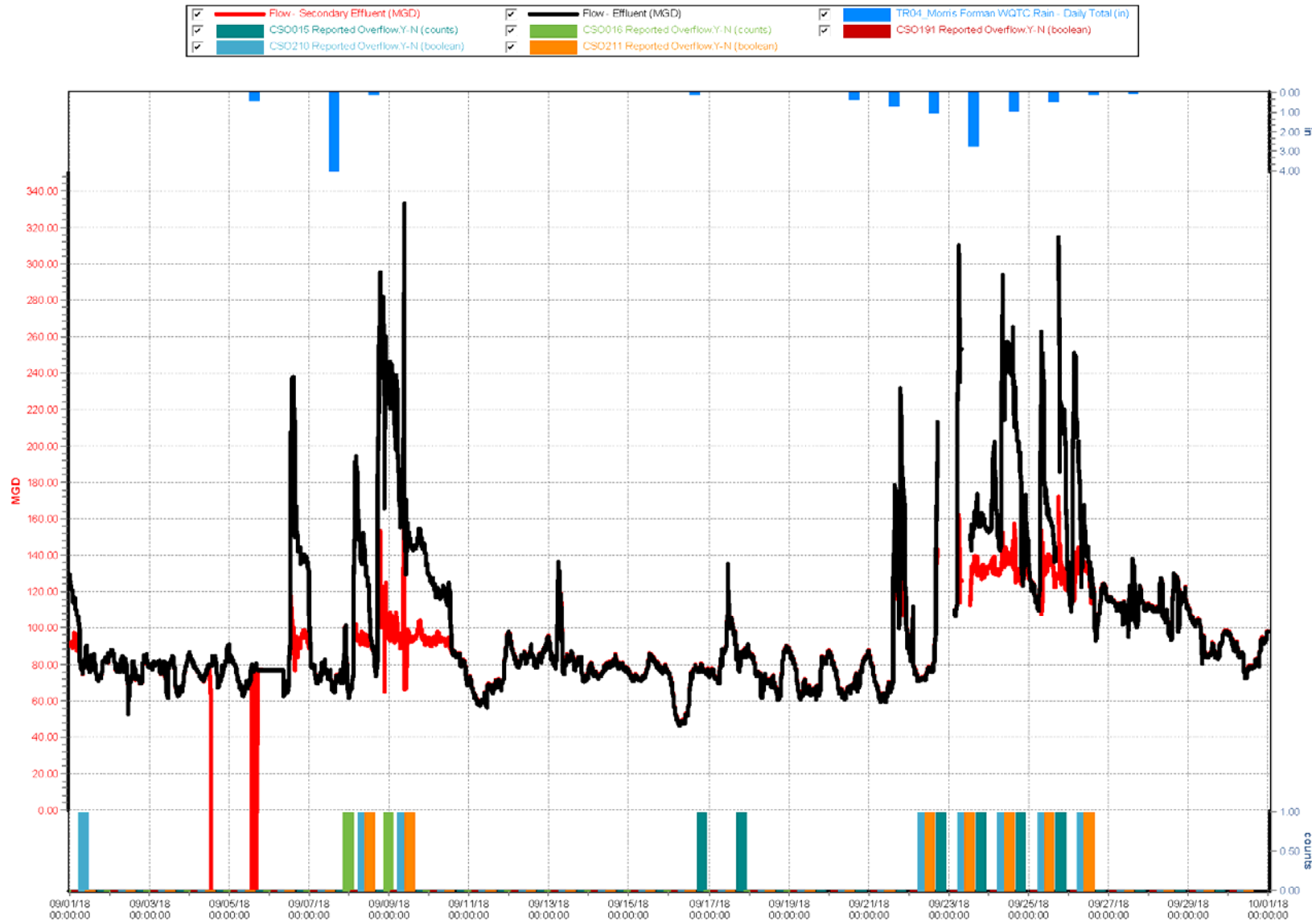





















Figure 1.4. NMC Quarterly Commitments Schedule

Task Name	% Complete	Start	Finish							
				Jul	Aug	Sep	Oct	Nov	Dec	
MSD NMC Quarterly Commitments Schedule	40%	Wed 1/1/14	Mon 2/21/22							
Ashland RTC Facility Upgrades	45%	Fri 4/1/16	Wed 6/24/20							
CONSTRUCTION	17%	Mon 4/16/18	Sun 5/19/19							
CLOSEOUT	0%	Mon 3/25/19	Wed 6/24/20							
Bells Lane WWTF EQ Basin Modifications	66%	Wed 4/18/18	Thu 10/3/19							
CONSTRUCTION	62%	Fri 6/1/18	Sun 11/11/18							
CLOSEOUT	0%	Fri 12/7/18	Thu 10/3/19							
DRGWQTC Hypo Containment	3%	Sun 7/1/18	Wed 6/5/19							
DESIGN	0%	Thu 8/2/18	Sun 12/30/18							
CONSTRUCTION	0%	Sun 12/30/18	Mon 4/29/19							
CLOSEOUT	0%	Thu 5/30/19	Wed 6/5/19							
MFWQTC Truck Unloading Station Pavement Repair	7%	Fri 4/27/18	Thu 3/5/20							
INITIATION & PROCUREMENT	35%	Fri 4/27/18	Sat 10/20/18							
DESIGN	0%	Fri 8/31/18	Tue 10/23/18							
CONSTRUCTION	0%	Fri 10/5/18	Mon 3/4/19							
CLOSEOUT	0%	Mon 3/4/19	Thu 3/5/20							
MFWQTC West Freight Elevators	14%	Wed 5/9/18	Mon 11/9/20							
CONSTRUCTION	0%	Fri 2/1/19	Sat 1/11/20							
CLOSEOUT	0%	Mon 5/18/20	Mon 11/9/20							
NMC CSO Inspection Cameras	1%	Sun 7/1/18	Sun 6/30/19							
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Tue 1/1/19							
CLOSEOUT	0%	Tue 1/1/19	Sun 6/30/19							
Sneads Branch Pump Replacement	8%	Thu 1/11/18	Mon 6/21/21							
INITIATION & PROCUREMENT	43%	Thu 1/11/18	Mon 9/3/18							
DESIGN	0%	Tue 9/4/18	Fri 5/31/19							
CONSTRUCTION	0%	Mon 6/10/19	Thu 7/2/20							
CLOSEOUT	0%	Fri 7/3/20	Fri 6/18/21							

Date: 9/30/18

NMC Project



Project Progress



Figure 1.4. NMC Quarterly Commitments Schedule

Task Name	% Complete	Start	Finish								
				Jul	Aug	Sep	Oct	Nov	Dec		
Southwestern Gates Chamber Support Wall	33%	Thu 3/1/18	Tue 7/21/20								
DESIGN	81%	Wed 4/11/18	Fri 10/12/18	█							
CONSTRUCTION	0%	Fri 10/12/18	Mon 7/22/19				█				
CLOSEOUT	0%	Mon 7/22/19	Tue 7/21/20								
Southwestern Sluice Gate Replacement	95%	Mon 10/3/16	Tue 8/27/19								
CONSTRUCTION	98%	Mon 11/28/16	Fri 8/31/18	█							
CLOSEOUT	0%	Mon 9/3/18	Tue 8/27/19			█					
FY19 Hazen DRGWQTC Engineering Support	1%	Sun 7/1/18	Tue 7/9/19								
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Sat 11/10/18	█							
CLOSEOUT	0%	Sat 11/10/18	Tue 7/9/19						█		
FY19 HDR MFWQTC Engineering Support	1%	Sun 7/1/18	Tue 7/9/19								
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Sat 11/10/18	█							
CLOSEOUT	0%	Sat 11/10/18	Tue 7/9/19						█		
FY19 Jacobs MFWQTC Engineering Support	1%	Sun 7/1/18	Sun 6/30/19								
CLOSEOUT	0%	Fri 8/17/18	Sun 6/30/19			█					
FY19 MFWQTC Upgrade PLCs	23%	Wed 1/31/18	Fri 11/8/19								
EQUIPMENT PROCUREMENT	14%	Mon 10/1/18	Sun 6/30/19				█				
CLOSEOUT	0%	Mon 11/4/19	Fri 11/8/19						█		
FY19 NMC No 3 Support	1%	Sun 7/1/18	Sun 6/30/19								
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Sat 12/1/18	█							
CLOSEOUT	0%	Sat 12/1/18	Sun 6/30/19						█		
FY19 NMC RTC	1%	Sun 7/1/18	Sun 6/30/19								
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Sat 12/1/18	█							
CLOSEOUT	0%	Sat 12/1/18	Sun 6/30/19						█		
FY19 Strand CCWQTC Engineering Support	0%	Sun 7/1/18	Sun 6/30/19								
CLOSEOUT	0%	Fri 7/6/18	Sun 6/30/19	█							

Date: 9/30/18

NMC Project █ Project Progress █

Figure 1.4. NMC Quarterly Commitments Schedule

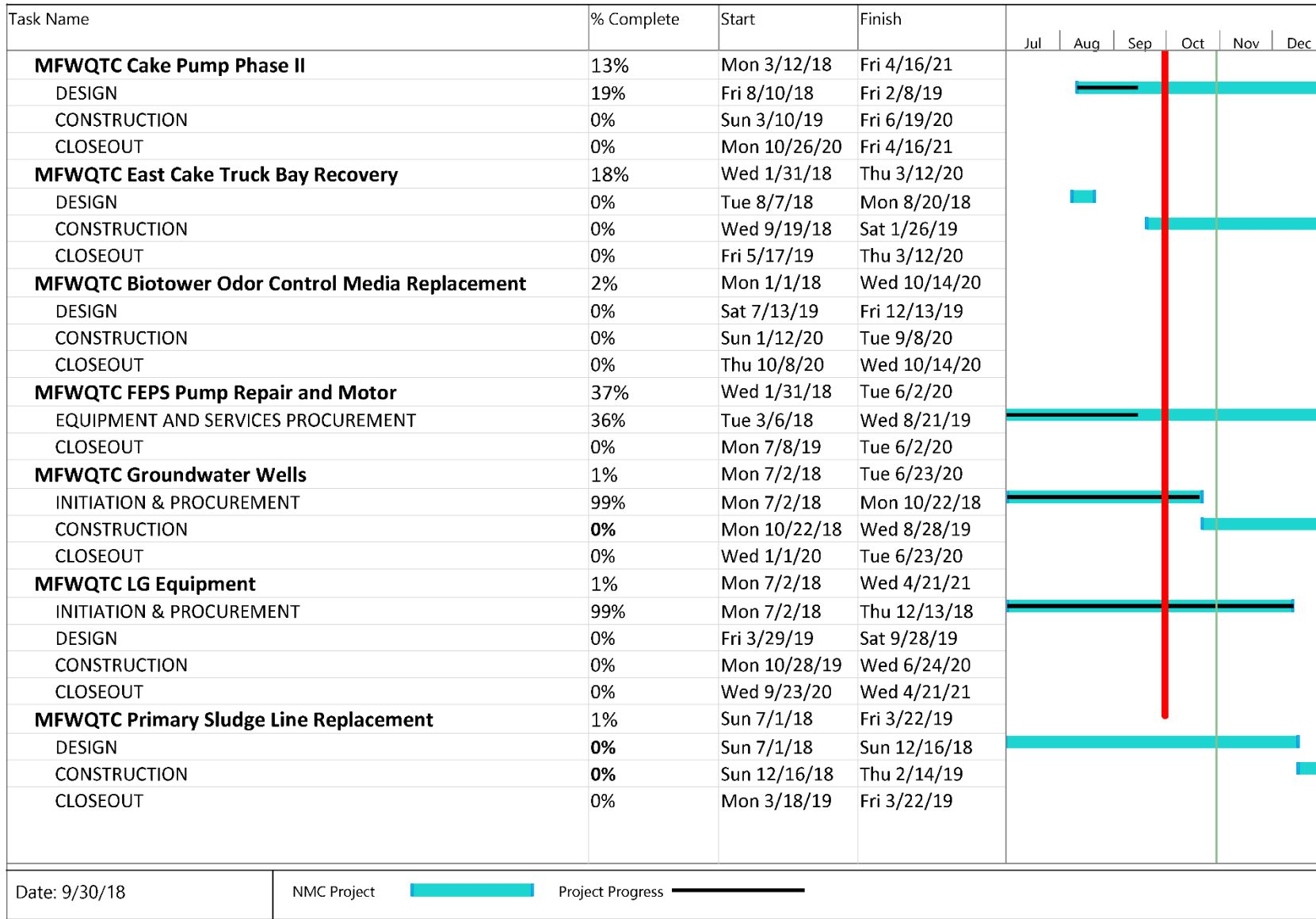


Figure 1.4. NMC Quarterly Commitments Schedule

Task Name	% Complete	Start	Finish							
				Jul	Aug	Sep	Oct	Nov	Dec	
MFWQTC Radio Repeater Project	4%	Sun 7/1/18	Wed 5/27/20							
INITIATION & PROCUREMENT	15%	Sun 7/1/18	Tue 10/30/18	█						
CONSTRUCTION	0%	Thu 11/15/18	Wed 7/31/19							█
CLOSEOUT	0%	Thu 12/5/19	Wed 5/27/20							
MFWQTC Secondary Electrical MCC Upgrade	10%	Wed 1/31/18	Mon 2/21/22							
INITIATION & PROCUREMENT	37%	Wed 1/31/18	Tue 4/23/19	█						
DESIGN	0%	Tue 4/23/19	Mon 12/30/19							
CONSTRUCTION	0%	Tue 12/31/19	Mon 2/22/21							
CLOSEOUT	0%	Mon 2/22/21	Mon 2/21/22							
MFWQTC Solids Mixer Replacement	0%	Fri 8/3/18	Fri 9/25/20							
DESIGN	0%	Thu 11/1/18	Wed 4/3/19							█
CONSTRUCTION	0%	Thu 4/4/19	Sat 11/30/19							
CLOSEOUT	0%	Mon 4/6/20	Fri 9/25/20							
Date: 9/30/18				NMC Project █ Project Progress █						

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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 156 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, 104 unauthorized discharges were identified through route reconnaissance. Inspection routes were run during rain events, as described in Table 2.1.

MSD Operations staff hauled 639,002 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

DATE	ENGINEERING	HIKES POINT	JTOWN	JTOWN & FERN CREEK	MIDDLE FORK & MUDDY FORK	WEST COUNTY
July 20, 2018	X	X	X	X	X	X
July 21, 2018	X	X	X	X	X	X
August 16, 2018	X	X	X	X	X	X
September 6, 2018		X	X	X	X	X
September 8, 2018	X	X	X	X	X	X
September 24, 2018	X	X	X	X	X	X
September 25, 2018	X	X	X	X	X	X

Table 2.2. Hauled Volumes in Gallons

PROBLEM	JUL	AUG	SEP
LACK OF SYSTEM CAPACITY	24,002	162,500	452,500
STRUCTURAL FAILURE	5,300	0	24,000
MECHANICAL FAILURE	0	0	0
ELECTRICAL PROBLEMS AT MSD	0	25,000	0

2.3. STAFF TRAINING AND COMMUNICATION

MSD continued training through the online training delivery system, which allows more flexibility for employees to complete training at convenient times during the quarter and to integrate SORP training with new employee and contractor orientation.

Three modules were delivered under Public Notification & Overflow Cleanup:

- Public Notification: Event-Based Activities
- Public Notification: Programmatic Activities
- Overflow Cleanup

A fourth module was delivered that included updates related to progress under the IOAP and projects under the CMOM and NMC programs. The content was delivered to 269 staff in Operations and Engineering.

Third quarter training also utilizes the online format, and includes four modules under Reporting & Follow-up:

- Reporting Basics
- Hansen Reporting
- Paper-Based & Contingency Reporting
- Regulatory Reporting & Data Quality

These modules will be reviewed and updated as needed for delivery during the fourth quarter. A fifth module provides continued updates related to progress under the IOAP and projects under the CMOM and NMC programs and will also be updated for delivery.

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 a Federal 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 a Federal 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 INFRASTRUCTURE PROGRAM UPDATE

The intent of the Green Infrastructure Program is to provide additional overflow volume reduction benefits to complement LTCP projects. Projects are selected for incentive by providing high value for residual average annual overflow volume (AAOV) reduction based on the latest modeling results.

Green Infrastructure Program projects approved by the MSD Board are included in Table 3.1, including status during the current reporting period. While all projects listed in the table have been approved for construction, projects may not be completed due to individual project circumstances.

Table 3.1. Green Program Projects – Current Reporting Period

PROJECT NAME	SEWERSHED	EST. AAOV REDUCTION (GAL)	INCENTIVE VALUE	STATUS
Churchill Downs Green Infrastructure Phase II	CSO 015	7,063,063	\$2,542,703	Complete
Brown Forman Distillery	CSO 015	2,138,889	\$770,000	Pending
Passport Healthcare Campus	CSO 105	977,167	\$351,780	Construction
CMF Parking Lot	CSO 015	640,694	\$230,650	Design
UofL Belknap Academic Building	CSO 211	672,556	\$242,120	Complete
Nativity Academy	CSO 058	84,000	\$30,240	Design
Brown Forman Cooperage	CSO 015	1,819,838	\$26,376	Complete
Advanced Distribution	CSO 015	1,879,432	\$100,000	Design

3.4. DISCHARGE ABATEMENT PLAN PROJECT STATUS

3.4.1. SANITARY SEWER DISCHARGE PLAN (SSDP)

Per the current approved schedule, no SSDP projects were completed during the reporting period. Per the current approved schedule, no SSDP projects are anticipated to be completed or certified during the next reporting period.

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

Per the current approved schedule, no CSO LTCP projects were completed during the current reporting period. Per the current approved schedule, three CSO LTCP projects are anticipated to be completed during the next reporting period, as shown in Table 3.2.

Table 3.2. 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
H09123	L_MU_MF_154 _M_09B_B_A_8	Clifton Heights Storage Basin	CSO088 CSO131 CSO132 CSO154 CSO167	4	December 31, 2018	Under Construction
H12155	L_OR_MF_155 _M_09B_B_B_4	Central Relief Drain CSO In-Line Storage, Green Infrastructure & Distributed Storage	CSO028 CSO029 CSO034 CSO036 CSO178 CSO181 CSO193 CSO195 CSO196 CSO197 CSO199 CSO200 CSO202	8	December 31, 2018	Under Construction
H12158	L_OR_MF_211 _M_13_B_A_8	Southern Outfall In-Line Storage at 43rd St (SOR1)	CSO016 CSO210	8	December 31, 2018	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. A crosswalk of projects and associated overflows is provided in Appendix E.

Figure 3.1. MSD Integrated Overflow Abatement Plan Implementation Schedule

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

Activity Name	% Complete	Anticipated Finish	Actual Finish	2009 IOAP Completion	IOAP Modifications*	IOAP Project ID	Original Project Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
								H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
MSD IOAP ANNUAL SCHEDULE																							
LONG TERM CONTROL PLAN																							
GREEN DEMONSTRATION PROJECTS																							
Green Infrastructure Demonstration Projects	88%	Thu 12/31/20	NA	Thu 12/31/20	Thu 12/31/20																		
Green Infrastructure Demonstration Projects	100%	Mon 12/19/11	Mon 12/19/11	Sat 12/31/11	Sat 12/31/11																		
Green Infrastructure Program	85%	Thu 12/31/20	NA	Thu 12/31/20	Thu 12/31/20																		
Green Infrastructure Program	85%	Thu 12/31/20	NA	Thu 12/31/20	Thu 12/31/20																		
GRAY INFRASTRUCTURE PROJECTS																							
Ohio River Tunnel	37%	Wed 7/29/20	NA	Thu 12/31/20	Thu 12/31/20																		
Ohio River Tunnel	37%	Wed 7/29/20	NA	Thu 12/31/20	Thu 12/31/20	L_OR_MF_155_M_09B_B_B_4 L_OR_MF_020_S_09B_B_A_8 L_OR_MF_083_M_09B_B_A_8	13TH STREET AND ROWAN STREET STORAGE BASIN, STORY AVENUE AND MAIN STREET STORAGE BASIN, LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN																
CSO058 In-Line Storage and Green Infrastructure	100%	Tue 12/23/14	Thu 12/18/14	Wed 12/31/14	Wed 12/31/14																		
CSO058 In-Line Storage and Green Infrastructure	100%	Tue 12/23/14	Thu 12/18/14	Wed 12/31/14	Wed 12/31/14	L_OR_MF_058_S_08_A_A_0																	
CSO123 Downspout Disconnection	100%	Sun 12/30/12	Sun 12/30/12	Mon 12/31/12	Mon 12/31/12																		
CSO123 Downspout Disconnection	100%	Sun 12/30/12	Sun 12/30/12	Mon 12/31/12	Mon 12/31/12	L_MI_MF_123_S_08_A_A_0																	
CSO140 In-Line Storage & Green Infrastructure Controls	100%	Wed 12/23/15	Wed 12/23/15	Thu 12/31/15	Thu 12/31/15																		
CSO140 In-Line Storage & Green Infrastructure Controls	100%	Wed 12/23/15	Wed 12/23/15	Thu 12/31/15	Thu 12/31/15	L_MI_MF_140_S_08_A_A_0	CSO140 SEWER SEPARATION																
CSO206 Sewer Separation	100%	Thu 12/12/13	Thu 12/12/13	Tue 12/31/13	Mon 12/30/13																		
CSO206 Sewer Separation	100%	Thu 12/12/13	Thu 12/12/13	Tue 12/31/13	Mon 12/30/13	L_MI_MF_206_S_08_A_A_0																	
Clifton Heights Storage Basin	95%	Sat 12/1/18	NA	Mon 12/31/18	Mon 12/31/18																		
Clifton Heights Storage Basin	95%	Sat 12/1/18	NA	Mon 12/31/18	Mon 12/31/18	L_MU_MF_154_M_09B_B_A_8																	
Bells Lane Wet Weather Treatment Facility	100%	Mon 7/24/17	Mon 7/24/17	Wed 12/31/14	Sat 9/30/17																		
Bells Lane Wet Weather Treatment Facility	100%	Mon 7/24/17	Mon 7/24/17	Wed 12/31/14	Sat 9/30/17	L_OR_MF_015_M_13_B_B_8	PADDY'S RUN WET WEATHER TREATMENT FACILITY																
Portland CSO Basin	75%	Wed 9/25/19	NA	Tue 12/31/19	Tue 12/31/19																		
Portland CSO Basin	75%	Wed 9/25/19	NA	Tue 12/31/19	Tue 12/31/19	L_OR_MF_019_S_13_B_A_8	PORTLAND WHARF STORAGE BASIN																
Southwestern Parkway Storage Basin	70%	Sun 3/31/19	NA	Mon 12/31/18	Sun 6/30/19																		
Southwestern Parkway Storage Basin	70%	Sun 3/31/19	NA	Mon 12/31/18	Sun 6/30/19	L_OR_MF_105_M_13_B_A_0	SOUTHWESTERN PARKWAY STORAGE BASIN																
Central Relief Drain CSO In-Line Storage, Green Infrastructure & Distributed	85%	Fri 11/30/18	NA	NA	Mon 12/31/18																		
Central Relief Drain CSO In-Line Storage, Green Infrastructure & Distributed Storage	85%	Fri 11/30/18	NA	NA	Mon 12/31/18	L_OR_MF_155_M_09B_B_B_4																	
CSO160 In-Line Storage & Green Infrastructure Controls	100%	Thu 12/10/15	Thu 12/10/15	Thu 12/31/15	Thu 12/31/15																		

Approved 2009 IOAP [Pattern] IOAP Modifications [Pattern] Remaining Work [Pattern] Completed Work [Pattern] Composite Schedule [Pattern] Composite Completed [Pattern]

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)

Activity Name	% Complete	Anticipated Finish	Actual Finish	2009 IOAP Completion	IOAP Modifications*	IOAP Project ID	Original Project Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
								H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
CSO160 In-Line Storage & Green Infrastructure Controls	100%	Thu 12/10/15	Thu 12/10/15	Thu 12/31/15	Thu 12/31/15	L_OR_MF_160_S_08_A_A_0	CSO160 SEWER SEPARATION																
Adams Street Sewer Separation	100%	Wed 11/28/12	Wed 11/28/12	Mon 12/31/12	Mon 12/31/12																		
Adams Street Sewer Separation	100%	Wed 11/28/12	Wed 11/28/12	Mon 12/31/12	Mon 12/31/12	L_OR_MF_172_S_09B_B_A_0	ADAMS STREET STORAGE BASIN																
CSO190 Green Infrastructure Solution	100%	Sun 12/31/17	Fri 12/29/17	Sun 12/31/17	Sun 12/31/17																		
CSO190 Green Infrastructure Solution	100%	Sun 12/31/17	Fri 12/29/17	Sun 12/31/17	Sun 12/31/17	L_OR_MF_190_S_09B_B_A_8	18TH AND NORTHWESTERN PKY. STORAGE BASIN																
Southern Outfall In-Line Storage at 43rd St (SOR1) & Morris Forman WQTC	81%	Fri 12/28/18	NA	Mon 12/31/18	Mon 12/31/18																		
Southern Outfall In-Line Storage at 43rd St (SOR 1)	96%	Fri 12/28/18	NA	Mon 12/31/18	Mon 12/31/18																		
Southern Outfall In-Line Storage at 43rd St (SOR 1)	96%	Fri 12/28/18	NA	Mon 12/31/18	Mon 12/31/18	L_OR_MF_211_M_13_B_A_8	ALGONQUIN PARKWAY STORAGE BASIN																
Morris Forman WQTC Headworks	72%	Sun 12/9/18	NA	Mon 12/31/18	Mon 12/31/18																		
Morris Forman WQTC Headworks	94%	Sun 12/9/18	NA	Mon 12/31/18	Mon 12/31/18																		
Morris Forman WQTC Headworks	94%	Sun 12/9/18	NA	Mon 12/31/18	Mon 12/31/18																		
MF Main Diversion Structure	50%	Wed 11/28/18	NA	Mon 12/31/18	Mon 12/31/18																		
MF Main Diversion Structure	50%	Wed 11/28/18	NA	Mon 12/31/18	Mon 12/31/18																		
MF Main Diversion Structure	50%	Wed 11/28/18	NA	Mon 12/31/18	Mon 12/31/18																		
Nightingale Pump Station Replacement & Storage	100%	Thu 6/29/17	Thu 6/29/17	Sat 12/31/16	Fri 6/30/17																		
Nightingale Pump Station Replacement & Storage	100%	Thu 6/29/17	Thu 6/29/17	Sat 12/31/16	Fri 6/30/17	L_SO_MF_018_S_03_A_A	NIGHTINGALE PUMP STATION REPLACEMENT																
Logan and Breckenridge Street Storage Basin	100%	Wed 10/18/17	Wed 12/20/17	Sun 12/31/17	Sun 12/31/17																		
Logan and Breckenridge Street Storage Basin	100%	Wed 10/18/17	Wed 12/20/17	Sun 12/31/17	Sun 12/31/17	L_SO_MF_092_M_09B_B_D_8	CALVARY CREEKSIDE BASIN																
CSO093 Structural Modifications & Green Infrastructure	100%	Wed 12/23/15	Wed 12/23/15	Thu 12/31/15	Thu 12/31/15																		
CSO093 Structural Modifications & Green Infrastructure	100%	Wed 12/23/15	Wed 12/23/15	Thu 12/31/15	Thu 12/31/15	L_SO_MF_093_S_08_A_A_0	CSO093 SEWER SEPARATION																
CSO108 Dam Modifications	100%	Thu 12/30/10	Thu 12/30/10	Fri 12/31/10	Fri 12/31/10																		
CSO108 Dam Modifications	100%	Thu 12/30/10	Thu 12/30/10	Fri 12/31/10	Fri 12/31/10	L_SO_MF_108_S_09A_B_A_4																	
Story Avenue and Spring Street Green Infrastructure	100%	Tue 12/20/16	Tue 12/20/16	Sat 12/31/16	Sat 12/31/16																		
Story Avenue and Spring Street Green Infrastructure	100%	Tue 12/20/16	Tue 12/20/16	Sat 12/31/16	Sat 12/31/16	L_SO_MF_130_S_09B_B_A_8	STORY AVENUE AND SPRING STREET STORAGE BASIN																
FLOOD PUMP STATION PROJECTS	100%	Wed 12/31/14	Thu 12/18/14	Wed 12/31/14	Wed 12/31/14																		
27th Street Flood Pump Station DWO Elimination	100%	Fri 6/28/13	Fri 6/28/13	Sun 6/30/13	Sun 6/30/13																		
27th Street Flood Pump Station DWO Elimination	100%	Fri 6/28/13	Fri 6/28/13	Sun 6/30/13	Sun 6/30/13	L_OR_MF_019_S_03_A_A																	
34th Street Flood Pump Station DWO Elimination	100%	Mon 6/11/12	Mon 6/11/12	Mon 12/31/12	Mon 12/31/12																		
34th Street Flood Pump Station DWO Elimination	100%	Mon 6/11/12	Mon 6/11/12	Mon 12/31/12	Mon 12/31/12	L_OR_MF_019_S_03_A_B																	
4th Street Flood Pump Station DWO Elimination	100%	Fri 6/15/12	Fri 6/15/12	Mon 12/31/12	Mon 12/31/12																		
4th Street Flood Pump Station DWO Elimination	100%	Fri 6/15/12	Fri 6/15/12	Mon 12/31/12	Mon 12/31/12	L_OR_MF_022_M_03_A_A																	

Approved 2009 IOAP ██████████ IOAP Modifications ██████████ Remaining Work ██████████ Completed Work ██████████ Composite Schedule ██████████ Composite Completed ██████████

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)

Activity Name	% Complete	Anticipated Finish	Actual Finish	2009 IOAP Completion	IOAP Modifications*	IOAP Project ID	Original Project Name	Timeline (2009-2024)																							
								2009 H1 H2	2010 H1 H2	2011 H1 H2	2012 H1 H2	2013 H1 H2	2014 H1 H2	2015 H1 H2	2016 H1 H2	2017 H1 H2	2018 H1 H2	2019 H1 H2	2020 H1 H2	2021 H1 H2	2022 H1 H2	2023 H1 H2	2024 H1 H2								
Shawnee Flood Pump Station DWO Elimination	100%	Tue 6/18/13	Tue 6/18/13	Sun 6/30/13	Sun 6/30/13																										
Shawnee Flood Pump Station DWO Elimination	100%	Tue 6/18/13	Tue 6/18/13	Sun 6/30/13	Sun 6/30/13	L_OR_MF_189_M_03_A_A																									
17th Street Flood Pump Station DWO Elimination	100%	Thu 12/18/14	Thu 12/18/14	Wed 12/31/14	Wed 12/31/14																										
17th Street Flood Pump Station DWO Elimination	100%	Thu 12/18/14	Thu 12/18/14	Wed 12/31/14	Wed 12/31/14	L_OR_MF_190_S_03_A_A																									
SANITARY SEWER DISCHARGE PLAN																															
BEARGRASS CREEK MIDDLE FORK AREA	66%	Tue 12/31/24	NA	Tue 12/31/24	Tue 12/31/24																										
Goose Creek PS Improvements and Wet Weather Storage	58%	Tue 12/31/24	NA	Tue 12/31/24	Tue 12/31/24																										
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale PS and Bancroft WQTC Elimination	100%	Thu 6/29/17	Tue 7/25/17	Tue 12/31/24	Tue 12/31/24																										
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale PS and Bancroft WQTC Elimination	100%	Thu 6/29/17	Tue 7/25/17	Tue 12/31/24	Tue 12/31/24	S_MI_MF_NB04_M_03_B																									
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	0%	Tue 12/31/24	NA	Tue 12/31/24	Tue 12/31/24																										
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	0%	Tue 12/31/24	NA	Tue 12/31/24	Tue 12/31/24	S_MI_MF_NB04_M_03_B																									
Anchor Estates Pump Station Elimination	100%	Fri 4/15/16	Fri 4/15/16	Sat 12/31/16	Sat 12/31/16																										
Anchor Estates PS Elimination 2 - Anchor Estates #1 and #2 PS Elimination	100%	Fri 4/15/16	Fri 4/15/16	Sat 12/31/16	Sat 12/31/16																										
Anchor Estates PS Elimination 2 - Anchor Estates #1 and #2 PS Elimination	100%	Fri 4/15/16	Fri 4/15/16	Sat 12/31/16	Sat 12/31/16	S_MI_MF_NB06_M_01_A_A - 1																									
Anchor Estates PS Elimination 1 - Vannah PS Elimination	100%	Sat 10/15/11	Sat 10/15/11	Tue 12/31/13	Tue 12/31/13																										
Anchor Estates PS Elimination 1 - Vannah PS Elimination	100%	Sat 10/15/11	Sat 10/15/11	Tue 12/31/13	Tue 12/31/13	S_MI_MF_NB06_M_01_A_A - 2																									
Hurstbourne I/I Investigation & Rehabilitation	100%	Tue 12/27/11	Tue 12/27/11	Sat 12/31/11	Sat 12/31/11																										
Hurstbourne I/I Investigation & Rehabilitation	100%	Tue 12/27/11	Tue 12/27/11	Sat 12/31/11	Sat 12/31/11	S_MI_MF_NB07_S_07_C																									
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion	48%	Sun 12/31/23	NA	Sun 12/31/23	Tue 12/31/13																										
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1 - Buechel Basin	100%	Fri 12/27/13	Fri 12/27/13	Tue 12/31/13	Tue 12/31/13																										
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1 - Buechel Basin	100%	Fri 12/27/13	Fri 12/27/13	Tue 12/31/13	Tue 12/31/13	S_MISF_MF_NB01_M_01_C_A1																									
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	0%	Sun 12/31/23	NA	Sun 12/31/23	Sun 12/31/23																										

Approved 2009 IOAP [Pattern] IOAP Modifications [Pattern] Remaining Work [Pattern] Completed Work [Pattern] Composite Schedule [Pattern] Composite Completed [Pattern]

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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)

Activity Name	% Complete	Anticipated Finish	Actual Finish	2009 IOAP Completion	IOAP Modifications*	IOAP Project ID	Original Project Name	Timeline (2009-2024)																							
								2009 H1 H2	2010 H1 H2	2011 H1 H2	2012 H1 H2	2013 H1 H2	2014 H1 H2	2015 H1 H2	2016 H1 H2	2017 H1 H2	2018 H1 H2	2019 H1 H2	2020 H1 H2	2021 H1 H2	2022 H1 H2	2023 H1 H2	2024 H1 H2								
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	0%	Sun 12/31/23	NA	Sun 12/31/23	Sun 12/31/23	S_MISF_MF_NB01_M_01_C_A1																									
CEDAR CREEK AREA	52%	Tue 12/31/24	NA	Tue 12/31/24	Tue 12/31/24																										
Little Cedar Creek Interceptor Improvements	0%	Tue 12/31/24	NA	Tue 12/31/24	Tue 12/31/24																										
Little Cedar Creek Interceptor Improvements	0%	Tue 12/31/24	NA	Tue 12/31/24	Tue 12/31/24	S_CC_CC_67997_M_01_C																									
Idlewood Inline Storage	0%	Wed 6/30/21	NA	Sun 12/31/23	Sun 12/31/23																										
Idlewood Inline Storage	0%	Wed 6/30/21	NA	Sun 12/31/23	Sun 12/31/23	S_CC_CC_70158_M_09A_C																									
Bardstown Rd. PS Improvements	0%	Wed 6/30/21	NA	Fri 12/31/21	Fri 12/31/21																										
Bardstown Rd. PS Improvements	0%	Wed 6/30/21	NA	Fri 12/31/21	Fri 12/31/21	S_CC_CC_MSD1025_S_03_B																									
Running Fox PS Elimination	100%	Wed 3/10/10	Wed 3/10/10	Fri 12/31/10	Fri 12/31/10																										
Running Fox PS Elimination	100%	Wed 3/10/10	Wed 3/10/10	Fri 12/31/10	Fri 12/31/10	S_CC_CC_MSD1080_S_01_C																									
Fairmount Road Pump Station	100%	Wed 3/30/16	Thu 3/31/16	Sun 12/31/23	Sun 12/31/23																										
Fairmount Rd PS Improvements	100%	Tue 4/24/12	Tue 4/24/12	Sun 12/31/23	Sun 12/31/23	S_FF_CC_81316_M_03_C_A																									
Fairmount PS Offline Storage Basin	100%	Thu 3/31/16	Thu 3/31/16	Sun 12/31/23	Thu 3/31/16	S_FF_CC_81316_M_03_C_A																									
Fairmount PS Offline Storage Basin	100%	Thu 3/31/16	Thu 3/31/16	Sun 12/31/23	Thu 3/31/16	S_FF_CC_81316_M_03_C_A																									
COMBINED SEWER SYSTEM AREA	100%	Fri 12/15/23	Fri 12/15/17	Thu 6/30/11	Thu 6/30/11																										
Hazelwood PS I/I Investigation & Rehabilitation	100%	Thu 6/30/11	Thu 6/30/11	Thu 6/30/11	Thu 6/30/11																										
Hazelwood PS I/I Investigation & Rehabilitation	100%	Thu 6/30/11	Thu 6/30/11	Thu 6/30/11	Thu 6/30/11	S_MC_MF_55665_S_07_C																									
Sonne Pump Station I/I Investigation & Rehabilitation	100%	Thu 6/30/11	Thu 6/30/11	Thu 6/30/11	Thu 6/30/11																										
Sonne Pump Station I/I Investigation & Rehabilitation	100%	Thu 6/30/11	Thu 6/30/11	Thu 6/30/11	Thu 6/30/11	S_OR_MF_42007_S_07_C																									
Camp Taylor	100%	Fri 12/15/23	Fri 12/15/17	Sun 12/31/17	Sun 12/31/17																										
Camp Taylor Phase 1 - SSES	100%	Fri 7/8/11	Fri 7/8/11	Sat 12/31/11	Tue 12/31/13																										
Camp Taylor Phase 1 - SSES	100%	Fri 7/8/11	Fri 7/8/11	Sat 12/31/11	Tue 12/31/13	S_SF_MF_30917_M_09_A	CAMP TAYLOR SYSTEM IMPROVEMENTS PHASE 1 - SSES																								
Camp Taylor Phase 2 - Sewer Replacement and Rehabilitation	100%	Fri 12/20/13	Fri 12/20/13	Tue 12/31/13	Sun 12/31/17																										
Camp Taylor Phase 2 - Sewer Replacement and Rehabilitation	100%	Fri 12/20/13	Fri 12/20/13	Tue 12/31/13	Sun 12/31/17	S_SF_MF_30917_M_09_A	CAMP TAYLOR SYSTEM IMPROVEMENTS PHASE 2 - SEWER																								
Camp Taylor Phase 3 - Sewer Replacement and Rehabilitation	100%	Sun 12/31/17	Fri 12/15/17	Sun 12/31/17	Sun 12/31/17																										
Camp Taylor Phase 3 - Sewer Replacement and Rehabilitation	100%	Fri 12/15/17	Fri 12/15/17	Sun 12/31/17	Sun 12/31/17	S_SF_MF_30917_M_09_A	CAMP TAYLOR SYSTEM IMPROVEMENTS 3 - SEWER																								
FLOYDS FORK AREA	100%	Thu 3/4/10	Thu 3/4/10	Fri 12/31/21	Thu 4/1/10																										
Woodland Hill PS Diversion	100%	Thu 3/4/10	Thu 3/4/10	Thu 6/30/11	Thu 4/1/10																										
Woodland Hill PS Diversion	100%	Thu 3/4/10	Thu 3/4/10	Thu 6/30/11	Thu 4/1/10	S_FF_FF_NB01_S_01_C_A																									
Ashburton PS Improvements & Diversion	100%	Wed 12/30/09	Wed 12/30/09	Fri 12/31/21	Fri 1/22/10																										

Approved 2009 IOAP [dotted pattern] IOAP Modifications [dotted pattern] Remaining Work [dotted pattern] Completed Work [solid green] Composite Schedule [solid blue] Composite Completed [solid orange]

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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)

Activity Name	% Complete	Anticipated Finish	Actual Finish	2009 IOAP Completion	IOAP Modifications*	IOAP Project ID	Original Project Name	2009-2024																							
								2009 H1 H2	2010 H1 H2	2011 H1 H2	2012 H1 H2	2013 H1 H2	2014 H1 H2	2015 H1 H2	2016 H1 H2	2017 H1 H2	2018 H1 H2	2019 H1 H2	2020 H1 H2	2021 H1 H2	2022 H1 H2	2023 H1 H2	2024 H1 H2								
Ashburton PS Improvements & Diversion	100%	Wed 12/30/09	Wed 12/30/09	Fri 12/31/21	Fri 1/22/10	S_FF_FF_NB03_M_01_C_A		[Gantt chart bars for 2009-2024]																							
HITE CREEK AREA	62%	Tue 11/26/24	NA	Tue 12/31/24	Tue 12/31/24			[Gantt chart bars for 2009-2024]																							
Meadow Stream Pump Station & Force Main Upgrade	100%	Tue 12/18/12	Tue 12/18/12	Sat 12/31/16	Sat 12/31/16			[Gantt chart bars for 2009-2024]																							
Meadow Stream Pump Station & Force Main Upgrade	100%	Tue 12/18/12	Tue 12/18/12	Sat 12/31/16	Sat 12/31/16	S_HC_HC_MSD1082_S_09A_C	MEADOW STREAM PUMP STATION IN-LINE STORAGE	[Gantt chart bars for 2009-2024]																							
Kavanaugh Rd. PS Improvements	0%	Tue 11/26/24	NA	Tue 12/31/24	Tue 12/31/24			[Gantt chart bars for 2009-2024]																							
Kavanaugh Rd. PS Improvements	0%	Tue 11/26/24	NA	Tue 12/31/24	Tue 12/31/24	S_HC_HC_MSD1085_S_03_A		[Gantt chart bars for 2009-2024]																							
Floydsburg Rd. I/I Investigation & Rehabilitation	100%	Fri 12/17/10	Fri 12/17/10	Fri 12/31/10	Fri 12/31/10			[Gantt chart bars for 2009-2024]																							
Floydsburg Rd. I/I Investigation & Rehabilitation	100%	Fri 12/17/10	Fri 12/17/10	Fri 12/31/10	Fri 12/31/10	S_HC_HC_MSD1086_M_07_C_A		[Gantt chart bars for 2009-2024]																							
INTERIM SSP PROJECTS	100%	Tue 11/27/12	Tue 11/27/12	Tue 11/27/12	Tue 11/27/12			[Gantt chart bars for 2009-2024]																							
Beechwood Village Sanitary Sewer Replacement	100%	Wed 9/29/10	Wed 9/29/10	Wed 4/27/11	Wed 4/27/11			[Gantt chart bars for 2009-2024]																							
Beechwood Village Sanitary Sewer Replacement	100%	Wed 9/29/10	Wed 9/29/10	Wed 4/27/11	Wed 4/27/11			[Gantt chart bars for 2009-2024]																							
Sinking Fork Relief Sewer	100%	Mon 11/30/09	Mon 11/30/09	Thu 12/30/10	Wed 12/23/09			[Gantt chart bars for 2009-2024]																							
Sinking Fork Relief Sewer	100%	Mon 11/30/09	Mon 11/30/09	Thu 12/30/10	Wed 12/23/09			[Gantt chart bars for 2009-2024]																							
Derek R. Guthrie Water Quality Treatment Center	100%	Tue 11/27/12	Tue 11/27/12	Tue 11/27/12	Tue 11/27/12			[Gantt chart bars for 2009-2024]																							
Derek R. Guthrie Water Quality Treatment Center	100%	Tue 11/27/12	Tue 11/27/12	Tue 11/27/12	Tue 11/27/12			[Gantt chart bars for 2009-2024]																							
Hikes Lane Interceptor and Highgate Springs PS	100%	Fri 11/2/12	Fri 11/2/12	Tue 11/27/12	Tue 11/27/12			[Gantt chart bars for 2009-2024]																							
Hikes Lane Interceptor and Highgate Springs PS	100%	Fri 11/2/12	Fri 11/2/12	Tue 11/27/12	Tue 11/27/12			[Gantt chart bars for 2009-2024]																							
Northern Ditch Diversion Interceptor	100%	Wed 2/16/11	Wed 2/16/11	Sun 7/31/11	Sun 7/31/11			[Gantt chart bars for 2009-2024]																							
Northern Ditch Diversion Interceptor	100%	Wed 2/16/11	Wed 2/16/11	Sun 7/31/11	Sun 7/31/11			[Gantt chart bars for 2009-2024]																							
Southeastern Diversion Structure and Interceptor	100%	Mon 12/19/11	Mon 12/19/11	Sat 5/12/12	Sat 5/12/12			[Gantt chart bars for 2009-2024]																							
Southeastern Diversion Structure and Interceptor	100%	Mon 12/19/11	Mon 12/19/11	Sat 5/12/12	Sat 5/12/12			[Gantt chart bars for 2009-2024]																							
JEFFERSONTOWN AREA	59%	Sat 12/31/22	NA	Sat 12/31/22	Sat 12/31/22			[Gantt chart bars for 2009-2024]																							
Jeffersontown WQTC Elimination	100%	Wed 12/23/15	Wed 12/23/15	Thu 12/31/15	Thu 12/31/15			[Gantt chart bars for 2009-2024]																							
Jeffersontown WQTC Elimination	100%	Wed 12/23/15	Wed 12/23/15	Thu 12/31/15	Thu 12/31/15	S_JT_JT_NB01_M_01_C_A		[Gantt chart bars for 2009-2024]																							
Elimination of Chenoweth Hills WQTC, Chenoweth Run PS, and Chippewa PS	100%	Mon 9/22/14	Mon 9/22/14	Thu 12/31/15	Thu 12/31/15			[Gantt chart bars for 2009-2024]																							
Elimination of Chenoweth Hills WQTC, Chenoweth Run PS, and Chippewa PS	100%	Mon 9/22/14	Mon 9/22/14	Thu 12/31/15	Thu 12/31/15	S_JT_JT_NB01A_M_03_C	CHENOWETH HILLS WATER QUALITY TREATMENT CENTER ELIMINATION AND PS	[Gantt chart bars for 2009-2024]																							
Dell Rd and Charlane Pkwy Interceptor Improvements	0%	Wed 6/30/21	NA	Sat 12/31/22	Sat 12/31/22			[Gantt chart bars for 2009-2024]																							
Dell Rd and Charlane Pkwy Interceptor Improvements	0%	Wed 6/30/21	NA	Sat 12/31/22	Sat 12/31/22	S_JT_JT_NB02_M_01_C		[Gantt chart bars for 2009-2024]																							
Raintree and Marian Ct 1	25%	Wed 6/30/21	NA	Fri 12/31/21	Fri 12/31/21			[Gantt chart bars for 2009-2024]																							
Raintree and Marian Ct 1 - PS Elimination	50%	Tue 12/31/19	NA	Fri 12/31/21	Fri 12/31/21			[Gantt chart bars for 2009-2024]																							

Approved 2009 IOAP [Pattern] IOAP Modifications [Pattern] Remaining Work [Pattern] Completed Work [Pattern] Composite Schedule [Pattern] Composite Completed [Pattern]

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Activity Name	% Complete	Anticipated Finish	Actual Finish	2009 IOAP Completion	IOAP Modifications*	IOAP Project ID	Original Project Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
								H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
Raintree and Marian Ct 1 - PS Elimination	50%	Tue 12/31/19	NA	Fri 12/31/21	Fri 12/31/21	S_JT_JT_NB03_M_01_C																	
Raintree and Marian Ct 2 - Pipe Upgrades	0%	Wed 6/30/21	NA	Fri 12/31/21	Fri 12/31/21																		
Raintree and Marian Ct 2 - Pipe Upgrades	0%	Wed 6/30/21	NA	Fri 12/31/21	Fri 12/31/21	S_JT_JT_NB03_M_01_C																	
Monticello PS Elimination	0%	Sat 12/31/22	NA	Sat 12/31/22	Sat 12/31/22																		
Monticello PS Elimination	0%	Sat 12/31/22	NA	Sat 12/31/22	Sat 12/31/22	S_JT_JT_NB04_M_01_A																	
MILL CREEK AREA	100%	Fri 4/13/12	Fri 4/13/12	Fri 12/31/21	Fri 12/31/21																		
Shively Interceptor	100%	Fri 4/13/12	Fri 4/13/12	Wed 12/31/14	Wed 12/31/14																		
Shively Interceptor	100%	Fri 4/13/12	Fri 4/13/12	Wed 12/31/14	Wed 12/31/14	S_MC_WC_NB01_M_01_A																	
East Rockford PS Relocation	100%	Fri 3/30/12	Fri 3/30/12	Fri 12/31/21	Fri 12/31/21																		
East Rockford PS Relocation	100%	Fri 3/30/12	Fri 3/30/12	Fri 12/31/21	Fri 12/31/21	S_MC_WC_NB02_S_03_C																	
OHIO RIVER FORCE MAIN AREA	84%	Thu 10/3/24	NA	Tue 12/31/24	Tue 12/31/24																		
Mellwood System Improvements & PS Elimination	49%	Wed 12/19/12	NA	Tue 12/31/24	Tue 12/31/24																		
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	100%	Wed 12/19/12	Wed 12/19/12	Mon 12/31/12	Mon 12/31/12																		
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	100%	Wed 12/19/12	Wed 12/19/12	Mon 12/31/12	Mon 12/31/12	S_OR_MF_NB01_M_01_B																	
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	0%	Thu 10/3/24	NA	Tue 12/31/24	Tue 12/31/24																		
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	0%	Thu 10/3/24	NA	Tue 12/31/24	Tue 12/31/24	S_OR_MF_NB01_M_01_B																	
Derington Ct. PS I/I Investigation & Rehabilitation	100%	Fri 3/30/12	Fri 3/30/12	Sat 3/31/12	Sat 3/31/12																		
Derington Ct. PS I/I Investigation & Rehabilitation	100%	Fri 3/30/12	Fri 3/30/12	Sat 3/31/12	Sat 3/31/12	S_OR_MF_NB03_S_07_C																	
Prospect WQTC Eliminations, Harrods Creek PS and ORFM System Improvements	100%	Mon 12/19/16	Mon 12/19/16	Sat 12/31/16	Sat 12/31/16																		
Prospect #1 - WQTC Eliminations	100%	Tue 12/15/15	Tue 12/15/15	Thu 12/31/15	Thu 12/31/15																		
Prospect #1 - WQTC Eliminations	100%	Tue 12/15/15	Tue 12/15/15	Thu 12/31/15	Thu 12/31/15	S_OR_MF_NB04_M_03_B_B																	
Prospect #2 - Harrods Creek PS and FM	100%	Tue 12/15/15	Tue 12/15/15	Thu 12/31/15	Thu 12/31/15																		
Prospect #2 - Harrods Creek PS and FM	100%	Tue 12/15/15	Tue 12/15/15	Thu 12/31/15	Thu 12/31/15	S_OR_MF_NB04_M_03_B_B																	
Prospect #3 - ORFM System Improvements	100%	Mon 12/19/16	Mon 12/19/16	Sat 12/31/16	Sat 12/31/16																		
Prospect #3 - ORFM System Improvements	100%	Mon 12/19/16	Mon 12/19/16	Sat 12/31/16	Sat 12/31/16	S_OR_MF_NB04_M_03_B_B																	
OTHER PROJECTS	66%	Tue 12/31/24	NA	Tue 12/31/24	Mon 12/30/24																		
CPE_CCP Modifications To WQTC	100%	Mon 12/19/11	Mon 12/19/11	Sat 12/31/11	Sat 12/31/11																		
CPE_CCP Modifications To WQTC	100%	Mon 12/19/11	Mon 12/19/11	Sat 12/31/11	Sat 12/31/11																		

Approved 2009 IOAP [Pattern] IOAP Modifications [Pattern] Remaining Work [Pattern] Completed Work [Pattern] Composite Schedule [Pattern] Composite Completed [Pattern]

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								2009 H1 H2	2010 H1 H2	2011 H1 H2	2012 H1 H2	2013 H1 H2	2014 H1 H2	2015 H1 H2	2016 H1 H2	2017 H1 H2	2018 H1 H2	2019 H1 H2	2020 H1 H2	2021 H1 H2	2022 H1 H2	2023 H1 H2	2024 H1 H2								
I/I Reduction Program	60%	Tue 12/31/24	NA	Tue 12/31/24	Tue 12/31/24																										
I/I Reduction Program	60%	Tue 12/31/24	NA	Tue 12/31/24	Tue 12/31/24																										
POND CREEK AREA	93%	Thu 6/30/22	NA	Tue 12/31/24	Tue 12/31/24																										
Lea Ann Way System Improvements	100%	Fri 12/4/15	Fri 12/4/15	Thu 12/31/15	Thu 12/31/15																										
Lea Ann Way System Improvements	100%	Fri 12/4/15	Fri 12/4/15	Thu 12/31/15	Thu 12/31/15	S_PO_WC_PC08_M_01_C																									
Edsel PS I/I Investigation & Rehabilitation	100%	Tue 9/27/11	Tue 9/27/11	Sat 12/31/11	Fri 9/30/11																										
Edsel PS I/I Investigation & Rehabilitation	100%	Tue 9/27/11	Tue 9/27/11	Sat 12/31/11	Fri 9/30/11	S_PO_WC_PC11_M_07_C																									
Cinderella PS Elimination	0%	Thu 6/30/22	NA	Sun 12/31/23	Sun 12/31/23																										
Cinderella PS Elimination	0%	Thu 6/30/22	NA	Sun 12/31/23	Sun 12/31/23	S_PO_WC_PC04_M_01_C																									
Government Center PS Elimination	100%	Fri 4/1/11	Fri 4/1/11	Tue 12/31/24	Tue 12/31/24																										
Government Center PS Elimination	100%	Fri 4/1/11	Fri 4/1/11	Tue 12/31/24	Tue 12/31/24	S_PO_WC_PC06_M_01_C																									
Avanti PS Elimination	100%	Fri 7/10/09	Fri 7/10/09	Fri 12/31/10	Fri 12/31/10																										
Avanti PS Elimination	100%	Fri 7/10/09	Fri 7/10/09	Fri 12/31/10	Fri 12/31/10	S_PO_WC_PC07_M_01_A																									
Charleswood Interceptor Extension	100%	Wed 8/5/15	Wed 8/5/15	Sat 12/31/22	Sat 12/31/22																										
Charleswood Interceptor Extension	100%	Wed 8/5/15	Wed 8/5/15	Sat 12/31/22	Sat 12/31/22	S_PO_WC_PC03_M_01_C																									
Lantana PS #1 I/I Investigation and Rehabilitation	100%	Thu 12/29/11	Thu 12/29/11	Sat 12/31/11	Thu 12/29/11																										
Lantana PS #1 I/I Investigation and Rehabilitation	100%	Thu 12/29/11	Thu 12/29/11	Sat 12/31/11	Thu 12/29/11	S_PO_WC_PC05_M_07_C																									
Leven PS Elimination	0%	Thu 6/30/22	NA	Sat 12/31/22	Sat 12/31/22																										
Leven PS Elimination	0%	Thu 6/30/22	NA	Sat 12/31/22	Sat 12/31/22	S_PO_WC_PC10_M_01_C																									
Caven Ave Pump Station Elimination	100%	Mon 8/1/16	Mon 8/1/16	Tue 12/31/24	Sat 12/31/16																										
Caven Ave Pump Station Elimination	100%	Mon 8/1/16	Mon 8/1/16	Tue 12/31/24	Sat 12/31/16	S_PO_WC_PC09_M_09B_C																									
SMALL WWTP AREA	37%	Fri 12/31/21	NA	Fri 12/31/21	Fri 12/31/21																										
Riding Ridge PS Improvements	100%	Sat 11/15/14	Sat 11/15/14	Wed 12/31/14	Wed 12/31/14																										
Riding Ridge PS Improvements	100%	Sat 11/15/14	Sat 11/15/14	Wed 12/31/14	Wed 12/31/14	S_HC_HN_NB01_S_03_C_A																									
Lucas Lane PS Inline Storage	0%	Wed 6/30/21	NA	Fri 12/31/21	Fri 12/31/21																										
Lucas Lane PS Inline Storage	0%	Wed 6/30/21	NA	Fri 12/31/21	Fri 12/31/21	S_FF_BT_NB01_S_09A_C_A																									
St. Rene Rd. PS Elimination	100%	Fri 9/19/14	Fri 9/19/14	Fri 12/31/21	Fri 12/31/21																										
St. Rene Rd. PS Elimination	100%	Fri 9/19/14	Fri 9/19/14	Fri 12/31/21	Fri 12/31/21	S_FF_CH_NB01_S_09A_C_A	ST. RENE RD PS INLINE STORAGE																								
Lake Forest PS SSO Investigation	100%	Tue 12/18/12	Tue 12/18/12	Mon 12/31/12	Mon 12/31/12																										
Lake Forest PS SSO Investigation	100%	Tue 12/18/12	Tue 12/18/12	Mon 12/31/12	Mon 12/31/12	S_FF_LF_NB01_S_13_C_A																									
Gunpowder PS Inline Storage	0%	Wed 6/30/21	NA	Fri 12/31/21	Fri 12/31/21																										
Gunpowder PS Inline Storage	0%	Wed 6/30/21	NA	Fri 12/31/21	Fri 12/31/21	S_HC_HN_NB02_S_09A_C_B																									
Fox Harbor Inline Storage	0%	Fri 12/31/21	NA	Fri 12/31/21	Fri 12/31/21																										
Fox Harbor Inline Storage	0%	Fri 12/31/21	NA	Fri 12/31/21	Fri 12/31/21	S_HC_HN_NB03_S_09A_A_A																									

Approved 2009 IOAP IOAP Modifications Remaining Work Completed Work Composite Schedule Composite Completed

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)

Activity Name	% Complete	Anticipated Finish	Actual Finish	2009 IOAP Completion	IOAP Modifications*	IOAP Project ID	Original Project Name																								
								2009 H1 H2	2010 H1 H2	2011 H1 H2	2012 H1 H2	2013 H1 H2	2014 H1 H2	2015 H1 H2	2016 H1 H2	2017 H1 H2	2018 H1 H2	2019 H1 H2	2020 H1 H2	2021 H1 H2	2022 H1 H2	2023 H1 H2	2024 H1 H2								
Fairway View PS Improvements	100%	Tue 12/30/14	Tue 12/30/14	Wed 12/31/14	Wed 12/31/14																										
Fairway View PS Improvements	100%	Tue 12/30/14	Tue 12/30/14	Wed 12/31/14	Wed 12/31/14	S_HC_HS_NB01_S_03_C_A																									
SOUTHEASTERN DIVERSION AREA	75%	Mon 11/27/23	NA	Sun 12/31/23	Sun 12/31/23																										
Parkview Estates I/I Investigation & Rehabilitation	100%	Tue 6/28/11	Tue 6/28/11	Sat 12/31/11	Sat 12/31/11																										
Parkview Estates I/I Investigation & Rehabilitation	100%	Tue 6/28/11	Tue 6/28/11	Sat 12/31/11	Sat 12/31/11	S_SD_MF_NB03_S_07_C																									
Klondike Interceptor	100%	Thu 12/5/13	Thu 12/5/13	Thu 12/31/15	Thu 12/31/15																										
Klondike Interceptor	100%	Thu 12/5/13	Thu 12/5/13	Thu 12/31/15	Thu 12/31/15	S_SD_MF_NB04_S_01_B_A																									
Sutherland Interceptor	0%	Mon 11/27/23	NA	Sun 12/31/23	Sun 12/31/23																										
Sutherland Interceptor	0%	Mon 11/27/23	NA	Sun 12/31/23	Sun 12/31/23	S_SD_MF_NB05_M_01_A																									
Beargrass Interceptor Rehab Ph. 2	100%	Tue 12/14/10	Tue 12/14/10	Fri 12/31/10	Fri 12/31/10																										
Beargrass Interceptor Rehab Ph. 2	100%	Tue 12/14/10	Tue 12/14/10	Fri 12/31/10	Fri 12/31/10	S_SD_MF_NB06_S_13_C																									

Approved 2009 IOAP ██████████ IOAP Modifications ██████████ Remaining Work ██████████ Completed Work ██████████ Composite Schedule ██████████ Composite Completed ██████████

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

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 ways to reduce the risks of 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, bill inserts, social media, and MSD websites, to serve as a conduit for circulating information to the public.

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 and posts on MSD’s website and social media accounts.

MSD continues its One Water education effort. This partnership with Louisville Water enables MSD to reach a wider audience through use of classroom educators and educational tours. The “River to River” education curriculum was launched during the reporting period. This program is being taken into classrooms county-wide to share information on Louisville’s water cycle. School groups have also had opportunities to tour the Floyds Fork WQTC.

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
7/1/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
7/1/2018	Ohio River Tunnel: Advanced Design Meeting	7/19/2017
7/1/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
7/1/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016
7/2/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
7/6/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
7/6/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016
7/7/2018	Ohio River Tunnel: Advanced Design Meeting	7/19/2017
7/8/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
7/9/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
7/9/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016

Table 4.1. Metro TV Broadcasts

DATE	PROGRAM TITLE	ORIGINAL MEETING DATE
7/9/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016
7/11/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
7/11/2018	Ohio River Tunnel: Advanced Design Meeting	7/19/2017
7/12/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
7/13/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
7/13/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
7/14/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
7/14/2018	Ohio River Tunnel: Advanced Design Meeting	7/19/2017
7/14/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016
7/20/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
7/20/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
7/20/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016
7/22/2018	Ohio River Tunnel: Advanced Design Meeting	7/19/2017
7/23/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
7/23/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
7/23/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016
7/25/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
7/26/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
7/27/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
7/27/2018	Ohio River Tunnel: Advanced Design Meeting	7/19/2017
7/28/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
7/29/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
7/29/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
7/29/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016
8/3/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
8/3/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
8/3/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016
8/4/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
8/10/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
8/11/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
8/11/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
8/11/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016
8/17/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
8/17/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
8/17/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016

Table 4.1. Metro TV Broadcasts

DATE	PROGRAM TITLE	ORIGINAL MEETING DATE
8/19/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
8/20/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
8/20/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
8/20/2018	Portland CSO Basin: Conceptual Design Meeting	6/14/2016
8/21/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
8/22/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
8/23/2018	Ohio River Tunnel: Advanced Design Meeting	7/19/2017
8/25/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015
8/25/2018	Portland CSO Basin: Conceptual Design Meeting	1/26/2016
8/26/2018	I64 & Grinstead CSO Basin: Advanced Design Meeting	11/15/2016
8/26/2018	Ohio River Tunnel: Advanced Design Meeting	7/19/2017
8/31/2018	Clifton Heights CSO Basin: Advanced Design Meeting	9/15/2015

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 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.msdpjprojectwin.org/Public-Input.aspx>.

During the reporting period, MSD facilitated and planned for the meetings shown in Table 4.2. No meetings are currently scheduled for the upcoming reporting period.

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

DATE	EVENT
July 10, 2018	Southwestern Parkway CSO Basin: Construction Meeting
August 28, 2018	Waterway Protection Tunnel Extension: Construction 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.msdpowerwin.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 continues 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.msdpowerwin.org.

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

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.

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

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. Design was completed during the reporting period. The project is expected to bid during the next reporting period, conditional based on funding availability. Construction of the Preliminary Treatment Odor Control Improvements project was completed.

5.3.2. FLOYDS FORK WATER QUALITY TREATMENT CENTER

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

5.3.3. DEREK R. GUTHRIE WATER QUALITY TREATMENT CENTER

The DRG Return Activated Sludge (RAS) 1 and 4 Pump Replacement project is under construction. This project calls for the replacement and upsizing of RAS pumps 1 and 4, replacement of all four pump variable frequency drives (VFDs), and placement in the expanded and renovated electrical room. Project completion is scheduled for the end of the 2nd quarter of FY19. The pump capacity upgrade will provide the treatment facility more flexibility on a daily average and wet weather operation basis, and also help to re-rate the facility to a higher average daily discharge permit.

Design of the DRG Clarifier #7-12 Floor Repair and Gate Replacement project is underway. New gates and automated actuators will be provided for the influent and the RAS lines for Clarifiers 1 - 6. Defective grout will be removed/replaced for Clarifiers 7 – 12 and the aeration basin isolation gate will be replaced. This project is scheduled to be advertised for bid during the next reporting period.

5.3.4. CEDAR CREEK WATER QUALITY TREATMENT CENTER

The Cedar Creek WQTC Influent Pump Station MCC project was designed and bid, but construction has been placed on hold due to re-prioritization of funding. It may be re-bid at a later date.

A hydraulics study and a solids study will be undertaken for this facility during the next reporting period.

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.

Figure 5.1. CMOM Quarterly Commitments Schedule























Task Name	% Complete	Start	Finish	Qtr 3, 2018			Qtr 4, 2018		
				Jul	Aug	Sep	Oct	Nov	Dec
MSD CMOM Quarterly Commitments Schedule	38%	Mon 7/27/15	Tue 1/7/31						
FY19 OPERATIONS R&R	33%	Sun 7/1/18	Sun 6/30/19						
CLOSEOUT	32%	Sun 6/30/19	Sun 6/30/19						
Contract Completion	32%	Sun 7/1/18	Sun 6/30/19						
Botanical Garden Biofilter Upgrades	59%	Thu 3/1/18	Tue 11/5/19						
CONSTRUCTION	42%	Fri 5/25/18	Tue 1/8/19						
CLOSEOUT	0%	Mon 4/8/19	Tue 11/5/19						
Breakwater PS Electrical Modifications	55%	Wed 8/1/18	Thu 12/19/19						
CONSTRUCTION	24%	Mon 10/8/18	Thu 12/20/18						
CLOSEOUT	0%	Wed 3/20/19	Thu 12/19/19						
CCWQTC Enhanced Odor Control for Solids Area	20%	Wed 1/31/18	Tue 1/7/31						
DESIGN	44%	Mon 8/20/18	Sun 1/20/19						
CONSTRUCTION	0%	Tue 2/19/19	Thu 10/17/19						
CLOSEOUT	0%	Wed 1/15/20	Wed 8/12/20						
CCWQTC Hydraulics Study	57%	Sun 7/1/18	Thu 3/14/19						
CONSTRUCTION	50%	Fri 9/14/18	Fri 12/7/18						
CLOSEOUT	0%	Fri 3/8/19	Thu 3/14/19						
CCWQTC Oxidation Ditch Modifications	0%	Mon 4/23/18	Mon 10/26/20						
DESIGN	0%	Thu 11/1/18	Wed 4/3/19						
CONSTRUCTION	0%	Fri 5/3/19	Sun 12/29/19						
CLOSEOUT	0%	Mon 5/4/20	Mon 10/26/20						
CMOM Telog 3G to 4G Conversion	1%	Sun 7/1/18	Sun 6/30/19						
CLOSEOUT	0%	Sun 9/30/18	Sun 6/30/19						
DRGWQTC Carbon Odor Control	20%	Wed 1/31/18	Tue 10/20/20						
CONSTRUCTION	14%	Wed 8/22/18	Tue 12/24/19						
Date: 9/30/18				CMOM Project  Project Progress 					

Figure 5.1. CMOM Quarterly Commitments Schedule

Task Name	% Complete	Start	Finish	Qtr 3, 2018			Qtr 4, 2018		
				Jul	Aug	Sep	Oct	Nov	Dec
CLOSEOUT	0%	Tue 3/24/20	Tue 10/20/20						
DRGWQTC Clarifier RAS Replace Influent Gates	31%	Wed 1/31/18	Mon 6/8/20						
DESIGN	70%	Wed 5/23/18	Thu 11/15/18						
CONSTRUCTION	0%	Sat 12/15/18	Mon 8/12/19						
CLOSEOUT	0%	Mon 11/11/19	Mon 6/8/20						
DRGWQTC RAS 1 and 4 Pump Replacement	95%	Fri 1/1/16	Mon 9/16/19						
CONSTRUCTION	95%	Sat 4/1/17	Tue 11/20/18						
CLOSEOUT	0%	Mon 2/18/19	Mon 9/16/19						
DRGWQTC WWPS Finite Element Analysis Phase 2	34%	Sun 7/1/18	Sun 6/30/19						
CLOSEOUT	32%	Sun 7/1/18	Sun 6/30/19						
FY18_19 Sewer Cleaning and TV Gline	25%	Mon 1/1/18	Mon 7/22/19						
CLOSEOUT	25%	Mon 1/1/18	Mon 7/22/19						
FY19 CMOM Collection System Pump Rehab and Replacement	32%	Sun 7/1/18	Sun 6/30/19						
CLOSEOUT	32%	Sun 7/1/18	Sun 6/30/19						
FY19 CMOM Grinder RR	1%	Sun 7/1/18	Mon 7/29/19						
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Fri 2/1/19						
CLOSEOUT	0%	Sun 6/30/19	Mon 7/29/19						
FY19 CMOM I and C Implementation	1%	Sun 7/1/18	Sun 6/30/19						
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Sat 12/1/18						
CLOSEOUT	0%	Sat 12/1/18	Sun 6/30/19						
FY19 CMOM PM Assist	5%	Sun 7/1/18	Sun 6/30/19						
CLOSEOUT	4%	Mon 10/15/18	Sun 6/30/19						
FY19 CMOM PS-Generator Upgrades	19%	Sun 7/1/18	Sun 6/30/19						
CLOSEOUT	18%	Sat 9/1/18	Sun 6/30/19						
FY19 CMOM SCAP, AAM and FOG	1%	Sun 7/1/18	Sun 6/30/19						

Date: 9/30/18

CMOM Project  Project Progress 

Figure 5.1. CMOM Quarterly Commitments Schedule

Task Name	% Complete	Start	Finish	Qtr 3, 2018			Qtr 4, 2018		
				Jul	Aug	Sep	Oct	Nov	Dec
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Tue 1/1/19	[Progress bar]			[Progress bar]		
CLOSEOUT	0%	Tue 1/1/19	Sun 6/30/19	[Progress bar]			[Progress bar]		
FY19 CMOM SSES-ICA	1%	Sun 7/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Tue 1/1/19	[Progress bar]			[Progress bar]		
CLOSEOUT	0%	Tue 1/1/19	Sun 6/30/19	[Progress bar]			[Progress bar]		
FY19 CMOM WQTC CCP Upgrades	1%	Sun 7/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Tue 1/1/19	[Progress bar]			[Progress bar]		
CLOSEOUT	0%	Tue 1/1/19	Sun 6/30/19	[Progress bar]			[Progress bar]		
FY19 CMOM WQTC Process Improvement	0%	Sun 7/1/18	Tue 12/31/19	[Progress bar]			[Progress bar]		
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Tue 1/1/19	[Progress bar]			[Progress bar]		
CLOSEOUT	0%	Tue 1/1/19	Tue 12/31/19	[Progress bar]			[Progress bar]		
FY19 Construction Inspection	33%	Sun 7/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
CLOSEOUT	32%	Sun 7/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
FY19 CRRP Implementation Assistance	1%	Sun 7/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Sat 12/1/18	[Progress bar]			[Progress bar]		
CLOSEOUT	0%	Sat 12/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
FY19 Development Team Support	1%	Sun 7/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Thu 11/1/18	[Progress bar]			[Progress bar]		
CLOSEOUT	0%	Thu 11/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
FY19 I and I Reduction Program	0%	Sun 7/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Thu 11/1/18	[Progress bar]			[Progress bar]		
CLOSEOUT	0%	Thu 11/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
FY19 Information Governance Architecture	1%	Sun 7/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Tue 1/1/19	[Progress bar]			[Progress bar]		
CLOSEOUT	0%	Tue 1/1/19	Sun 6/30/19	[Progress bar]			[Progress bar]		
FY19 MFWQTC Equipment Renewal and Replacement	1%	Sun 7/1/18	Sun 6/30/19	[Progress bar]			[Progress bar]		

Date: 9/30/18

CMOM Project  Project Progress 

Figure 5.1. CMOM Quarterly Commitments Schedule

Task Name	% Complete	Start	Finish	Qtr 3, 2018			Qtr 4, 2018		
				Jul	Aug	Sep	Oct	Nov	Dec
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Sat 12/1/18	█					
CLOSEOUT	0%	Sat 12/1/18	Sun 6/30/19				█		
FY19 PMP	23%	Sun 7/1/18	Mon 7/29/19	█					
EXECUTION	23%	Sun 7/1/18	Sun 6/30/19	█					
CLOSEOUT	0%	Sun 6/30/19	Mon 7/29/19				█		
Contract Completion	0%	Sun 6/30/19	Sun 6/30/19				█		
FY19 PS RR	1%	Sun 7/1/18	Sun 6/30/19	█					
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Tue 1/1/19	█					
CLOSEOUT	0%	Tue 1/1/19	Sun 6/30/19				█		
FY19 Renewal and Replacement	2%	Sun 7/1/18	Sun 6/30/19	█					
CLOSEOUT	0%	Sun 7/1/18	Sun 6/30/19	█					
FY19 Systems Automation	0%	Sun 7/1/18	Sun 6/30/19	█					
INITIATION & PROCUREMENT	17%	Sun 7/1/18	Mon 1/7/19	█					
CLOSEOUT	0%	Tue 1/1/19	Sun 6/30/19				█		
FY19 Telog Support	33%	Sun 7/1/18	Mon 7/29/19	█					
EXECUTION	32%	Sun 7/1/18	Sun 6/30/19	█					
CLOSEOUT	0%	Sun 6/30/19	Mon 7/29/19				█		
FY19 WQTC Odor Improvements	0%	Sun 7/1/18	Sat 11/9/19	█					
CLOSEOUT	0%	Sat 11/10/18	Sat 11/9/19				█		
HCWQTC Bioscrubber Installation	99%	Fri 1/1/16	Mon 5/20/19	█					
CLOSEOUT	99%	Sat 3/31/18	Mon 5/20/19	█					
HCWQTC Expansion	76%	Mon 11/2/15	Fri 4/23/21	█					
CONSTRUCTION	0%	Thu 10/31/19	Sat 6/27/20				█		
CLOSEOUT	0%	Fri 9/25/20	Fri 4/23/21				█		
FY19 MF Collection System Baffles	1%	Sun 7/1/18	Sun 6/30/19	█					
INITIATION & PROCUREMENT	99%	Sun 7/1/18	Tue 1/1/19	█					

Date: 9/30/18 CMOM Project Project Progress

Figure 5.1. CMOM Quarterly Commitments Schedule

Task Name	% Complete	Start	Finish	Qtr 3, 2018			Qtr 4, 2018		
				Jul	Aug	Sep	Oct	Nov	Dec
CLOSEOUT	0%	Tue 1/1/19	Sun 6/30/19						
MFWQTC Arc Flash Update	3%	Mon 7/2/18	Sun 3/31/19						
STUDY UPDATE	0%	Wed 9/26/18	Wed 2/13/19						
FIELD WORK	0%	Thu 2/14/19	Sun 3/31/19						
Mud Lane Interceptor	46%	Mon 3/20/17	Wed 11/25/20						
CONSTRUCTION	0%	Mon 9/10/18	Tue 1/7/20						
CLOSEOUT	0%	Wed 12/11/19	Wed 11/25/20						
Nightingale Rehab	1%	Mon 7/2/18	Mon 12/20/21						
INITIATION & PROCUREMENT	22%	Mon 7/2/18	Fri 2/1/19						
CONSTRUCTION	0%	Fri 2/1/19	Sat 12/26/20						
CLOSEOUT	0%	Mon 12/28/20	Mon 12/20/21						
Ohio River Interceptor Structural Rehabilitation	53%	Tue 3/6/18	Mon 12/16/19						
CONSTRUCTION	22%	Fri 5/4/18	Sat 12/15/18						
CLOSEOUT	0%	Mon 12/31/18	Mon 12/16/19						
Oreland Mill Pump Station Elimination	22%	Fri 4/6/18	Fri 9/4/20						
CONSTRUCTION	15%	Tue 7/17/18	Thu 10/3/19						
CLOSEOUT	0%	Mon 11/11/19	Fri 9/4/20						
ORFM Odor and Corrosion Control	43%	Mon 1/1/18	Fri 12/13/19						
DESIGN	62%	Wed 1/10/18	Fri 1/4/19						
CONSTRUCTION	0%	Fri 1/4/19	Fri 10/25/19						
CLOSEOUT	0%	Mon 12/9/19	Fri 12/13/19						
Parkwood PS Access Road	31%	Wed 8/1/18	Thu 5/7/20						
DESIGN	49%	Tue 8/28/18	Wed 1/16/19						
CONSTRUCTION	0%	Wed 2/13/19	Thu 7/11/19						
CLOSEOUT	0%	Fri 11/15/19	Thu 5/7/20						

Date: 9/30/18

CMOM Project Project Progress

Figure 5.1. CMOM Quarterly Commitments Schedule

Task Name	% Complete	Start	Finish	Qtr 3, 2018			Qtr 4, 2018		
				Jul	Aug	Sep	Oct	Nov	Dec
Shively PS Generator Replacement	75%	Fri 4/1/16	Sun 8/9/20						
CONSTRUCTION	40%	Mon 11/27/17	Mon 7/8/19						
CLOSEOUT	0%	Tue 12/25/18	Sun 8/9/20						
South Pope Lick Pump Station Repair	99%	Mon 7/27/15	Fri 1/4/19						
CLOSEOUT	99%	Tue 12/5/17	Fri 1/4/19						

Date: 9/30/18

CMOM Project  Project Progress 

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

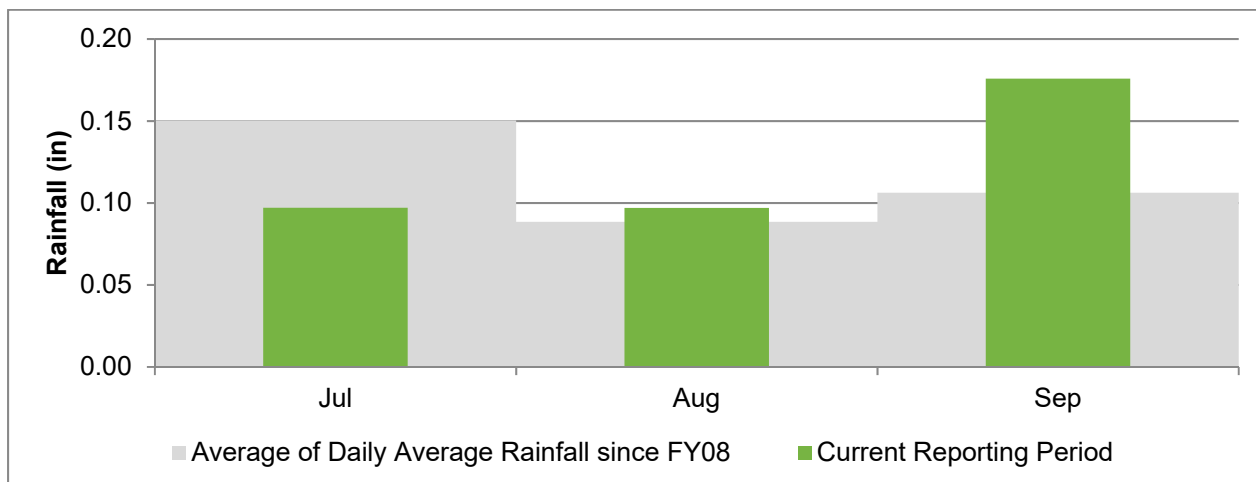
6.2.1. RAINFALL

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 service area 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 average for July, average for August, and above average for September when compared with the previous fiscal year average for these months.

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, as reflected in Appendix A-2 .

6.3.2. JEFFERSONTOWN WATER QUALITY TREATMENT CENTER

A letter dated December 23, 2015, certified the elimination of Jeffersontown WQTC. Inspections were conducted upstream of what was previously 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

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.

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. During development of this appendix for the previous reporting period, MSD identified an improvement issue with the rainfall analysis tool that is being investigated.

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 current reporting period. There were seven dry weather overflows reported at CSOs during the reporting period, as shown in Table 6.1 and detailed in Appendix A-1 .

Table 6.1. Unauthorized Discharges – Dry Weather CSOs

START DATE	CSO	PROBLEM	CAUSE	VOLUME (GAL)
8/10/2018 4:22	CSO020	STRUCTURAL FAILURE	PLANNED OUTAGE TO INSTALL TEMPORARY BULKHEAD IN ORI FOR REPAIRS.	883,123
8/10/2018 9:30	CSO022	STRUCTURAL FAILURE	DISCHARGING AT CSO022 DURING RECOVERY FROM OVERNIGHT SHUTDOWN RELATED TO ORI EMERGENCY REPAIR. DISCHARGE UP TO 1 FT OVER WEIR, EST 2-4 MG.	3,000,000
8/14/2018 9:02	CSO022	STRUCTURAL FAILURE	TEMPORARY PUMP STATION AT 4TH AND RIVER ROAD. FLOW OVERTOPPED DIVERSION STRUCTURE.	5,700
8/15/2018 8:36	CSO022	STRUCTURAL FAILURE	TEMPORARY PUMP STATION RELATED TO ORI REPAIR; LOST A VFD.	782,000
8/30/2018 13:15	CSO200	OBSTRUCTION-NOT GREASE / ROOTS	CSO CREWS COMPLETING WEEKLY NMC MAINTENANCE.	366
9/5/2018 7:30	CSO197	OBSTRUCTION-NOT GREASE / ROOTS	LINE OBSTRUCTED WITH DEBRIS & SEDIMENT	15,603
9/19/2018 7:00	CSO197	OBSTRUCTION-NOT GREASE / ROOTS	OBSTRUCTION	225,967

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 98 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 Appendix F. 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 summarized in Figure 6.2 and detailed in Appendix F, to complete implementation of the SOPs.

The remaining 65 active CSO locations are being reviewed during the current fiscal year. MSD has also identified two inactive sites with historic data that will be reviewed. MSD has developed a schedule for review of these sites and has begun site visits, calculation review, and SOP development. Status for these remaining CSOs is summarized in Figure 6.3 and detailed in Appendix F.

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. Revised volumes for previous reporting periods up to and including FY18 for the 33 CSO locations initially reviewed were included as an appendix to the FY18 Consent Decree Annual Report. Any subsequently developed revised volumes for previous reporting periods up to and including FY19 will be included as an appendix to the FY19 Consent Decree Annual Report.

Figure 6.2. CSO Flow Monitoring Quality Improvement Status – Phase 1

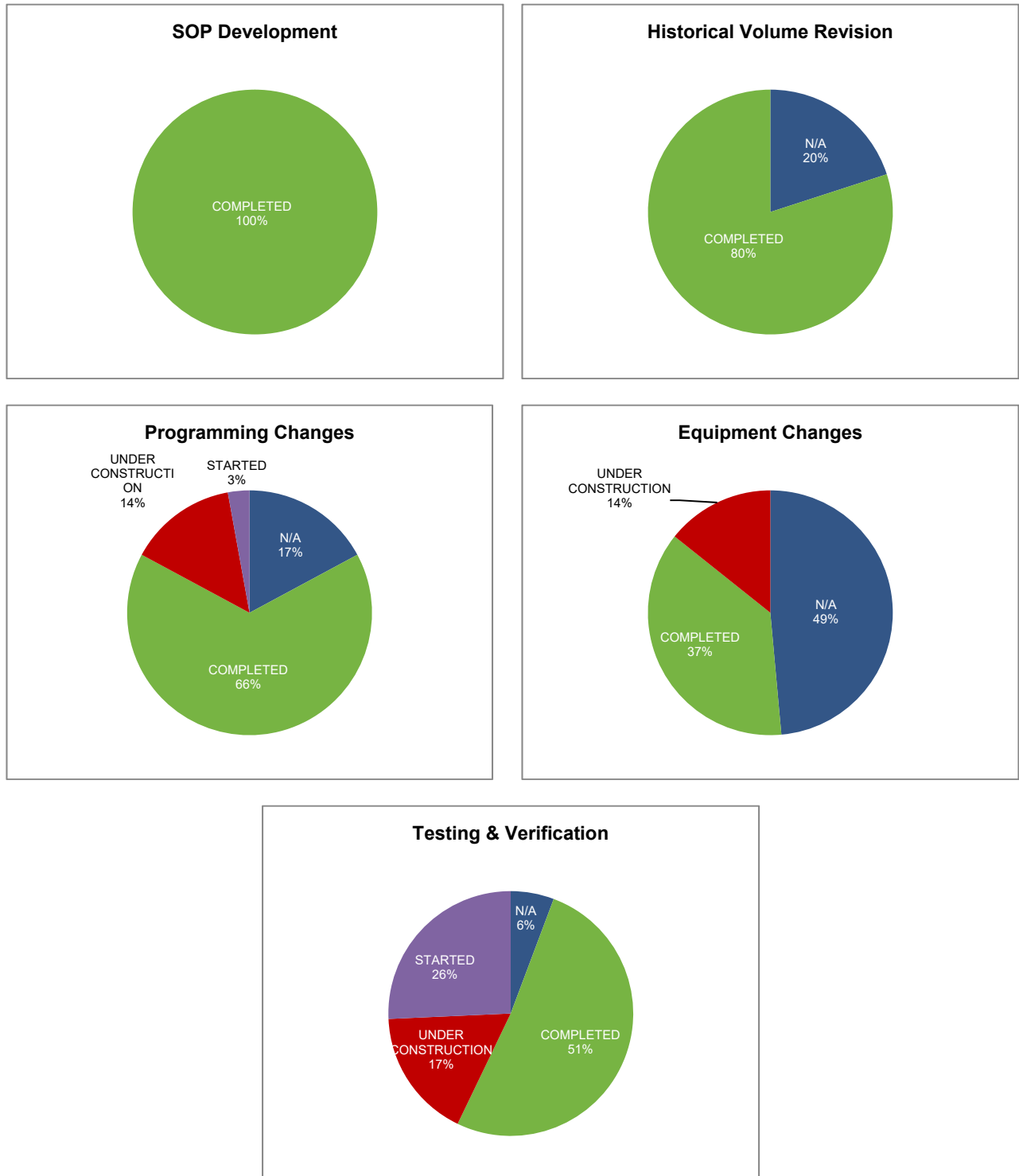
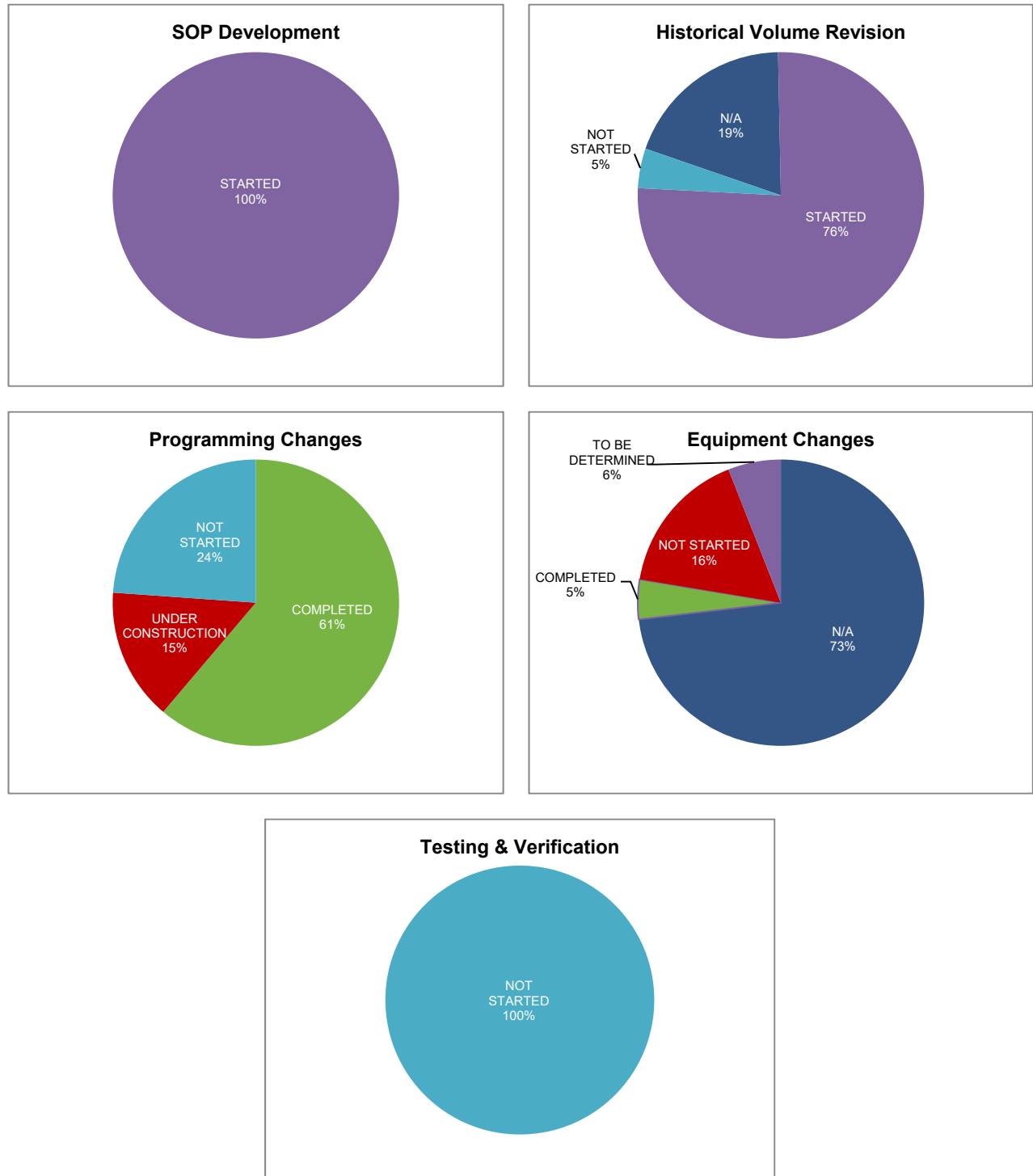


Figure 6.3. CSO Flow Monitoring Quality Improvement Status – Phase 2



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, 148 unauthorized discharges to WUS were reported, summarized in Table 6.2.

Table 6.2. Dry and Wet Weather SSOs by Cause – Unauthorized Discharges to Waters of US

PROBLEM	DRY WEATHER	WET WEATHER
LACK OF SYSTEM CAPACITY	0	131
MECHANICAL FAILURE	1	3
OBSTRUCTION-NOT GREASE / ROOTS	3	0
PUMPED OVERFLOW	0	1
STRUCTURAL FAILURE	6	3

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 reporting period.

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 reporting period.

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 6.3.

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 6.3. Rolling Quarterly GLPM Performance with Targets

ACTIVITY	ACTIVITY TYPE	AREA	Oct-Dec 17	Jan-Mar 18	Apr-Jun 18	Jul-Sep 18	Total	Target/ qtr	% of Annual Target
Catch Basins Cleaned	PM	Combined System	5,524	3,526	5,490	4,540	19,080	4,460	25%
		Separate System	184	477	2,340	1,401	4,402	1,144	31%
	UM	Combined System	274	203	268	386	1,131		
		Separate System	45	86	101	92	324		
CSO Inspections	PM	Combined System	1,260	1,250	1,263	1,248	5,021	1,272	25%
CSO Debris Removal WO	UM		139	140	170	199	648		
Sewer Main Chemical Root Treatment (LF)	UM	Combined System	0	18,437	539	0	18,976		
		Separate System	0	362,026	4,801	0	366,827		
Sewer Main Flushing and Cleaning (LF)	UM	Combined System	1,720	1,908	175	4,989	8,792		
		Separate System	29,288	38,469	20,043	20,654	108,454		
Sewer Main Inspections MSD Crews (LF)	PM	County Wide	30,040	13,862	12,714	10,881	67,496	198,000	1%
Sewer Main Inspections Contractor (LF)	PM	County Wide	85,108	23,032	15,306	32,947	156,393	198,000	4%
Total Sewer Main Inspections (LF)	PM	County Wide	115,147	36,894	28,020	43,828	223,889	396,000	3%
Sewer Main Root Cutting (LF)	UM	Combined System	0	510	1,279	200	1,989		
		Separate System	83,418	20,513	16,420	12,977	133,328		

6.7. OHIO RIVER INTERCEPTOR EMERGENCY REPAIR

6.7.1. BACKGROUND

The Ohio River Interceptor (ORI) is a critical asset for MSD. The ORI was constructed by MSD in the late 1950s to intercept and convey flow from multiple combined sewer pipes to the newly-constructed Fort Southworth Treatment Plant (now Morris Forman WQTC). Portions of the ORI and its associated structures, including gates and combination sanitary / flood pump stations, were built in by the US Army Corps of Engineers with the City of Louisville as the local sponsor, to provide an outlet for wastewater while protecting the city from riverine flooding.

The seven-mile long non-circular pipe ranges from 60 to 102 inches in diameter and runs west from Starkey PS (SPS) under Main Street to I-264, then turns southwest to Morris Forman WQTC. Because of its location under busy Main Street, a sensitive downtown corridor subjected daily to heavy traffic loading and home to multiple large businesses and entertainment venues, portions of the interceptor were constructed as a hand-dug tunnel. These tunnel sections extend for up to a mile with no direct access structures or manholes. Because the pipe was constructed to intercept other existing structures, there are multiple vertical transitions. While most of the transitions are 12 inches or less, a transition at 4th Street drops flow approximately 9 vertical feet at a 1:1 slope.

The interceptor receives flow from local sources; the Ohio River Force Main (ORFM), which conveys flow from northeastern Jefferson County; and SPS, which lifts flow from the Beargrass Interceptor (BGI) and Middle Fork Interceptor (MFI). Together these sources account for 40% of dry weather flow in the district.

On August 30, 2017, a major failure occurred on the ORI at the intersection of Main and Hancock near the junction with the ORFM. The intersection was closed for weeks and caused major traffic issues downtown. The line had previously been inspected in 2009 using video only. A new inspection was commissioned in November 2017 using video as well as sonar to detect debris under the water surface and laser profiling to detect pipe wall defects and losses above the water surface to determine if other new defects existed in the line that could lead to failure.

The reinspection was performed in January 2018, and the report was delivered to MSD on March 1, 2018. The report was reviewed immediately, and showed a 1,700 LF stretch of 84-inch pipe from 4th Street to just beyond 7th Street with significant deterioration due to hydrogen sulfide attack. This section is part of the mile-long tunnel section from 4th to 15th street. No manholes or other ways for gasses to escape the interior of the pipe exist in this section. The section is also just downstream of the significant vertical transition, and video revealed turbulence caused by the transition that extended nearly 100 LF. Due to technology limitations of the time, the 2009 inspection was not attempted on this section, and high flows prevent person-entry for manual inspection, so this was MSD's first glimpse at the condition of this pipe since its construction.

6.7.2. EMERGENCY REPAIR SOLUTION

MSD consulted with an outside engineering firm to perform a limited finite element analysis of the ORI. The consultant confirmed that the section from 4th to just beyond 7th Street had a factor of safety of less than 1.0, where 1.8 is the industry standard and less than 1.0 is considered to be in failure mode. Based on this finding, MSD declared the repair an emergency and brought on a design engineer and a construction firm, both with significant experience in repair of large-diameter pipes.

The team examined several options for rehabilitation, including circular and non-circular sliplining and panel lining. The recommended rehabilitation method developed by the team is a panel liner, which includes the reconstruction of the pipe wall using rebar and grout, constructed with a PVC panel form that will remain in place as a liner to protect the concrete from future hydrogen sulfide attack. The panel liner method was selected for its maintenance of long-term flow capacity, minimal disruption to vehicular and pedestrian traffic, minimal disruption of downtown business, minimal utility relocations, short construction schedule, minimal odors from excavations, and least regulatory and environmental impact. This method does require that the pipe be dry for worker safety, as workers are required to enter the pipe to install the new pipe liner.

MSD built a temporary pump station, located at 4th Street & River Road, to divert flow around the degraded section of pipe. MSD diverted flow through an existing decommissioned floodgate through the flood influent line for the 4th Street PS to the 4th Street Sewer, which serves as the outfall pipe for CSO022 and CSO023. Flow is intercepted by a temporary overflow structure constructed in the outfall pipe and diverted to the temporary pump station well, where it is pumped 3,800 feet through four 18" temporary force mains back to the ORI at the intersection of 9th and Main Streets.

MSD based the design of the temporary pump station on average daily flow conditions with flow diverted at two locations upstream of the ORI. These upstream system diversions were put in place in June to minimize surcharge conditions in the ORI until the pipe can be repaired. These diversions also serve to minimize wet weather flow to the interceptor when construction begins, which will dampen the anticipated increase in overflow volume that is anticipated occur at CSOs 020, 022, 023, 058, and 062. The two diversions are

upstream of SPS, which normally lifts flow to the ORI and controls wet weather events through CSO020 and CSO062, and CSO058 is located on the ORI at Preston Street. MSD has installed a weir plate in a sanitary manhole near the Upper Middle Fork Pump Station (UMFPS) to divert flow from the MFI to the BGI. Additionally, gates in the BGI and Beargrass Interceptor Relief (BGIR) at Nightingale PS (NPS) have been closed, sending all flow through NPS to the Manning Road / Cardinal Drive Sewer west to Morris Forman WQTC. The diversions reduce the average daily flow at 4th Street PS from 36 to 26 MGD. The temporary pump station was designed to pump 30 MGD with additional pump capacity for peak conditions, up to 40 MGD. An additional pump was added to support modified operations discussed below, bringing the peak capacity of the station to near 50 MGD.

Another existing decommissioned floodgate is used to seal off the section of the ORI to be repaired to protect the workers from wastewater flow and to minimize exposure to hydrogen sulfide gas. A temporary bulkhead was constructed to protect workers while the gate replacement was performed. The temporary bulkhead will also serve as a secondary bulkhead to the floodgate in the event of failure of the new floodgate.

MSD modified the plan with the contractor for operational procedures of SPS, the temporary pump station, and the gate being used as the main bulkhead. This gate was intended to be operated in the event of a heavy rainfall, but in the interest of public and contractor safety, MSD decided to complete all repairs on the deteriorated section before allowing flow to return to the ORI and the gate has remained closed since installation. The overflow weir, located in the temporary overflow structure in the 4th Street Sewer, was designed to pass the 2-year design storm as a CSO discharge without localized flooding; a temporary weir extension was added to be used during dry weather to increase the flow that could be pumped from SPS during upstream dewatering operations. SPS is controlled based on freeboard at the temporary weir to maximize the volume of flow sent to MFWQTC. During rain events less than the design storm, workers evacuate the ORI until the rain event ends. During rain events greater than the design storm, the temporary weir extension is pulled until the CSO stops discharging, when it is reintroduced. In the event of a river flood, the temporary pump station will be deactivated and pumps moved to a safe elevation, and MSD flood pumping procedures will be enacted until the river recedes and the temporary pump station can be reinstated.

As a part of this rehabilitation effort, MSD is also constructing CSO connections from CSOs 054, 055, and 056 in 5th, 6th, and 7th Streets to the ORI. The low flow lines of each of these CSOs currently direct flow to the ORI, and additional connections are being made to send additional wet weather flow to the ORI and reduce CSO volumes in accordance with the IOAP. These connections were originally a part of the IOAP Downtown CSO Interceptor project, which was bid in April 2018, but they were removed from the project and added to the emergency ORI repair project to prevent construction conflicts and abate safety concerns around tying into the degraded section of the ORI.

6.7.3. CONSTRUCTION PROGRESS

Construction of the temporary pump station was completed August 3, with system testing and diversions in place on August 17. Work to replace the existing floodgate to operate as a permanent bulkhead for worker safety was completed August 31.

Once the temporary pump station construction was completed and the system was tested, and the bulkhead was in place for worker protection, rehabilitation construction could commence in the degraded section of the ORI. Rehabilitation was delayed until September 3 due to a failure in the ORI on August 19, discussed in more detail below. Ring beam and tunnel lagging was installed in the first 165 LF of the repair section to provide worker safety in the most damaged area of the pipe, and this steel was incorporated into the

rehabilitation design to replace the previously prescribed rebar cages. The delay in schedule caused by the installation of the additional steel has been addressed through a change in means and methods for installation of the liner panels and grout. Rehabilitation efforts are anticipated to be completed by November 30.

Construction on the CSO connections begin in late July, and are anticipated to be substantially complete in November.

Demobilization will begin as soon as possible after construction is completed, including removal of the temporary pump station and piping, and is anticipated to be completed by December 31.

6.7.3.1. AUGUST 10, 2018 – DRY WEATHER DISCHARGE

On August 10, 2018, the contractor entered the ORI at the intersection of 4th and Main Street to install the temporary bulkhead. Operational changes were made upstream to divert and store flow to reduce the flow rate in addition to the UMFPS and NPS diversions. These additional modifications included diversion of flows to the Muddy Fork Basin to reduce flows to the ORFM as well as inline storage at CSO146 to reduce flow in the BGI downstream of NPS. Based on the conditions found during the previous shutdown, the total volume that was estimated to have the potential to leave the system as a dry weather overflow during an 8-hour shutdown period was 1.9 MG. During the shutdown, the total volume discharged at CSO020 was approximately 0.9 MG; however, during the subsequent recovery period, an additional 3 MG is estimated to have left the system at the temporary overflow structure as the temporary pump station was overwhelmed during upstream dewatering. Two additional overflows occurred during system testing and balancing, totaling approximately 0.8 MG.

It is anticipated that at least one more activity associated with the project will bring a potential to discharge, including the removal of the temporary bulkhead in the ORI at the end of construction, which is anticipated to be substantially complete in November. The additional measures at Muddy Fork Basin and CSO146 will again be in place, and all construction staging will be in place prior to workers entering the ORI in order to perform the work and restore normal operating conditions as quickly as possible.

6.7.3.2. AUGUST 19, 2018 – STRUCTURAL FAILURE

During pump station testing, it was observed that water levels in the portion of the ORI to be repaired were higher than inspected, and an inspection was performed on August 19. At that time, a hole was found in the pipe approximately 70 feet from the beginning of the repair section. MSD investigated and determined that a void had developed under Main Street approximately 25 feet deep and 30 to 50 feet in each direction at its largest. A plan was developed and implemented to repair the void using a commercial high-density urethane foam followed by lightweight cellular grout to stabilize the pavement and the pipe prior to a full collapse. MSD began the repair on August 22 and completed August 30.

The pipe was previously inspected on June 21, and at that time the pipe condition was degraded, but intact. Between June 21 and August 17 when flow was removed from the repair section, eight rain events with a total depth greater than one inch occurred in the system; total depth was greater than four inches for three of these events. Each of these rain events had a peak intensity greater than four inches per hour. During significant rain events, the ORI flows surcharged, as indicated by CSO events on downtown CSOs. After the void was repaired and more detailed investigation could be done safely. MSD determine that the lagging used in the original construction was not steel but wood, and therefore not contributing to structural support in the

deteriorated section. In the interest of public and worker safety, MSD determined that flow could not be allowed back on the ORI until the structural rehabilitation is completed in November.

Because of this change in operations, SPS cannot pump its full capacity to the ORI during rain events without overwhelming the temporary pump station. The change in operations has resulted in increased volumes at CSO020 during rain events.

6.7.3.3. SEPTEMBER 8, 2018 – FLASH FLOODING, RIVER EVENT AND PUMP STATION DAMAGE

MSD experienced a significant rain event beginning on September 8, including flash flooding at the temporary pump station, resulting in damages to controls equipment and pump displacement. Additionally, on September 9, SPS went into flood mode due to rising river levels and was required to close the flood gate on the CSO020 effluent line to prevent inland flooding. During a river event under normal operations, SPS would pump through the ORI to MFWQTC; however the capacity of the ORI was reduced to the peak capacity of the temporary pump station. SPS was put into manual control to pump to the Ohio River while repairs were made to the temporary pump station, during which time local flows and flow from the ORFM were still pumped to MFWQTC from 4th and River Road. Once the repairs were completed on September 11, SPS began diverting flow back to the temporary pump station, but continued to pump to the Ohio River in order to prevent multiple discharges to Beargrass Creek. The flow at SPS was split between two process gates, one to the ORI and one to the river, and controlled by a target headbox condition modeled to maximize flow to the ORI during this operation. Pumping began on September 8 and ended on September 16, resulting in an approximately 434 MG discharge.

APPENDICES

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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	OVERFLOW LOCATION	ASSOCIATED TREATMENT PLANT KPDES #	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	147 BUCHANAN ST	KY0022411	8/10/2018 4:22	8/10/2018 8:06	883,123	SEWER MANHOLE	CSO020	STREAM	OHIO RIVER	PLANNED OUTAGE TO INSTALL TEMPORARY BULKHEAD IN ORI FOR REPAIRS.	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2962582	DISCHARGE UNDERWATER, NO CLEANUP POSSIBLE.	PLANNED OUTAGE TO TERMINATE AT 0800.
MORRIS FORMAN	342 W MAIN ST	KY0022411	8/10/2018 7:30	8/10/2018 19:15	21,994,374	SEWER MANHOLE	CSO022	STREAM	OHIO RIVER	DISCHARGING AT CSO022 DURING RECOVERY FROM OVERNIGHT SHUTDOWN RELATED TO ORI EMERGENCY REPAIR. DISCHARGE UP TO 1 FT OVER WEIR, EST 2-4 MG.	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2962766	NONE, DISCHARGE SUBMERGED	CSO DISCHARGE WILL STOP WHEN STARKEY RETURNS TO NORMAL OPERATING CONDITIONS.
MORRIS FORMAN	342 W MAIN ST	KY0022411	8/14/2018 9:02	8/14/2018 9:22	5,700	SEWER MANHOLE	CSO022	STREAM	OHIO RIVER	TEMPORARY PUMP STATION AT 4TH AND RIVER ROAD. FLOW OVERTOPPED DIVERSION STRUCTURE.	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2963488	NONE, DISCHARGE SUBMERGED.	ADDING HEIGHT TO DIVERSION STRUCTURE TO INCREASE OPERATIONAL FLEXIBILITY.
MORRIS FORMAN	342 W MAIN ST	KY0022411	8/15/2018 8:36	8/15/2018 13:14	782,000	SEWER MANHOLE	CSO022	STREAM	OHIO RIVER	TEMPORARY PUMP STATION RELATED TO ORI REPAIR, LOST A VFD.	STRUCTURAL FAILURE	DISDW DRY WEATHER DISCHARGE	2963807	NONE POSSIBLE, DISCHARGE SUBMERGED.	VFD CURRENTLY BEING REPLACED BY CONTRACTOR.
MORRIS FORMAN	1397 S 3RD ST	KY0022411	8/30/2018 13:15	8/30/2018 13:16	330	SEWER MANHOLE	CSO200	STREAM	OHIO RIVER	CSO CREWS COMPLETING WEEKLY NMC MAINTENANCE.	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2975778	NO CLEANUP REQUIRED, NO SOLIDS OR DEBRIS OBSERVED.	NO REPAIR/REMEDIAL ACTION REQUIRED.
MORRIS FORMAN	1218 S 3RD ST	KY0022411	9/5/2018 6:45	9/5/2018 10:30	15,603	SEWER MANHOLE	CSO197	STREAM	OHIO RIVER	LINE OBSTRUCTED WITH DEBRIS & SEDIMENT	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2976461	NOT REQUIRED, DISCIPE IS DISCHARGING TO CENTRAL RELIEF DRAIN	FLUSHED SEWER LINE TO REMOVE DEBRIS & SEDIMENT WO#2976472
MORRIS FORMAN	1218 S 3RD ST	KY0022411	9/19/2018 7:15	9/19/2018 12:15	225,967	SEWER MANHOLE	CSO197	STREAM	OHIO RIVER	OBSTRUCTION	OBSTRUCTION-NOT GREASE / ROOTS	DISDW DRY WEATHER DISCHARGE	2983430	NOT REQUIRED, UNDER GROUND PIPE IS DISCHARGING TO CENTRAL RELIEF DRAIN (CRD)	WO#2983609

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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

**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
MORRIS FORMAN	2001 TERRIL LN	KY0022411	9/24/2018 17:35	9/26/2018 9:27	119,600	SEWER MANHOLE	23212	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2985114	WO#2986268	LOCATION INCLUDED IN THE IOAP
MORRIS FORMAN	2219 RICHLAND AVE	KY0022411	9/24/2018 18:30	-53420.47708	246,000	SEWER MANHOLE	49446	STREAM	BUJECHEL BRANCH	LACK OF SYSTEM CAPACITY HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2985117	WO#2986283	LOCATION INCLUDED IN THE IOAP
CEDAR CREEK	9719 COLLIER LN	KY0098540	9/24/2018 19:20	9/28/2018 8:18	8,000	SEWER MANHOLE	98022	STREAM	CEDAR CREEK	LACK OF CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2985141	MSD CLEANED AND SANITIZED AREA	KEEP WET WELL LEVEL BELOW 28 FOOT
CEDAR CREEK	10800 FAIRMOUNT RD	KY0098540	9/25/2018 10:45	9/26/2018 8:30	660,000	SEWER MANHOLE	97365	GROUND	BIG RUN	LACK OF SYSTEM CAPACITY	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2985440	AREA DISINFECTED WITH LIME BY MSD STAFF	SOLUTION IS IN THE IOAP
MORRIS FORMAN	6600 SEMINARY WOODS PL	KY0022411	9/25/2018 18:30	9/25/2018 19:15	4,500	SEWER LIFT STATION	MSD0123-PS	DITCH	GOOSE CREEK	STRUCTURAL FAILURE, FORCE MAIN BREAK	STRUCTURAL FAILURE	DISREV RAIN EVENT DISCHARGE	2985591	CLEANED AND SANITIZED THE IMPACTED AREA	HAULED SEWAGE UNTIL REPAIRS MADE
DEREK R. GUTHRIE	9114 CINDERELLA LN	KY0078956	9/26/2018 5:08	9/27/2018 0:06	22,500	SEWER MANHOLE	60679	DITCH	FISHPOOL CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2985601	CLEANUP NOT POSSIBLE DUE TO MAGNITUDE OF STORM	SITE FOUND DURING RAIN EVENT RECON - WILL BE MONITORED AND EVALUATED FOR REPAIR
DEREK R. GUTHRIE	9317 LANTANA DR	KY0078956	9/26/2018 5:21	9/26/2018 7:45	3,600	SEWER MANHOLE	25484	STREAM	PENNSYLVANIA RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	DISREV RAIN EVENT DISCHARGE	2985604	NONE POSSIBLE DUE TO MAGNITUDE OF STORM	SOLUTION IS IN THE IOAP
DEREK R. GUTHRIE	8800 ADMIRAL DR	KY0078956	9/26/2018 10:50	9/26/2018 15:21	4,000	SEWER LIFT STATION	MSD1051-PS	STREAM	PENNSYLVANIA RUN	ELECTRICAL PROBLEM WITH MSD EQUIPMENT. MOTOR STARTER FAILED	MECHANICAL FAILURE	DISREV RAIN EVENT DISCHARGE	2985906	CLEANED AND SANITIZED THE IMPACTED AREA	PUMP TAKEN OUT OF OPERATIONAL SEQUENCE SO LAG PUMP COULD RUN
CEDAR CREEK	10801 FAIRMOUNT RD	KY0098540	9/27/2018 16:25	9/27/2018 23:00	29,625	SEWER MAIN	78207	STREAM	CEDAR CREEK	BROKEN FORCE MAIN	STRUCTURAL FAILURE	DISREV RAIN EVENT DISCHARGE	2986265	NONE	PUMP SHUT OFF, REPAIR CREW CALLED
CEDAR CREEK	10800 FAIRMOUNT RD	KY0098540	9/28/2018 2:00	9/28/2018 21:09	166,500	SEWER MANHOLE	97365	GROUND	BIG RUN	STRUCTURAL FAILURE (FORCE MAIN BREAK)	STRUCTURAL FAILURE	DISREV RAIN EVENT DISCHARGE	2989626	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	CONTRACTOR REPAIRED FORCE MAIN
HITE CREEK	6319 RIVER RD	KY0022420	9/29/2018 13:00	9/29/2018 14:00	300	SEWER MAIN	41867P-CO			STRUCTURAL FAILURE (FORCE MAIN BREAK)	STRUCTURAL FAILURE	DISREV RAIN EVENT DISCHARGE	2989983	MSD CLEANED AND SANITIZED THE IMPACTED AREA	PUMP STATION SHUT DOWN AND HAULED STATION WHILE REPAIRS BEING MADE

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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)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO015	7/16/2018 7:45	8/22/2018 7:00	53235	0.28	756,838,000	8.76		211,914,640	1
	8/22/2018 17:15	8/23/2018 10:45	1050	0.06	106,967	4.55		6,418	1
	9/17/2018 9:15	9/19/2018 23:00	3705	0.08	1,481,313	0.08		118,505	1
	9/23/2018 4:45	9/26/2018 21:15	5310	1.87	139,620,548	6.28		261,090,425	1
CSO015 Total								473,129,988	4
CSO016	7/16/2018 10:30	7/16/2018 12:15	105	0.36	1,074,556	0.46		386,840	1
	7/31/2018 1:30	7/31/2018 16:15	885	2.18	10,493,513	2.43		22,875,859	1
	7/20/2018 20:00	7/21/2018 1:30	330	0.71	14,417,713	1.18		10,236,576	1
	7/2/2018 19:00	7/2/2018 21:00	120	0.1	26,720,050	0.88		2,672,005	1
	7/3/2018 16:45	7/3/2018 19:15	150	0.11	26,944,955	0.58		2,963,945	1
	8/15/2018 20:30	8/16/2018 14:45	1095	3.98	8,516,644	3.98		33,896,244	1
	8/20/2018 11:30	8/20/2018 13:45	135	0.69	5,064,535	4.47		3,494,529	1
	8/31/2018 17:00	8/31/2018 18:00	60	1.18	187,323	1.18		221,041	1
	9/8/2018 17:00	9/9/2018 1:45	525	3.53	4,835,341	3.86		17,068,752	1
CSO016 Total								93,815,791	9
CSO018	8/16/2018 9:30	8/17/2018 16:45	1875	3.85	74,788	3.88		287,932	1
	8/19/2018 20:30	8/20/2018 13:30	1020	1.7	121,691	5.92		206,874	1
	9/9/2018 1:00	9/9/2018 13:15	735	2.51	210,282	3.21		527,808	1
	9/23/2018 13:45	9/27/2018 5:45	5280	2.07	297,478	5.98		615,779	1
CSO018 Total								1,638,393	4
CSO019	7/2/2018 18:15	7/2/2018 19:00	45	0.25	220,500	0.93		55,125	1
	7/3/2018 13:00	7/3/2018 23:15	615	0.88	2,717,981	1.52		2,391,823	1
	7/16/2018 9:15	7/16/2018 12:00	165	0.1	13,676,150	0.33		1,367,615	1
	7/20/2018 19:00	7/21/2018 4:30	570	1.62	4,719,554	1.95		7,645,677	1
	8/4/2018 18:00	8/8/2018 4:45	4965	Discharge	0	2.56	Data Under Review	2,218,594	1
	8/15/2018 1:45	8/16/2018 21:00	2595	Discharge	0	3.57	Data Under Review	22,108,563	1
	8/17/2018 8:00	8/17/2018 17:00	540	0.23	569,165	3.64		130,908	1
	8/20/2018 11:15	8/20/2018 16:45	330	0.44	2,202,548	4.08		969,121	1
	8/21/2018 11:00	8/21/2018 13:15	135	0.11	187,400	4.24		20,614	1
	8/22/2018 1:30	8/22/2018 1:45	15	0.11	560,609	4.26		61,667	1
	8/31/2018	9/1/2018	1440	Discharge	0	1.93	Data Under Review	3,779,025	1
	9/6/2018 11:30	9/6/2018 20:00	510	0.82	715,032	2.74		586,326	1
	9/8/2018 0:30	9/9/2018 17:15	2445	0.24	108,075,246	4.64		25,938,059	1
	9/21/2018 14:00	9/21/2018 22:45	525	0.57	4,188,823	0.63		2,387,629	1
9/22/2018 15:00	9/26/2018 18:45	5985	1.39	24,804,022	5.95		34,477,590	1	
CSO019 Total								104,138,336	15
CSO020	7/2/2018 17:30	7/2/2018 20:15	165	0.4	5,213,068	1.12		2,085,227	1
	7/3/2018 15:30	7/3/2018 18:00	150	0.47	3,245,536	1.26		1,525,402	1
	7/20/2018 19:15	7/21/2018 0:30	315	1.82	2,605,574	2.1		4,742,144	1
	7/22/2018 17:15	7/22/2018 19:00	105	0.19	4,947,947	2.22		940,110	1
	7/31/2018 0:30	7/31/2018 14:30	840	1.82	3,798,227	1.86		6,912,773	1
	9/6/2018 11:30	9/7/2018 2:00	870	0.29	2,685,993	0.6		778,938	1
	8/16/2018 3:15	8/16/2018 16:45	810	2.55	4,384,296	2.56		11,179,954	1
	8/17/2018 13:30	8/23/2018 21:15	9105	Discharge	0	3.27	Data Under Review	116,377,257	1
	8/31/2018 17:45	9/1/2018 20:30	1605	0.3	4,026,727	0.33		1,208,018	1
	9/7/2018 12:30	9/9/2018 6:00	2490	0.01	293,940,000	3.49		2,939,400	1
	9/21/2018 14:15	9/22/2018 1:30	675	0.37	12,671,608	0.42		4,688,495	1
	9/22/2018 14:15	9/22/2018 19:30	315	1.22	4,440,989	0.77		5,418,006	1
	9/23/2018 4:00	9/23/2018 11:15	435	1.22	1,355,287	1.64		1,653,450	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO020	8/10/2018 4:22	8/10/2018 8:06	225	Discharge	0	0.18		883,123	1
CSO020 Total								161,332,297	14
CSO022	7/20/2018 19:15	7/20/2018 21:15	120	1.81	1,410,898	2.19		2,553,725	1
	7/2/2018 17:45	7/2/2018 18:00	15	0.2	560,965	0.98		112,193	1
	7/3/2018 15:45	7/3/2018 16:15	30	0.46	1,110,693	1.07		510,919	1
	7/20/2018 5:00	7/20/2018 5:00	0	1.81	26,449	0.54		47,872	1
	7/31/2018 1:30	7/31/2018 1:45	15	1.74	593,945	0.62		1,033,464	1
CSO022 Total								4,258,173	5
CSO022 and CSO023	8/10/2018 7:30	8/10/2018 15:15	465	Discharge	0	0.13		3,000,000	1
	9/21/2018 13:45	9/21/2018 17:15	210	0.47	169,587	0.52		79,706	1
	9/24/2018 7:15	9/24/2018 10:45	210	1.43	258,660	3.04		369,884	1
	9/25/2018 16:15	9/25/2018 17:30	75	0.7	372,399	3.89		260,679	1
	9/26/2018 1:45	9/26/2018 1:45	0	0.7	124	4.11		87	1
	8/14/2018 9:02	8/14/2018 9:22	20	Discharge	0	0.13		5,700	1
	8/15/2018 8:36	8/15/2018 13:14	278	Discharge	0	0.13		782,000	1
CSO022 and CSO023 Total								4,498,056	7
CSO023	7/2/2018 17:45	7/2/2018 17:45	0	0.2	300,380	0.89		60,076	1
	7/3/2018 15:45	7/3/2018 16:15	30	0.46	148,767	1.07		68,433	1
	7/31/2018 1:30	7/31/2018 15:00	810	1.74	36,984,041	1.79		64,352,232	1
	7/20/2018 19:30	7/20/2018 22:45	195	1.81	12,700,603	2.2		22,988,092	1
CSO023 Total								87,468,833	4
CSO027	7/31/2018 2:00	7/31/2018 2:00	0	1.94	263,289	1.22		510,781	1
	8/20/2018 11:00	8/20/2018 11:15	15	0.72	32,504,717	3.57		23,403,396	1
	9/8/2018 17:30	9/8/2018 21:00	210	2.68	181,611	2.58		486,718	1
CSO027 Total								24,400,895	3
CSO028	7/20/2018 19:15	7/20/2018 20:45	90	0.94	813,276	1.2		764,479	1
	7/31/2018 1:30	7/31/2018 7:00	330	1.94	50,849,587	1.84		98,648,198	1
	8/16/2018 3:45	8/16/2018 8:45	300	2.81	256	2.61		719	1
	9/8/2018 19:45	9/8/2018 21:00	75	2.68	221,524	2.58		593,684	1
CSO028 Total								100,007,080	4
CSO029	7/3/2018 14:15	7/3/2018 14:15	0	0.27	693	0.63		187	1
	7/20/2018 18:15	7/20/2018 19:00	45	0.94	43,539	0.61		40,927	1
	7/30/2018 23:45	7/31/2018 5:30	345	1.94	471,172	1.62		914,073	1
	8/20/2018 11:15	8/20/2018 11:15	0	0.72	301,239	3.57		216,892	1
	9/24/2018 7:15	9/24/2018 13:45	390	1.45	2,620,032	3.24		3,799,046	1
	8/15/2018 18:00	8/16/2018 7:00	780	2.81	93,498	2.27		262,729	1
	9/8/2018 17:15	9/8/2018 22:15	300	2.68	2,848,034	2.8		7,632,732	1
	9/21/2018 17:30	9/21/2018 17:30	0	0.39	1,122,195	0.44		437,656	1
	9/22/2018 16:30	9/22/2018 16:45	15	1.42	327,881	0.81		465,591	1
	9/23/2018 4:15	9/23/2018 6:45	150	1.42	2,097,430	1.79		2,978,351	1
	9/25/2018 5:45	9/25/2018 5:45	0	0.06	6,016,867	3.32		361,012	1
	9/25/2018 16:30	9/26/2018 2:00	570	0.77	3,544,261	4.02		2,729,081	1
CSO029 Total								19,838,277	12
CSO031	7/31/2018 2:00	7/31/2018 2:00	0	1.94	50,714	1.22		98,385	1
CSO031 Total								98,385	1
CSO034	7/20/2018 5:00	7/20/2018 5:00	0	0.94	155	0.48		146	1
	7/31/2018 1:30	7/31/2018 7:15	345	1.94	188,848	1.84		366,365	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO034	7/20/2018 19:30	7/20/2018 21:00	90	0.94	43,086	1.22		40,501	1
	7/3/2018 16:00	7/3/2018 16:00	0	0.27	48	0.83		13	1
	8/20/2018 11:15	8/20/2018 11:30	15	0.72	34,161	3.57		24,596	1
	9/24/2018 7:15	9/24/2018 13:45	390	1.45	1,298	3.24		1,882	1
	9/8/2018 17:30	9/8/2018 21:15	225	2.68	130,142	2.64		348,781	1
	9/21/2018 17:30	9/21/2018 17:30	0	0.39	7,600	0.44		2,964	1
	9/23/2018 4:15	9/23/2018 6:45	150	1.42	69	1.79		98	1
	9/25/2018 5:45	9/25/2018 5:45	0	0.06	1,100	3.32		66	1
	9/25/2018 16:30	9/26/2018 2:15	585	0.77	7,888	4.05		6,074	1
	8/15/2018 20:00	8/16/2018 8:45	765	2.81	8,298	2.61		23,318	1
CSO034 Total								814,804	12
CSO035	7/31/2018 1:30	7/31/2018 13:00	690	1.92	1,282,927	1.96		2,463,220	1
	7/20/2018 19:30	7/20/2018 21:15	105	0.94	1,190,543	1.17		1,119,110	1
	7/3/2018 16:00	7/3/2018 16:15	15	0.36	435,756	0.92		156,872	1
	7/2/2018 18:00	7/2/2018 18:00	0	0.27	708,807	0.84		191,378	1
	7/20/2018 5:15	7/20/2018 5:15	0	0.94	121,930	0.41		114,614	1
	8/20/2018 11:15	8/20/2018 11:45	30	0.59	661,849	3.34		390,491	1
	9/26/2018 1:45	9/26/2018 2:00	15	0.67	91,757	3.53		61,477	1
	9/8/2018 17:30	9/8/2018 21:15	225	2.32	1,183,027	2.29		2,744,623	1
	9/21/2018 17:30	9/21/2018 17:30	0	0.2	792,785	0.25		158,557	1
	9/23/2018 4:15	9/23/2018 6:45	150	1.31	130,115	1.5		170,451	1
	9/25/2018 5:45	9/25/2018 6:00	15	0.06	294,683	2.92		17,681	1
	8/15/2018 20:00	8/16/2018 9:00	780	2.7	601,139	2.55		1,623,075	1
	9/6/2018 11:45	9/6/2018 11:45	0	0.17	755,535	0.29		128,441	1
	9/24/2018 7:30	9/24/2018 11:00	210	1.35	390,507	2.68		527,185	1
9/25/2018 17:00	9/25/2018 17:30	30	0.67	513,994	3.27		344,376	1	
CSO035 Total								10,211,551	15
CSO036	7/3/2018 16:00	7/3/2018 16:15	15	0.36	203,306	0.92		73,190	1
	7/2/2018 18:00	7/2/2018 18:15	15	0.27	467,552	0.86		126,239	1
CSO036 Total								199,429	2
CSO038	7/20/2018 5:00	7/20/2018 5:00	0	0.94	3	0.48		3	1
	7/20/2018 19:30	7/20/2018 21:00	90	0.94	109	1.22		102	1
	8/20/2018 11:00	8/20/2018 11:15	15	0.72	695,863	3.57		501,021	1
	9/25/2018 17:00	9/25/2018 17:00	0	0.77	3	3.58		2	1
	9/8/2018 19:30	9/8/2018 20:15	45	2.68	19,720	2.3		52,850	1
CSO038 Total								553,978	5
CSO050	7/2/2018 13:15	7/2/2018 15:00	105	Discharge	0	0.79	Data Under Review	762,299	1
	7/3/2018 10:00	7/3/2018 12:30	150	Discharge	0	1.01	Data Under Review	624,648	1
	7/15/2018 14:45	7/15/2018 15:00	15	0.15	883,767	0.14		132,565	1
	7/20/2018 15:30	7/20/2018 18:00	150	1.73	599,814	0.61		1,037,678	1
	7/30/2018 20:00	7/31/2018 9:30	810	2.08	1,512,172	1.96		3,145,318	1
	8/20/2018 11:15	8/20/2018 20:00	525	0.61	1,490,626	3.64		909,282	1
	9/21/2018 14:00	9/21/2018 17:45	225	0.46	820,715	0.52		377,529	1
	9/22/2018 15:00	9/22/2018 17:45	165	1.59	99,182	1		157,699	1
	9/23/2018 4:00	9/23/2018 7:45	225	1.59	523,645	2.06		832,596	1
	9/25/2018 5:45	9/25/2018 6:15	30	1.99	64,940	4.04		129,231	1
	9/25/2018 16:30	9/26/2018 2:45	615	1.02	793,294	5.03		809,160	1
	9/6/2018 11:45	9/6/2018 12:00	15	0.17	423,612	0.58		72,014	1
	8/8/2018 0:45	8/8/2018 1:00	15	0.24	82,088	0.19		19,701	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO050	8/15/2018 12:45	8/16/2018 13:45	1500	3	1,064,340	2.98		3,193,019	1
	8/31/2018 16:45	8/31/2018 17:45	60	0.47	292,272	0.45		137,368	1
	9/8/2018 0:45	9/8/2018 1:30	45	0.25	65,668	0.43		16,417	1
	9/8/2018 15:15	9/9/2018 0:15	540	3.55	950,282	3.97		3,373,501	1
	9/24/2018 0:45	9/24/2018 19:45	1140	1.99	914,789	3.94		1,820,431	1
CSO050 Total								17,550,456	18
CSO051	7/31/2018 1:15	7/31/2018 8:30	435	2.08	2,270	1.96		4,721	1
	7/16/2018 9:15	7/16/2018 9:15	0	0.32	119	0.21		38	1
	7/20/2018 19:15	7/20/2018 22:15	180	1.73	1,057	2.2		1,828	1
	7/20/2018 4:45	7/20/2018 4:45	0	1.73	23	0.5		39	1
	7/22/2018 12:00	7/22/2018 12:00	0	0.08	463	2.19		37	1
	8/31/2018 17:00	8/31/2018 17:00	0	0.47	5,853	0.39		2,751	1
	8/20/2018 11:15	8/20/2018 11:15	0	0.61	77,469	3.47		47,256	1
	9/21/2018 14:00	9/21/2018 17:15	195	0.46	24,287	0.52		11,172	1
	9/23/2018 4:00	9/23/2018 6:15	135	1.59	4,149	1.9		6,597	1
	9/8/2018 17:15	9/8/2018 22:00	285	3.55	19,042	3.94		67,600	1
	9/25/2018 16:30	9/25/2018 17:00	30	1.02	6,148	4.59		6,271	1
	9/6/2018 11:45	9/6/2018 11:45	0	0.17	14,965	0.56		2,544	1
	9/24/2018 7:30	9/24/2018 13:45	375	1.99	7,640	3.87		15,203	1
	8/15/2018 19:45	8/16/2018 9:45	840	3	48,944	2.91		146,833	1
	9/26/2018 1:30	9/26/2018 1:45	15	1.02	3,946	4.96		4,025	1
CSO051 Total								316,915	15
CSO052	9/6/2018 11:30	9/6/2018 11:30	0	0.19	94,132	0.58		17,885	1
	9/23/2018 4:00	9/23/2018 6:30	150	1.43	11,601	1.88		16,590	1
	9/21/2018 13:45	9/21/2018 17:15	210	0.52	24,108	0.57		12,536	1
	9/24/2018 7:15	9/24/2018 13:30	375	1.65	42,806	3.54		70,630	1
	9/25/2018 16:15	9/25/2018 17:15	60	0.81	25,332	4.26		20,519	1
	9/26/2018 1:45	9/26/2018 1:45	0	0.81	4,760	4.52		3,856	1
	8/20/2018 11:00	8/20/2018 11:30	30	0.81	88,756	3.77		71,892	1
	9/8/2018 17:15	9/8/2018 22:15	300	3.08	95,159	3.5		293,089	1
	9/22/2018 16:30	9/22/2018 16:30	0	1.43	562	0.91		804	1
	8/15/2018 19:45	8/16/2018 12:00	975	3.06	193,099	3.06		590,884	1
	9/25/2018 5:30	9/25/2018 5:30	0	0.2	12,065	3.75		2,413	1
CSO052 Total								1,101,098	11
CSO053	7/20/2018 5:00	7/20/2018 5:00	0	1.69	14,139	0.46		23,895	1
	7/31/2018 1:30	7/31/2018 13:00	690	1.73	187,286	1.76		324,004	1
	7/16/2018 9:45	7/16/2018 9:45	0	0.26	7,223	0.33		1,878	1
	7/20/2018 20:00	7/20/2018 21:15	75	1.69	65,918	2.05		111,402	1
	8/20/2018 11:15	8/20/2018 11:45	30	0.81	15,158	3.77		12,278	1
	9/21/2018 14:00	9/21/2018 17:30	210	0.52	135,519	0.57		70,470	1
	9/23/2018 4:15	9/23/2018 7:15	180	1.43	113,090	1.95		161,719	1
	9/25/2018 5:45	9/25/2018 6:00	15	0.2	97,380	3.8		19,476	1
	9/25/2018 16:30	9/26/2018 2:30	600	0.81	222,441	4.57		180,177	1
	8/15/2018 20:00	8/16/2018 8:45	765	3.06	132,017	2.89		403,972	1
	9/24/2018 0:45	9/24/2018 14:00	795	1.65	151,607	3.58		250,152	1
	9/8/2018 1:00	9/8/2018 1:15	15	0.27	78,159	0.45		21,103	1
	9/8/2018 10:30	9/8/2018 17:15	405	0.27	444,693	1.21		120,067	1
	9/22/2018 15:15	9/22/2018 17:00	105	1.43	42,078	0.95		60,171	1
CSO053 Total								1,760,764	14

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO054	9/6/2018 11:30	9/6/2018 11:30	0	0.19	150,558	0.58		28,606	1
	9/23/2018 4:00	9/23/2018 4:00	0	1.43	2,842	1.34		4,064	1
	9/21/2018 13:45	9/21/2018 13:45	0	0.52	35,363	0.34		18,389	1
	9/24/2018 7:15	9/24/2018 7:30	15	1.65	11,214	2.52		18,503	1
	8/20/2018 11:00	8/20/2018 11:15	15	0.81	87,963	3.77		71,250	1
	9/8/2018 17:15	9/8/2018 21:15	240	3.08	62,622	3.28		192,876	1
	8/15/2018 19:45	8/16/2018 9:30	825	3.06	150,774	2.96		461,369	1
	9/25/2018 16:45	9/25/2018 16:45	0	0.81	21,911	4.18		17,748	1
CSO054 Total								812,805	8
CSO056	7/31/2018 1:30	7/31/2018 8:00	390	1.73	444,903	1.64		769,683	1
	7/20/2018 19:30	7/20/2018 22:00	150	1.69	218,666	2.06		369,545	1
	7/3/2018 16:00	7/3/2018 16:15	15	0.32	14,334	0.95		4,587	1
	8/20/2018 11:15	8/20/2018 11:30	15	0.81	284,869	3.77		230,744	1
	9/8/2018 17:30	9/8/2018 21:30	240	3.08	155,843	3.33		479,995	1
	8/15/2018 20:00	8/16/2018 9:30	810	3.06	187,255	2.96		573,000	1
	9/6/2018 11:45	9/6/2018 11:45	0	0.19	134,737	0.6		25,600	1
	9/24/2018 7:30	9/24/2018 11:00	210	1.65	39,187	3.37		64,659	1
9/25/2018 17:00	9/25/2018 17:30	30	0.81	77,683	4.29		62,923	1	
CSO056 Total								2,580,736	9
CSO057	8/20/2018 11:15	8/20/2018 11:30	15	0.63	1,732	3.38		1,091	1
	9/23/2018 4:15	9/23/2018 6:15	120	1.37	1,354	1.61		1,855	1
	9/25/2018 5:45	9/25/2018 5:45	0	0.07	100	3.11		7	1
	9/25/2018 16:30	9/25/2018 16:30	0	0.81	993	3.27		804	1
	9/6/2018 11:45	9/6/2018 11:45	0	0.21	5,162	0.37		1,084	1
	9/8/2018 10:30	9/8/2018 21:30	660	2.96	5,916	3		17,510	1
	9/24/2018 10:45	9/24/2018 13:45	180	1.35	1,428	3.01		1,928	1
CSO057 Total								24,279	7
CSO058	7/20/2018 20:00	7/20/2018 20:00	0	1.48	290,679	1.32		430,205	1
	7/31/2018 1:00	7/31/2018 1:30	30	2.22	469,713	0.69		1,042,763	1
	8/15/2018 19:15	8/17/2018 8:30	2235	2.7	7,334,693	2.72		19,803,672	1
	9/8/2018 20:00	9/8/2018 20:15	15	2.83	65,649	2.41		185,788	1
CSO058 Total								21,462,428	4
CSO082	7/2/2018 17:30	7/2/2018 18:45	75	0.43	261,112	1.11		112,278	1
	7/3/2018 15:45	7/3/2018 16:30	45	0.56	118,200	1.33		66,192	1
	7/31/2018 1:30	7/31/2018 8:00	390	2.1	179,508	2		376,967	1
	7/20/2018 19:30	7/20/2018 22:45	195	1.61	182,023	1.85		293,057	1
	7/22/2018 17:45	7/22/2018 18:00	15	0.17	64,535	1.96		10,971	1
	8/19/2018 20:30	8/20/2018 23:30	1620	0.11	15,570,682	3.25		1,712,775	1
	9/6/2018 11:30	9/6/2018 13:45	135	0.27	717,567	0.52		193,743	1
	8/31/2018 17:45	9/1/2018 2:30	525	0.24	1,084,608	0.28		260,306	1
	9/21/2018 17:30	9/21/2018 19:00	90	0.37	380,684	0.43		140,853	1
	9/22/2018 15:15	9/22/2018 18:15	180	1.24	299,702	0.78		371,630	1
	9/25/2018 16:45	9/26/2018 3:00	615	0.72	401,461	3.68		289,052	1
	8/16/2018 3:30	8/16/2018 12:45	555	2.51	293,880	2.52		737,638	1
	8/21/2018 10:30	8/21/2018 21:00	630	0.02	2,804,550	3.3		56,091	1
	9/8/2018 1:15	9/9/2018 6:30	1755	2.44	1,375,620	2.75		3,356,512	1
	9/23/2018 4:30	9/23/2018 7:45	195	1.24	342,903	1.64		425,200	1
9/24/2018 7:00	9/24/2018 16:30	570	1.32	905,435	2.93		1,195,174	1	
CSO082 Total								9,598,439	16

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO083	7/20/2018 19:15	7/20/2018 19:15	0	1.21	1,593	0.82		1,928	1
	7/2/2018 17:45	7/2/2018 17:45	0	0.52	3,587	1.08		1,865	1
	7/31/2018 1:30	7/31/2018 6:45	315	1.94	12,219	1.6		23,705	1
	7/3/2018 15:15	7/3/2018 15:15	0	0.53	7,896	1.01		4,185	1
	8/20/2018 11:15	8/20/2018 11:15	0	0.46	107,726	3.15		49,554	1
	9/24/2018 10:45	9/24/2018 10:45	0	1.41	1,744	2.56		2,459	1
	8/16/2018 4:45	8/16/2018 8:45	240	2.46	29,184	2.34		71,792	1
	8/19/2018 20:45	8/19/2018 20:45	0	0.28	30,357	2.72		8,500	1
	9/8/2018 18:30	9/8/2018 21:00	150	2.23	10,918	2.31		24,348	1
CSO083 Total								188,336	9
CSO084	7/2/2018 13:15	7/2/2018 15:00	105	Discharge	0	0.63	Data Under Review	570,677	1
	7/3/2018 10:00	7/3/2018 12:30	150	Discharge	0	1.14	Data Under Review	397,025	1
	7/15/2018 14:45	7/15/2018 15:00	15	0.11	651,255	0.08		71,638	1
	7/20/2018 15:30	7/20/2018 18:00	150	1.21	613,923	0.51		742,847	1
	7/30/2018 20:00	7/31/2018 9:30	810	1.94	1,230,515	1.8		2,387,200	1
	7/16/2018 6:00	7/16/2018 6:00	0	Discharge	0	0.11	Data Under Review	13,684	1
	7/20/2018 1:15	7/20/2018 1:30	15	Discharge	0	0.23	Data Under Review	54,109	1
	9/6/2018 11:30	9/6/2018 12:00	30	0.25	462,016	0.5		115,504	1
	8/31/2018 17:45	8/31/2018 17:45	0	0.26	36,646	0.17		9,528	1
	9/22/2018 16:30	9/22/2018 17:15	45	1.22	131,238	0.58		160,110	1
	9/23/2018 4:30	9/23/2018 7:45	195	1.22	1,129,776	1.44		1,378,327	1
	9/24/2018 7:00	9/24/2018 18:00	660	1.41	785,133	2.79		1,107,038	1
	7/22/2018 13:45	7/22/2018 14:00	15	0.21	105,957	1.41		22,251	1
	8/7/2018 21:00	8/7/2018 23:15	135	0.01	3,410,100	0.05		34,101	1
	8/15/2018 16:00	8/16/2018 8:30	990	2.46	1,043,705	2.32		2,567,515	1
	9/8/2018 5:45	9/8/2018 5:45	0	2.23	3,888	0.64		8,671	1
9/8/2018 17:45	9/9/2018 4:30	645	2.23	1,181,720	2.49		2,635,236	1	
9/25/2018 6:00	9/25/2018 6:00	0	0.11	203,927	2.91		22,432	1	
CSO084 Total								12,297,893	18
CSO092	7/3/2018 15:30	7/3/2018 15:30	0	0.46	1,335	1.17		614	1
	7/2/2018 17:45	7/2/2018 17:45	0	0.58	26,950	1.14		15,631	1
	7/30/2018 23:45	7/31/2018 7:00	435	2.03	159	1.87		323	1
	7/20/2018 20:45	7/20/2018 21:00	15	1.06	9,172	1.28		9,722	1
	9/6/2018 11:30	9/6/2018 11:30	0	0.26	4,808	0.58		1,250	1
	8/16/2018 3:15	8/16/2018 8:30	315	2.56	389	2.41		996	1
	9/21/2018 17:30	9/21/2018 23:15	345	0.25	49,308	0.34		12,327	1
	9/25/2018 16:30	9/25/2018 16:30	0	0.71	45	3.27		32	1
	9/8/2018 19:30	9/8/2018 20:15	45	2.34	64,445	2.24		150,802	1
	9/24/2018 10:45	9/24/2018 10:45	0	1.44	38	2.79		54	1
8/19/2018 20:00	8/19/2018 20:45	45	0.78	1,181	3.31		921	1	
CSO092 Total								192,672	11
CSO093	7/2/2018 17:30	7/2/2018 17:45	15	0.65	42,548	1.18		27,656	1
	7/3/2018 15:30	7/3/2018 15:45	15	0.68	619	1.54		421	1
	7/20/2018 19:15	7/20/2018 20:45	90	1.63	54,681	1.78		89,130	1
	7/22/2018 12:15	7/22/2018 17:15	300	0.36	14,761	2.03		5,314	1
	7/31/2018 1:45	7/31/2018 2:15	30	2.06	81	1.37		167	1
9/8/2018 19:45	9/8/2018 20:00	15	2.37	1,717	2.29		4,069	1	
CSO093 Total								126,757	6
CSO097	7/2/2018 17:30	7/2/2018 18:15	45	0.65	47,403	1.52		30,812	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO097	7/31/2018 1:30	7/31/2018 4:45	195	2.22	8,862	1.71		19,674	1
	7/3/2018 15:15	7/3/2018 15:45	30	0.56	13,641	1.39		7,639	1
	7/15/2018 18:15	7/15/2018 18:45	30	0.22	48,359	0.22		10,639	1
	7/20/2018 14:00	7/20/2018 21:45	465	0.93	48,238	1.31		44,861	1
	8/20/2018 11:00	8/20/2018 11:30	30	0.61	5,031	6.17		3,069	1
	9/21/2018 17:30	9/21/2018 17:30	0	0.36	19	0.48		7	1
	9/23/2018 4:15	9/23/2018 8:00	225	1.41	74,862	1.88		105,556	1
	9/25/2018 16:30	9/26/2018 2:30	600	0.77	67,064	4.61		51,639	1
	9/25/2018 5:30	9/25/2018 5:45	15	0.1	10,420	3.87		1,042	1
	8/16/2018 3:00	8/16/2018 10:45	465	2.8	62,540	2.79		175,111	1
	8/19/2018 19:45	8/19/2018 22:30	165	2.93	33,589	5.78		98,417	1
	8/31/2018 17:15	8/31/2018 17:30	15	0.58	3,317	0.47		1,924	1
	9/8/2018 18:15	9/8/2018 23:45	330	2.08	76,659	2.78		159,450	1
9/24/2018 6:30	9/24/2018 15:00	510	2	107,243	3.78		214,486	1	
CSO097 Total								924,326	15
CSO104	7/20/2018 20:45	7/20/2018 21:30	45	0.79	847	1.17		669	1
	7/31/2018 1:45	7/31/2018 12:45	660	2.27	9,687	2.47		21,989	1
	9/8/2018 17:30	9/9/2018	390	3.74	1,216,130	4.17		4,548,328	1
	8/16/2018 3:45	8/16/2018 10:30	405	4.16	228,187	4.09		949,259	1
	8/20/2018 12:00	8/20/2018 12:30	30	0.48	38,767	4.59		18,608	1
	8/31/2018 16:30	8/31/2018 18:00	90	1.94	97,406	2.02		188,968	1
	9/23/2018 6:15	9/23/2018 7:30	75	1.55	13,674	1.81		21,195	1
	9/24/2018 8:00	9/24/2018 14:30	390	2.69	390,472	4.52		1,050,371	1
	9/25/2018 17:15	9/25/2018 18:15	60	1.29	41,345	5.63		53,335	1
CSO104 Total								6,852,722	9
CSO105	9/8/2018 20:00	9/9/2018 4:00	480	3.74	9,514	4.17		35,583	1
CSO105 Total								35,583	1
CSO108	7/15/2018 18:30	7/15/2018 18:45	15	0.53	114,402	0.54		60,633	1
	7/20/2018 21:15	7/21/2018	165	1.45	52,723	2.16		76,448	1
	8/16/2018 3:45	8/16/2018 15:00	675	4.17	725,358	4.18		3,024,742	1
	9/23/2018 6:15	9/23/2018 13:00	405	2.38	384,443	3		914,974	1
	9/25/2018 17:15	9/25/2018 17:15	0	1.01	4,366	5.95		4,410	1
	8/1/2018 17:30	8/1/2018 17:30	0	0.25	124,080	1.9		31,020	1
	8/19/2018 21:00	8/20/2018 6:00	540	2.94	250,798	7.33		737,347	1
	8/31/2018 17:30	8/31/2018 18:00	30	0.71	163,592	0.69		116,150	1
	9/8/2018 20:15	9/9/2018 5:15	540	2.66	822,063	3.4		2,186,687	1
	9/24/2018 7:45	9/24/2018 19:15	690	2.39	815,074	5.3		1,948,027	1
	9/26/2018 4:45	9/26/2018 5:00	15	1.01	209	6.4		211	1
CSO108 Total								9,100,649	11
CSO109	7/2/2018 18:15	7/2/2018 18:15	0	0.78	82,927	2.5		64,683	1
	7/3/2018 15:45	7/3/2018 15:45	0	0.47	1,123	1.6		528	1
	7/20/2018 20:00	7/20/2018 21:15	75	1.23	164,941	1.72		202,877	1
	7/31/2018 1:45	7/31/2018 1:45	0	2.05	25,122	1.19		51,500	1
	7/15/2018 18:15	7/15/2018 18:15	0	0.34	293,012	0.33		99,624	1
	9/24/2018 7:30	9/24/2018 17:45	615	2.27	172,417	4.77		391,386	1
	8/16/2018 3:30	8/16/2018 13:30	600	3.85	768,924	3.85		2,960,358	1
	8/19/2018 20:15	8/19/2018 22:15	120	1.7	767,974	5.68		1,305,555	1
	8/29/2018 15:45	8/29/2018 22:15	390	0.01	351,500	0.06		3,515	1
	9/8/2018 18:45	9/8/2018 22:15	210	2.51	456,421	3.1		1,145,616	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO109	9/21/2018 17:45	9/21/2018 18:00	15	0.4	575,658	0.53		230,263	1
	9/23/2018 5:30	9/23/2018 9:45	255	2.07	233,270	2.57		482,869	1
CSO109 Total								6,938,774	12
CSO110	7/3/2018 15:45	7/3/2018 16:30	45	0.47	635,283	1.31		298,583	1
	7/2/2018 18:00	7/2/2018 19:00	60	0.59	1,168,224	1.31		689,252	1
	7/15/2018 18:45	7/15/2018 19:15	30	0.13	1,561,831	0.13		203,038	1
	7/20/2018 14:15	7/20/2018 22:15	480	0.88	1,040,117	1.16		915,303	1
	7/22/2018 13:00	7/22/2018 13:00	0	0.2	47,650	1.18		9,530	1
CSO110 Total							2,115,706	5	
CSO111	7/3/2018 14:15	7/3/2018 15:00	45	0.47	191,534	0.93		90,021	1
	7/2/2018 16:30	7/2/2018 17:30	60	Discharge	0	1		254,969	1
	7/15/2018 17:15	7/15/2018 17:30	15	0.13	683,169	0.08		88,812	1
	7/20/2018 12:45	7/20/2018 20:30	465	0.88	371,532	1.01		326,948	1
	7/30/2018 22:15	7/31/2018 12:00	825	2.08	243,114	1.98		505,677	1
	9/26/2018 1:45	9/26/2018 2:45	60	0.76	119,434	4.1		90,770	1
	9/23/2018 4:15	9/23/2018 8:00	225	1.3	372,565	1.73		484,335	1
	9/25/2018 5:45	9/25/2018 6:00	15	0.09	360,222	3.37		32,420	1
	9/25/2018 16:45	9/25/2018 17:30	45	0.76	251,634	3.76		191,242	1
	9/8/2018 17:45	9/8/2018 23:30	345	2.15	500,002	2.83		1,075,005	1
	8/31/2018 17:30	8/31/2018 18:00	30	0.44	144,666	0.36		63,653	1
	9/21/2018 17:45	9/21/2018 18:00	15	0.33	158,424	0.45		52,280	1
	8/15/2018 19:00	8/16/2018 9:30	870	2.49	364,700	2.41		908,104	1
	8/19/2018 18:45	8/19/2018 21:30	165	Discharge	0	3.88	Data Under Review	1,104,313	1
	8/20/2018 10:15	8/20/2018 10:45	30	Discharge	0	3.9	Data Under Review	127,667	1
9/22/2018 17:15	9/22/2018 17:15	0	1.3	7,068	0.8		9,188	1	
9/24/2018 6:45	9/24/2018 14:30	465	1.65	398,584	3.28		657,664	1	
CSO111 Total							6,063,068	17	
CSO118	7/20/2018 19:45	7/20/2018 22:00	135	1.21	4,377,832	1.43		5,297,177	1
	7/2/2018 17:30	7/2/2018 18:30	60	0.52	3,772,894	1.13		1,961,905	1
	7/3/2018 15:45	7/3/2018 16:30	45	0.53	2,276,196	1.38		1,206,384	1
	7/30/2018 23:45	7/31/2018 13:15	810	1.94	3,842,111	1.96		7,453,696	1
	7/20/2018 5:15	7/20/2018 5:15	0	1.21	5,472	0.4		6,621	1
	7/16/2018 9:45	7/16/2018 10:15	30	0.12	1,096,683	0.23		131,602	1
	7/22/2018 17:45	7/22/2018 18:15	30	0.21	1,411,967	1.59		296,513	1
	8/19/2018 20:30	8/19/2018 22:15	105	0.28	1,406,918	2.77		393,937	1
	8/20/2018 11:15	8/20/2018 20:00	525	0.46	3,978,178	3.21		1,829,962	1
	9/6/2018 11:30	9/6/2018 12:15	45	0.25	2,673,448	0.51		668,362	1
	8/31/2018 17:45	8/31/2018 17:45	0	0.26	308	0.17		80	1
	9/23/2018 4:00	9/23/2018 8:00	240	1.22	3,291,831	1.44		4,016,034	1
	9/21/2018 17:30	9/21/2018 18:00	30	0.17	2,273,765	0.25		386,540	1
	9/25/2018 5:45	9/25/2018 6:15	30	0.11	3,756,891	2.91		413,258	1
	9/25/2018 16:30	9/26/2018 2:45	615	0.71	4,671,261	3.59		3,316,595	1
	8/15/2018 19:45	8/16/2018 11:00	915	2.46	4,747,586	2.47		11,679,062	1
	9/22/2018 15:15	9/22/2018 17:45	150	1.22	940,156	0.59		1,146,990	1
	9/8/2018 1:30	9/8/2018 5:45	255	2.23	1,052	0.7		2,345	1
9/8/2018 15:30	9/8/2018 23:45	495	2.23	6,362,749	2.49		14,188,931	1	
9/24/2018 0:30	9/24/2018 14:15	825	1.41	5,949,878	2.81		8,389,328	1	
CSO118 Total							62,785,322	20	
CSO119	8/19/2018 20:30	8/19/2018 21:45	75	0.28	937,736	2.76		262,566	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO119	8/20/2018 11:15	8/20/2018 12:00	45	0.46	463,733	3.15		213,317	1
	8/31/2018 17:45	8/31/2018 17:45	0	0.26	43,235	0.17		11,241	1
	9/21/2018 17:30	9/21/2018 17:45	15	0.17	351,812	0.25		59,808	1
	9/23/2018 4:15	9/23/2018 7:30	195	1.22	557,517	1.44		680,171	1
	9/25/2018 5:45	9/25/2018 6:00	15	0.11	665,473	2.91		73,202	1
	9/25/2018 16:30	9/26/2018 2:30	600	0.71	718,311	3.59		510,001	1
	8/15/2018 19:45	8/16/2018 10:45	900	2.46	655,152	2.47		1,611,674	1
	9/24/2018 6:45	9/24/2018 14:30	465	1.41	907,881	2.78		1,280,112	1
	9/6/2018 11:15	9/6/2018 12:00	45	0.25	760,344	0.5		190,086	1
	9/8/2018 5:30	9/8/2018 5:45	15	2.23	20,785	0.64		46,350	1
	9/8/2018 15:45	9/9/2018 3:00	675	2.23	935,738	2.49		2,086,695	1
9/22/2018 16:15	9/22/2018 17:15	60	1.22	186,549	0.58		227,590	1	
CSO119 Total								7,252,813	13
CSO120	9/21/2018 17:30	9/21/2018 17:30	0	0.37	219,224	0.43		81,113	1
	9/22/2018 16:30	9/22/2018 17:15	45	1.24	117,016	0.77		145,100	1
	9/23/2018 4:15	9/23/2018 7:15	180	1.24	612,722	1.63		759,775	1
	9/25/2018 5:45	9/25/2018 6:00	15	0.05	2,198,820	2.98		109,941	1
	9/25/2018 16:30	9/26/2018 2:30	600	0.72	959,358	3.68		690,738	1
	9/24/2018 0:45	9/24/2018 14:00	795	1.32	771,121	2.94		1,017,880	1
	9/8/2018 5:30	9/8/2018 5:45	15	2.44	41,018	0.62		100,085	1
	9/8/2018 15:45	9/8/2018 22:15	390	2.44	379,558	2.71		926,122	1
CSO120 Total								3,830,754	8
CSO121	7/30/2018 22:15	7/31/2018 11:15	780	2.1	181,620	2		381,402	1
	7/2/2018 16:00	7/2/2018 16:45	45	Discharge	0	0.71	Data Under Review	413,781	1
	7/3/2018 13:45	7/3/2018 14:15	30	0.56	154,498	0.92		86,519	1
	7/15/2018 16:45	7/15/2018 16:45	0	0.1	742,200	0.08		74,220	1
	7/16/2018 8:00	7/16/2018 8:15	15	Discharge	0	0.1	Data Under Review	15,121	1
	7/20/2018 3:30	7/20/2018 3:30	0	1.61	76,427	0.25		123,048	1
	7/20/2018 17:30	7/20/2018 19:45	135	1.61	311,309	1.43		501,207	1
	7/22/2018 16:00	7/22/2018 16:15	15	0.17	101,841	1.82		17,313	1
	9/6/2018 11:30	9/6/2018 12:00	30	0.27	650,315	0.5		175,585	1
	9/22/2018 16:30	9/22/2018 17:15	45	1.24	120,046	0.77		148,857	1
	9/24/2018 0:45	9/24/2018 14:15	810	1.32	528,269	2.95		697,315	1
	9/25/2018 16:45	9/26/2018 2:30	585	0.72	69,347	3.68		49,930	1
	9/23/2018 4:30	9/23/2018 7:30	180	1.24	274,750	1.63		340,690	1
	8/19/2018 20:45	8/19/2018 21:15	30	0.11	807,655	2.63		88,842	1
	9/25/2018 6:00	9/25/2018 6:00	0	0.05	130,680	2.98		6,534	1
	9/8/2018 15:45	9/9/2018 3:00	675	2.44	767,348	2.72		1,872,329	1
	8/15/2018 20:15	8/16/2018 15:30	1155	2.51	901,924	2.52		2,263,830	1
8/20/2018 11:45	8/20/2018 11:45	0	0.63	63,640	3.2		40,093	1	
CSO121 Total								7,296,616	18
CSO125	7/30/2018 23:45	7/31/2018 7:30	465	2.34	1,376	2.14		3,220	1
	7/20/2018 20:00	7/21/2018 5:45	585	1.31	198,228	1.73		259,679	1
	7/15/2018 18:30	7/15/2018 19:00	30	0.26	39,092	0.26		10,164	1
	7/2/2018 18:30	7/2/2018 18:30	0	1.4	24	2.2		33	1
	7/3/2018 16:15	7/3/2018 16:15	0	0.61	462	2.27		282	1
	7/16/2018 10:00	7/16/2018 10:15	15	0.16	16,156	0.42		2,585	1
	9/24/2018 7:15	9/25/2018 6:15	1380	1.72	1,779,190	3.3		3,060,206	1
	9/23/2018 4:15	9/23/2018 15:45	690	1.29	134,549	1.53		173,568	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO125	9/6/2018 11:45	9/6/2018 11:45	0	0.44	916	1.02		403	1
	9/25/2018 16:45	9/25/2018 17:00	15	0.68	10,975	3.57		7,463	1
	9/8/2018 17:45	9/9/2018 10:45	1020	2.57	1,344,408	3.04		3,455,128	1
	9/21/2018 17:45	9/21/2018 18:00	15	0.15	8,260	0.24		1,239	1
	8/16/2018 8:45	8/16/2018 18:15	570	2.77	597,433	2.77		1,654,889	1
	9/8/2018 2:15	9/8/2018 2:15	0	2.57	1,450	0.77		3,726	1
	9/22/2018 16:00	9/22/2018 17:30	90	1.29	4,305	0.63		5,553	1
	9/26/2018 2:45	9/26/2018 3:30	45	0.68	357	3.95		243	1
CSO125 Total								8,638,381	16
CSO126	7/3/2018 15:30	7/3/2018 18:30	180	0.61	56,546	2.35		34,493	1
	7/20/2018 19:15	7/21/2018 6:45	690	1.31	65,889	1.73		86,314	1
	7/31/2018 2:00	7/31/2018 13:00	660	2.34	11,212	2.37		26,235	1
	7/15/2018 18:30	7/15/2018 18:30	0	0.26	700	0.26		182	1
	7/2/2018 17:15	7/3/2018 1:00	465	1.4	119,646	2.24		167,505	1
	9/6/2018 11:30	9/6/2018 11:30	0	0.44	16,634	0.99		7,319	1
	9/24/2018 7:15	9/25/2018 1:45	1110	1.72	444,808	3.18		765,070	1
	9/25/2018 16:45	9/26/2018 4:15	690	0.68	239,007	3.95		162,525	1
	9/8/2018 18:15	9/9/2018 11:45	1050	2.57	358,656	3.04		921,747	1
	8/31/2018 17:30	9/1/2018 2:30	540	0.63	128,952	0.66		81,240	1
	9/23/2018 5:30	9/23/2018 17:15	705	1.29	121,524	1.53		156,766	1
	9/22/2018 17:00	9/22/2018 17:00	0	1.29	1,384	0.61		1,786	1
	CSO126 Total								2,411,182
CSO127	7/3/2018 15:30	7/3/2018 16:45	75	0.64	1,721,548	2.08		1,101,791	1
	7/16/2018 9:45	7/16/2018 10:15	30	0.15	741,893	0.53		111,284	1
	7/15/2018 18:15	7/15/2018 19:00	45	0.38	1,202,832	0.38		457,076	1
	7/20/2018 14:00	7/21/2018 5:15	915	1.32	1,240,402	1.85		1,637,330	1
	7/20/2018 3:30	7/20/2018 3:45	15	1.32	22,344	0.55		29,494	1
	7/2/2018 17:00	7/2/2018 19:15	135	1.14	2,147,844	1.95		2,448,542	1
	7/22/2018 17:30	7/22/2018 18:00	30	0.56	241,207	2.32		135,076	1
	7/30/2018 23:30	7/31/2018 13:30	840	2.2	170,745	2.27		375,640	1
	8/20/2018 11:30	8/20/2018 12:15	45	0.6	116,053	4.53		69,632	1
	8/19/2018 20:30	8/19/2018 23:00	150	1.18	2,774,732	4.17		3,274,184	1
	9/23/2018 4:15	9/23/2018 9:15	300	1.53	59,741	1.81		91,404	1
	8/15/2018 12:45	8/16/2018 13:45	1500	2.9	577,615	2.9		1,675,083	1
	9/22/2018 15:15	9/22/2018 18:00	165	1.53	33,111	0.79		50,660	1
	9/25/2018 16:45	9/26/2018 3:30	645	0.8	181,551	4.7		145,241	1
	9/25/2018 6:00	9/25/2018 6:45	45	0.12	311,933	3.92		37,432	1
	8/31/2018 17:30	8/31/2018 18:30	60	0.76	1,282,703	0.69		974,854	1
	9/21/2018 17:45	9/21/2018 18:15	30	0.21	14,629	0.32		3,072	1
	8/8/2018 1:00	8/8/2018 2:45	105	0.31	195,574	0.29		60,628	1
8/18/2018 19:00	8/18/2018 19:15	15	0.07	238,614	2.98		16,703	1	
9/6/2018 12:00	9/6/2018 12:00	0	0.31	6,700	1.05		2,077	1	
9/8/2018 2:00	9/8/2018 2:30	30	0.39	105,736	0.64		41,237	1	
9/8/2018 16:00	9/9/2018 9:00	1020	2.46	2,069,450	3.17		5,090,848	1	
9/24/2018 1:00	9/24/2018 19:30	1110	2.06	968,583	3.86		1,995,281	1	
CSO127 Total								19,824,569	23
CSO130	7/3/2018 16:00	7/3/2018 16:00	0	0.53	20,243	1.42		10,729	1
	7/20/2018 21:00	7/20/2018 21:00	0	1.61	44,566	1.88		71,752	1
	9/8/2018 18:30	9/8/2018 19:45	75	2.34	21,904	2.18		51,256	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO130 Total								133,737	3
CSO132	7/20/2018 19:00	7/20/2018 22:15	195	1.45	2,165,543	1.74		3,140,037	1
	7/15/2018 18:30	7/15/2018 18:45	15	0.13	64,415	0.13		8,374	1
	7/30/2018 23:30	7/31/2018 13:30	840	1.99	557,295	2.06		1,109,018	1
	7/16/2018 9:30	7/16/2018 10:00	30	0.17	350,341	0.28		59,558	1
	7/20/2018 4:30	7/20/2018 5:15	45	1.45	43,291	0.5		62,772	1
	7/22/2018 16:45	7/22/2018 18:00	75	0.51	1,086,302	2.19		554,014	1
	8/20/2018 11:30	8/20/2018 14:15	165	0.34	993,612	2.88		337,828	1
	9/6/2018 11:30	9/6/2018 12:15	45	0.46	537,502	0.87		247,251	1
	9/23/2018 4:15	9/23/2018 9:00	285	1.21	467,709	1.66		565,928	1
	9/25/2018 16:30	9/26/2018 10:30	1080	0.68	3,102,510	3.69		2,109,707	1
	9/24/2018 0:45	9/25/2018 7:30	1845	1.3	775,201	3.05		1,007,761	1
	8/15/2018 19:45	8/16/2018 15:30	1185	2.38	732,429	2.39		1,743,181	1
	9/8/2018 1:15	9/8/2018 6:00	285	2.43	31,898	0.83		77,511	1
	8/31/2018 17:15	8/31/2018 18:45	90	0.42	909,136	0.41		381,837	1
	9/8/2018 15:45	9/9/2018 10:45	1140	2.43	1,197,126	2.91		2,909,017	1
	8/8/2018 1:00	8/8/2018 3:30	150	0.11	704,973	0.46		77,547	1
	8/19/2018 21:15	8/19/2018 22:00	45	0.2	186,075	2.61		37,215	1
	9/21/2018 17:15	9/21/2018 18:00	45	0.41	60,439	0.47		24,780	1
	9/22/2018 15:30	9/22/2018 18:00	150	1.21	80,550	0.83		97,466	1
CSO132 Total								14,550,802	19
CSO140	7/20/2018 19:45	7/20/2018 21:15	90	1.63	246,383	1.88		401,604	1
	7/2/2018 17:45	7/3/2018 1:45	480	0.65	145,357	1.26		94,482	1
	7/31/2018 2:00	7/31/2018 14:00	720	2.06	44,114	2.12		90,875	1
	9/24/2018 7:30	9/24/2018 14:00	390	1.35	181,983	2.81		245,677	1
	9/8/2018 18:30	9/8/2018 21:15	165	2.37	680,646	2.62		1,613,131	1
	9/1/2018 2:00	9/1/2018 3:45	105	0.31	4,590	0.35		1,423	1
	9/9/2018 12:30	9/9/2018 18:30	360	0.03	69,533	2.78		2,086	1
	9/23/2018 6:30	9/23/2018 7:00	30	1.23	47,611	1.51		58,562	1
	9/23/2018 18:45	9/23/2018 21:00	135	1.23	1,219	1.53		1,499	1
	9/25/2018	9/26/2018 19:45	2625	1.35	48,736	3.6		65,794	1
CSO140 Total								2,575,133	10
CSO141	7/2/2018 17:30	7/2/2018 17:45	15	0.43	104,991	1.04		45,146	1
	7/31/2018 2:00	7/31/2018 2:00	0	2.1	5,615	1.23		11,792	1
	7/3/2018 15:15	7/3/2018 15:45	30	0.56	77,995	1.26		43,677	1
	7/20/2018 20:45	7/20/2018 20:45	0	1.61	16,026	1.78		25,802	1
	9/8/2018 19:45	9/8/2018 20:15	30	2.44	48,146	2.28		117,477	1
CSO141 Total								243,894	5
CSO142	8/20/2018 11:30	8/20/2018 11:30	0	0.5	15,670	3.23	Retained by the Sneads Branch FPS	7,835	1
	9/6/2018 11:30	9/6/2018 11:45	15	0.19	98,989	0.38	Retained by the Sneads Branch FPS	18,808	1
	9/8/2018 17:30	9/8/2018 21:15	225	2.36	62,148	2.42	Partially Retained by the Sneads Branch FPS	146,669	1
	9/25/2018 5:45	9/25/2018 5:45	0	0.08	139,338	2.83	Retained by the Sneads Branch FPS	11,147	1
	8/15/2018 20:00	8/16/2018 8:45	765	2.55	25,815	2.42	Partially Retained by the Sneads Branch FPS	65,828	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO142	9/24/2018 7:30	9/24/2018 13:30	360	1.29	22,131	2.74	Partially Retained by the Sneads Branch FPS	28,549	1
	9/25/2018 17:00	9/25/2018 17:00	0	0.67	35,267	3.08	Retained by the Sneads Branch FPS	23,629	1
	9/23/2018 4:30	9/23/2018 6:30	120	1.28	9,675	1.46	Retained by the Sneads Branch FPS	12,384	1
	8/19/2018 20:45	8/19/2018 20:45	0	0.21	73,667	2.76	Retained by the Sneads Branch FPS	15,470	1
	9/8/2018 5:30	9/8/2018 5:30	0	2.36	1,151	0.56	Retained by the Sneads Branch FPS	2,717	1
CSO142 Total								333,036	10
CSO144	7/2/2018 17:30	7/2/2018 17:45	15	0.9	36,456	1.48		32,810	1
	7/20/2018 19:30	7/20/2018 21:00	90	1.34	21,769	1.7		29,170	1
	7/31/2018 2:15	7/31/2018 2:15	0	2.23	4,157	1.44		9,269	1
	9/8/2018 17:30	9/8/2018 20:30	180	2.48	28,546	2.67		70,795	1
	8/31/2018 17:30	8/31/2018 17:30	0	0.46	31,576	0.36		14,525	1
	8/16/2018 8:30	8/16/2018 8:45	15	2.55	4,960	2.42		12,649	1
	9/24/2018 19:15	9/24/2018 19:15	0	1.47	141	2.92		207	1
CSO144 Total								169,425	7
CSO148	7/2/2018 17:30	7/2/2018 18:00	30	0.65	293,509	1.52		190,781	1
	7/3/2018 15:15	7/3/2018 15:45	30	0.56	228,273	1.39		127,833	1
	7/22/2018 12:15	7/22/2018 17:15	300	0.3	94,687	1.45		28,406	1
	7/15/2018 18:15	7/15/2018 18:15	0	0.22	465,673	0.21		102,448	1
	7/20/2018 13:45	7/20/2018 21:00	435	0.93	197,626	1.26		183,792	1
	7/30/2018 23:15	7/31/2018 12:45	810	2.22	80,875	2.33		179,542	1
	8/20/2018 11:15	8/20/2018 11:30	15	0.61	46,618	6.17		28,437	1
	9/6/2018 11:30	9/6/2018 11:30	0	0.3	128,587	0.82		38,576	1
	9/23/2018 4:00	9/23/2018 7:00	180	1.41	135,596	1.86		191,191	1
	9/26/2018 1:45	9/26/2018 2:15	30	0.77	26,648	4.61		20,519	1
	9/8/2018 17:30	9/8/2018 22:15	285	2.08	222,319	2.73		462,423	1
	9/25/2018 5:45	9/25/2018 5:45	0	0.1	43,720	3.87		4,372	1
	9/25/2018 16:45	9/25/2018 17:30	45	0.77	96,851	4.28		74,575	1
	9/24/2018 6:30	9/24/2018 13:45	435	2	74,913	3.76		149,826	1
	8/31/2018 17:30	8/31/2018 17:45	15	0.58	46,357	0.5		26,887	1
	9/21/2018 17:45	9/21/2018 17:45	0	0.36	12,697	0.49		4,571	1
9/22/2018 15:45	9/22/2018 17:00	75	1.41	4,220	0.84		5,950	1	
CSO148 Total								1,820,129	17
CSO149	7/2/2018 18:00	7/2/2018 18:45	45	0.4	1,764,358	1.09		705,743	1
	7/20/2018 5:15	7/20/2018 5:30	15	1.07	100,532	0.34		107,569	1
	7/16/2018 9:45	7/16/2018 10:30	45	0.14	1,850,257	0.24		259,036	1
	7/15/2018 18:45	7/15/2018 19:00	15	0.1	229,390	0.1		22,939	1
	7/20/2018 14:15	7/20/2018 22:00	465	1.07	1,945,405	1.3		2,081,583	1
	7/3/2018 16:15	7/3/2018 16:45	30	0.36	305,864	1.17		110,111	1
	7/22/2018 18:00	7/22/2018 18:15	15	0.12	408,550	1.37		49,026	1
	7/31/2018	7/31/2018 13:45	825	2.14	4,015,531	2.17		8,593,236	1
	8/20/2018 11:30	8/20/2018 12:30	60	0.5	3,468,712	3.23		1,734,356	1
	9/25/2018 16:45	9/26/2018 3:00	615	0.67	6,321,964	3.47		4,235,716	1
	9/23/2018 4:30	9/23/2018 8:15	225	1.28	2,384,057	1.52		3,051,593	1
	9/8/2018 5:45	9/8/2018 6:00	15	2.36	9,809	0.56		23,150	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO149	9/25/2018 6:00	9/25/2018 6:30	30	0.08	8,546,113	2.83		683,689	1
	8/19/2018 21:00	8/19/2018 22:15	75	0.21	5,146,438	2.79		1,080,752	1
	9/21/2018 17:45	9/21/2018 18:15	30	0.18	190,761	0.26		34,337	1
	9/8/2018 15:45	9/9/2018	495	2.36	5,026,666	2.55		11,862,932	1
	8/8/2018 1:00	8/8/2018 3:30	150	0.24	102,500	0.23		24,600	1
	9/6/2018 12:00	9/6/2018 12:15	15	0.19	61,989	0.4		11,778	1
	9/24/2018 1:00	9/24/2018 14:45	825	1.29	8,156,579	2.78		10,521,987	1
	9/22/2018 15:30	9/22/2018 17:45	135	1.28	249,527	0.63		319,394	1
	8/15/2018 13:00	8/16/2018 11:30	1350	2.55	5,141,930	2.54		13,111,921	1
CSO149 Total								58,625,448	21
CSO150	7/20/2018 19:15	7/20/2018 23:15	240	1.69	85,473	2.06		144,450	1
	7/31/2018 1:30	7/31/2018 10:00	510	1.73	158,692	1.65		274,537	1
	7/20/2018 4:45	7/20/2018 4:45	0	1.69	2,313	0.45		3,909	1
	8/20/2018 11:15	8/20/2018 11:30	15	0.81	42,025	3.77		34,040	1
	9/21/2018 14:00	9/21/2018 14:00	0	0.52	21,169	0.35		11,008	1
	9/8/2018 17:30	9/8/2018 21:30	240	3.08	12,120	3.33		37,331	1
	9/6/2018 11:45	9/6/2018 11:45	0	0.19	2,626	0.6		499	1
	9/25/2018 17:00	9/25/2018 17:00	0	0.81	105	4.22		85	1
	8/15/2018 19:45	8/16/2018 12:45	1020	3.06	138,486	3.06		423,766	1
CSO150 Total								929,625	9
CSO151	7/22/2018 12:15	7/22/2018 18:30	375	0.4	604,890	1.81		241,956	1
	7/2/2018 17:00	7/2/2018 19:00	120	0.72	3,428,097	1.34		2,468,230	1
	7/16/2018 9:30	7/16/2018 10:30	60	0.16	828,081	0.32		132,493	1
	7/20/2018 13:45	7/20/2018 22:30	525	1.11	1,601,270	1.43		1,777,410	1
	7/30/2018 23:15	7/31/2018 13:30	855	2.04	1,098,524	2.06		2,240,988	1
	7/3/2018 13:30	7/3/2018 17:00	210	0.63	1,126,729	1.78		709,839	1
	7/15/2018 18:00	7/15/2018 19:15	75	0.16	2,102,050	0.16		336,328	1
	8/31/2018 17:45	8/31/2018 18:45	60	0.53	1,473,211	0.47		780,802	1
	9/23/2018 4:15	9/23/2018 10:00	345	1.35	2,161,714	1.67		2,918,314	1
	9/6/2018 11:45	9/6/2018 12:45	60	0.36	770,569	0.88		277,405	1
	9/25/2018 17:00	9/26/2018 9:15	975	0.67	2,342,006	4.01		1,569,144	1
	9/22/2018 15:15	9/22/2018 18:15	180	1.35	314,646	0.71		424,772	1
	8/20/2018 10:15	8/20/2018 19:00	525	Discharge	0	4.89	Data Under Review	420,877	1
	9/8/2018 1:30	9/8/2018 2:45	75	2.37	65,268	0.73		154,686	1
	9/8/2018 16:00	9/9/2018 18:00	1560	2.37	2,959,474	2.77		7,013,954	1
	9/24/2018 1:00	9/25/2018 7:30	1830	1.65	2,867,997	3.41		4,732,195	1
	8/7/2018 23:30	8/8/2018 1:15	105	0.01	3,158,600	0.2		31,586	1
	8/15/2018 11:15	8/16/2018 12:00	1485	Discharge	0	2.58	Data Under Review	6,732,499	1
	8/18/2018 17:45	8/18/2018 18:00	15	0.03	777,533	2.61		23,326	1
8/19/2018 19:00	8/19/2018 23:15	255	Discharge	0	4.37	Data Under Review	4,836,097	1	
9/21/2018 18:00	9/21/2018 18:45	45	0.22	1,184,400	0.33		260,568	1	
CSO151 Total								38,083,469	21
CSO152	7/20/2018 5:00	7/20/2018 5:15	15	1.06	9,607	0.36		10,183	1
	7/22/2018 12:15	7/22/2018 18:15	360	0.23	941,483	1.54		216,541	1
	7/15/2018 18:15	7/15/2018 18:45	30	0.11	919,100	0.11		101,101	1
	7/20/2018 14:00	7/20/2018 22:00	480	1.06	327,893	1.32		347,567	1
	7/2/2018 17:00	7/2/2018 18:45	105	0.58	2,289,402	1.2		1,327,853	1
	7/30/2018 23:30	7/31/2018 13:30	840	2.03	313,671	2.05		636,753	1
	7/16/2018 9:30	7/16/2018 10:15	45	0.15	603,853	0.26		90,578	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO152	7/3/2018 13:30	7/3/2018 16:45	195	0.46	411,191	1.45		189,148	1
	8/20/2018 11:15	8/20/2018 19:45	510	0.42	479,669	3.79		201,461	1
	8/31/2018 17:45	8/31/2018 18:30	45	0.37	745,492	0.34		275,832	1
	9/23/2018 4:15	9/23/2018 8:45	270	1.35	425,573	1.66		574,524	1
	8/8/2018 0:45	8/8/2018 1:00	15	0.3	147,213	0.17		44,164	1
	9/24/2018 0:45	9/24/2018 16:45	960	1.44	1,054,851	3.1		1,518,986	1
	9/25/2018 16:45	9/26/2018 3:30	645	0.71	1,185,262	3.83		841,536	1
	9/25/2018 6:00	9/25/2018 6:30	30	0.1	525,020	3.14		52,502	1
	8/19/2018 20:00	8/19/2018 23:00	180	0.78	395,390	3.38		308,404	1
	9/8/2018 15:45	9/9/2018 2:00	615	2.34	3,444,010	2.6		8,058,983	1
	9/6/2018 12:00	9/6/2018 12:15	15	0.26	261,612	0.62		68,019	1
	9/22/2018 15:30	9/22/2018 18:00	150	1.35	184,304	0.7		248,811	1
	9/21/2018 18:00	9/21/2018 18:15	15	0.25	122,716	0.34		30,679	1
	8/15/2018 12:30	8/16/2018 11:30	1380	2.56	364,291	2.56		932,585	1
9/8/2018 1:45	9/8/2018 5:45	240	2.34	18,421	0.69		43,106	1	
CSO152 Total								16,119,316	22
CSO153	7/2/2018 17:30	7/2/2018 18:15	45	0.43	807,819	1.11		347,362	1
	7/20/2018 19:15	7/20/2018 21:15	120	1.61	542,969	1.84		874,180	1
	7/20/2018 5:00	7/20/2018 5:00	0	1.61	16,445	0.38		26,476	1
	7/30/2018 23:45	7/31/2018 13:00	795	2.1	801,934	2.16		1,684,061	1
	7/22/2018 12:15	7/22/2018 18:00	345	0.17	2,506,388	2.01		426,086	1
	7/15/2018 18:30	7/15/2018 18:30	0	0.1	142,650	0.1		14,265	1
	7/16/2018 9:30	7/16/2018 9:45	15	0.14	292,600	0.19		40,964	1
	7/3/2018 13:30	7/3/2018 16:30	180	0.56	423,291	1.41		237,043	1
	8/19/2018 20:30	8/19/2018 21:15	45	0.11	1,007,036	2.63		110,774	1
	8/20/2018 11:15	8/20/2018 11:45	30	0.63	40,317	3.2		25,400	1
	9/6/2018 11:30	9/6/2018 11:30	0	0.27	63,974	0.47		17,273	1
	9/24/2018 7:15	9/24/2018 13:30	375	1.32	338,994	2.9		447,472	1
	9/25/2018 5:45	9/25/2018 5:45	0	0.05	974,460	2.98		48,723	1
	9/25/2018 16:30	9/26/2018 2:15	585	0.72	491,282	3.68		353,723	1
	8/15/2018 19:45	8/15/2018 19:45	0	2.51	7,443	0.38		18,683	1
	9/8/2018 18:15	9/8/2018 22:00	225	2.44	483,258	2.69		1,179,149	1
	8/16/2018 4:15	8/16/2018 8:45	270	2.51	196,046	2.34		492,076	1
9/22/2018 16:45	9/22/2018 16:45	0	1.24	2,052	0.74		2,544	1	
9/23/2018 5:15	9/23/2018 6:45	90	1.24	63,590	1.61		78,851	1	
CSO153 Total								6,425,105	19
CSO154	7/3/2018 15:45	7/3/2018 16:15	30	0.59	14,156	1.71		8,352	1
	7/31/2018 1:30	7/31/2018 13:00	690	1.99	2,152	2.06		4,282	1
	7/20/2018 19:30	7/20/2018 21:00	90	1.45	197,344	1.73		286,149	1
	7/2/2018 18:00	7/2/2018 20:15	135	0.87	38,164	1.49		33,203	1
	7/22/2018 17:45	7/22/2018 17:45	0	0.51	902	2.18		460	1
	8/20/2018 11:30	8/20/2018 11:30	0	0.34	2,659	2.88		904	1
	8/31/2018 17:45	8/31/2018 23:45	360	0.42	7,443	0.42		3,126	1
	9/6/2018 11:45	9/6/2018 11:45	0	0.46	7,900	0.83		3,634	1
	9/24/2018 7:30	9/24/2018 18:30	660	1.3	474,815	2.93		617,259	1
	9/25/2018 16:45	9/25/2018 16:45	0	0.68	2,493	3.27		1,695	1
	9/8/2018 17:45	9/9/2018 3:30	585	2.43	179,639	2.9		436,523	1
	9/22/2018 17:15	9/22/2018 17:15	0	1.21	864	0.82		1,045	1
	8/16/2018 4:00	8/16/2018 11:15	435	2.38	143,316	2.39		341,093	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO154	8/16/2018 20:45	8/16/2018 20:45	0	0.01	41,500	2.4		415	1
	9/23/2018 5:00	9/23/2018 10:15	315	1.21	23,726	1.67		28,708	1
	9/25/2018 3:45	9/25/2018 7:15	210	Discharge	0	3.01	Data Under Review	338	1
	9/26/2018 2:30	9/26/2018 2:45	15	0.68	84,466	3.66		57,437	1
CSO154 Total							1,824,623	17	
CSO155	7/31/2018 1:15	7/31/2018 12:45	690	2.08	56,641	2.12		117,814	1
	7/20/2018 19:15	7/20/2018 21:00	105	1.73	39,287	2.19		67,966	1
	7/20/2018 4:45	7/20/2018 4:45	0	1.73	772	0.5		1,335	1
	7/16/2018 9:30	7/16/2018 9:30	0	0.32	18,438	0.33		5,900	1
	8/31/2018 17:00	8/31/2018 17:00	0	0.47	43,545	0.39		20,466	1
	8/20/2018 11:15	8/20/2018 11:15	0	0.61	79,039	3.47		48,214	1
	9/21/2018 14:00	9/21/2018 17:15	195	0.46	45,630	0.52		20,990	1
	9/8/2018 17:15	9/8/2018 22:30	315	3.55	72,720	3.95		258,157	1
	9/23/2018 4:15	9/23/2018 7:00	165	1.59	16,711	2.03		26,571	1
	9/25/2018 5:45	9/25/2018 5:45	0	1.99	9,904	4.04		19,708	1
	9/25/2018 16:30	9/25/2018 17:15	45	1.02	30,358	4.64		30,965	1
	8/15/2018 20:00	8/16/2018 9:30	810	3	37,692	2.89		113,075	1
	9/6/2018 11:45	9/6/2018 11:45	0	0.17	12,876	0.56		2,189	1
	9/24/2018 7:30	9/24/2018 13:45	375	1.99	66,872	3.87		133,075	1
	9/26/2018 1:30	9/26/2018 2:15	45	1.02	3,220	5.02		3,284	1
8/20/2018 19:45	8/20/2018 19:45	0	0.61	3,828	3.64		2,335	1	
CSO155 Total							872,044	16	
CSO160	9/8/2018 20:00	9/8/2018 20:00	0	2.96	461	2.37		1,364	1
	8/16/2018 8:15	8/16/2018 8:15	0	2.75	301	2.52		829	1
CSO160 Total							2,193	2	
CSO161	7/31/2018 1:15	7/31/2018 2:00	45	2.33	27,318	1.39		63,651	1
	7/20/2018 19:15	7/20/2018 20:45	90	1.46	4,590	1.67		6,702	1
	7/20/2018 4:45	7/20/2018 4:45	0	1.46	1,881	0.35		2,746	1
	8/20/2018 11:15	8/20/2018 11:30	15	0.63	30,902	3.38		19,468	1
	9/21/2018 14:00	9/21/2018 14:00	0	0.32	2,109	0.26		675	1
	9/8/2018 17:30	9/8/2018 21:30	240	2.96	5,810	3		17,197	1
	9/23/2018 4:15	9/23/2018 4:15	0	1.37	180	1.14		247	1
	9/25/2018 5:45	9/25/2018 5:45	0	0.07	3,143	3.11		220	1
	9/25/2018 16:30	9/25/2018 17:00	30	0.81	4,601	3.45		3,727	1
	8/15/2018 20:00	8/16/2018 8:30	750	2.75	5,234	2.56		14,393	1
	9/6/2018 11:45	9/6/2018 11:45	0	0.21	6,810	0.37		1,430	1
9/24/2018 7:30	9/24/2018 10:45	195	1.35	103	2.86		139	1	
CSO161 Total							130,595	12	
CSO166	7/20/2018 19:30	7/21/2018 5:15	585	1.32	4,859,192	1.85		6,414,133	1
	7/30/2018 23:45	7/31/2018 14:00	855	2.2	834,200	2.27		1,835,240	1
	7/15/2018 18:15	7/15/2018 19:15	60	0.38	1,622,034	0.38		616,373	1
	7/16/2018 10:00	7/16/2018 10:30	30	0.15	422,093	0.53		63,314	1
	7/2/2018 17:00	7/2/2018 19:45	165	1.14	3,734,935	1.98		4,257,826	1
	7/3/2018 14:30	7/3/2018 15:45	75	0.64	752,788	1.99		481,784	1
	8/19/2018 20:30	8/19/2018 20:30	0	1.18	1,685	3.59		1,988	1
	8/20/2018 11:15	8/20/2018 12:30	75	0.6	691,010	4.53		414,606	1
	9/23/2018 4:30	9/23/2018 15:45	675	1.53	2,426,181	1.85		3,712,057	1
	8/31/2018 17:30	8/31/2018 19:00	90	0.76	1,830,109	0.72		1,390,883	1
	9/24/2018 6:45	9/26/2018 16:45	3480	2.06	8,852,362	4.74		18,235,866	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO166	8/15/2018 20:15	8/16/2018 19:00	1365	2.9	5,481,751	2.9		15,897,078	1
	9/8/2018 2:00	9/8/2018 2:45	45	0.39	452,372	0.65		176,425	1
	9/21/2018 18:00	9/21/2018 18:15	15	0.21	506,029	0.32		106,266	1
	9/22/2018 16:45	9/22/2018 17:45	60	1.53	182,946	0.79		279,907	1
	9/8/2018 18:00	9/9/2018 11:00	1020	2.46	5,589,565	3.17		13,750,330	1
CSO166 Total								67,634,076	16
CSO167	7/3/2018 13:45	7/3/2018 14:30	45	0.59	160,702	1.4		94,814	1
	7/20/2018 17:30	7/20/2018 20:15	165	1.45	304,203	1.25		441,095	1
	7/2/2018 15:30	7/2/2018 17:00	90	Discharge	0	0.64	Data Under Review	281,105	1
	7/15/2018 17:00	7/15/2018 17:00	0	0.13	9,385	0.1		1,220	1
	7/16/2018 8:15	7/16/2018 8:30	15	0.17	44,841	0.14		7,623	1
	7/20/2018 3:15	7/20/2018 3:30	15	1.45	20,638	0.31		29,925	1
	7/22/2018 15:30	7/22/2018 16:15	45	0.51	120,098	1.75		61,250	1
	7/30/2018 22:00	7/31/2018 11:45	825	1.99	157,151	1.95		312,731	1
	8/19/2018 20:30	8/19/2018 21:45	75	0.2	479,035	2.6		95,807	1
	8/20/2018 11:15	8/20/2018 12:30	75	0.34	316,356	2.88		107,561	1
	9/6/2018 11:30	9/6/2018 12:00	30	0.46	122,778	0.86		56,478	1
	9/21/2018 17:30	9/21/2018 18:00	30	0.41	85,112	0.47		34,896	1
	9/23/2018 4:15	9/23/2018 8:30	255	1.21	290,159	1.66		351,092	1
	9/25/2018 5:45	9/25/2018 6:45	60	0.09	444,689	3.01		40,022	1
	9/25/2018 16:30	9/26/2018 5:15	765	0.68	445,612	3.66		303,016	1
	9/24/2018 0:45	9/24/2018 21:15	1230	1.3	587,658	2.96		763,955	1
	8/15/2018 19:45	8/16/2018 13:00	1035	2.38	402,143	2.39		957,101	1
	8/31/2018 17:15	8/31/2018 18:15	60	0.42	317,486	0.37		133,344	1
9/8/2018 1:30	9/8/2018 5:45	255	2.43	3,351	0.83		8,142	1	
9/8/2018 15:45	9/9/2018 7:15	930	2.43	392,953	2.9		954,875	1	
9/22/2018 15:30	9/22/2018 17:45	135	1.21	65,698	0.83		79,495	1	
CSO167 Total								5,115,547	21
CSO174	7/2/2018 17:30	7/2/2018 17:45	15	0.4	2,805,140	1.03	Retained by the Sneads Branch FPS	1,122,056	1
	7/31/2018 2:00	7/31/2018 5:00	180	2.14	380,788	1.61	Partially Retained by the Sneads Branch FPS	814,887	1
	7/15/2018 18:15	7/15/2018 18:15	0	0.1	757,080	0.1	Retained by the Sneads Branch FPS	75,708	1
	7/31/2018 13:15	7/31/2018 13:15	0	2.14	57,670	2.17	Retained by the Sneads Branch FPS	123,413	1
	9/24/2018 7:30	9/24/2018 11:00	210	1.29	266,049	2.56	Partially Retained by the Sneads Branch FPS	343,203	1
	9/25/2018 17:00	9/25/2018 17:00	0	0.67	159,030	3.08	Retained by the Sneads Branch FPS	106,550	1
	9/8/2018 18:30	9/8/2018 22:15	225	2.36	1,533,211	2.54	Partially Retained by the Sneads Branch FPS	3,618,378	1
	9/23/2018 5:30	9/23/2018 6:45	75	1.28	481,629	1.49	Retained by the Sneads Branch FPS	616,485	1
CSO174 Total								6,820,680	8
CSO178	8/20/2018 11:15	8/20/2018 12:00	45	0.72	1,217,039	3.57		876,268	1
	9/21/2018 14:15	9/21/2018 17:45	210	0.39	684,541	0.44		266,971	1
	9/8/2018 17:30	9/8/2018 23:00	330	2.68	1,014,550	2.81		2,718,995	1
	9/23/2018 4:15	9/23/2018 11:45	450	1.42	961,253	1.86		1,364,979	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO178	8/15/2018 20:00	8/16/2018 11:30	930	2.81	1,435,629	2.81		4,034,117	1
	9/6/2018 11:45	9/6/2018 12:00	15	0.14	943,557	0.28		132,098	1
	9/22/2018 15:15	9/22/2018 19:15	240	1.42	285,125	0.87		404,877	1
	9/25/2018 16:45	9/26/2018 3:00	615	0.77	1,766,548	4.05		1,360,242	1
	9/25/2018 6:00	9/25/2018 6:30	30	0.06	2,444,383	3.32		146,663	1
	9/24/2018 1:00	9/24/2018 14:45	825	1.45	1,665,679	3.28		2,415,234	1
CSO178 Total								13,720,444	10
CSO179	7/20/2018 21:00	7/20/2018 21:00	0	1.07	5,614	1.26		6,007	1
	7/31/2018 2:15	7/31/2018 7:30	315	2.14	28,129	2		60,197	1
	9/24/2018 7:15	9/24/2018 14:15	420	1.29	116,722	2.75		150,572	1
	9/8/2018 17:45	9/8/2018 23:15	330	2.36	208,533	2.55		492,138	1
	9/25/2018 6:00	9/25/2018 6:00	0	0.08	400	2.83		32	1
	9/23/2018 6:15	9/23/2018 7:30	75	1.28	35,793	1.51		45,815	1
	9/25/2018 17:15	9/25/2018 17:45	30	0.67	32,921	3.14		22,057	1
	9/26/2018 2:30	9/26/2018 2:30	0	0.67	394	3.47		264	1
	8/16/2018 5:00	8/16/2018 10:45	345	2.55	67,108	2.54		171,126	1
CSO179 Total								948,208	9
CSO180	7/16/2018 9:15	7/16/2018 9:30	15	0.14	48,107	0.2	Retained by the Sneads Branch FPS	6,735	1
	7/2/2018 17:30	7/2/2018 17:45	15	0.4	326,845	1.03	Retained by the Sneads Branch FPS	130,738	1
	7/30/2018 23:45	7/31/2018 12:45	780	2.14	170,554	2.17		364,986	1
	7/15/2018 18:15	7/15/2018 18:15	0	0.1	664,740	0.1	Retained by the Sneads Branch FPS	66,474	1
	7/22/2018 17:30	7/22/2018 17:30	0	0.12	7,533	1.32	Retained by the Sneads Branch FPS	904	1
	7/20/2018 13:45	7/20/2018 21:00	435	1.07	193,335	1.26	Retained by the Sneads Branch FPS	206,868	1
	8/19/2018 20:30	8/19/2018 21:15	45	0.21	312,300	2.78	Retained by the Sneads Branch FPS	65,583	1
	8/20/2018 11:15	8/20/2018 11:30	15	0.5	117,402	3.23	Retained by the Sneads Branch FPS	58,701	1
	9/6/2018 11:30	9/6/2018 11:45	15	0.19	162,395	0.38	Retained by the Sneads Branch FPS	30,855	1
	9/24/2018 7:15	9/24/2018 13:45	390	1.29	169,237	2.74	Partially Retained by the Sneads Branch FPS	218,316	1
	9/26/2018 1:45	9/26/2018 2:15	30	0.67	33,833	3.47	Retained by the Sneads Branch FPS	22,668	1
	9/8/2018 17:30	9/8/2018 22:15	285	2.36	458,608	2.54	Partially Retained by the Sneads Branch FPS	1,082,316	1
	9/23/2018 4:15	9/23/2018 7:00	165	1.28	125,616	1.5	Retained by the Sneads Branch FPS	160,789	1
	9/25/2018 5:45	9/25/2018 5:45	0	0.08	391,475	2.83	Retained by the Sneads Branch FPS	31,318	1
8/15/2018 20:00	8/16/2018 9:00	780	2.55	142,887	2.43	Partially Retained by the Sneads Branch FPS	364,363	1	
9/25/2018 17:00	9/25/2018 17:30	30	0.67	121,936	3.14	Retained by the Sneads Branch FPS	81,697	1	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO180	9/21/2018 17:45	9/21/2018 17:45	0	0.18	31,533	0.26	Retained by the Sneads Branch FPS	5,676	1
	9/8/2018 5:30	9/8/2018 5:30	0	2.36	5,283	0.56	Retained by the Sneads Branch FPS	12,467	1
	9/22/2018 17:00	9/22/2018 17:00	0	1.28	5,089	0.6	Retained by the Sneads Branch FPS	6,514	1
CSO180 Total								2,917,968	19
CSO181	7/20/2018 19:45	7/20/2018 21:15	90	0.94	144,975,023	1.17		136,276,522	1
	7/31/2018 2:00	7/31/2018 7:15	315	1.92	87,584,205	1.91		168,161,673	1
	7/3/2018 16:00	7/3/2018 16:00	0	0.36	14,490,128	0.91		5,216,446	1
	7/2/2018 18:00	7/2/2018 18:15	15	0.27	180,842,822	0.86		48,827,562	1
	7/20/2018 5:15	7/20/2018 5:15	0	0.94	180,231	0.41		169,417	1
	8/20/2018 11:30	8/20/2018 11:45	15	0.59	113,595,881	3.34		67,021,570	1
	8/15/2018 20:00	8/16/2018 9:00	780	2.7	47,147,702	2.55		127,298,796	1
	9/8/2018 17:45	9/8/2018 21:30	225	2.32	69,211,046	2.31		160,569,626	1
	9/24/2018 7:45	9/24/2018 11:00	195	1.35	4,452,359	2.68		6,010,685	1
CSO181 Total							719,552,297	9	
CSO182	7/2/2018 17:30	7/2/2018 17:30	0	0.52	3,231	0.99	Retained by the Sneads Branch FPS	1,680	1
	7/3/2018 14:30	7/3/2018 15:15	45	0.44	23,116	1.06	Retained by the Sneads Branch FPS	10,171	1
	7/16/2018 8:15	7/16/2018 8:45	30	0.14	55,193	0.14	Retained by the Sneads Branch FPS	7,727	1
	7/30/2018 22:00	7/31/2018 5:00	420	1.86	13,515	1.34		25,138	1
	7/15/2018 17:30	7/15/2018 17:30	0	0.12	70,608	0.08	Retained by the Sneads Branch FPS	8,473	1
	7/20/2018 13:15	7/20/2018 20:30	435	0.86	20,929	1	Retained by the Sneads Branch FPS	17,999	1
	7/22/2018 16:30	7/22/2018 17:00	30	0.1	78,840	1.11	Retained by the Sneads Branch FPS	7,884	1
CSO182 Total							79,072	7	
CSO183	9/8/2018 17:30	9/8/2018 21:15	225	2.25	100,615	2.47	Partially Retained by the Sneads Branch FPS	226,384	1
	9/25/2018 17:00	9/25/2018 17:00	0	0.66	908	3.66	Retained by the Sneads Branch FPS	599	1
	9/23/2018 6:15	9/23/2018 6:15	0	1.38	88	1.75	Retained by the Sneads Branch FPS	122	1
CSO183 Total							227,105	3	
CSO184	8/20/2018 11:30	8/20/2018 11:30	0	0.41	25,749	3.22	Retained by the Sneads Branch FPS	10,557	1
	9/8/2018 17:30	9/8/2018 22:15	285	2.25	960,871	2.59	Partially Retained by the Sneads Branch FPS	2,161,960	1
	9/25/2018 17:00	9/25/2018 17:00	0	0.66	13,729	3.66	Retained by the Sneads Branch FPS	9,061	1
	9/23/2018 6:15	9/23/2018 6:30	15	1.38	19,111	1.79	Retained by the Sneads Branch FPS	26,373	1
	9/24/2018 13:30	9/24/2018 13:30	0	1.54	380	3.24	Retained by the Sneads Branch FPS	585	1
CSO184 Total							2,208,536	5	

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO185	7/2/2018 17:30	7/2/2018 18:00	30	0.65	8,217	1.41	Retained by the Sneads Branch FPS	5,341	1
	7/3/2018 16:00	7/3/2018 16:00	0	0.5	138	1.43	Retained by the Sneads Branch FPS	69	1
	7/15/2018 18:15	7/15/2018 18:15	0	0.13	13,054	0.14	Retained by the Sneads Branch FPS	1,697	1
	7/20/2018 13:45	7/20/2018 21:15	450	1.09	2,116	1.33	Retained by the Sneads Branch FPS	2,306	1
	7/30/2018 23:15	7/31/2018 13:00	825	1.58	4,861	1.72		7,680	1
	8/20/2018 11:15	8/20/2018 11:15	0	0.41	119,751	3.22	Retained by the Sneads Branch FPS	49,098	1
	9/8/2018 17:15	9/8/2018 22:15	300	2.25	944,210	2.59	Partially Retained by the Sneads Branch FPS	2,124,472	1
	8/15/2018 19:45	8/16/2018 9:00	795	2.64	169,491	2.5	Partially Retained by the Sneads Branch FPS	447,456	1
	8/19/2018 20:00	8/19/2018 20:45	45	0.15	291,453	2.88	Retained by the Sneads Branch FPS	43,718	1
8/31/2018 17:15	8/31/2018 17:15	0	0.27	12,915	0.16	Retained by the Sneads Branch FPS	3,487	1	
CSO185 Total								2,685,324	10
CSO186	9/8/2018 20:00	9/8/2018 20:00	0	2.36	22,875	2.08	Retained by the Sneads Branch FPS	53,986	1
CSO186 Total								53,986	1
CSO187	8/20/2018 11:00	8/20/2018 11:00	0	0.5	20,834	3.01	Retained by the Sneads Branch FPS	10,417	1
	9/8/2018 20:00	9/8/2018 20:00	0	2.36	9,208	2.08	Retained by the Sneads Branch FPS	21,730	1
	8/16/2018 4:30	8/16/2018 4:30	0	2.55	1,689	1.79	Retained by the Sneads Branch FPS	4,308	1
CSO187 Total								36,455	3
CSO188	9/8/2018 20:00	9/8/2018 20:15	15	2.36	41,771	2.2	Retained by the Sneads Branch FPS	98,580	1
CSO188 Total								98,580	1
CSO189	7/30/2018 23:30	7/31/2018 12:00	750	2.27	6,551,678	2.42		14,872,309	1
	7/3/2018 14:00	7/3/2018 15:15	75	0.2	3,447,240	0.48		689,448	1
	7/16/2018 7:30	7/16/2018 8:30	60	0.26	2,466,885	0.17		641,390	1
	7/20/2018 17:15	7/20/2018 20:30	195	0.79	7,563,011	0.94		5,974,779	1
	8/20/2018 11:30	8/20/2018 13:15	105	0.48	3,119,802	4.59		1,497,505	1
	8/15/2018 20:00	8/16/2018 12:45	1005	4.16	4,272,772	4.09		17,774,732	1
	8/31/2018 16:45	8/31/2018 19:45	180	1.94	2,705,660	2.05		5,248,980	1
	9/24/2018 7:45	9/24/2018 8:15	30	2.69	1,869	3.09		5,028	1
	9/23/2018 5:30	9/23/2018 6:30	60	1.55	6,591	1.74		10,216	1
	9/6/2018 12:15	9/6/2018 12:45	30	0.29	162,424	2.25		47,103	1
	9/8/2018 16:15	9/9/2018 1:45	570	3.74	2,822,657	4.17		10,556,737	1
	9/21/2018 14:45	9/21/2018 17:45	180	0.29	19,397	0.34		5,625	1
9/26/2018 3:00	9/26/2018 3:00	0	1.29	59,409	5.86		76,638	1	
CSO189 Total								57,400,490	13
CSO190	7/31/2018 1:30	7/31/2018 12:45	675	2.08	208,788	2.12		434,280	1
	7/20/2018 20:45	7/20/2018 20:45	0	1.73	56,157	2.13		97,152	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO190	7/16/2018 9:30	7/16/2018 9:30	0	0.32	1,353	0.33		433	1
	9/8/2018 17:00	9/8/2018 22:30	330	3.55	731,480	3.95		2,596,754	1
	9/21/2018 14:00	9/21/2018 14:00	0	0.46	54,330	0.22		24,992	1
	9/23/2018 4:00	9/23/2018 6:45	165	1.59	66,256	2.01		105,347	1
	9/24/2018 7:15	9/24/2018 13:45	390	1.99	393,502	3.87		783,069	1
	9/25/2018 16:15	9/25/2018 17:15	60	1.02	98,498	4.64		100,468	1
	9/26/2018 1:45	9/26/2018 1:45	0	1.02	1,500	4.96		1,530	1
	8/20/2018 11:00	8/20/2018 11:30	30	0.61	1,470,477	3.47		896,991	1
	8/15/2018 19:45	8/16/2018 9:30	825	3	311,078	2.89		933,233	1
	9/25/2018 5:30	9/25/2018 5:30	0	1.99	1,032	3.99		2,054	1
8/31/2018 16:30	8/31/2018 17:00	30	0.47	95,451	0.39		44,862	1	
CSO190 Total								6,021,165	13
CSO193	7/20/2018 19:30	7/20/2018 21:00	90	0.94	2,368	1.22		2,226	1
	7/16/2018 9:30	7/16/2018 9:30	0	0.2	10	0.23		2	1
CSO193 Total								2,228	2
CSO195	7/31/2018 1:30	7/31/2018 1:45	15	2.16	4,256	0.96		9,192	1
	7/20/2018 14:00	7/20/2018 20:45	405	1	291	1.13		291	1
	7/3/2018 16:15	7/3/2018 16:15	0	0.35	14	1.11		5	1
	8/20/2018 11:30	8/20/2018 11:30	0	0.51	43	3.26		22	1
	9/8/2018 19:45	9/8/2018 19:45	0	2.47	5	2.01		13	1
	8/16/2018 5:00	8/16/2018 8:45	225	2.68	3	2.52		8	1
CSO195 Total								9,531	6
CSO196	7/31/2018 1:15	7/31/2018 12:45	690	2.16	5,804	2.21		12,536	1
	7/16/2018 9:15	7/16/2018 9:30	15	0.14	364	0.16		51	1
	7/2/2018 17:30	7/2/2018 17:45	15	0.3	363	0.95		109	1
	7/3/2018 15:45	7/3/2018 16:00	15	0.35	137	1.1		48	1
	7/20/2018 4:45	7/20/2018 4:45	0	1	5	0.34		5	1
	7/22/2018 17:30	7/22/2018 17:30	0	0.08	0	1.24		0	1
	7/20/2018 13:45	7/20/2018 21:00	435	1	3,161	1.18		3,161	1
	8/20/2018 11:15	8/20/2018 11:30	15	0.51	17,278	3.26		8,812	1
	9/24/2018 7:15	9/24/2018 13:45	390	1.3	18,103	2.88		23,534	1
	9/8/2018 17:30	9/8/2018 22:00	270	2.47	121,576	2.6		300,293	1
	9/21/2018 17:30	9/21/2018 17:45	15	0.25	8,296	0.32		2,074	1
	9/23/2018 4:15	9/23/2018 7:00	165	1.34	14,328	1.62		19,199	1
	9/25/2018 5:45	9/25/2018 5:45	0	0.08	29,188	2.97		2,335	1
	9/25/2018 16:30	9/25/2018 17:30	60	0.76	11,322	3.3		8,605	1
	8/15/2018 20:00	8/16/2018 8:45	765	2.68	13,421	2.52		35,968	1
9/8/2018 5:30	9/8/2018 5:30	0	2.47	665	0.48		1,642	1	
9/22/2018 16:45	9/22/2018 17:00	15	1.34	60	0.7		81	1	
CSO196 Total								418,453	17
CSO197	9/23/2018 4:00	9/27/2018 12:30	6270	1.34	867,704	3.82		1,162,723	1
	8/20/2018 11:00	8/20/2018 19:45	525	0.51	92,925	3.3		47,392	1
	8/31/2018 17:15	8/31/2018 17:30	15	0.14	11,193	0.08		1,567	1
	9/21/2018 17:45	9/21/2018 18:30	45	0.25	150,368	0.32		37,592	1
	9/6/2018 11:15	9/6/2018 11:45	30	0.15	41,167	0.25		6,175	1
	8/15/2018 12:15	8/16/2018 11:00	1365	2.68	79,144	2.68		212,107	1
	8/21/2018 19:45	8/21/2018 19:45	0	0.05	5,820	3.36		291	1
	8/25/2018 8:30	8/25/2018 11:30	180	Discharge	0	0.7	Data Under Review	1,365	1
	8/31/2018 7:30	8/31/2018 8:00	30	Discharge	0	0.02	Data Under Review	582	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO197	9/4/2018 6:45	9/5/2018 10:30	1665	Discharge	0	0.16		15,603	1
	9/7/2018 18:45	9/10/2018 1:30	3285	2.47	871,016	2.66		2,151,409	1
	9/19/2018 7:15	9/19/2018 12:15	300	Discharge	0	0.07		225,967	1
	9/22/2018 14:45	9/22/2018 18:15	210	1.34	48,252	0.74		64,658	1
CSO197 Total								3,927,431	13
CSO198	9/8/2018 17:00	9/8/2018 20:00	180	2.47	96,680	2.16		238,800	1
	9/23/2018 4:00	9/23/2018 6:45	165	1.34	20,596	1.61		27,599	1
	9/25/2018 16:15	9/26/2018 2:00	585	0.76	21,541	3.67		16,371	1
	9/22/2018 16:30	9/22/2018 16:45	15	1.34	837	0.69		1,121	1
	9/25/2018 5:30	9/25/2018 5:30	0	0.08	27,963	2.97		2,237	1
	9/24/2018 6:45	9/24/2018 13:30	405	1.3	29,241	2.88		38,013	1
	9/21/2018 17:15	9/21/2018 17:30	15	0.25	34,820	0.32		8,705	1
9/8/2018 5:00	9/8/2018 5:15	15	2.47	663	0.48		1,637	1	
CSO198 Total								334,483	8
CSO199	7/16/2018 9:15	7/16/2018 9:30	15	0.14	50	0.16		7	1
	7/2/2018 17:30	7/2/2018 19:00	90	0.3	1,813	1.06		544	1
	7/3/2018 15:45	7/3/2018 21:15	330	0.35	54	1.13		19	1
	7/31/2018 1:30	7/31/2018 12:45	675	2.16	2,897	2.21		6,257	1
	7/20/2018 4:45	7/20/2018 5:00	15	1	7	0.37		7	1
	7/22/2018 17:30	7/22/2018 17:30	0	0.08	13	1.24		1	1
	7/20/2018 13:45	7/20/2018 21:00	435	1	494	1.18		494	1
	8/20/2018 11:15	8/20/2018 11:45	30	0.51	21,402	3.26		10,915	1
	9/24/2018 7:15	9/24/2018 13:45	390	1.3	4,409	2.88		5,732	1
	9/8/2018 17:30	9/8/2018 22:00	270	2.47	33,996	2.6		83,971	1
	9/21/2018 17:30	9/21/2018 17:45	15	0.25	9,612	0.32		2,403	1
	8/15/2018 12:45	8/16/2018 14:15	1530	2.68	12,220	2.68		32,749	1
	9/25/2018 17:15	9/26/2018 2:15	540	0.76	166	3.7		126	1
9/23/2018 5:15	9/23/2018 7:00	105	1.34	859	1.62		1,151	1	
9/7/2018 19:15	9/8/2018 5:30	615	2.47	33	0.48		82	1	
CSO199 Total								144,458	15
CSO200	7/30/2018 22:15	7/31/2018 9:30	675	2.16	66,826	2.02		144,344	1
	7/20/2018 17:30	7/20/2018 17:45	15	1	42,153	0.56		42,153	1
	9/24/2018 7:15	9/24/2018 11:00	225	1.3	5,403	2.7		7,024	1
	9/8/2018 17:15	9/8/2018 21:00	225	2.47	91,638	2.39		226,345	1
	9/21/2018 17:30	9/21/2018 17:30	0	0.25	2,752	0.32		688	1
	9/23/2018 5:15	9/23/2018 6:30	75	1.34	1,069	1.59		1,432	1
	8/15/2018 16:30	8/16/2018 5:45	795	2.68	14,181	1.84		38,005	1
	9/8/2018 5:15	9/8/2018 5:15	0	2.47	1,261	0.48		3,114	1
8/30/2018 10:45	8/30/2018 10:45	0	Discharge	0	0.02		366	1	
CSO200 Total								463,471	9
CSO202	7/2/2018 17:30	7/2/2018 17:45	15	0.3	533	0.95		160	1
	7/3/2018 15:45	7/3/2018 16:00	15	0.35	46	1.1		16	1
	7/31/2018 1:30	7/31/2018 12:45	675	2.16	1,715	2.21		3,705	1
	7/20/2018 4:45	7/20/2018 4:45	0	1	54	0.34		54	1
	7/20/2018 13:45	7/20/2018 20:45	420	1	631	1.13		631	1
	7/3/2018 3:30	7/3/2018 4:45	75	0.3	3	1.08		1	1
	7/25/2018 18:15	7/25/2018 18:15	0	0.02	100	1.16		2	1
	8/20/2018 11:15	8/20/2018 11:30	15	0.51	32,737	3.26		16,696	1
	9/8/2018 17:30	9/8/2018 22:00	270	2.47	36,487	2.6		90,124	1

CSO	Start Date-Time	End Date-Time	Duration (Minutes)	Rain Total (Inch)	Discharge Volume per Rainfall	Antecedent Rain	Comments	Sum of Overflow Volume (Gal)	Count of Key
CSO202	9/21/2018 17:30	9/21/2018 17:30	0	0.25	22,204	0.32		5,551	1
	9/23/2018 4:15	9/23/2018 6:45	150	1.34	1,019	1.61		1,366	1
	9/25/2018 5:45	9/25/2018 5:45	0	0.08	9,200	2.97		736	1
	9/25/2018 16:30	9/25/2018 17:30	60	0.76	2,667	3.3		2,027	1
	8/15/2018 19:45	8/16/2018 8:45	780	2.68	9,470	2.52		25,380	1
	9/24/2018 0:30	9/24/2018 13:45	795	1.3	5,622	2.91		7,308	1
	9/8/2018 5:30	9/8/2018 5:30	0	2.47	38	0.48		94	1
	9/7/2018 19:00	9/7/2018 19:00	0	2.47	19	0.19		48	1
CSO202 Total								153,899	17
CSO203	7/20/2018 19:30	7/20/2018 20:45	75	1	27,667	1.13		27,667	1
	7/31/2018 1:45	7/31/2018 2:30	45	2.16	15,168	1.44		32,763	1
	8/20/2018 11:15	8/20/2018 11:30	15	0.51	24,114	3.26		12,298	1
	8/15/2018 20:00	8/16/2018 8:45	765	2.68	595	2.52		1,594	1
	9/8/2018 19:30	9/8/2018 20:00	30	2.47	19,452	2.16		48,046	1
CSO203 Total								122,368	5
CSO205	7/2/2018 17:30	7/2/2018 17:45	15	0.52	29	1.21	Retained by the Sneads Branch FPS	15	1
	7/15/2018 18:15	7/15/2018 18:15	0	0.12	83	0.12	Retained by the Sneads Branch FPS	10	1
	7/20/2018 13:45	7/20/2018 21:15	450	0.86	29	1.12	Retained by the Sneads Branch FPS	25	1
	7/30/2018 23:15	7/31/2018 13:00	825	1.86	27	1.94		50	1
CSO205 Total								100	4
CSO210	7/31/2018 1:15	7/31/2018 17:15	960	2.18	10,734,217	2.43		23,400,592	1
	7/20/2018 19:15	7/21/2018 1:30	375	0.71	8,279,586	1.18		5,878,506	1
	7/3/2018 15:45	7/3/2018 19:15	210	0.11	20,676,182	0.58		2,274,380	1
	7/16/2018 10:45	7/16/2018 12:15	90	0.36	3,816,183	0.46		1,373,826	1
	8/31/2018 17:00	9/1/2018 16:45	1425	1.18	296,143,281	1.25		349,449,072	1
	9/25/2018 16:15	9/26/2018 5:00	765	1.08	14,361,259	5.87		15,510,160	1
	8/20/2018 11:00	8/20/2018 14:00	180	0.69	5,291,958	4.47		3,651,451	1
	9/24/2018 7:00	9/24/2018 17:15	615	2.72	8,992,598	4.77		24,459,867	1
	9/22/2018 16:45	9/22/2018 19:15	150	1.85	1,896,978	0.85		3,509,410	1
	9/23/2018 5:00	9/23/2018 9:15	255	1.85	3,293,998	2.05		6,093,896	1
	8/8/2018 0:30	8/8/2018 0:45	15	0.3	565,217	0.21		169,565	1
	8/15/2018 19:30	8/16/2018 14:45	1155	3.98	7,288,727	3.98		29,009,134	1
	9/8/2018 16:45	9/9/2018 2:00	555	3.53	5,955,226	3.86		21,021,947	1
CSO210 Total								485,801,806	13
CSO211	7/31/2018 1:30	7/31/2018 9:45	495	2.18	30,557,505	2.39		66,615,361	1
	7/2/2018 18:30	7/2/2018 20:00	90	0.1	23,141,280	0.88		2,314,128	1
	7/3/2018 17:00	7/3/2018 17:45	45	0.11	1,263,891	0.58		139,028	1
	7/20/2018 20:30	7/20/2018 23:30	180	0.71	17,264,525	1.18		12,257,813	1
	8/15/2018 20:30	8/16/2018 12:45	975	3.98	19,333,503	3.98		76,947,341	1
	8/20/2018 11:15	8/20/2018 13:15	120	0.69	18,997,959	4.47		13,108,592	1
	9/24/2018 7:15	9/24/2018 16:00	525	2.72	23,103,802	4.76		62,842,341	1
	9/8/2018 17:15	9/9/2018 1:00	465	3.53	14,089,991	3.86		49,737,667	1
	Grand Total								3,131,573,036

Appendix C Acronyms

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Appendix C Acronyms

ACD	Amended Consent Decree
AAOV	Average Annual Overflow Volume
BGI	Beargrass Interceptor
BGIR	Beargrass Interceptor Relief
BOD	Biological Oxygen Demand
CCP	Composite Correction Plan
CCWQTC	Cedar Creek Water Quality Treatment Center
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
DAP	Discharge Abatement Plan
DRGWQTC	Derek R. Guthrie Water Quality Treatment Center
DWO	Dry Weather Overflow
EPA	Environmental Protection Agency
FEPS	Final Effluent Pump Station
FOG	Fat Oil and Grease
FY	Fiscal Year
GLPM	Gravity Line Preventive Maintenance
HCWQTC	Hite Creek Water Quality Treatment Center
HMI	Human Machine Interface
ICM	Integrated Catchment Model
ID	Identification
IFIX	Software name
I/O	Input/ Output
I/I	Inflow and Infiltration
IOAP	Integrated Overflow Abatement Plan
ISSDP	Interim Sanitary Sewer Discharge Plan
KDEP	Kentucky Department of Environmental Protection
KPDES	Kentucky Pollutant Discharge Elimination System
LG&E	Louisville Gas & Electric Company
LWC	Louisville Water Company
LTCP	Long Term Control Plan
MCC	Motor Control Center
MF/MFWQTC	Morris Forman Water Quality Treatment Center
MFI	Middle Fork Interceptor
MG	Million Gallons
MGD	Million Gallons per Day
MSD	Metropolitan Sewer District (Louisville and Jefferson County)
NGPS	Nightingale Pump Station

Appendix C Acronyms

NMC	Nine Minimum Controls
ORFM	Ohio River Force Main
ORI	Ohio River Interceptor
PLC	Programmable Logic Controller
PM	Preventive Maintenance
PS	Pump Station
RAS	Return Activated Sludge
RTC	Real Time Control
SED2	South East Diversion 2
SCADA	Supervisory Control And Data Acquisition
SCAP	System Capacity Assurance Plan
SCS	Soil Conservation Service
SOP	Standard Operating Procedure
SOR1	Southern Outfall Retention Facility 1
SORP	Sewer Overflow Response Protocol
SPS	Starkey Pump Station
SSDP	Sanitary Sewer Discharge Plan
SSES	Sewer System Evaluation Survey
SSO	Sanitary Sewer Overflow
SSOP	Sanitary Sewer Overflow Plan
SWOR1	Southwestern Outfall Retention – Phase 1
SWOR2	Southwestern Outfall Retention – Phase 2
SWPS	Southwestern Pump Station
SWSG	Southwest Sluice Gate
TRFD	Total Rainfall Depth
TSS	Total Suspended Solids
TV	Television
UMFPS	Upper Middle Fork Pump Station
UM	Unplanned Maintenance
US	United States
VFD	Variable Frequency Drive
WIN	Waterway Improvements Now
WQTC	Water Quality Treatment Center
WUS	Waters of the United States
WWTF	Wastewater Treatment Facility

Appendix D SCAP Balance

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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>
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
SC1074160	MAINTENANCE WORK FY13 JAN-JUN -	SCAPCREDIT		6/30/13	4,443	673,005
SC1005524	CONTRACTED WORK FY13 - CEDAR	SCAPCREDIT		8/19/13	425	673,430
14SC1000	MAINTENANCE WORK FY13A - CEDAR	SCAPCREDIT		12/31/13	2,220	675,650
13LE1155	RAISING CANE'S CEDARLOOK DRIVE	LAT EXT	1,175	5/23/14	-2,556	673,094
239030	POPLAR LAKES PH 1	LAT EXT	18,000	1/26/15	-39,150	633,944
13LE1003	Bardstown Woods Sec 6	LAT EXT	5,200	5/26/15	-11,310	622,634
LE916330	Altawood Development	LAT EXT	1,600	9/14/15	-3,480	619,154
SC1003694	CONTRACTED WORK FY16 - CEDAR	SCAPCREDIT		9/25/15	328	619,482
SC1006188	CONTRACTED WORK FY15 - CEDAR	SCAPCREDIT		9/25/15	1	619,483
LE915727	BARDSTOWN WOODS SEC 7	LAT EXT	4,400	5/25/16	-9,570	609,913



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>
SC1006171	CONTRACTED WORK FY14 - CEDAR	SCAPCREDIT		10/26/16	45,900	655,813
LE983107	Poplar Lakes Phase 3	LAT EXT	12,000	8/14/17	-26,100	629,713
LE971176	Cedar Ridge	LAT EXT	18,800	10/24/17	-40,890	588,823
LE1027406	Chenoweth Run, LLC	LAT EXT	1,600	3/13/18	-3,480	585,343
LE1005655	Carrier Court	LAT EXT	400	4/2/18	-870	584,473
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

<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>
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
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
LE992628	Blankenbaker Centre II	LAT EXT	2,340	10/9/17	-5,090	197,635

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

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>
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
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

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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
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

Capacity Credit Balance Sheet per Credit Basin

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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
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



Capacity Credit Balance Sheet per Credit Basin

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LE944727	Britz Deer Hollow Lane	LAT EXT	800	7/28/16	-1,740	556,658
LE1049057	Advanced ENT	LAT EXT	705	5/15/18	-1,533	555,124
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
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

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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
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

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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
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	MCPAHAN 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



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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
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
LE960133	ShelbyHurst Office - 435 Building	LAT EXT	9,500	4/11/18	-20,663	2,295,258
LE1042560	202 Oxmoor Lane Residential	LAT EXT	76,700	4/11/18	-166,823	2,128,436
LE1032029	The Enclave at Douglas Hills Section 1	LAT EXT	27,200	4/23/18	-59,160	2,069,276
LE1055615	Bennett & Bloom Medical Office	LAT EXT	585	6/6/18	-1,272	2,068,003
LE1041043	Single Family Unit (Lot 11)	LAT EXT	400	7/24/18	-870	2,067,133
166053	616 & 618 FOUNTAIN AVE S/S	LAT EXT	1,600	9/7/18	-3,480	2,063,653
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

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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
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
LE1056400	Thomas Car Wash	LAT EXT	4,670	10/10/18	-10,157	195,755
LE1032761	TRACKSIDE at Churchill Downs	LAT EXT	13,400	10/22/18	-29,145	166,610
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

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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
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



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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
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

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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
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

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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
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



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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(Formally	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
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



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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
LE1053266	Yokomori Manufacturing Facility	LAT EXT	1,750	4/9/18	-3,806	4,017,525
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
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

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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
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

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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
LE1039341	Silver Creek Place Apartments	LAT EXT	7,200	4/9/18	-15,660	907,925
LE1046691	Crown Packaging	LAT EXT	400	4/18/18	-870	907,055

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Appendix E IOAP Project Crosswalk

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PROJECT NAME	PROGRAM	ASSET ID	PROJECT ID
17TH ST FPS DWO ELIMINATION	IOAP	MSD0306-FP	L_OR_MF_190_S_03_A_A
27TH STREET FPS DWO ELIM	IOAP	MSD0307-FP	L_OR_MF_019_S_03_A_A
34TH ST FPS DWO ELIMINATION	IOAP	MSD0308-FP	L_OR_MF_019_S_03_A_B
4TH STREET FPS DWO ELIMINATION	IOAP	MSD0303-FP	L_OR_MF_022_M_03_A_A
ADAMS STREET SEWER SEPARATION (FORMERLY STORAGE BASIN)	IOAP	CSO172	L_OR_MF_172_S_09B_B_A_0
ANCHOR ESTATES PS ELIMINATIONS 1 - VANNAH PUMP STATION ELIMINATION	IOAP	01106	S_MI_MF_NB06_M_01_A_A-2
ANCHOR ESTATES PS ELIMINATIONS 2 - ANCHOR ESTATES #1 AND #2 PUMP STATION ELIMINATION	IOAP	00056-W	S_MI_MF_NB06_M_01_A_A - 1
ANCHOR ESTATES PS ELIMINATIONS 2 - ANCHOR ESTATES #1 AND #2 PUMP STATION ELIMINATION	IOAP	0057-W	S_MI_MF_NB06_M_01_A_A - 1
ANCHOR ESTATES PS ELIMINATIONS 2 - ANCHOR ESTATES #1 AND #2 PUMP STATION ELIMINATION	IOAP	00746	S_MI_MF_NB06_M_01_A_A - 1
ANCHOR ESTATES PS ELIMINATIONS 2 - ANCHOR ESTATES #1 AND #2 PUMP STATION ELIMINATION	IOAP	00817	S_MI_MF_NB06_M_01_A_A - 1
ANCHOR ESTATES PS ELIMINATIONS 2 - ANCHOR ESTATES #1 AND #2 PUMP STATION ELIMINATION	IOAP	MSD0057-LS	S_MI_MF_NB06_M_01_A_A - 1
ASHBURTON PS IMPROVEMENTS & DIVERSION	IOAP	MSD0165-PS	S_FF_FF_NB03_M_01_C_A
ASHBURTON PS IMPROVEMENTS & DIVERSION	IOAP	MSD0166-PS	S_FF_FF_NB03_M_01_C_A
AVANTI PS ELIMINATION	IOAP	21229	S_PO_WC_PC07_M_01_A
BARDSTOWN RD PS IMPROVEMENTS	IOAP	88545	S_CC_CC_MSD1025_S_03_B
BEARGRASS INTERCEPTOR REHABILITATION PH 2	IOAP	51594	S_SD_MF_NB06_S_13_C
BEECHWOOD VILLAGE SEWER REPL	ISSDP	21061	BEECHWOOD VILLAGE SEWER REPL

BEECHWOOD VILLAGE SEWER REPL	ISSDP	21089	BEECHWOOD VILLAGE SEWER REPL
BEECHWOOD VILLAGE SEWER REPL	ISSDP	21089A	BEECHWOOD VILLAGE SEWER REPL
BEECHWOOD VILLAGE SEWER REPL	ISSDP	21101	BEECHWOOD VILLAGE SEWER REPL
BEECHWOOD VILLAGE SEWER REPL	ISSDP	21153	BEECHWOOD VILLAGE SEWER REPL
BEECHWOOD VILLAGE SEWER REPL	ISSDP	21156	BEECHWOOD VILLAGE SEWER REPL
BELLS LANE (FORMERLY PADDY'S RUN) WET WEATHER TREATMENT FACILITY	IOAP	CSO015	L_OR_MF_015_M_13_B_B_8
BELLS LANE (FORMERLY PADDY'S RUN) WET WEATHER TREATMENT FACILITY	IOAP	CSO191	L_OR_MF_015_M_13_B_B_8
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	08717	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	104223	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	104224	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	104231	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	13931	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	13943	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	13946	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	34093542	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	36763	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	44396	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	44397	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	51301	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	66349	S_SF_MF_30917_M_09_A

CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	99259	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	KK14815019	S_SF_MF_30917_M_09_A
CAMP TAYLOR SYSTEM IMPROVEMENT PHASE 1 - SSES	IOAP	KK14855239	S_SF_MF_30917_M_09_A
CAVEN AVENUE PS ELIMINATION	IOAP	17724	S_PO_WC_PC09_M_09B_C
CAVEN AVENUE PS ELIMINATION	IOAP	27116	S_PO_WC_PC09_M_09B_C
CAVEN AVENUE PS ELIMINATION	IOAP	61667	S_PO_WC_PC09_M_09B_C
CAVEN AVENUE PS ELIMINATION	IOAP	61687	S_PO_WC_PC09_M_09B_C
CAVEN AVENUE PS ELIMINATION	IOAP	70212	S_PO_WC_PC09_M_09B_C
CAVEN AVENUE PS ELIMINATION	IOAP	MSD0133-PS	S_PO_WC_PC09_M_09B_C
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO028	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO029	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO034	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO036	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO178	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO181	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO193	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO195	L_OR_MF_155_M_09B_B_B_4-1

CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO196	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO197	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO199	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO200	L_OR_MF_155_M_09B_B_B_4-1
CENTRAL RELIEF DRAIN CSO IN-LINE STORAGE, GREEN INFRASTRUCTURE, AND DISTRIBUTED STORAGE	IOAP	CSO202	L_OR_MF_155_M_09B_B_B_4-1
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
CINDERELLA PS ELIMINATION	IOAP	102339	S_PO_WC_PC04_M_01_C
CINDERELLA PS ELIMINATION	IOAP	35309	S_PO_WC_PC04_M_01_C
CINDERELLA PS ELIMINATION	IOAP	60679	S_PO_WC_PC04_M_01_C
CINDERELLA PS 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 & GREEN INFRASTRUCTURE	IOAP	CSO058	L_OR_MF_058_S_08_A_A_0
CSO093 STRUCTURAL MODIFICATIONS & GREEN INFRASTRUCTURE	IOAP	CSO093	L_SO_MF_093_S_08_A_A_0
CSO108 DAM MODIFICATION	IOAP	CSO108	L_SO_MF_108_S_09A_B_A_4
CSO140 IN-LINE STORAGE & GREEN INFRASTRUCTURE	IOAP	CSO140	L_MI_MF_140_S_08_A_A_0
CSO160 SEWER SEPARATION	IOAP	CSO160	L_OR_MF_160_S_08_A_A_0
CSO190 GREEN INFRASTRUCTURE (FORMERLY 18TH & NORTHWESTERN PKWY STORAGE BASIN)	IOAP	CSO190	L_OR_MF_190_S_09B_B_A_8
CSO206 SEWER SEPARATION	IOAP	CSO206	L_MI_MF_206_S_08_A_A_0
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	104289	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28249	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28250	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28336	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28340	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28413	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28414	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28415	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28416	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28417	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28451	S_JT_JT_NB02_M_01_C
DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28453	S_JT_JT_NB02_M_01_C

DELL RD/CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	IOAP	28711	S_JT_JT_NB02_M_01_C
DEREK R GUTHRIE WQTC UPGRADES	ISSDP	22307	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC UPGRADES	ISSDP	22370	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC UPGRADES	ISSDP	22385	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC UPGRADES	ISSDP	32682	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC UPGRADES	ISSDP	32688	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC UPGRADES	ISSDP	59169	DEREK R GUTHRIE WQTC UPGRADES
DEREK R GUTHRIE WQTC UPGRADES	ISSDP	MSD0277	DEREK R GUTHRIE WQTC UPGRADES
DERINGTON CT PS I&I INVESTIGATION & REHABILITATION	IOAP	20154-W	S_OR_MF_NB03_S_07_C
DERINGTON CT PS I&I INVESTIGATION & REHABILITATION	IOAP	20155	S_OR_MF_NB03_S_07_C
DERINGTON CT PS I&I INVESTIGATION & REHABILITATION	IOAP	MSD0095-PS	S_OR_MF_NB03_S_07_C
EAST ROCKFORD PS RELOCATION	IOAP	04699-W	S_MC_WC_NB02_S_03_C
EDEN CARE PS SSO INVESTIGATION	IOAP	MSD1105-PS	S_FF_FF_NB02_S_13_C
EDSEL PS I&I INVESTIGATION & REHABILITATION	IOAP	92098	S_PO_WC_PC11_M_07_C
EDSEL PS I&I INVESTIGATION & REHABILITATION	IOAP	92099	S_PO_WC_PC11_M_07_C
EDSEL PS I&I INVESTIGATION & REHABILITATION	IOAP	94009	S_PO_WC_PC11_M_07_C
EDSEL PS I&I INVESTIGATION & REHABILITATION	IOAP	MSD1048-PS	S_PO_WC_PC11_M_07_C
ELIMINATION OF CHENOWETH HILLS WQTC, CHENOWETH RUN PUMP STATION, AND CHIPPEWA PUMP STATION	IOAP	64096	S_JT_JT_NB01A_M_03_C
ELIMINATION OF CHENOWETH HILLS WQTC, CHENOWETH RUN PUMP STATION, AND CHIPPEWA PUMP STATION	IOAP	86052	S_JT_JT_NB01A_M_03_C

ELIMINATION OF CHENOWETH HILLS WQTC, CHENOWETH RUN PUMP STATION, AND CHIPPEWA PUMP STATION	IOAP	92061	S_JT_JT_NB01A_M_03_C
ELIMINATION OF CHENOWETH HILLS WQTC, CHENOWETH RUN PUMP STATION, AND CHIPPEWA PUMP STATION	IOAP	MSD0196-PS	S_JT_JT_NB01A_M_03_C
ELIMINATION OF CHENOWETH HILLS WQTC, CHENOWETH RUN PUMP STATION, AND CHIPPEWA PUMP STATION	IOAP	MSD0263	S_JT_JT_NB01A_M_03_C
ELIMINATION OF CHENOWETH HILLS WQTC, CHENOWETH RUN PUMP STATION, AND CHIPPEWA PUMP STATION	IOAP	MSD0263A-PS	S_JT_JT_NB01A_M_03_C
ELIMINATION OF CHENOWETH HILLS WQTC, CHENOWETH RUN PUMP STATION, AND CHIPPEWA PUMP STATION	IOAP	MSD1043-PS	S_JT_JT_NB01A_M_03_C
FAIRMOUNT RD PS IMPROVEMENTS	IOAP	116106	S_FF_CC_81316_M_03_C_A
FAIRMOUNT RD PS IMPROVEMENTS	IOAP	81316	S_FF_CC_81316_M_03_C_A
FAIRMOUNT RD PS IMPROVEMENTS	IOAP	97362	S_FF_CC_81316_M_03_C_A
FAIRMOUNT RD PS IMPROVEMENTS	IOAP	97363	S_FF_CC_81316_M_03_C_A
FAIRMOUNT RD PS IMPROVEMENTS	IOAP	97365	S_FF_CC_81316_M_03_C_A
FAIRWAY VIEW PS IMPROVEMENTS	IOAP	MSD1065-PS	S_HC_HS_NB01_S_03_C_A
FLOYDSBURG RD I&I INVEST	IOAP	108953	S_HC_HC_MSD1086_M_07_C_A
FLOYDSBURG RD I&I INVEST	IOAP	108956	S_HC_HC_MSD1086_M_07_C_A
FLOYDSBURG RD I&I INVEST	IOAP	108957	S_HC_HC_MSD1086_M_07_C_A
FLOYDSBURG RD I&I INVEST	IOAP	108958	S_HC_HC_MSD1086_M_07_C_A
FLOYDSBURG RD I&I INVEST	IOAP	90776	S_HC_HC_MSD1086_M_07_C_A
FLOYDSBURG RD I&I INVEST	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 PS IMPROVEMENTS AND WET WEATHER STORAGE 1 - DEVONDALE WET WEATHER STORAGE	IOAP	105936	S_MI_MF_NB04_M_03_B-1
GOOSE CREEK PS IMPROVEMENTS AND WET WEATHER STORAGE 1 - DEVONDALE WET WEATHER STORAGE	IOAP	117721	S_MI_MF_NB04_M_03_B-1
GOOSE CREEK PS IMPROVEMENTS AND WET WEATHER STORAGE 1 - DEVONDALE WET WEATHER STORAGE	IOAP	43472	S_MI_MF_NB04_M_03_B-1
GOOSE CREEK PS IMPROVEMENTS AND WET WEATHER STORAGE 1 - DEVONDALE WET WEATHER STORAGE	IOAP	46891	S_MI_MF_NB04_M_03_B-1
GOOSE CREEK PS IMPROVEMENTS AND WET WEATHER STORAGE 1 - DEVONDALE WET WEATHER STORAGE	IOAP	62418	S_MI_MF_NB04_M_03_B-1
GOOSE CREEK PS IMPROVEMENTS AND WET WEATHER STORAGE 1 - DEVONDALE WET WEATHER STORAGE	IOAP	62420	S_MI_MF_NB04_M_03_B-1
GOOSE CREEK PS IMPROVEMENTS AND WET WEATHER STORAGE 1 - DEVONDALE WET WEATHER STORAGE	IOAP	91629	S_MI_MF_NB04_M_03_B-1
GOOSE CREEK PS IMPROVEMENTS AND WET WEATHER STORAGE 1 - DEVONDALE WET WEATHER STORAGE	IOAP	91630	S_MI_MF_NB04_M_03_B-1
GOOSE CREEK PS IMPROVEMENTS AND WET WEATHER STORAGE 1 - DEVONDALE WET WEATHER STORAGE	IOAP	MSD0040-PS	S_MI_MF_NB04_M_03_B-1
GOOSE CREEK PS IMPROVEMENTS AND WET WEATHER STORAGE 1 - DEVONDALE WET WEATHER STORAGE	IOAP	MSD1024-PS	S_MI_MF_NB04_M_03_B-1
GOVERNMENT CENTER PS ELIMINATION	IOAP	94541	S_PO_WC_PC06_M_01_C
GOVERNMENT CENTER PS ELIMINATION	IOAP	94542	S_PO_WC_PC06_M_01_C
GOVERNMENT CENTER PS ELIMINATION	IOAP	MSD0180-PS	S_PO_WC_PC06_M_01_C
GUNPOWDER PS IN-LINE STORAGE	IOAP	MSD1055-LS	S_HC_HN_NB02_S_09A_C_B
HAZELWOOD PS I&I INVESTIGATION & REHABILITATION	IOAP	55665	S_MC_MF_55665_S_07_C
HAZELWOOD PS I&I INVESTIGATION & REHABILITATION	IOAP	55667	S_MC_MF_55665_S_07_C

HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	17571	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18134	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18297	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18298	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18299	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18302	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18318-W	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18370	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18434	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18471	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18483	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18505	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	18595	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	47960A	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	48885	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	48886	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	48888	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	49224	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	49236	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	49672	HIKES LN INTER & HIGHGATE SPR

HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	49673	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	73111	HIKES LN INTER & HIGHGATE SPR
HIKES LANE-HIGHGATE SPRINGS PS	ISSDP	MSD0012-PS	HIKES LN INTER & HIGHGATE SPR
HURSTBOURNE I/I INVESTIGATION & REHABILITATION	IOAP	01793	S_MI_MF_NB07_S_07_C
HURSTBOURNE I/I INVESTIGATION & REHABILITATION	IOAP	47650	S_MI_MF_NB07_S_07_C
HURSTBOURNE I/I INVESTIGATION & REHABILITATION	IOAP	47656	S_MI_MF_NB07_S_07_C
HURSTBOURNE I/I INVESTIGATION & REHABILITATION	IOAP	67535	S_MI_MF_NB07_S_07_C
I-64 & GRINSTEAD DR STORAGE BAS	IOAP	CSO125	L_MI_MF_127_M_09B_B_A_8
I-64 & GRINSTEAD DR STORAGE BAS	IOAP	CSO126	L_MI_MF_127_M_09B_B_A_8
I-64 & GRINSTEAD DR STORAGE BAS	IOAP	CSO127	L_MI_MF_127_M_09B_B_A_8
I-64 & GRINSTEAD DR STORAGE BAS	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
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 RD PS 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 PS SSO INVESTIGATION	IOAP	MSD1169-LS	S_FF_LF_NB01_S_13_C_A
LANTANA #1 PS I/I INVESTIGATION & REHABILITATION	IOAP	25484	S_PO_WC_PC05_M_07_C
LANTANA #1 PS I/I INVESTIGATION & REHABILITATION	IOAP	93719	S_PO_WC_PC05_M_07_C
LANTANA #1 PS I/I INVESTIGATION & REHABILITATION	IOAP	MSD0101-PS	S_PO_WC_PC05_M_07_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	19360	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	19369	S_PO_WC_PC08_M_01_C

LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	29933	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	29943	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	29948	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	29949	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	31073	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	31074	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	31083	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	31084	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	57874	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	61266	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	79076	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	MSD1010-PS	S_PO_WC_PC08_M_01_C
LEA ANN WAY SYSTEM IMPROVEMENT	IOAP	MSD1200-PS	S_PO_WC_PC08_M_01_C
LELAND RD SSO INVESTIGATION	IOAP	96020	S_OR_MF_NB02_S_13_C
LEVEN PS ELIMINATION	IOAP	36419	S_PO_WC_PC10_M_01_C
LEVEN PS ELIMINATION	IOAP	MSD1019-PS	S_PO_WC_PC10_M_01_C
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 & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO091	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO097	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO106	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO110	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO111	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO113	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO137	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO146	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO148	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO149	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO151	L_SO_MF_092_M_09B_B_D_8
LOGAN & BRECKINRIDGE ST STORAGE BASIN	IOAP	CSO152	L_SO_MF_092_M_09B_B_D_8
LUCAS LN PS IN-LINE STORAGE	IOAP	MSD0199-LS	S_FF_BT_NB01_S_09A_C_A
MEADOW STREAM PS & FM UPGRADE	IOAP	91087	S_HC_HC_MSD1082_S_09A_C
MEADOW STREAM PS & FM UPGRADE	IOAP	MSD1082-PS	S_HC_HC_MSD1082_S_09A_C
MELLWOOD SYSTEM IMPROVEMENTS AND PS ELIMINATIONS 1 - MELLWOOD PS AND FM IMPROVEMENTS	IOAP	24152-W	S_OR_MF_NB01_M_01_B-1
MELLWOOD SYSTEM IMPROVEMENTS AND PS ELIMINATIONS 1 - MELLWOOD PS AND FM IMPROVEMENTS	IOAP	24472	S_OR_MF_NB01_M_01_B-1

MELLWOOD SYSTEM IMPROVEMENTS AND PS ELIMINATIONS 1 - MELLWOOD PS AND FM IMPROVEMENTS	IOAP	26752	S_OR_MF_NB01_M_01_B-1
MELLWOOD SYSTEM IMPROVEMENTS AND PS ELIMINATIONS 1 - MELLWOOD PS AND FM IMPROVEMENTS	IOAP	41374	S_OR_MF_NB01_M_01_B-1
MELLWOOD SYSTEM IMPROVEMENTS AND PS ELIMINATIONS 1 - MELLWOOD PS AND FM IMPROVEMENTS	IOAP	41416	S_OR_MF_NB01_M_01_B-1
MELLWOOD SYSTEM IMPROVEMENTS AND PS ELIMINATIONS 1 - MELLWOOD PS AND FM IMPROVEMENTS	IOAP	MSD0006-PS	S_OR_MF_NB01_M_01_B-1
MELLWOOD SYSTEM IMPROVEMENTS AND PS ELIMINATIONS 1 - MELLWOOD PS AND FM IMPROVEMENTS	IOAP	MSD0007-PS	S_OR_MF_NB01_M_01_B-1
MELLWOOD SYSTEM IMPROVEMENTS AND PS ELIMINATIONS 1 - MELLWOOD PS AND FM IMPROVEMENTS	IOAP	MSD0010-PS	S_OR_MF_NB01_M_01_B-1
MELLWOOD SYSTEM IMPROVEMENTS AND PS ELIMINATIONS 1 - MELLWOOD PS AND FM IMPROVEMENTS	IOAP	MSD0023-PS	S_OR_MF_NB01_M_01_B-1
MELLWOOD SYSTEM IMPROVEMENTS AND PS ELIMINATIONS 1 - MELLWOOD PS AND FM IMPROVEMENTS	IOAP	MSD0024-PS	S_OR_MF_NB01_M_01_B-1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	02932	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	02933	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	02935	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	08537	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	08935-SM	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	115183	S_MISF_MF_NB01_M_01_C_A1

MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	115184	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	115185	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	15194	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	15195	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	23211	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	23212	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	24553	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	27005	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	27007	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	30376	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	40471	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	40559	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	43726	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	45796	S_MISF_MF_NB01_M_01_C_A1

MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	45829	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	45835	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	45900	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	47034	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	47582	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	47583	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	47593	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	47596	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	47603	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	47604	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	51160	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	51161	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	51180	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	51221	S_MISF_MF_NB01_M_01_C_A1

MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	72288	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	72289	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	74513	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	84155	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	90700	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	96672	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	96673	S_MISF_MF_NB01_M_01_C_A1
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE AND UMFPS DIVERSION 1 - BUECHEL BASIN	IOAP	IS021A-SI	S_MISF_MF_NB01_M_01_C_A1
MONTICELLO PS ELIMINATION	IOAP	27969	S_JT_JT_NB04_M_01_A
MONTICELLO PS ELIMINATION	IOAP	MSD0151-PS	S_JT_JT_NB04_M_01_A
MORRIS FORMAN WQTC HEADWORKS (FORMERLY ALGONQUIN PKWY STORAGE BASIN)	IOAP	CSO211	L_OR_MF_211_M_13_B_A_8
NIGHTINGALE PS REPLACEMENT & STORAGE	IOAP	CSO018	L_SO_MF_018_S_03_A_A
NORTHERN DITCH DIVERSION INTER	ISSDP	MSD0271	NORTHERN DITCH DIVERSION INTER
OHIO RIVER TUNNEL (FORMERLY STORY & MAIN ST STORAGE BASIN)	IOAP	CSO020	L_OR_MF_020_S_09B_B_A_8
OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO022	L_OR_MF_155_M_09B_B_B_4
OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO023	L_OR_MF_155_M_09B_B_B_4
OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO050	L_OR_MF_155_M_09B_B_B_4

OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO051	L_OR_MF_155_M_09B_B_B_4
OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO052	L_OR_MF_155_M_09B_B_B_4
OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO053	L_OR_MF_155_M_09B_B_B_4
OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO054	L_OR_MF_155_M_09B_B_B_4
OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO055	L_OR_MF_155_M_09B_B_B_4
OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO056	L_OR_MF_155_M_09B_B_B_4
OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO150	L_OR_MF_155_M_09B_B_B_4
OHIO RIVER TUNNEL (FORMERLY 13TH ST/ROWAN ST STORAGE BASIN)	IOAP	CSO155	L_OR_MF_155_M_09B_B_B_4
OHIO RIVER TUNNEL (FORMERLY LEXINGTON RD & PAYNE ST STORAGE BASIN)	IOAP	CSO082	L_SO_MF_083_M_09B_B_A_8
OHIO RIVER TUNNEL (FORMERLY LEXINGTON RD & PAYNE ST STORAGE BASIN)	IOAP	CSO084	L_SO_MF_083_M_09B_B_A_8
OHIO RIVER TUNNEL (FORMERLY LEXINGTON RD & PAYNE ST STORAGE BASIN)	IOAP	CSO118	L_SO_MF_083_M_09B_B_A_8
OHIO RIVER TUNNEL (FORMERLY LEXINGTON RD & PAYNE ST STORAGE BASIN)	IOAP	CSO119	L_SO_MF_083_M_09B_B_A_8
OHIO RIVER TUNNEL (FORMERLY LEXINGTON RD & PAYNE ST STORAGE BASIN)	IOAP	CSO120	L_SO_MF_083_M_09B_B_A_8
OHIO RIVER TUNNEL (FORMERLY LEXINGTON RD & PAYNE ST STORAGE BASIN)	IOAP	CSO121	L_SO_MF_083_M_09B_B_A_8
OHIO RIVER TUNNEL (FORMERLY LEXINGTON RD & PAYNE ST STORAGE BASIN)	IOAP	CSO141	L_SO_MF_083_M_09B_B_A_8
OHIO RIVER TUNNEL (FORMERLY LEXINGTON RD & PAYNE ST STORAGE BASIN)	IOAP	CSO153	L_SO_MF_083_M_09B_B_A_8
PARKVIEW ESTATES I&I INVESTIGATION	IOAP	47250	S_SD_MF_NB03_S_07_C
PORTLAND CSO STORAGE BASIN	IOAP	CSO019	L_OR_MF_019_S_13_B_A_8
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	16455	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	22436	S_OR_MF_NB04_M_03_B_B-1

PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	40870	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	40871	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	40872	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	40879	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	40880	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	42675	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	42680	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	46621	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	46623	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	46627	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	65606	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	65610	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	65623	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	65633	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	65635	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	89646	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	89791	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	MSD0123-PS	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	MSD0183-PS	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	MSD0186-PS	S_OR_MF_NB04_M_03_B_B-1

PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	MSD0192-PS	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	MSD0193-PS	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	MSD0291	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	MSD0292	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	MSD1044-PS	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 1 - WQTC ELIMINATIONS	IOAP	MSD1063-PS	S_OR_MF_NB04_M_03_B_B-1
PROSPECT SYSTEM IMPROVEMENTS 3 - ORFM SYSTEM IMPROVEMENTS	IOAP	89641	S_OR_MF_NB04_M_03_B_B-3
RAINTREE DRIVE AND MARIAN COURT SYSTEM IMPROVEMENTS PHASE 1 - PUMP STATION ELIMINATION	IOAP	28729-W	S_JT_JT_NB03_M_01_C-1
RAINTREE DRIVE AND MARIAN COURT SYSTEM IMPROVEMENTS PHASE 1 - PUMP STATION ELIMINATION	IOAP	MSD0149-PS	S_JT_JT_NB03_M_01_C-1
RIDING RIDGE PS IMPROVEMENTS	IOAP	MSD1060-LS	S_HC_HN_NB01_S_03_C_A
RUNNING FOX PS ELIMINATION	IOAP	MSD1080-LS	S_CC_CC_MSD1080_S_01_C
SHAWNEE FPS DWO 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
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 INTERCEPTOR	IOAP	21103	SINKING FORK RELIEF SEWER
SINKING FORK INTERCEPTOR	IOAP	25012	SINKING FORK RELIEF SEWER
SINKING FORK INTERCEPTOR	IOAP	63319	SINKING FORK RELIEF SEWER
SONNE PS I&I INVESTIGATION & REHABILITATION	IOAP	MSD0042-PS	S_OR_MF_42007_S_07_C
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	08426	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	08427	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	08430	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	08431	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	18654	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	30680	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	30681	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	30701	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	30702	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	30704	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	49647	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	63779	SOUTHEASTERN DIVERSION STRUCT
SOUTHEASTERN DIVERSION STRUCTURE & INTERCEPTOR	IOAP	72571-X	SOUTHEASTERN DIVERSION STRUCT
SOUTHERN OUTFALL IN-LINE STORAGE AT 43RD STREET (SOR1) (FORMERLY ALGONQUIN PKWY STORAGE BASIN)	IOAP	CSO016	L_OR_MF_211_M_13_B_A_8__

SOUTHERN OUTFALL IN-LINE STORAGE AT 43RD STREET (SOR1) (FORMERLY ALGONQUIN PKWY STORAGE BASIN)	IOAP	CSO210	L_OR_MF_211_M_13_B_A_8__
SOUTHWESTERN PKWY CSO BASIN	IOAP	CSO104	L_OR_MF_105_M_13_B_A_0
SOUTHWESTERN PKWY CSO BASIN	IOAP	CSO105	L_OR_MF_105_M_13_B_A_0
SOUTHWESTERN PKWY CSO BASIN	IOAP	CSO189	L_OR_MF_105_M_13_B_A_0
ST RENE RD PS IN-LINE STORAGE	IOAP	94187	S_FF_CH_NB01_S_09A_C_A
SUTHERLAND INTERCEPTOR	IOAP	16649	S_SD_MF_NB05_M_01_A
WOODLAND HILLS PS DIVERSION	IOAP	33003	S_FF_FF_NB01_S_01_C_A
WOODLAND HILLS PS DIVERSION	IOAP	65516	S_FF_FF_NB01_S_01_C_A
WOODLAND HILLS PS DIVERSION	IOAP	65531	S_FF_FF_NB01_S_01_C_A

Appendix F CSO Flow Monitoring Quality Improvement

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Table F.1. Phase 1 CSOs

CSO	FINAL SOP COMPLETED	HISTORICAL VOLUME REVISED	PROGRAMMING CHANGES COMPLETED	EQUIPMENT CHANGES COMPLETED	TESTING / VERIFICATION COMPLETED
015	6/30/2017	6/30/2017	UNDER CONSTRUCTION	UNDER CONSTRUCTION	UNDER CONSTRUCTION
016	6/30/2017	N/A	7/30/2018	N/A	9/10/2018
018	6/30/2017	N/A	9/13/2017	N/A	STARTED
020	6/30/2017	6/30/2017	9/21/2017	N/A	10/10/2017
036	6/30/2017	6/30/2017	8/23/2017	7/29/2017	9/14/2017
054	6/30/2017	6/30/2017	9/8/2017	N/A	9/12/2017
058	6/30/2017	6/30/2017	N/A	N/A	STARTED
088	6/30/2017	6/30/2017	8/23/2017	N/A	UNDER CONSTRUCTION
093	6/30/2017	6/30/2017	N/A	N/A	STARTED
104	6/30/2017	6/30/2017	8/16/2017	N/A	9/12/2017
105	6/30/2017	6/30/2017	8/16/2017	N/A	9/12/2017
106	6/30/2017	6/30/2017	N/A	N/A	N/A
108	6/30/2017	6/30/2017	11/21/2017	10/17/2017	STARTED
109	6/30/2017	6/30/2017	11/21/2017	10/13/2017	STARTED
110	6/30/2017	6/30/2017	UNDER CONSTRUCTION	UNDER CONSTRUCTION	UNDER CONSTRUCTION
118	6/30/2017	N/A	N/A	9/12/2017	9/12/2017
121	6/30/2017	6/30/2017	9/12/2017	10/13/2017	12/21/2017
125	6/30/2017	6/30/2017	9/8/2017	8/7/2017	9/8/2017
126	6/30/2017	6/30/2017	9/14/2017	7/25/2017	12/21/2017
127	6/30/2017	N/A	N/A	N/A	N/A
130	6/30/2017	6/30/2017	8/16/2017	N/A	STARTED
132	6/30/2017	6/30/2017	9/8/2017	7/25/2017	9/21/2017
140	6/30/2017	6/30/2017	11/21/2017	10/13/2017	STARTED
146	6/30/2017	N/A	UNDER CONSTRUCTION	UNDER CONSTRUCTION	UNDER CONSTRUCTION
149	6/30/2017	N/A	UNDER CONSTRUCTION	UNDER CONSTRUCTION	UNDER CONSTRUCTION
154	6/30/2017	6/30/2017	12/11/2017	12/20/2017	3/21/2018
160	6/30/2017	6/30/2017	8/23/2017	9/20/2017	12/22/2017
166	6/30/2017	6/30/2017	9/12/2017	10/9/2017	12/21/2017
167	6/30/2017	6/30/2017	9/8/2017	N/A	12/21/2017
189	6/30/2017	6/30/2017	8/16/2017	N/A	9/21/2017
190	6/30/2017	6/30/2017	11/1/2017	N/A	1/26/2018
191	6/30/2017	6/30/2017	UNDER CONSTRUCTION	UNDER CONSTRUCTION	UNDER CONSTRUCTION
206	6/30/2017	6/30/2017	N/A	11/22/2017	12/6/2017
210	6/30/2017	N/A	STARTED	N/A	STARTED
211	6/30/2017	6/30/2017	8/16/2017	N/A	STARTED

Table F.2. Phase 2 CSOs

CSO	FINAL SOP COMPLETED	HISTORICAL VOLUME REVISED	PROGRAMMING CHANGES COMPLETED	EQUIPMENT CHANGES COMPLETED	TESTING / VERIFICATION COMPLETED
019	STARTED	NOT STARTED	NOT STARTED	N/A	NOT STARTED
022	STARTED	STARTED	10/10/2018	N/A	NOT STARTED
023	STARTED	STARTED	10/10/2018	N/A	NOT STARTED
027	STARTED	STARTED	NOT STARTED	NOT STARTED	NOT STARTED
028	STARTED	STARTED	NOT STARTED	NOT STARTED	NOT STARTED
029	STARTED	STARTED	NOT STARTED	NOT STARTED	NOT STARTED
031	STARTED	STARTED	NOT STARTED	NOT STARTED	NOT STARTED
034	STARTED	STARTED	NOT STARTED	NOT STARTED	NOT STARTED
035	STARTED	N/A	NOT STARTED	NOT STARTED	NOT STARTED
038	STARTED	STARTED	NOT STARTED	N/A	NOT STARTED
050	STARTED	STARTED	6/12/2018	N/A	NOT STARTED
051	STARTED	N/A	6/12/2018	N/A	NOT STARTED
052	STARTED	STARTED	NOT STARTED	NOT STARTED	NOT STARTED
053	STARTED	STARTED	6/20/2018	N/A	NOT STARTED
055	STARTED	STARTED	6/18/2018	N/A	NOT STARTED
056	STARTED	N/A	NOT STARTED	10/24/2017	NOT STARTED
057	STARTED	N/A	6/12/2018	N/A	NOT STARTED
062	STARTED	N/A	NOT STARTED	NOT STARTED	NOT STARTED
082	STARTED	STARTED	6/26/2018	N/A	NOT STARTED
083	STARTED	STARTED	6/26/2018	N/A	NOT STARTED
084	STARTED	N/A	6/27/2018	NOT STARTED	NOT STARTED
091	STARTED	N/A	UNDER CONSTRUCTION	N/A	NOT STARTED
092	STARTED	STARTED	6/20/2018	N/A	NOT STARTED
097	STARTED	STARTED	UNDER CONSTRUCTION	N/A	NOT STARTED
111	STARTED	STARTED	UNDER CONSTRUCTION	N/A	NOT STARTED
113	STARTED	STARTED	UNDER CONSTRUCTION	N/A	NOT STARTED
117	STARTED	STARTED	UNDER CONSTRUCTION	N/A	NOT STARTED
119	STARTED	STARTED	6/26/2018	N/A	NOT STARTED
120	STARTED	STARTED	6/26/2018	N/A	NOT STARTED
131	STARTED	N/A	NOT STARTED	10/2/2018	NOT STARTED
137	STARTED	STARTED	UNDER CONSTRUCTION	N/A	NOT STARTED
141	STARTED	N/A	NOT STARTED	5/30/2018	NOT STARTED
144	STARTED	STARTED	6/26/2018	TO BE DETERMINED	NOT STARTED
148	STARTED	STARTED	UNDER CONSTRUCTION	N/A	NOT STARTED

Table F.2. Phase 2 CSOs

CSO	FINAL SOP COMPLETED	HISTORICAL VOLUME REVISED	PROGRAMMING CHANGES COMPLETED	EQUIPMENT CHANGES COMPLETED	TESTING / VERIFICATION COMPLETED
150	STARTED	N/A	6/12/2018	N/A	NOT STARTED
151	STARTED	STARTED	UNDER CONSTRUCTION	N/A	NOT STARTED
152	STARTED	STARTED	UNDER CONSTRUCTION	N/A	NOT STARTED
153	STARTED	STARTED	6/26/2018	N/A	NOT STARTED
155	STARTED	STARTED	6/12/2018	N/A	NOT STARTED
161	STARTED	N/A	6/12/2018	N/A	NOT STARTED
172	STARTED	N/A	NOT STARTED	NOT STARTED	NOT STARTED
178	STARTED	STARTED	NOT STARTED	TO BE DETERMINED	NOT STARTED
179	STARTED	STARTED	UNDER CONSTRUCTION	N/A	NOT STARTED
181	STARTED	NOT STARTED	NOT STARTED	NOT STARTED	NOT STARTED
193	STARTED	STARTED	6/20/2018	N/A	NOT STARTED
195	STARTED	STARTED	6/22/2018	N/A	NOT STARTED
196	STARTED	STARTED	6/22/2018	N/A	NOT STARTED
197	STARTED	STARTED	6/22/2018	N/A	NOT STARTED
198	STARTED	STARTED	6/26/2018	N/A	NOT STARTED
199	STARTED	STARTED	6/18/2018	N/A	NOT STARTED
200	STARTED	STARTED	6/22/2018	N/A	NOT STARTED
201	STARTED	STARTED	6/22/2018	N/A	NOT STARTED
202	STARTED	STARTED	6/15/2018	N/A	NOT STARTED
203	STARTED	STARTED	6/15/2018	N/A	NOT STARTED
207	STARTED	NOT STARTED	6/22/2018	N/A	NOT STARTED
208	STARTED	STARTED	6/25/2018	N/A	NOT STARTED
SBR 142	STARTED	STARTED	6/8/2018	N/A	NOT STARTED
SBR 174	STARTED	STARTED	6/8/2018	N/A	NOT STARTED
SBR 180	STARTED	N/A	6/8/2018	TO BE DETERMINED	NOT STARTED
SBR 182	STARTED	STARTED	6/8/2018	N/A	NOT STARTED
SBR 183	STARTED	STARTED	6/4/2018	N/A	NOT STARTED
SBR 184	STARTED	STARTED	6/4/2018	N/A	NOT STARTED
SBR 185	STARTED	STARTED	6/4/2018	N/A	NOT STARTED
SBR 186	STARTED	STARTED	6/8/2018	N/A	NOT STARTED
SBR 187	STARTED	STARTED	6/8/2018	N/A	NOT STARTED
SBR 188	STARTED	STARTED	6/8/2018	TO BE DETERMINED	NOT STARTED
SBR 205	STARTED	STARTED	6/8/2018	N/A	NOT STARTED

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