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January 29, 2016

Jeffrey A. Cummins, Director
Division of Enforcement
Department for Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, NPDES Permitting & Enforcement Branch
Municipal & Industrial Enforcement Section
U.S. EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington, DC 20044-7611

Subject: Quarterly Report 41
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 October 1, 2015 – December 31, 2015, 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
MSD Chief Engineer

cc: Jame A. Parrott
Paula Purifoy
File

Transmittal_QR41
Rev. 1/28/2016

QUARTERLY REPORT #41

WET WEATHER
CONSENT DECREE

REPORTING PERIOD:
OCTOBER 1, 2015 - DECEMBER 31, 2015

SUBMITTAL DATE
JANUARY 31, 2016

SUBMITTED TO:

KENTUCKY DEPARTMENT OF ENVIRONMENTAL PROTECTION
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
UNITED STATES DEPARTMENT OF JUSTICE

SUBMITTED BY:

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
700 WEST LIBERTY STREET
LOUISVILLE, KENTUCKY, 40203-1911

msd
Safe, clean waterways

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INTRODUCTION

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

Quarterly Reporting Period

This is the forty-first Quarterly Report submitted in accordance with Paragraph 29 of the Amended Consent Decree. This report covers the time period from October 1, 2015, through December 31, 2015. **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 (October 1, 2015, through December 31, 2015).

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 (October 1, 2015, through December 31, 2015).

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, and 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 (October 1, 2015, through December 31, 2015).

Section 5: Capacity Management, Operations and Maintenance Report - The CMOM program activities and programmatic activities for WQTCs generating capital projects will be reported in a Gantt chart for the reporting period (October 1, 2015, through December 31, 2015), and the schedule for activities planned for the next reporting period (January 1, 2016, through March 31, 2016) are included in this section for continued compliance with the Amended Consent Decree.

Section 6: Performance Overview - This section provides an accounting of unauthorized discharge occurrences from the separate sanitary sewer and combined sewer systems and the estimated volumes of each. A discussion of the probable reductions in both unauthorized discharge points and the discharges from MSD's Combined Sewer Overflow (CSO) locations, identified in the Morris Forman Water Quality Treatment Center (WQTC) Kentucky Pollutant Discharge Elimination System (KPDES) permit, that are expected to result from MSD's projects and activities during the reporting period are also contained in this section.

Performance information on Jeffersontown WQTC blending events and bypasses at WQTCs, are included in this section.

SECTION 1: Program Activities for Nine Minimum Controls

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 an approval letter, dated February 22, 2007, for the NMC Compliance Report. The approved NMC Compliance document can be viewed on the MSD Project WIN website http://www.msdprojectwin.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 system. During this reporting period, approximately 497.13 MG were stored in the system during rain events and routed to the Morris Forman Water Quality Treatment Center (WQTC) once the system was able to handle the flow. See the table at the end of this section for a detailed report.

The gates at SWOR2 have been placed in manual control due to what was diagnosed as a failure of the gate level sensors that are integral to the integration of this site in the RTC schema. The sensors were replaced in the last quarter of 2013, but the problem could not be resolved at that time due to the gate-closed proximity switches also being diagnosed as defective. A description of corrective action progress is included in the Section 1.3 activities associated with Morris Forman WQTC performance.

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

On April 8, 2015, Morris Forman WQTC experienced a complete power outage. The impact from this outage continued into the fourth quarter of 2015. Final Effluent Pump #2 continues to be out of service for repairs.

During the month of October and continuing through November, the west headworks channel 1 and sedimentation tank #4 were taken out of service for maintenance bringing the plant capacity to 270 MGD. Higher than normal blanket depths in the available sedimentation tanks reduced the capacity to 250 MGD during a few rain events in October and November. This caused overflows at CSO015, CSO016, CSO191, CSO210 and CSO211 after the influent exceeded the effective effluent capacity.

By December, sedimentation tank #4 was placed back in service while the west headworks channel 1 remained out of service for maintenance. The east headworks bar screen #1 and grit chamber #3 were taken out of service for short periods which kept the effective plant capacity at 270 MGD. During rain events in December, plant effluent flows were sustained at 270 MGD before overflows occurred at CSO015, CSO016, CSO191, CSO210 and CSO211.

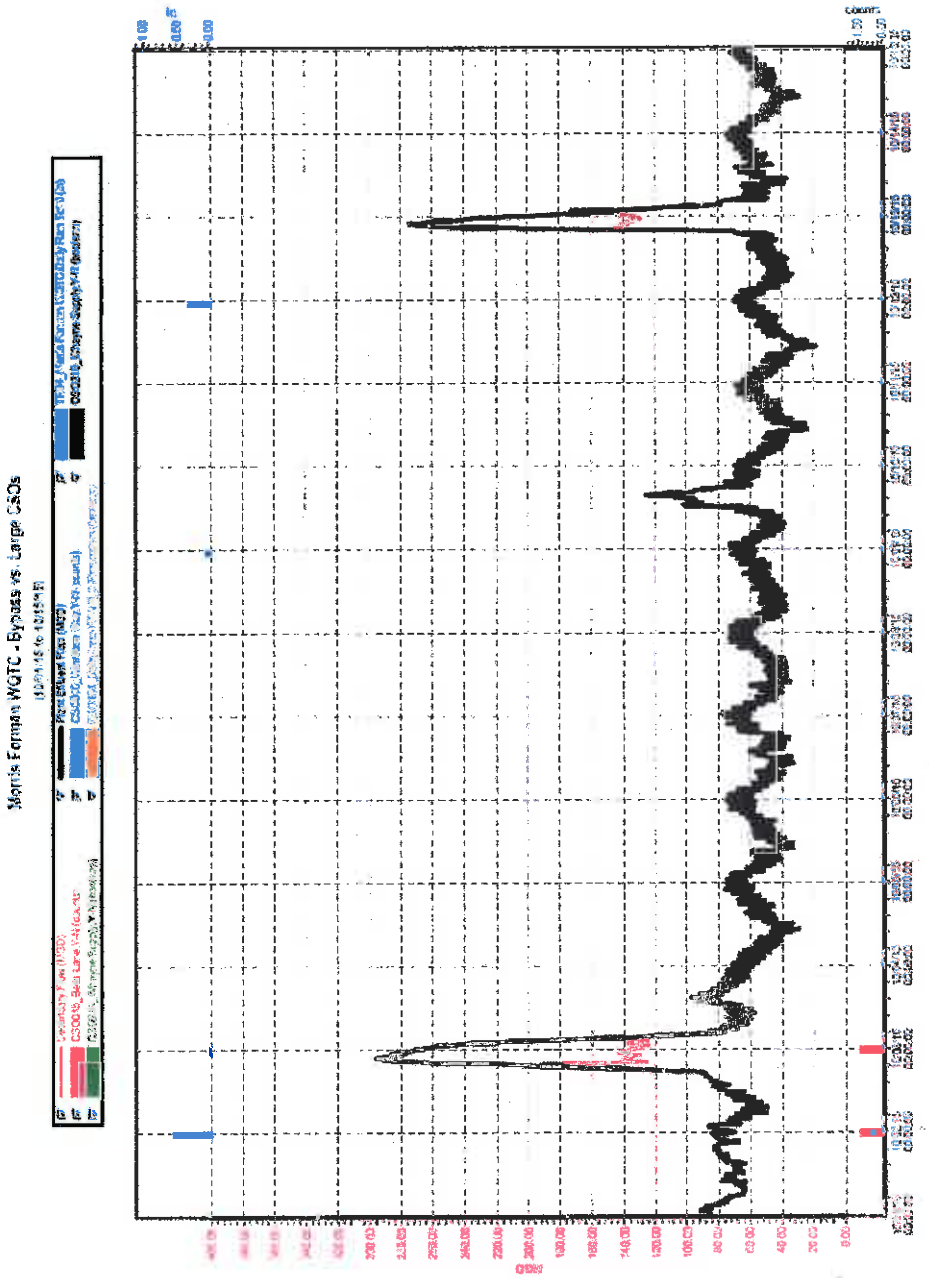
There were also outages in secondary treatment for this reporting period. Several secondary clarifiers were removed from service, maintained and placed back into service. During rain

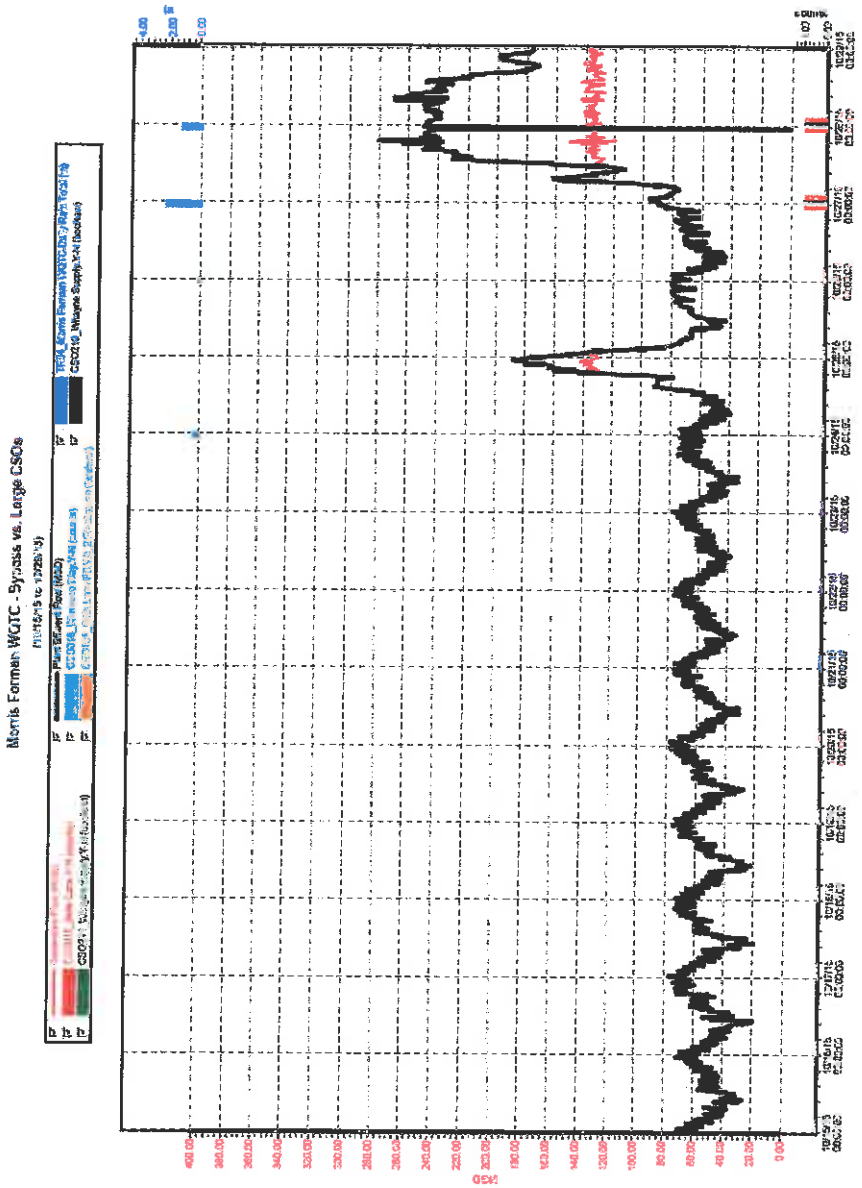
events in this quarter, Morris Forman WQTC was able to maintain flows of 120 MGD to 140 MGD and above through the secondary treatment process.

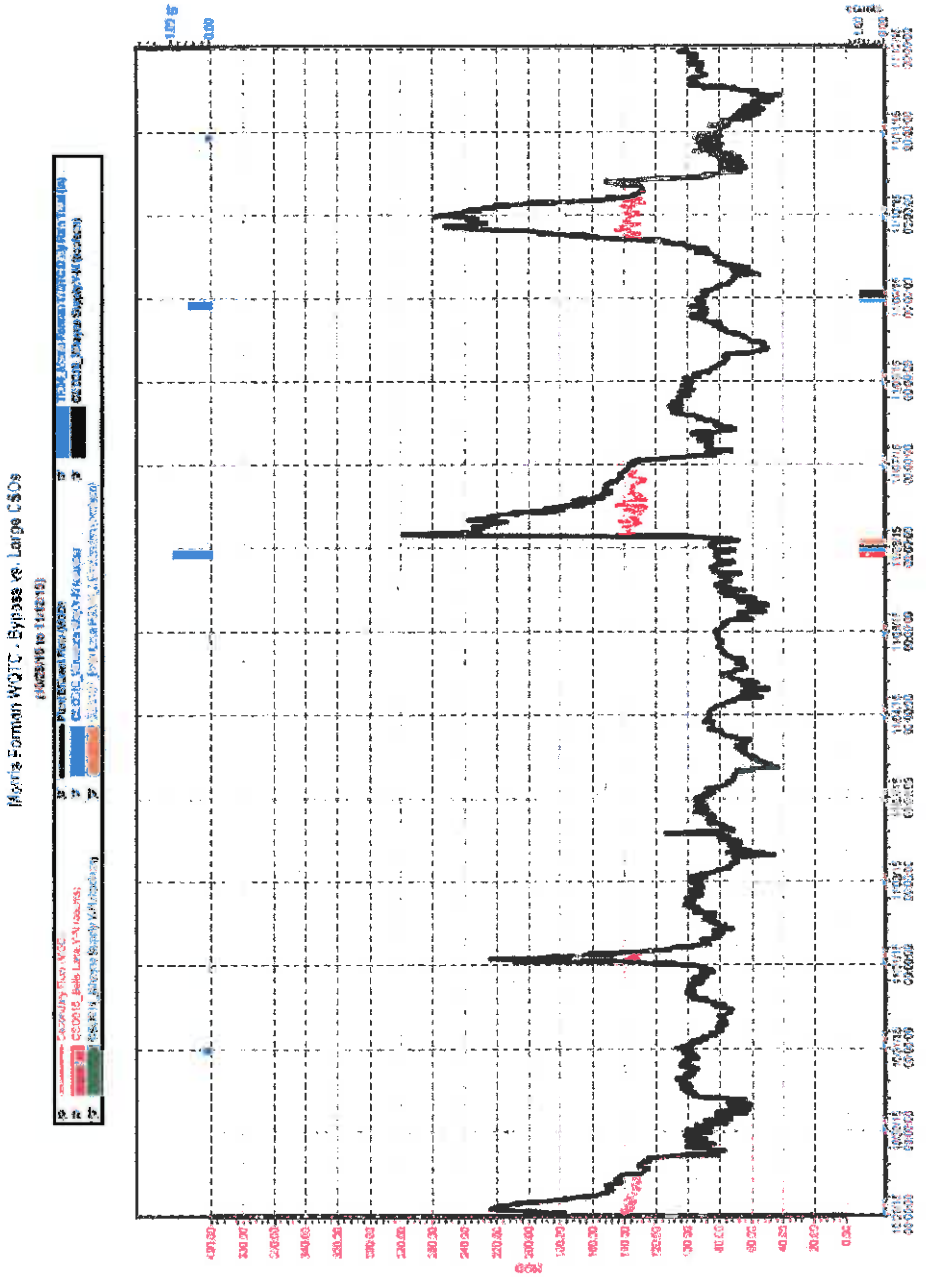
Solids processing was limited at times due to the biosolids dryer condition and capacity. Morris Forman WQTC compensated by dewatering and landfilling biosolids to meet the solids processing requirements.

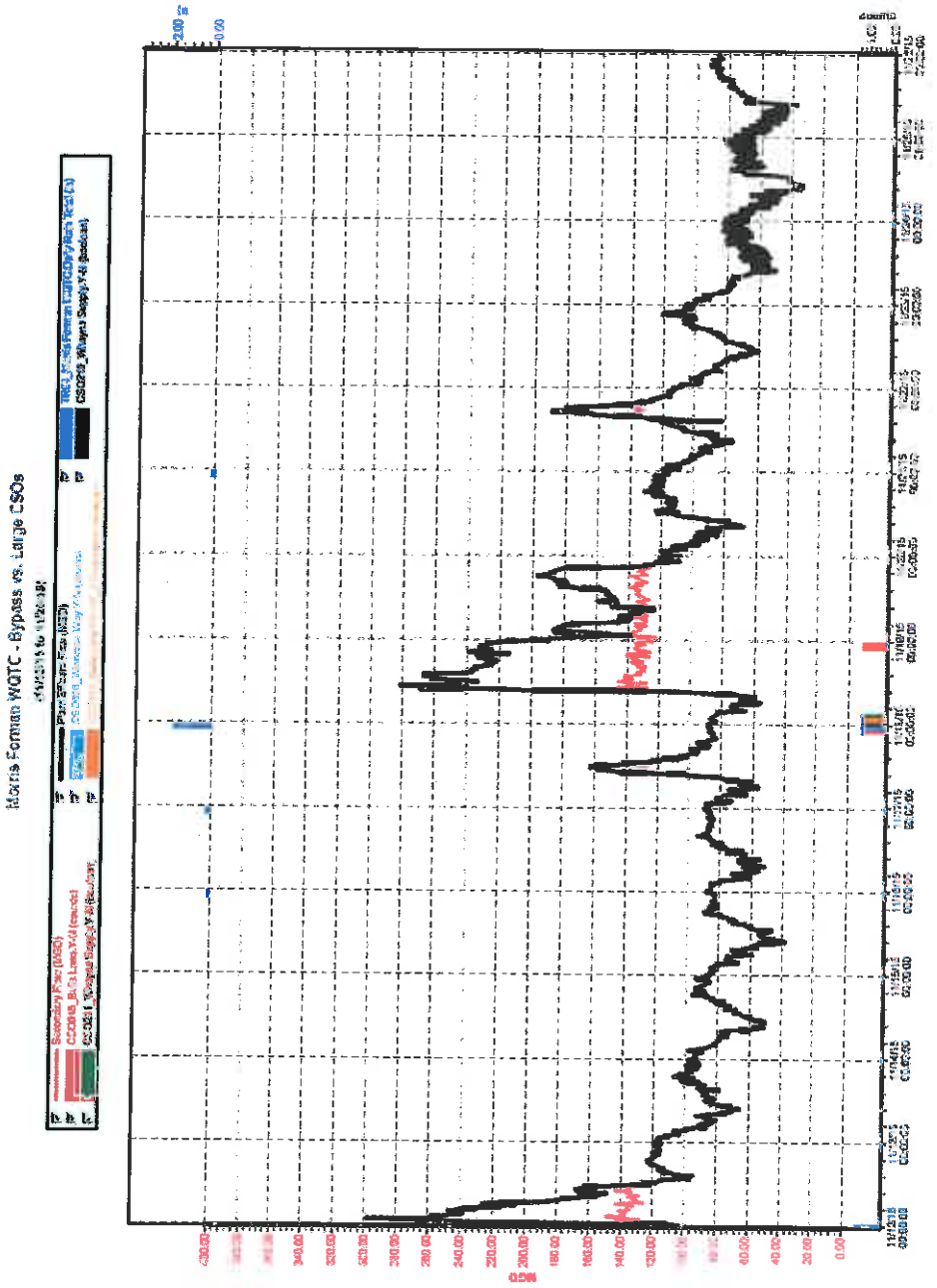
The contractor continues to take final measurements for equipment replacement and began initial mobilization to site for the Morris Forman Headworks Replacement Project. Equipment will be delivered and construction is expected to begin during the next reporting period. The Morris Forman WQTC High-Yard Substation project began with site work during this reporting period. Construction for the Final Effluent Pump Station (FEPS) Generator Project continues with site clearing and foundation preparation. Additionally, a dewatering cake pump project and centrifuge backdrive controls project was awarded during the reporting period. The cake pump project is under construction. Parts for the centrifuge backdrive project are on order and construction is expected to begin during the next reporting period.

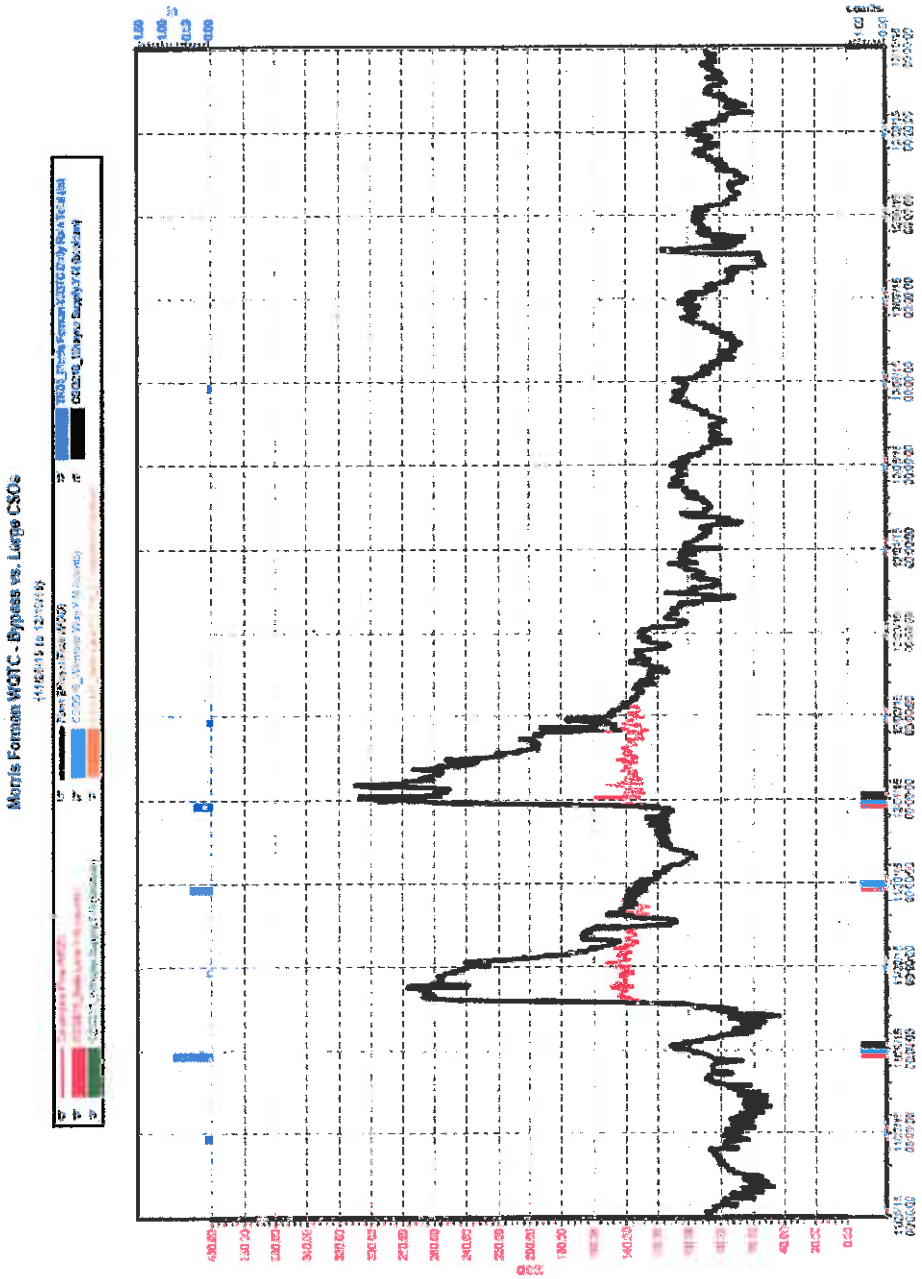
The following charts illustrate performance in maximizing flow to the Morris Forman WQTC. The top of the chart shows rainfall inches per day. The middle part of the chart shows Morris Forman WQTC effluent flow and secondary treatment flow. The difference between these is the secondary bypass flow. The bottom of the chart shows days with a CSO activation at the five CSOs in the vicinity of the Morris Forman WQTC (CSOs 015, 016, 191, 210, and 211). Note that the flow meter downstream from CSO211 is known to be affected by backwater effects of the Ohio River and the ultrasonic signal is sometimes blocked by mist and condensation when air and sewage temperatures are significantly different, so CSO activations at CSO211 are keyed to water levels upstream and downstream of the inflatable dam in the Main Diversion Structure. The other CSO activations are tied to flow measurement downstream of the respective CSOs. At times, "blips" representing very small volumes of overflow are indicated by flow meters even though an overflow cannot be verified by level measurements or other indicators. These blips are not reported as overflows, but are noted in the CSO monitoring data reported in **Appendix B**. There are occasions in which a communications failure with telemetry has led to short-term gaps in the data. In addition, indications of rainfall and CSO activations are shown on the day they happened, but are not aligned with the exact time, so the effluent flow graph (which is tied to actual time) may show peaks that are offset from the indicated rain or CSO events by as much as 24 hours.

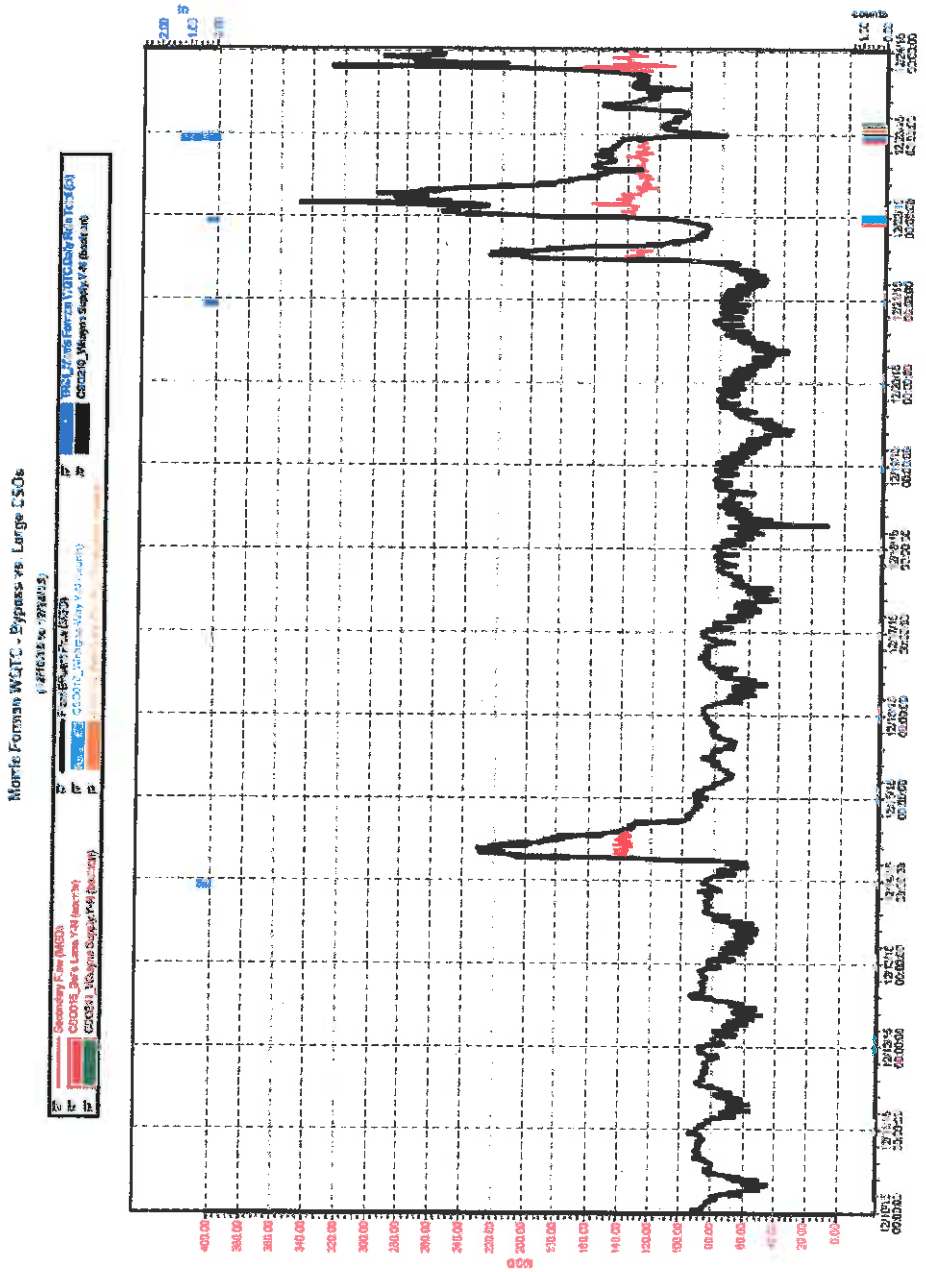

Morris Forman WQTC - Bypass vs. Large CSOs

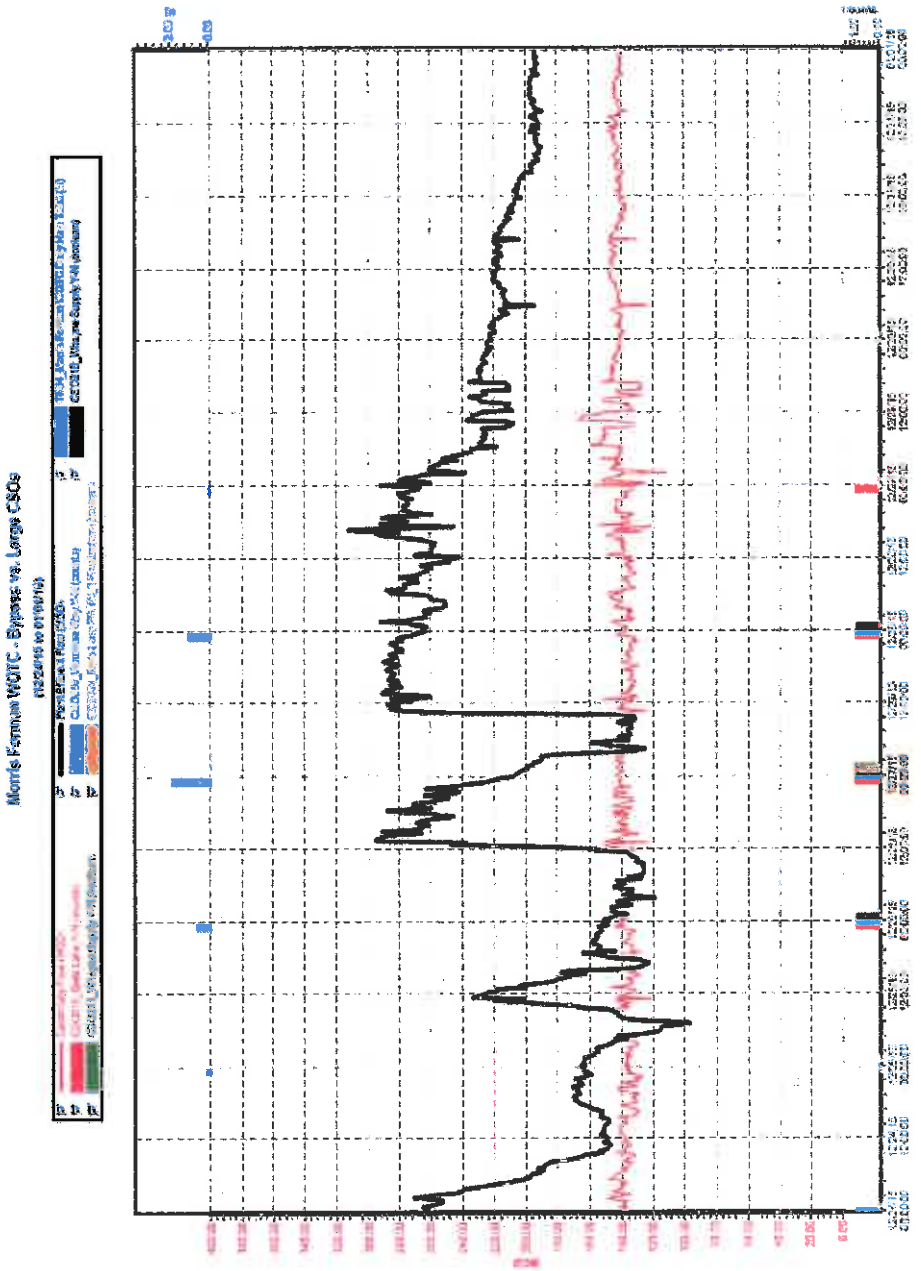

Morris Forman WQTC - Bypass vs. Large CSOs




Morris Forman WQTC - Bypass vs. Large CSOs


Morris Forman WQTC - Bypass vs. Large CSOs




Morris Forman WQTC - Bypass vs. Large CSOs

There was only one violation for this reporting period at the Morris Forman WQTC. For the month of October a Seven (7) Day Total Suspended Solids (TSS) parameter was not met. There were no violations for the months of November and December 2015.

During this reporting period, the following activities were continued and/or completed:

- RTC Integration – Staff is working with the RTC consultant to review, revise and begin implementing the draft wet weather SOP for the system that also includes the Southeast Diversion Structure, Buechel Basin, Northern Ditch Diversion, and the Derek R. Guthrie WQTC Wet Weather Treatment Facility. Full integration in an automated mode will not be achieved until the RTC software (CSoft) is upgraded to the most current version and the hydraulic engine is converted to use MSD's InfoWorks ICM hydraulic model. While this work is being done, the SOP is being implemented 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 continued troubleshooting and revising the ICM model to achieve suitable run times and stability. Staff continued to review and revise SOPs for the Southeast Diversion Structure, Buechel Basin, Northern Ditch Diversion, and the Derek R. Guthrie WQTC Wet Weather Treatment Facilities. Staff began developing the RTC process layer controls and SOPs for the Bells Lane campus, Logan and Breckinridge storage basin and CSO Interceptor, and upgraded Nightingale PS facilities. During the next reporting period, MSD anticipates completing ICM model revisions to the InfoWorks ICM hydraulic model. It is anticipated that the SOPs for the Southeast Diversion Structure, Buechel Basin, Northern Ditch Diversion, and the Derek R. Guthrie WQTC Wet Weather Treatment Facility will be finalized. Full implementation of the revised SOPs will be completed after the CSoft and InfoWorks ICM hydraulic model integration is complete and as new or upgraded facilities are brought into service. The anticipated completion date for full deployment of the latest version of CSOFT utilizing the integrated ICM model is summer 2016.
- RTC Performance Assessment and Improvements – The main objective of the RTC Performance Assessment is to determine whether the available flow and storage capacities within the system are being utilized to their full potential. MSD staff continued to review and prioritize for implementation strategies for performance improvement. Refinements to the control programming at the Brady Lake and Executive Inn sites have improved the dewatering processes and increased the available storage capacity. During the next reporting period, MSD staff and the RTC consultant will continue to work to implement the hardware, software and set-point changes as applicable on a site-by-site basis. Work on implementing these improvements will continue through the next reporting period. A mode validation module will be developinged to improve the overall RTC system performance.
- RTC SWOR2 Upgrade Project – The South Western Outfall Relief (SWOR2) is an existing facility constructed in 2009 and located at Southgate Avenue and Taylor Boulevard on the South Western Outfall. This site is a critical component of MSD's Real Time Control (RTC) in-line storage system with a storage capacity of 7.6 million

gallons. The original SWOR2 design placed two gate actuators within an access shaft near the gates and inflatable dam at the bottom of the interceptor. During prolonged rain events, SWOR2 stores flow longer than originally anticipated and longer than the "water-resistant" rating of the instrumentation and control (I&C) equipment, damaging the actuator and gate control components. The equipment is also difficult to maintain being located near the bottom of the access shaft, requiring confined space entry. The Real Time Control SWOR2 Upgrade project removed the old actuators and I&C equipment from the shaft and installed new actuators and I&C equipment above ground. Project construction started in September 2014 and was completed July 20, 2015.

Louisville/Jefferson County
Metropolitan Sewer District

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

Period	
From :	10/01/2015
To :	12/31/2015

Event Number	Wet Weather Event			Rainfall			CSO Saved Volume (MG)									High River Levels	Comments
	Start Date	End Date	Duration	Average* TRFD (in)	Max** TRFD (in)	Max** Rain Gauge	SWPS SG Chamber (14.5)	SWOR2 (7.5)	Brady Lake and Executive Inn Storage (13.4)	Southern Outfall (3.5)	Ashland (1.0)	Ohio River Interceptor (4.1)	Sneads Branch (2.5)	Total (46.5)		
2015-070	10/2/15 14:30	10/3/15 17:50	27:20:00	0.48	0.64	TR12	2.15	2.95	0.60	3.00	0.25	3.95	0.10	13.00	No	Moderate storm cells homogeneously distributed over the service area. SWOR2 inflatable dam did not inflate properly during this event (storage occured nonetheless due to backflow from SWOR1). SWSG was operated manually (One gate of SWSG site failed).
2015-071	10/8/15 6:35	10/8/15 21:25	11:30:00	0.16	0.46	TR11	1.20	0.20	0.15	0.35	0.10	0.50	0.00	4.00	No	Small storm cells homogeneously distributed over the service area. SWSG was operated manually. (The stem nuts of the G2 and G3 gates failed (stripped)).
2015-072	10/12/15 17:35	10/13/15 3:05	9:30:00	0.32	0.52	TR01	3.40	3.85	1.10	2.60	0.40	2.40	0.00	13.75	No	Moderate storm cells homogeneously distributed over the service area. SWSG was operated manually. (The stem nuts of the G2 and G3 gates failed (stripped)).
2015-073	10/24/15 11:30	10/25/15 7:20	20:15:00	0.34	0.59	TR01	2.10	0.00	1.05	0.85	0.35	2.65	0.10	12.05	No	Moderate storm cells homogeneously distributed over the service area. SWSG was operated manually. (The stem nuts of the G2 and G3 gates failed (stripped)).
2015-074	10/26/15 10:20	10/29/15 16:05	68:45:00	2.16	3.67	TR04	14.70	5.80	7.70	3.50	0.80	4.55	2.00	39.35	No	Large storm cells homogeneously distributed over the service area. SWOR2 inflatable dam did not inflate properly during this event (storage occured nonetheless due to backflow from SWOR1).
2015-075	10/30/15 21:25	11/4/15 8:00	81:55:00	0.15	0.22	TR11	1.40	2.10	0.90	1.20	0.65	2.00	0.05	7.10	No	Small storm cells homogeneously distributed over the service area.
2015-076	11/6/15 1:45	11/7/15 2:55	25:10:00	0.88	1.13	TR04	13.95	6.75	4.90	3.50	0.65	4.65	2.30	36.70	No	Large storm cells homogeneously distributed over the service area. SWOR2 inflatable dam did not inflate properly during this event (storage occured nonetheless due to backflow from SWOR1).
2015-077	11/8/15 1:00	11/10/15 11:30	58:30:00	0.48	0.64	TR04	14.00	6.70	1.90	3.40	0.55	4.05	0.15	29.45	No	Moderate storm cells homogeneously distributed over the service area. SWOR2 inflatable dam did not inflate properly during this event (storage occured nonetheless due to backflow from SWOR1).
2015-078	11/11/15 22:15	11/14/15 9:30	59:15:00	0.31	0.44	TR12	13.80	6.00	2.30	3.55	0.75	4.80	0.70	31.90	No	Moderate storm cells homogeneously distributed over the service area.
2015-079/080	11/18/15 6:10	11/23/15 9:55	122:30:00	1.68	1.87	TR14	13.05	6.65	3.05	3.50	0.90	4.75	4.40	42.55	No	Large storm cells homogeneously distributed over the service area.
2015-082/083	11/27/15 19:15	12/3/15 23:20	148:05:00	1.56	1.03	TR14/TR04	26.20	11.40	4.30	7.55	1.25	5.25	1.08	57.03	No	Large and back to back storm cells homogeneously distributed over the service area with slow draining of storage sites between cells.
2015-084	12/5/15 5:30	12/6/15 16:10	12:55:00	0.01	0.26	TR11	1.60	2.55	0.60	1.25	0.40	3.45	0.10	11.45	No	Moderate storm cells homogeneously distributed over the service area.
2015-085	12/21/15 4:55	12/22/15 23:10	42:15:00	0.69	0.95	TR13	14.50	6.15	3.25	4.40	0.80	7.25	1.05	37.70	No	Moderate storm cells homogeneously distributed over the service area.
2015-086/087	12/31/15 4:45	1/2/16 6:15	73:30:00	1.18	1.31	TR04	18.70	7.80	6.70	6.50	0.90	8.00	2.60	51.20	No	Very large and back to back storm cells homogeneously distributed over the service area (1-year return period for peak average intensities between 24 hrs and 1 hour). During this event, SWOR2 was put in manual control with its gates in the open position and minimal available storage utilization (storage occured nonetheless due to backflow from SWOR1).
2015-088	12/26/15 9:00	12/30/15 17:00	104:00:00	2.66	3.50	TR04	44.25	16.50	16.25	10.80	1.70	7.70	4.40	101.60	Yes	Very large and back to back storm cells homogeneously distributed over the service area (2-year return period for peak average intensity over 6 hours). SWOR2 was manually controlled with its gates in the open position and minimal available storage utilization (storage occured nonetheless due to backflow from SWOR1). SWSG was manually operated (critical alarms and high river level). Brady Lake was also manually operated at the end of the rainfall event. A gate at MDS was not working properly.
TOTAL							193.15	92.05	58.95	58.05	9.70	65.90	19.33	497.13		

* 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

SECTION 2: Program Activities for Sewer Overflow Response Protocol

2.1 SORP Program Background

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

MSD completely revised the SORP documentation in 2011. The draft of this revised document was submitted for comment on August 22, 2011. Comments from the 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. 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 www.msdprojectwin.org.

The current approved SORP document is dated February 21, 2012, and can be viewed on the MSD Project WIN website (www.msdprojectwin.org). Updates to the SORP document were submitted in August 2012, with confirmation of approvals on October 25, 2012. These updates are posted on the Project WIN website. The following activities were performed during this reporting period.

2.2 Overflow Management and Field Documentation

- Monitored approximately 149 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, Engineering staff documented 72 unauthorized discharges through route reconnaissance. Inspection routes were run during rain events as described in the following table:

ROUTE DESCRIPTION	10/27/2015	11/18/2015	12/01/2015	12/22/2015	12/23/2015	12/27/2015	12/29/2015
ENGINEERING RAIN EVENT SSO INSPECTION ROUTE	X	X		X	X	X	
RS JEFFERSONTOWN RAIN EVENT SSO INSPECTION ROUTE (JTOWN MANHOLES WITHIN 2000 LF OF HEADWORKS)	X	X		X	X	X	
RS JEFFERSONTOWN/FERN CREEK RAIN EVENT SSO INSPECTION ROUTE	X	X	X			X	
RS MIDDLE/MUDDY FORK RAIN EVENT SSO INSPECTION ROUTE	X	X		X	X	X	X
RS HIKES POINT RAIN EVENT SSO INSPECTION ROUTE	X	X		X	X	X	X

- Due to capacity-related issues during this reporting period, MSD Operations staff hauled 313,602 gallons of sewage. MSD also hauled due to other issues as indicated in the following table:

MSD Hauled Volumes In Gallons (October 1, 2015 - December 31, 2015)				
Problem	**October**	**November**	**December**	**Total**
LACK OF SYSTEM CAPACITY	95,000	176,102	13,500	284,602
STRUCTURAL FAILURE			27,000	27,000
MECHANICAL FAILURE			2,000	2,000
Grand Total	**95,000**	**176,102**	**42,500**	**313,602**

2.3 Staff Training and Communication

- Reviewed and updated the training documentation for the 2015 fourth quarter SORP training that included Overflow Reporting Documentation and Data Entry. Also conducted annual training for all MSD staff.

- Began planning for the 2016 first quarter SORP training that will focus on Preparing, Monitoring and Response to Overflows.

- Conducted the following SORP Quarterly and Annual training sessions which were attended by 546 employees.

Staff Training Participation -October 1, 2015 - December 31, 2015				
Date	**Dept./Area**	**Location**	**Module**	**Attendees**
11/24/2015	Morris Forman Staff	MFWQTC	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	8
11/25/2015	Morris Forman Staff	MFWQTC	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	18
11/25/2015	Morris Forman Staff	MFWQTC	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	15
12/01/2015	Morris Forman Staff	MFWQTC	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	6
12/02/2015	Morris Forman Staff	MFWQTC	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	22
12/02/2015	Morris Forman Staff	MFWQTC	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	6
12/03/2015	Main Office Staff	Main Office	Annual Overview	25
12/04/2015	CMF Operations Staff	CMF	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	11

Staff Training Participation -October 1, 2015 - December 31, 2015				
Date	**Dept./Area**	**Location**	**Module**	**Attendees**
12/04/2015	CMF Fleet Staff	CMF	Annual Overview	13
12/07/2015	CMF Operations Staff	CMF	Annual Overview	52
12/08/2015	Main Office Staff	Main Office	Annual Overview	27
12/09/2015	Metro Operations Staff	CCWQTC	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	29
12/09/2015	Metro Operations Staff	FFWQTC	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	13
12/10/2015	Engineering Staff	CMF	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	30
12/11/2015	CMF Operations Staff	CMF	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	22
12/11/2015	CMF Fleet Staff	CMF	Annual Overview	6
12/14/2015	CMF Operations Staff	CMF	Annual Overview	45
12/15/2015	Main Office Staff	Boardroom	Annual Overview	34
12/16/2015	Metro Operations Staff	DRGWQTC	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	12
12/17/2015	CMF Operations Staff	CMF	Annual Overview	24
12/18/2015	CMF Operations Staff	CMF	Annual Overview	43
12/18/2015	Main Office Staff & MSD Board	Boardroom	Annual Overview	48
12/18/2015	Engineering Staff	CMF	Annual Overview & Completing the Overflow Reporting Form, Reporting Requirements and Data Entry	44
Total				**553**

SECTION 3: Program Activities for Discharge Abatement Plans

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 sewer system and the combined sewer system, the reduction and control of discharges from the CSO locations identified in the Morris Forman WQTC KPDES permit, and the improvement of water quality in the receiving waters.

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

MSD submitted an IOAP modification request to EPA/KDEP on September 20, 2012, with partial approval granted via certified letter on October 25, 2012. The modified project package, 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 will result in a higher level of overflow control to be completed faster than originally proposed for approximately the same overall budget.

3.1.1 Consent Decree Implementation Mid-Point Review

MSD solicited proposals for an independent, third-party evaluation of the Amended Consent Decree and associated IOAP program development, including progress and performance to date. As a result of the study, MSD was ranked "Best in Class" in plan development, adaptive management modifications, Consent Decree compliance record, public outreach and funding. MSD's program compared favorably to other large programs. However, the review also highlighted risks to the continued success of the program. These risks include vulnerabilities in program controls and schedule management, organizational structure and assets, future program costs and risk management. Therefore, MSD reorganized the Engineering Division to improve project delivery and efficiency, upgraded the project scheduling and cost management tools, implemented a multi-faceted approach to the reduction of bid costs and instituted a formal risk management approach following industry best practices.

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 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

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 ISSDP document can be viewed on the MSD Project WIN website (www.msdprojectwin.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 with 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. The facilities provided under the project have been brought on-line and operated in a manner that achieves the project's full intent – to eliminate local SSOs caused by plant capacity limitations and to provide secondary treatment to the wastewater received from the expanded wet weather service area resulting from the elimination of the SSOs at the Southeast Diversion, the Highgate Springs Pump Station, and the Hikes Point area.

3.2.3 Final Sanitary Sewer Discharge Plan

MSD submitted for approval a Final Sanitary Sewer Discharge Plan (SSDP) on December 19, 2008, as Volume 3 of the Integrated Overflow Abatement Plan (IOAP). The IOAP was accepted by the Federal Court and incorporated by reference into the Amended Consent Decree by an Order signed February 12, 2010, that was entered into public record February 15, 2010. A revised SSDP was included in the IOAP revision, submitted on June 14, 2013. On June 19, 2014, MSD received approval of the 2012 IOAP Modification from EPA/KDEP.

The following is a summary of activities that support elimination of the Prospect WQTCs. A certification letter dated December 15, 2015, was submitted finalizing the completion of the Prospect Area WQTC Elimination projects.

- The Prospect #1 – WQTC Eliminations Project involved the construction of the new Harrods Creek Interceptor, including 15,000 LF of 24"-42" sewer and 3400 LF of 6" force main to eliminate 5 Prospect WQTCs. The project also includes the construction of two new PSs and the elimination of Deep Creek PS by constructing 130 LF of 8" sewer to the new Harrods Creek Interceptor. Construction is complete. Flow was diverted to the Hite Creek WQTC on September 1, 2015 for the Shadow Wood WQTC Elimination, August 31, 2015, for the Hunting Creek North WQTC Elimination, July 1, 2015, for the Timberlake WQTC Elimination, July 16, 2015 for the Hunting Creek South Elimination and September 2, 2015, for the Ken Carla WQTC Elimination.

- The Prospect #2 – Harrods Creek PS and FM Project involved the construction of the new 7.2 MGD Harrods Creek PS and 24,000 LF of 24" force main to pump flow to the Hite Creek WQTC. All phases of this project are complete. A certification letter dated November 13, 2015, was submitted certifying the completion of the project.

3.3 CSO Long Term Control Plan

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

3.3.1 Interim CSO Long Term Control Plan

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

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

3.3.3 Green Program Update

MSD continued program activities to provide incentives to private property owners to reduce the amount of impervious surface that drains to the combined sewer system. The continued coordination with the Green and MS4 program is on-going to optimize resources and regulations to improve water quality.

The Green Program incentives are being applied to reflect the values of green projects in CSO areas or regions based on the latest modeling results. This application ties incentives directly to overflow reductions in various CSO regions to promote green projects in the areas that provide the most value. Project opportunities are optimized to best use available funding and provide additional overflow volume reduction benefits to complement LTCP projects.

MSD continues to administer an urban reforestation program to intercept rainwater and reduce stormwater entering the sewer system. Urban reforestation proposals require a Memorandum of Understanding for reporting tree location, condition, and maintenance plan. Partners participating in the program are responsible for ongoing maintenance of the trees.

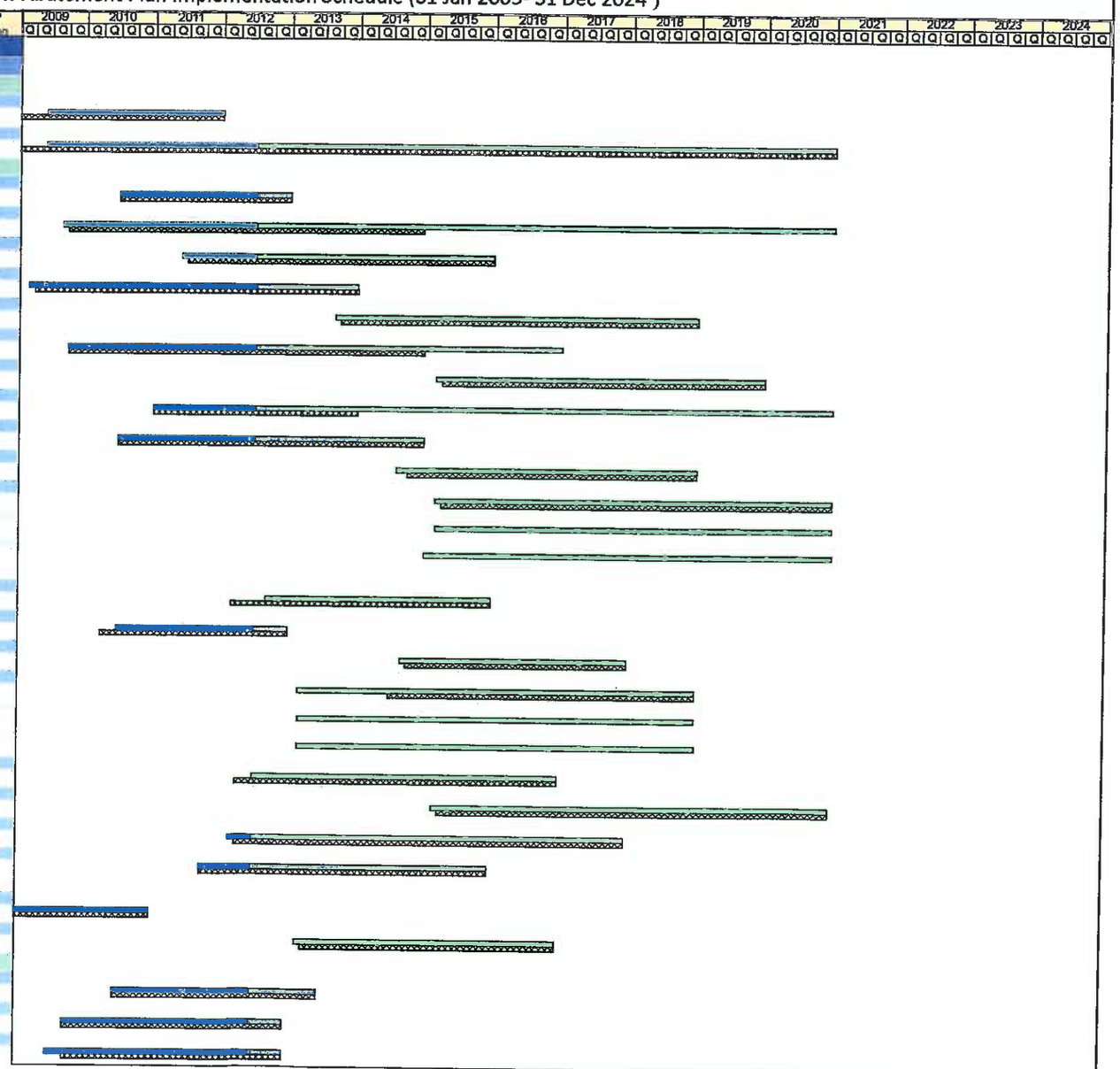
Updates to the Green Infrastructure Design Manual are underway. MSD plans to review and gain input from a stakeholder group in the next reporting period.

3.4 Activity Progress Chart

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

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

Activity Name	Scheduled Finish	2009 IOAP Completion	2012 IOAP Modification
MSD IOAP ANNUAL SCHEDULE	31-Dec-24	31-Dec-24	31-Dec-24
LONG TERM CONTROL PLAN	01-Jan-21	31-Dec-20	31-Dec-20
GREEN DEMONSTRATION PROJECTS	31-Dec-20	31-Dec-20	31-Dec-20
GREEN INFRASTRUCTURE DEMONSTRATION PROJECTS			
GREEN INFRASTRUCTURE DEMONSTRATION PROJECTS	31-Dec-11 A	31-Dec-11	31-Dec-11
GREEN INFRASTRUCTURE PROGRAM	31-Dec-20	31-Dec-20	31-Dec-20
GRAY INFRASTRUCTURE PROJECTS	01-Jan-21	31-Dec-20	31-Dec-20
CSO 123 DOWNSPOUT DISCONNECTION			
CSO 123 DOWNSPOUT DISCONNECTION	31-Dec-12	31-Dec-12	31-Dec-12
I-64 AND GRINSTEAD DRIVE STORAGE BASIN			
I-64 AND GRINSTEAD DRIVE STORAGE BASIN	31-Dec-20	21-Dec-14	31-Dec-20
CSO 140 INCREASE PIPE CONVEYANCE			
CSO 140 INCREASE PIPE CONVEYANCE	31-Dec-15	31-Dec-15	31-Dec-15
CSO 206 SEWER SEPARATION			
CSO 206 SEWER SEPARATION	30-Dec-13	31-Dec-13	30-Dec-13
CLIFTON HEIGHTS STORAGE BASIN			
CLIFTON HEIGHTS STORAGE BASIN	31-Dec-18	31-Dec-18	31-Dec-18
BELL'S LANE WET WEATHER TREATMENT FACILITY AND IN LINE STORAGE			
BELL'S LANE WET WEATHER TREATMENT FACILITY AND IN LINE STORAGE	31-Dec-16	31-Dec-14	31-Dec-16
PORTLAND WHARF STORAGE BASIN			
PORTLAND WHARF STORAGE BASIN	31-Dec-19	31-Dec-19	31-Dec-19
STORY AVENUE AND MAIN STREET STORAGE BASIN			
STORY AVENUE AND MAIN STREET STORAGE BASIN	31-Dec-20	31-Dec-13	31-Dec-20
CSO 058 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS			
CSO 058 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS	31-Dec-14	31-Dec-14	31-Dec-14
SOUTHWESTERN PARKWAY STORAGE BASIN			
SOUTHWESTERN PARKWAY STORAGE BASIN	31-Dec-18	31-Dec-18	31-Dec-18
13TH STREET AND ROWAN STREET STORAGE BASIN			
13TH STREET AND ROWAN STREET STORAGE BASIN	31-Dec-20	31-Dec-20	
13TH STREET AND ROWAN STREET STORAGE BASIN	31-Dec-20		31-Dec-20
13TH STREET AND ROWAN STREET STORAGE BASIN	31-Dec-20		31-Dec-20
CENTRAL RELIEF DRAIN IN-LINE STORAGE, GREEN INFRASTRUCTURE AND DISTRIBUTED STORAGE			
CENTRAL RELIEF DRAIN IN-LINE STORAGE, GREEN INFRASTRUCTURE AND DISTRIBUTED STORAGE	01-Jan-21		31-Dec-18
CSO 160 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS			
CSO 160 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS	31-Dec-15	31-Dec-15	31-Dec-15
ADAMS STREET SEWER SEPARATION AND STORAGE BASIN			
ADAMS STREET SEWER SEPARATION AND STORAGE BASIN	31-Dec-12	31-Dec-12	31-Dec-12
18TH AND NORTHWESTERN PKY STORAGE BASIN			
18TH AND NORTHWESTERN PKY STORAGE BASIN	31-Dec-17	31-Dec-17	31-Dec-17
ALGONQUIN PARKWAY STORAGE BASIN			
ALGONQUIN PARKWAY STORAGE BASIN	31-Dec-18	31-Dec-18	
SOUTHERN OUTFALL IN-LINE STORAGE (SOR 1)			
SOUTHERN OUTFALL IN-LINE STORAGE AT 43RD ST. (SOR 1)	31-Dec-18		31-Dec-18
SOUTHERN OUTFALL IN-LINE STORAGE AT 43RD ST. (SOR 1)	31-Dec-18		31-Dec-18
SOUTHERN OUTFALL IN-LINE RETENTION (SOR 2)			
SOUTHERN OUTFALL IN-LINE RETENTION AT 13TH AND WILSON AVE. (SOR	01-Jan-19		31-Dec-18
SOUTHERN OUTFALL IN-LINE RETENTION AT 13TH AND WILSON AVE. (SOR	01-Jan-19		31-Dec-18
NIGHTINGALE PUMP STATION AND STORAGE BASIN			
NIGHTINGALE PUMP STATION AND STORAGE BASIN	31-Dec-16	31-Dec-16	31-Dec-16
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN			
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN	31-Dec-20	31-Dec-20	31-Dec-20
LOGAN STREET AND BRECKENRIDGE ST STORAGE BASIN			
LOGAN STREET AND BRECKENRIDGE ST STORAGE BASIN	31-Dec-17	31-Dec-17	31-Dec-17
CSO 093 STRUCTURAL MODIFICATIONS AND GREEN INFRASTRUCTURE CONTROLS			
CSO 093 STRUCTURAL MODIFICATIONS AND GREEN INFRASTRUCTURE CONTROLS	31-Dec-15	31-Dec-15	31-Dec-15
CSO 109 DAM MODIFICATIONS			
CSO 109 DAM MODIFICATIONS	31-Dec-10 A	31-Dec-10	31-Dec-10
STORY AVENUE AND SPRING STREET GREEN INFRASTRUCTURE CONTROLS			
STORY AVENUE AND SPRING STREET GREEN INFRASTRUCTURE CONTROLS	31-Dec-16	31-Dec-16	31-Dec-16
FLOOD PUMP STATION PROJECTS	31-Dec-14	31-Dec-14	31-Dec-14
27TH STREET FLOOD PUMP STATION			
27TH STREET FLOOD PUMP STATION	30-Jun-13	30-Jun-13	30-Jun-13
34TH STREET FLOOD PUMP STATION			
34TH STREET FLOOD PUMP STATION	31-Dec-12	31-Dec-12	31-Dec-12
4TH STREET FLOOD PUMP STATION			
4TH STREET FLOOD PUMP STATION	31-Dec-12	31-Dec-12	31-Dec-12



Approved 2009 IOAP
Remaining Work
Completed Work

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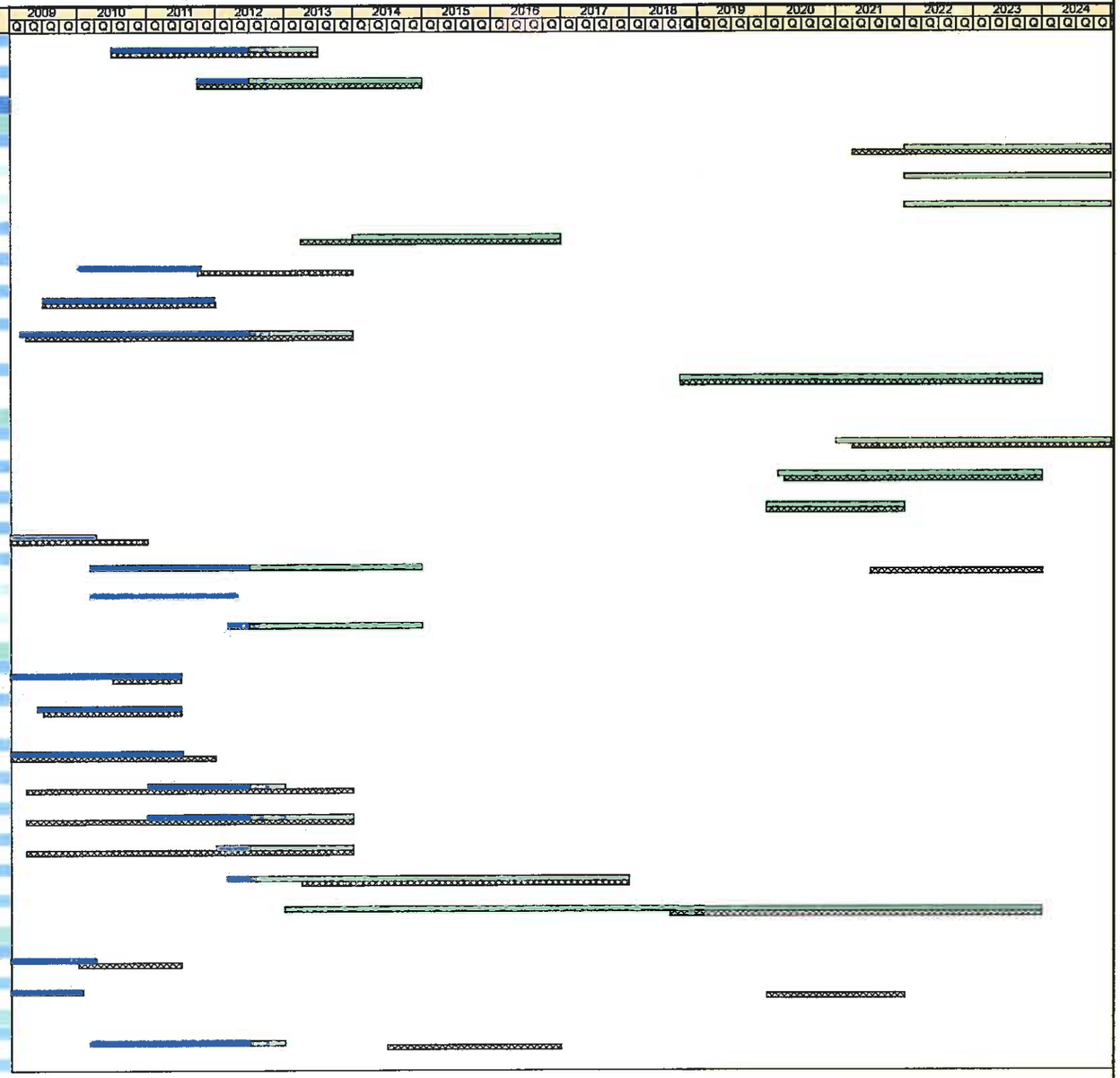
Date Date: 01-Jul-12

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

Activity Name	Scheduled Finish	2009 IOAP Completion	2012 IOAP Modification
SHAWNEE FLOOD PUMP STATION	30-Jun-13	30-Jun-13	30-Jun-13
17TH STREET FLOOD PUMP STATION	31-Dec-14	31-Dec-14	31-Dec-14
SANITARY SEWER DISCHARGE PLAN	31-Dec-24	31-Dec-24	31-Dec-24
BEARGRASS CREEK MIDDLE FORK AREA	31-Dec-24	31-Dec-24	31-Dec-24
GOOSE CREEK PUMP STATION	31-Dec-24	31-Dec-24	
GOOSE CREEK PS PH1 - DEVONDALE PS WW STORAGE	31-Dec-24	31-Dec-24	31-Dec-24
GOOSE CRK PS PH2 - PS & WET WEATHER STORAGE	31-Dec-24	31-Dec-24	31-Dec-24
ANCHOR ESTATES- ANCHOR ESTS PS 1 & 2 PS ELIMINATIONS	31-Dec-16	31-Dec-16	31-Dec-16
ANCHOR ESTATES- VANNAH PS ELIMINATION	15-Oct-11 A	31-Dec-13	31-Dec-13
HURSTBOURNE I&I INVESTIGATION & REHABILITATION	27-Dec-11 A	31-Dec-11	31-Dec-11
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE, AND UMFLS DIVERSION 1 - BUECHEL BASIN	31-Dec-13	31-Dec-13	31-Dec-13
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE, AND UMFLS DIVERSION 2 PS & WET WEATHER STORAGE	31-Dec-23	31-Dec-23	31-Dec-23
CEDAR CREEK AREA	31-Dec-24	31-Dec-24	31-Dec-24
LITTLE CEDAR CREEK INTRECEPTOR IMPROVEMENTS	31-Dec-24	31-Dec-24	31-Dec-24
IDLEWOOD INLINE STORAGE	31-Dec-23	31-Dec-23	31-Dec-23
BARDSTOWN RD PS IMPROVEMENTS	31-Dec-21	31-Dec-21	31-Dec-21
RUNNING FOX PS ELIMINATION	05-Apr-10 A	31-Dec-10	31-Dec-10
FAIRMOUNT RD PS IMPROVMENTS	31-Dec-14	31-Dec-23	
FAIRMOUNT RD PS IMPROVEMENTS	24-Apr-12 A	24-Apr-12 A	31-Dec-23
FAIRMOUNT STORAGE BASIN	01-Jan-15	01-Jan-15	31-Dec-15
COMBINED SEWER SYSTEM AREA	31-Dec-23	31-Dec-23	31-Dec-23
HAZELWOOD PS I/I INVESTIGATION & REHABILITATION	30-Jun-11 A	30-Jun-11 A	30-Jun-11
SONNE PUMP STATION I&I INVESTIGATION & REHABILITATION	30-Jun-11 A	30-Jun-11 A	30-Jun-11
CAMP TAYLOR SSES	08-Jul-11 A	31-Dec-11	31-Dec-13
CAMP TAYLOR SANITARY SEWER #1A	31-Dec-12	31-Dec-13	31-Dec-13
CAMP TAYLOR SANITARY SEWER #1B	31-Dec-13	31-Dec-13	31-Dec-13
CAMP TAYLOR SANITARY SEWER #2	31-Dec-13	31-Dec-13	31-Dec-13
CAMP TAYLOR #3- SEWER REHABILITATION	31-Dec-17	31-Dec-17	31-Dec-17
CAMP TAYLOR #4-SEWER REHABILITATION & REPLACEMENT	31-Dec-23	31-Dec-23	31-Dec-23
FLOYDS FORK AREA	01-Apr-10 A	31-Dec-21	01-Apr-10
WOODLAND HILL PS DIVERSION	01-Apr-10 A	30-Jun-11	01-Apr-10
ASHBURTON PS IMPROVEMENTS AND DIVERSION	22-Jan-10 A	31-Dec-21	22-Jan-10
HITE CREEK AREA	31-Dec-24	31-Dec-24	31-Dec-24
MEADOW STREAM PS AND FORCE MAIN	31-Dec-12	31-Dec-16	31-Dec-16
KAHNAUGH RD PS IMPROVEMENTS	31-Dec-24	31-Dec-24	31-Dec-24



Approved 2009 IOAP Remaining Work
Completed Work

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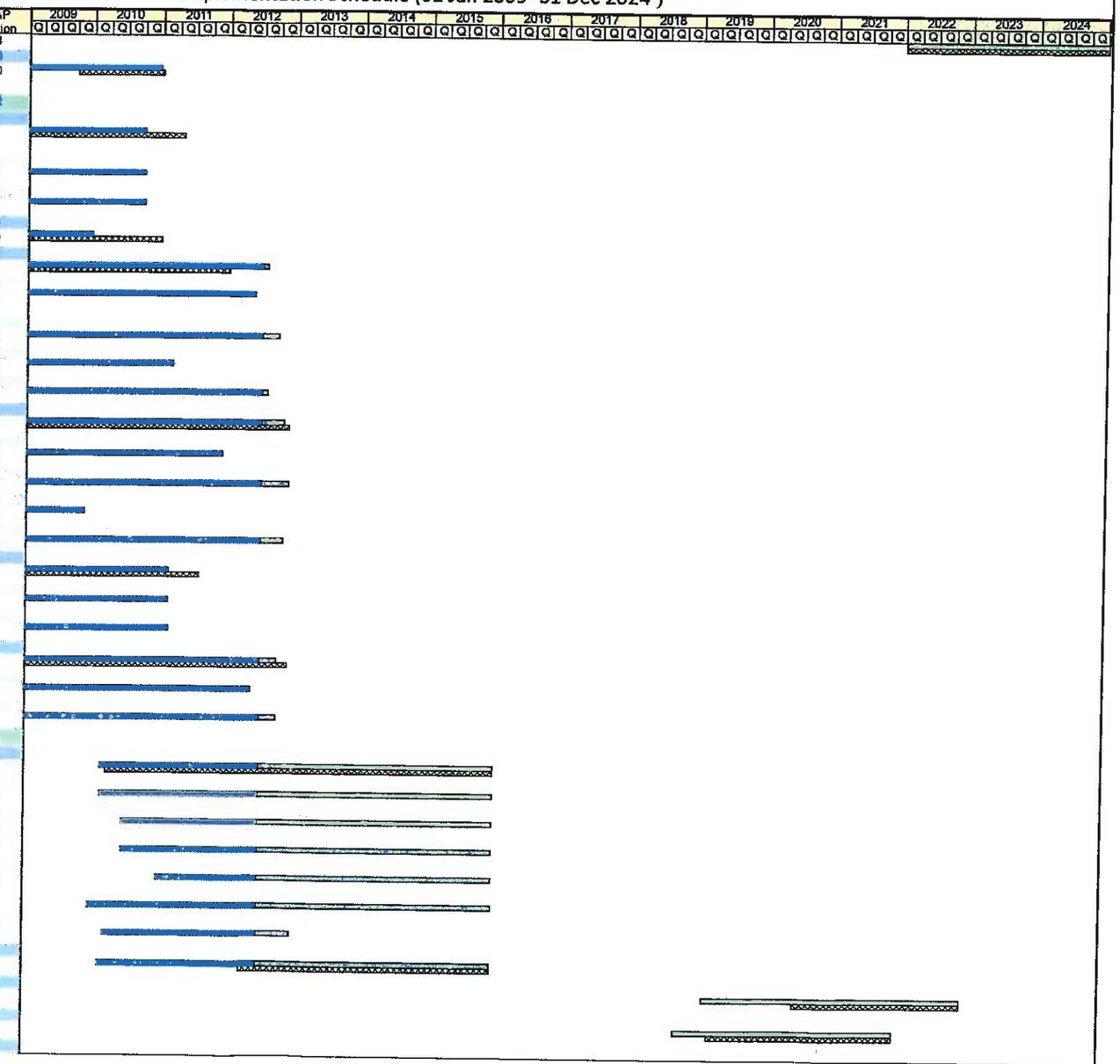
Date Date: 01-Jul-12

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

Activity Name	Scheduled Finish	2009 IOAP Completion	2012 IOAP Modification
KAVANAUGH RD PS IMPROVEMENTS	31-Dec-24	31-Dec-24	31-Dec-24
FLOYDSBURG RD SSES, REHAB AND PUMP STATION UPGRADE	17-Dec-10 A	31-Dec-10	31-Dec-10
FLOYDSBURG RD SSES, REHAB AND PUMP STATION UPGRADE	17-Dec-10 A	31-Dec-10	31-Dec-10
INTERIM SSDP PROJECTS	27-Nov-12	27-Nov-12	27-Nov-12
ISSDP BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	29-Sep-10 A	27-Apr-11	27-Apr-11
ISSDP BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	29-Sep-10 A	27-Apr-11	
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT (WEST)			
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	29-Sep-10 A	27-Apr-11	
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT (EAST)			
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	29-Sep-10 A	27-Apr-11	
SINKING FORK RELIEF SEWER	23-Dec-09 A	30-Dec-10	23-Dec-09
SINKING FORK RELIEF SEWER	23-Dec-09 A	30-Dec-10	23-Dec-09
ISSDP DEREK R GUTHRIE WATER QUALITY TREATMENT CENTER	30-Sep-12	31-Dec-11	27-Nov-12
ISSDP DEREK R GUTHRIE WATER QUALITY TREATMENT CENTER	30-Jul-12	31-Dec-11	
DEREK R GUTHRIE WQTC WET WEATHER TREATMENT FACILITY	20-May-12 A		27-Nov-12
DEREK R GUTHRIE WQTC WET WEATHER TREATMENT FACILITY	20-May-12 A		27-Nov-12
WCWTP: WW FLOW EQU & TMT	30-Sep-12		27-Nov-12
WCWTP: WW FLOW EQU & TMT	30-Sep-12		27-Nov-12
DRGWQTC: BLOWER PACKAGE	03-Mar-11 A		27-Nov-12
DRGWQTC: BLOWER PACKAGE	03-Mar-11 A		27-Nov-12
DRGWQTC: WET WEATHER EQUALIZATION BASIN	31-Jul-12		27-Nov-12
DRGWQTC: WET WEATHER EQUALIZATION BASIN	31-Jul-12		27-Nov-12
ISSDP HIKES LANE INTERCEPTOR /HIGHGATE SPRINGS PS	27-Nov-12	27-Nov-12	27-Nov-12
ISSDP HIKES LANE INTERCEPTOR /HIGHGATE SPRINGS PS	30-Oct-12	27-Nov-12	
HIKES POINT INTERCEPTOR	30-Nov-11 A		27-Nov-12
HIKES POINT INTERCEPTOR	30-Nov-11 A		27-Nov-12
HIKES POINT INTERCEPTOR PHASE 2	27-Nov-12		27-Nov-12
HIKES POINT INTERCEPTOR PHASE 2	27-Nov-12		27-Nov-12
CARSON & RIBBLE RELIEF	20-Nov-09 A		27-Nov-12
CARSON & RIBBLE RELIEF	20-Nov-09 A		27-Nov-12
HIKES POINT RELIEF EFFORT	31-Oct-12		27-Nov-12
HIKES POINT RELIEF EFFORT	31-Oct-12		27-Nov-12
ISSDP NORTHERN DITCH DIVERSION INTERCEPTOR	16-Feb-11 A	31-Jul-11	31-Jul-11
ISSDP NORTHERN DITCH DIVERSION INTERCEPTOR	16-Feb-11 A	31-Jul-11	
NORTHERN DITCH DIVERSION INTERCEPTOR	16-Feb-11 A		31-Jul-11
NORTHERN DITCH DIVERSION INTERCEPTOR	16-Feb-11 A		31-Jul-11
NORTHERN DITCH DIVERSION INTERCEPTOR PH 2	16-Feb-11 A		31-Jul-11
NORTHERN DITCH DIVERSION INTERCEPTOR PH 2	16-Feb-11 A		31-Jul-11
ISSDP SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR	30-Sep-12	27-Nov-12	30-Sep-12
ISSDP SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR	28-Sep-12	27-Nov-12	
SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR	12-May-12 A		12-May-12
SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR	12-May-12 A		12-May-12
SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR Phase 2	30-Sep-12		30-Sep-12
SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR Phase 2	30-Sep-12		30-Sep-12
JEFFERSONTOWN AREA	31-Dec-22	31-Dec-22	31-Dec-22
JEFFERSONTOWN WQTC ELIMINATION	01-Jan-16	31-Dec-15	31-Dec-15
JEFFERSONTOWN WQTC ELIMINATION	31-Dec-15	31-Dec-15	
JEFFERSONTOWN WQTC ELIMINATION	31-Dec-15		31-Dec-15
JEFFERSONTOWN WQTC ELIMINATION	31-Dec-16		31-Dec-16
JEFFERSONTOWN FORCE MAIN	31-Dec-15		31-Dec-15
JEFFERSONTOWN FORCE MAIN	31-Dec-15		31-Dec-15
GRAND AVENUE PUMP STATION	31-Dec-15		31-Dec-15
GRAND AVENUE PUMP STATION	31-Dec-15		31-Dec-15
UPPER BILLTOWN RD INTERCEPTOR	31-Dec-15		31-Dec-15
UPPER BILLTOWN RD INTERCEPTOR	31-Dec-15		31-Dec-15
BILLTOWN RD INTERCEPTOR SS	01-Jan-16		31-Dec-15
BILLTOWN RD INTERCEPTOR SS	01-Jan-16		31-Dec-15
BILLTOWN RD PS, FM & INT	31-Dec-12		31-Dec-12
BILLTOWN RD PS, FM & INT	31-Dec-12		31-Dec-12
CHENOWETH HILLS WQTC ELIMINATION & PS IMPROVEMENTS	31-Dec-15	31-Dec-15	31-Dec-15
CHENOWETH HILLS WQTC ELIMINATION & PS ELIMINATION	31-Dec-15	31-Dec-15	31-Dec-15
DELL RD & CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	31-Dec-22	31-Dec-22	31-Dec-22
DELL RD & CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	31-Dec-22	31-Dec-22	31-Dec-22
RAINTREE & MARIAN CT PH1 - PS ELIMINATION	31-Dec-21	31-Dec-21	31-Dec-21
RAINTREE & MARIAN CT PH1 - PS ELIMINATION	31-Dec-21	31-Dec-21	31-Dec-21
RAINTREE & MARIAN CT PS ELIMINATION	31-Dec-21	31-Dec-21	31-Dec-21



Approved 2009 IOAP
Remaining Work
Completed Work

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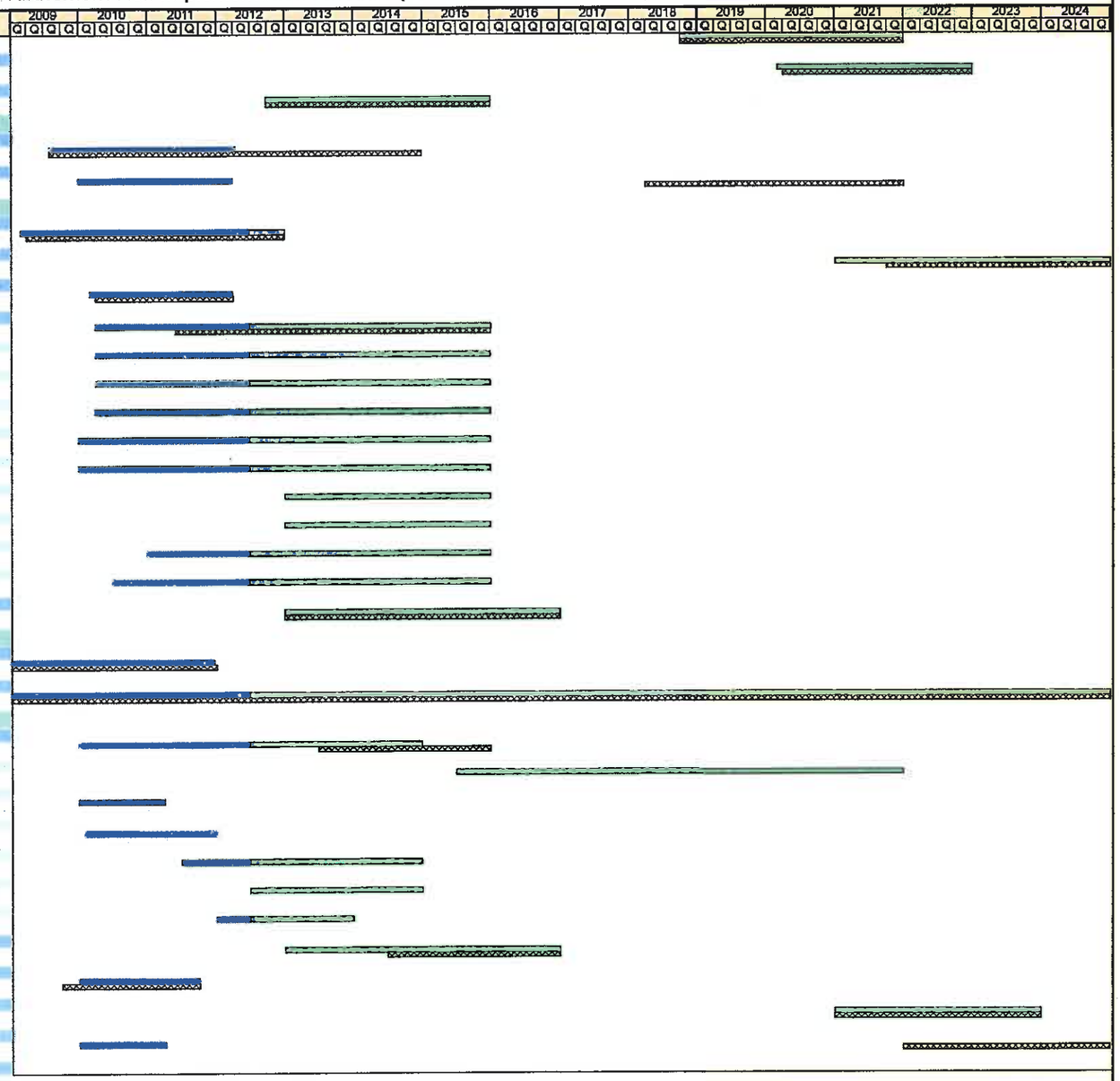
Date Date: 01-Jul-12

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

Activity Name	Scheduled Finish	2009 IOAP Completion	2012 IOAP Modification
RAINTREE & MARIAN CT PS ELIMINATION	31-Dec-21	31-Dec-21	31-Dec-21
MONTICELLO PS ELIMINATION	31-Dec-22	31-Dec-22	31-Dec-22
KLONDIKE INTERCEPTOR	31-Dec-15	31-Dec-15	31-Dec-15
MILL CREEK AREA	13-Apr-12 A	31-Dec-14	31-Dec-21
SHIVELY INTERCEPTOR	13-Apr-12 A	31-Dec-14	31-Dec-14
EAST ROCKFORD LANE PS RELOCATION	30-Mar-12 A	31-Dec-21	31-Dec-21
OHIO RIVER FORCE MAIN AREA	31-Dec-24	31-Dec-24	31-Dec-24
MELLWOOD SYS 1 - MELLWOOD PS & FORCE MAIN	31-Dec-12	31-Dec-12	31-Dec-12
MELLWOOD SYS 2 - WINTON & MOCKINGBIRD PS ELIM & PIPE UPGRADES	31-Dec-24	31-Dec-24	31-Dec-24
DERINGTON CT PS I/I INVESTIGATION & REHABILITATION	30-Mar-12 A	31-Mar-12	31-Mar-12
PROSPECT WQTC ELIMINATIONS	31-Dec-15	31-Dec-15	
HARRODS CREEK PS & FM	31-Dec-15	31-Dec-15	31-Dec-15
HARRODS CREEK INT	31-Dec-15	31-Dec-15	31-Dec-15
HARRODS CREEK INT PH 2	31-Dec-15	31-Dec-15	31-Dec-15
RIVER ROAD INT	31-Dec-15	31-Dec-15	31-Dec-15
TIMBERLAKE & HUNTING CREEK S WQTC ELIM	31-Dec-15	31-Dec-15	31-Dec-15
KEN CARLA WQTC ELIM	31-Dec-15	31-Dec-15	31-Dec-15
HARRODS CREEK FORCE MAIN PH 3	31-Dec-15	31-Dec-15	31-Dec-15
SHADOW WOOD WWTP ELIM	31-Dec-15	31-Dec-15	31-Dec-15
N HUNTING CREEK PS & FM	31-Dec-15	31-Dec-15	31-Dec-15
PROSPECT #3 - ORFM SYSTEM IMPROVEMENTS	31-Dec-16	31-Dec-16	31-Dec-16
OTHER PROJECTS	30-Dec-24	31-Dec-24	30-Dec-24
CPE/CCP MODIFICATIONS TO WQTC	19-Dec-11 A	31-Dec-11	31-Dec-11
I/I REDUCTION PROGRAM	30-Dec-24	31-Dec-24	30-Dec-24
POND CREEK AREA	31-Dec-23	31-Dec-24	31-Dec-24
LEE ANN WAY PUMP STATION IMPROVEMENTS	31-Dec-14	31-Dec-15	
LEA ANN WAY SANITARY SEWER I/I REHAB	31-Dec-21	31-Dec-21	31-Dec-15
LEE ANN WAY PS SYSTEM SSES	30-Mar-11 A	30-Mar-11 A	31-Dec-15
LEE ANN WAY PH 2 ICA	31-Dec-11 A	31-Dec-11 A	31-Dec-15
LEE ANN WAY SSR PH 1	31-Dec-14	31-Dec-14	31-Dec-15
LEE ANN WAY SSR PH 2	01-Jan-15	01-Jan-15	31-Dec-15
LEE ANN WAY INTERCEPTOR I/I REHAB	31-Dec-13	31-Dec-13	31-Dec-15
OUTER LOOP & CAVEN AREA PIPE UPGRADES	31-Dec-16	31-Dec-16	31-Dec-24
EDSEL PS I/I INVESTIGATION & REHABILITATION	27-Sep-11 A	30-Sep-11	30-Sep-11
CINDERELLA PS ELIMINATION	31-Dec-23	31-Dec-23	31-Dec-23
GOVERNMENT CENTER PS ELIMINATION	01-Apr-11 A	31-Dec-24	31-Dec-24
AVERY PS ELIMINATION	29-Jul-09 A	31-Dec-10	31-Dec-10



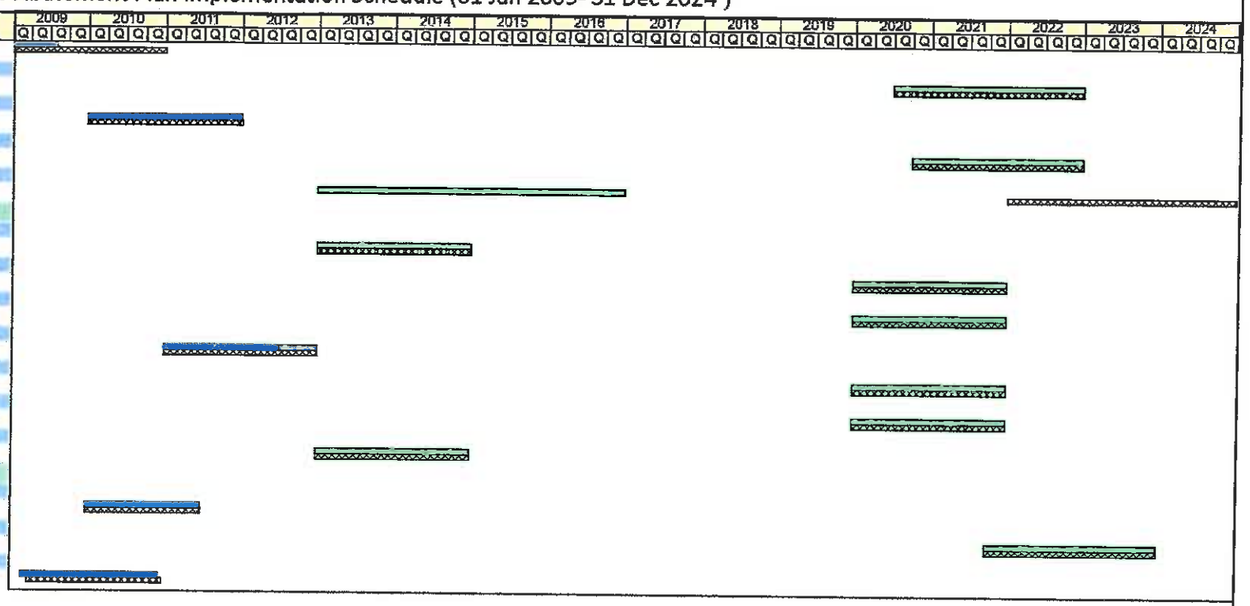
Approved 2009 IOAP Remaining Work
Completed Work

4 of 5

Date Date: 01-Jul-12

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

Activity Name	Scheduled Finish	2009 IOAP Completion	2012 IOAP Modification
AVANTI PS ELIMINATION	28-Jul-09 A	31-Dec-10	31-Dec-10
CHARLESWOOD INTERCEPTOR EXTENSION	31-Dec-22	31-Dec-22	31-Dec-22
LANTANA PS I/I INVESTIGATION & REHABILITATION	29-Dec-11 A	31-Dec-11	29-Dec-11
LEVEN PS ELIMINATION	31-Dec-22	31-Dec-22	31-Dec-22
CAVEN AVENUE WW STORAGE	31-Dec-16	31-Dec-24	31-Dec-16
SMALL WWTP AREA	31-Dec-21	31-Dec-21	31-Dec-21
RIDING RIDGE PS IMPROVEMENTS	31-Dec-14	31-Dec-14	31-Dec-14
LUCAS LN PS INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
ST. RENE RD PS INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
LAKE FOREST PS IMPROVEMENTS	31-Dec-12	31-Dec-12	31-Dec-12
GUNPOWDER PS INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
FOX HARBOR INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
FAIRWAY VIEW PS IMPROVEMENTS	31-Dec-14	31-Dec-14	31-Dec-14
SOUTHEASTERN DIVERSION AREA	31-Dec-23	31-Dec-23	31-Dec-23
PARKVIEW ESTATES I/I INVESTIGATION & REHABILITATION	28-Jun-11 A	30-Jun-11	30-Jun-11
SUTHERLAND INTERCEPTOR	31-Dec-23	31-Dec-23	31-Dec-23
BEARGRASS INTERCEPTOR REHABILITATION PH 2	14-Dec-10 A	31-Dec-10	31-Dec-10



Approved 2009 IOAP
Remaining Work
Completed Work

5 of 5

Date Date: 01-Jul-12

SECTION 4: Program Activities for Public Outreach, Education, Notification and Participation

4.1 Public Notification Program

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

4.2 Public Education Programs

MSD has developed 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. Efforts continued to utilize various media outlets, including television, radio, magazines, and newspapers to serve as a conduit for circulating information to the public.

During the reporting period, MetroTV filmed programs detailing the IOAP Public Input Meetings for the Southwestern Parkway Storage Basin. MSD is in the process of editing the videos with the expectation to make them available for MSD approval by the next reporting period. Additionally, MSD is in the process of creating water quality sampling videos and partnering with educational organizations to assist with watershed videos. These efforts will be finalized by the end of FY16 and will ultimately be made available to the public.

4.3 Public Outreach Programs

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

4.3.1 IOAP Project and Program Meetings

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

MSD has developed a partnership with Louisville Metro for providing project information and soliciting feedback from stakeholders using a Structured Public Involvement approach. Structured Public Involvement is meant to facilitate relevant input on the design process as MSD prepares to design and construct CSO basins. The current IOAP outreach activities and public meetings are using this process to elicit qualitative and quantitative information and enhance engagement with customers. The Structured Public Involvement approach assures anonymity for each participant using transceivers to compile data which can then be correlated on a customer-specific basis. The plan for Structured Public Involvement includes implementing a four-meeting process that leads stakeholders through the project Design Stages: Orientation, Concept, Advanced, and then a Pardon Our Dust meeting upon construction. Presentations at neighborhood meetings additionally supplement the four meeting process. Online surveys are also being made available to allow individuals not in attendance to provide similar project-specific input. Creating this secondary online opportunity has been successful and generated responses that otherwise would not have been accounted

for at the public meetings. 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 (http://www.msdprojectwin.org/Public-Input.aspx).

During the reporting period, MSD facilitated and planned for the following meetings:

- A Pardon Our Dust preconstruction meeting for the Anchor Estates Pump Station Eliminations was held at St. Luke's Episcopal Church on October 20, 2015.
- A Pardon Our Dust preconstruction meeting on the CSO190 Green Infrastructure Project was held at Western Middle School on November 9, 2015.
- IOAP Public Input Meetings were held at The Academy at Shawnee on November 12, and December 14, 2015, concerning the conceptual design of Southwestern Parkway CSO Basin. MSD staff discussed and provided general designs as well as gathered input using the Structured Public Involvement Process.
- A Wet Weather Team Stakeholder Meeting was held on December 1, 2015, to provide updates on MSD's IOAP progress and activities to date, planned activities for 2015, and an update of activities for MSD's 20-year Comprehensive Facility Plan, including detailed presentation on the Stormwater and Wastewater Service Areas.
- MSD presented IOAP background information to the Clifton Heights Community Council at the Mellwood Arts Center on October 20, 2015.
- MSD presented information on the Logan Street CSO Basin for the Smoketown Neighborhood Association on November 16, 2015 at Coke Memorial United Methodist Church.

During the next reporting period, the following meetings are planned.

- The Lexington and Payne CSO Storage Basin Orientation meeting is scheduled for January 19, 2016 at the Girl Scouts of Kentuckiana Headquarters.
- The Portland CSO Storage Basin Conceptual meeting is scheduled for January 26, 2016 at the Neighborhood House.
- A Wet Weather Team Stakeholder Meeting is planned for March 22, 2016.
- The Story and Main CSO Storage Basin Conceptual meeting is scheduled for February 10, 2016 at The American Printing House for the Blind.

SECTION 5: Capacity Management Operations and Maintenance 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 (www.msdprojectwin.org).

The primary objectives of CMOM are as follows:

Capacity – Ensuring that adequate wet and dry weather capacity is maintained in existing and new infrastructure.

Management – Implementing programs in support of operations and maintenance activities required to ensure KPDES permit compliance and promote public health by remedying design, construction and operational deficiencies; training staff; and performing activities in a safe manner.

Operations – Implementing written standard operating procedures to operate system components as designed to meet permit requirements.

Maintenance – Implementing systematic, comprehensive asset maintenance and rehabilitation programs to prevent overflows, maximize system reliability, and ensure system sustainability.

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

5.1 Management Programs

M-E-9 Infrastructure Rehabilitation

Activity details are provided in the CMOM schedule provided as **Section 5.4 – CMOM Activity Schedule.**

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 (www.msdprojectwin.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)

Activity details are provided in the CMOM schedule provided as **Section 5.4 – CMOM Activity Schedule.**

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

Activity details are provided in the CMOM schedule provided as **Section 5.4 – CMOM Activity Schedule.**

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 water quality treatment centers (WQTCs). Although the IOAP CPE assessments defined specific WQTC improvements to be completed by December 31, 2011, MSD will continue to implement CPE/CCP activities as part of the District's CMOM Program. This section will list such activities per WQTC as they occur each reporting period and will be outlined below.

5.3.1 Hite Creek Water Quality Treatment Center

During this reporting period, construction continued for the Hite Creek WQTC Hydraulic Improvements Project. A proposal from a design consultant for the Hite Creek WQTC Expansion Project was submitted and reviewed by MSD staff. MSD staff continued to work with the consultant to complete an alternative solids and tertiary filter replacement study.

During the next reporting period, the construction will continue on the Hite Creek WQTC Hydraulic Improvements Project. It is anticipated that all work will be completed by the end of the fiscal year. The proposal for design and support during construction for the Hite Creek WQTC Expansion Project will be submitted to the MSD Board in the next reporting period along with the award of the design contract for the Hite Creek WQTC Expansion Project. MSD staff will continue to work with the consultant to complete an alternative solids and tertiary filter replacement study.

Schedules for CPE/CCP related capital projects are provided in **Section 5.4 – CMOM Activity Schedule.**

5.3.2 Floyds Fork Water Quality Treatment Center

During this reporting period, the construction for the Floyds Fork Slope Repair Project was bid. The construction for the project is expected to start during the next reporting period.

Schedules for CPE/CCP related capital projects are provided in **Section 5.4 – CMOM Activity Schedule.**

5.3.3 Derek R. Guthrie Water Quality Treatment Center

During this reporting period construction continued for the Secondary Clarifiers 1, 2 & 3 collection mechanisms replacement projects. The mechanisms were ordered and grout

removal was started. Construction was put on hold for the removal and upgrade of Return Activated Sludge (RAS) Pumps 1 and 4, including the replacement of pumps 1 through 4 variable frequency drives in anticipation of revision of the DRG Facility Plan.

During the next reporting period, the draft DRG Facility Plan document will be reviewed by MSD staff and draft KDOW submittal will occur. Repairs to the power system of the Wet Weather Pump Station are also planned so that the Wet Weather Pumps can be tested for compliance with specifications. Construction will also continue on the replacement of the Secondary Clarifiers 1, 2, & 3 mechanisms. Upon the reception KDOW's review of the facility plan it is anticipated construction will begin for the removal and upgrade of Return Activated Sludge (RAS) Pumps 1 and 4, including replacement of pumps 1 through 4 variable frequency drives.

Schedules for CPE/CCP related capital projects are provided in **Section 5.4 – CMOM Activity Schedule**.

5.3.4 Cedar Creek Water Quality Treatment Center

During this reporting period, MSD advertised and awarded the Cedar Creek Water Quality Treatment Center Influent Pump Station Gate Repair and Cedar Creek Water Quality Treatment Center UV Gate Replacement projects. MSD completed negotiations of professional services for the Cedar Creek Water Quality Treatment Center Influent Pump Station Variable Frequency Drive (VFD) project.

During the next reporting period, MSD will begin construction of the Cedar Creek Water Quality Treatment Center Influent Pump Station Gate Repair and Cedar Creek Water Quality Treatment Center UV Gate Replacement projects. MSD will begin design of Cedar Creek Water Quality Treatment Center Influent Pump Station Variable Frequency Drive (VFD) project.

Schedules for CPE/CCP related capital projects are provided in **Section 5.4 – CMOM Activity Schedule**.

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 and KDEP on March 31, 2009. Approval of this plan was received on September 24, 2009, and work is now complete. See **Section 3 – Program Activities for Discharge Abatement Plans** for an update on the design and construction of the projects that make up the elimination plan for the Prospect Area WQTCs. A certification letter dated December 15, 2015, was submitted finalizing the completion of the project.

5.3.6 Jeffersontown Water Quality Treatment Center

During this reporting period, coordinated efforts allowed MSD contractors to permanently divert all flow away from the Jeffersontown Siphon and WQTC. A letter dated December 23, 2015, certified the elimination of the Jeffersontown WQTC.

During the next reporting period, demolition of the plant site and siphon structures are expected to be completed.

Schedules for CPE/CCP related capital projects are provided in **Section 5.4 – CMOM Activity Schedule.**

5.3.7 Starview Water Quality Treatment Center

During this reporting period, construction continued for the Middletown Sanitary Recapture Phase II Section C and Chenoweth Run Interceptor Section 1 projects.

During the next reporting period, construction will continue on the Middletown Sanitary Recapture Phase II Section C and Chenoweth Run Interceptor Section 1 project. The Starview WQTC is scheduled to be off-line prior to March 31, 2016.

Schedules for CPE/CCP related capital projects are provided in **Section 5.4 – CMOM Activity Schedule**.

5.3.8 Berrytown Water Quality Treatment Center

During this reporting period, the flows at Berrytown WQTC was taken off-line and flow was diverted to the Floyds Fork WQTC on November 24, 2015. Demolition of the WQTC structures has also commenced.

During the next reporting period, demolition of the plant site and structures are expected to be completed.

Schedules for CPE/CCP related capital projects are provided in **Section 5.4 – CMOM Activity Schedule.**

5.3.9 Other Water Quality Treatment Centers

CMOM related capital projects will be provided in the schedule provided as **Section 5.4 – CMOM Activity Schedule.**

- McNeely Lake - The McNeely Lake Sanitary Sewer and Force Main project is complete. This gravity portion is approximately 75% of the total length of gravity line required to eliminate the McNeely Lake WQTC. A private developer has extended the remaining gravity sewer through a future residential development to within 600 feet of the McNeely Lake WQTC. The design of the interceptor that will serve to eliminate the McNeely Lake WQTC and the Brookbend Way PS is complete. Construction began to eliminate the Brook Bend pumping station and the McNeely Lake WQTC. During the next reporting period, construction will continue for the decommissioning of the McNeely Lake WQTC and Brookbend PS. MSD anticipates completing the elimination of the McNeely Lake WQTC by March 1, 2015, but is dependent on the legal processes required to obtain rights of access to the parcel surrounding the McNeely Lake WQTC.
- Bancroft WQTC – The scope of this project has been modified from storage at Devondale PS to eliminating the Devondale PS as part of the IOAP and conveying flow to a 0.33 MGD Pump Station and a 0.25 MG Storage Basin at the Bancroft site. During the last quarter construction of rock anchors was completed and construction of the floor and walls of the basin began. During the next reporting period, MSD anticipates the completion of

the basin walls and cover, and the construction of various structures and electrical work to commence. The Bancroft WQTC and Devondale Pump Station are scheduled to be off-line by spring 2016 well ahead of the IOAP December 2021 date.

- Middletown Industrial Park WQTC –During this reporting period, Middletown Industrial Park WQTC was taken off-line on December 30, 2015, and flow was diverted to the Floyds Fork WQTC. During the next reporting period, demolition of the plant site and structures are expected to be completed.

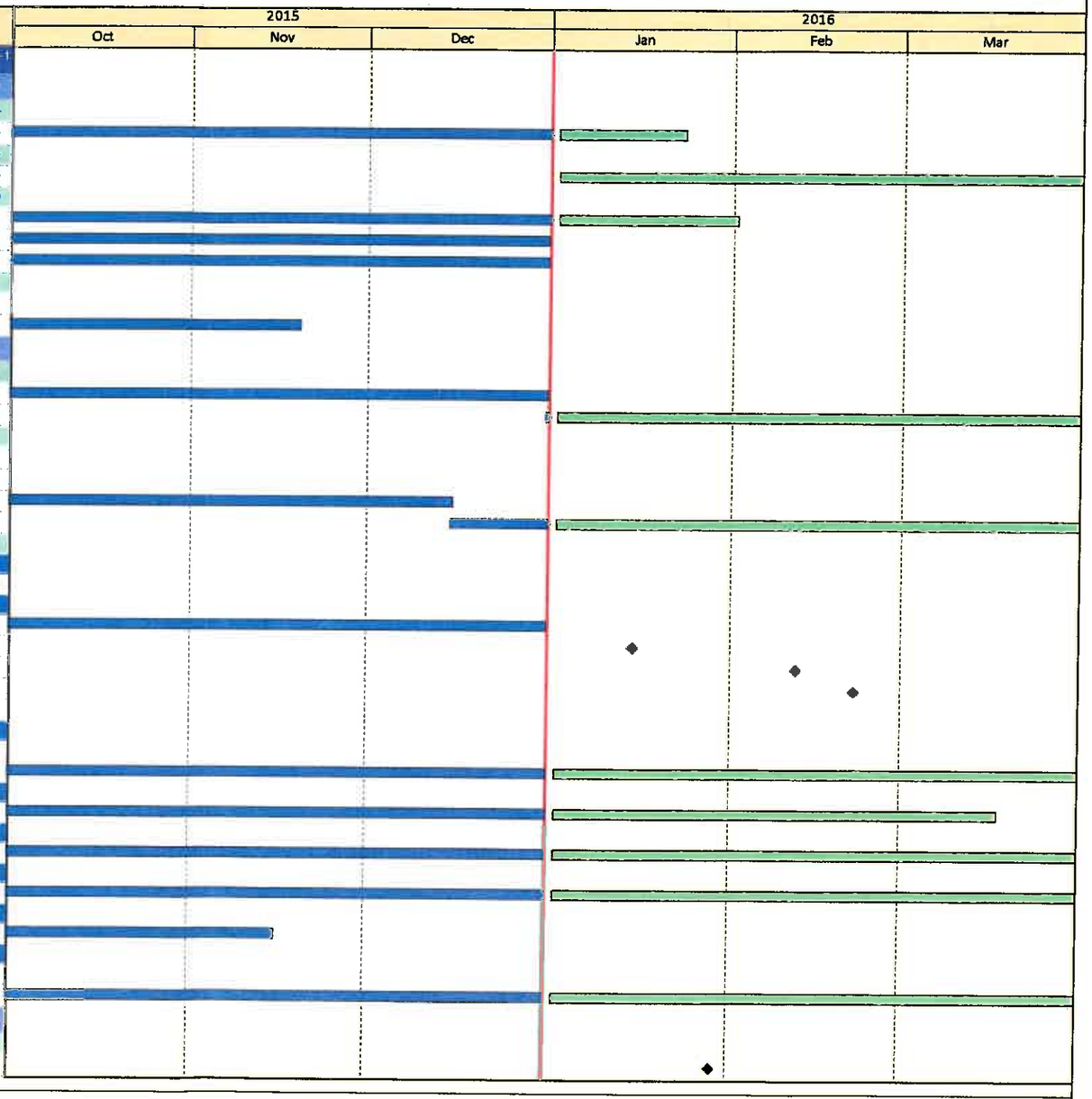
5.4 CMOM Activity Schedule

CMOM capital project milestones for the period of October 1, 2015, through December 31, 2015, as well as a look-ahead for the period of January 1, 2016, through March 31, 2016, are provided in the schedule below.

MSD CMOM FY16 Annual Commitments Schedule (01 October 2015 - 31 December 2015)

Date: 20-Jan-16

Activity ID	Activity Name	Physical % Complete	Start
CMOM FY ANNUAL REPORT COMMITMENTS FINAL			04-Jan-1 A
M-E-9 Infrastructure Rehabilitation			23-Jan
Prospect Place I Sanitary Sewer Rehabilitation Project (H11311)			23-Jan
A6470	Warranty	80%	23-Jan
Middle Fork Beargrass Creek SSR Phase 1 (H11505)			02-Jan
A5370	Design	0%	02-Jan
FY15 Annual Sewer Rehabilitation (H09208)			01-Feb
A5530	Construction	98%	01-Feb
A5540	LAW Quad 3 - Whispering Hills Phase 2	100%	15-Feb
A5650	LAW Quad 4	100%	15-Feb
Melco Basin Tree Removal (F14171)			14-Jul
A6280	Award	100%	14-Jul
A6290	Construction	100%	11-Aug
Pump Station Operations Programs			04-Jan
Lee Ann Way West Quads 1 & 2 (H15125)			22-Jun
A6510	Construction	100%	22-Jun
A6830	Warranty	2%	31-Dec
34th Street Flood Pump Station Gate 71 Replacement (F15008)			08-Jul
A6530	Bid	100%	08-Jul
A6540	Award	100%	14-Jul
A6550	Construction	100%	06-Aug
A6840	Warranty	8%	15-Dec
O-A-2 Emergency Operation Programs			04-Jan
St. Matthews #4 Pump Station Modification Project (H14211)			29-Aug
A5840	Warranty	100%	29-Aug
4th Street FPS Gate and Switch Gear Replacement Project (F12095)			04-Jan
A5150	Design	100%	04-Jan
A5160	Ad	0%	15-Jan
A5170	Bid Open	0%	12-Feb
A5180	Award	0%	22-Feb
A5190	Construction	0%	07-Mar
Melco Basin Crane (F14170)			27-Jul
A6230	Award	100%	27-Jul
A6240	Construction	60%	17-Aug
Starkey Flood Pump Station Rooftop A/C (F15006)			18-Mar
A6550	Warranty	75%	18-Mar
Bridgepointe Pump Station Access Road			02-Jun
A6570	Warranty	80%	02-Jun
Fairway View Pump Station Upgrade (H09177)			06-May
A6350	Warranty	60%	06-May
Riding Ridge Pump Station Improvements (H09175)			15-Nov
A6370	Warranty	100%	15-Nov
Rosa Terrace Pump Station Improvement			03-Nov
A6450	Construction	100%	03-Nov
A6460	Warranty	48%	10-Jul
CPE/CPE Treatment Plant Activities			15-Sep
West County Water Quality Treatment Center Gate 145 Electrical Service & Actuator (F14164)			29-Jan
A6580	Ad	0%	29-Jan



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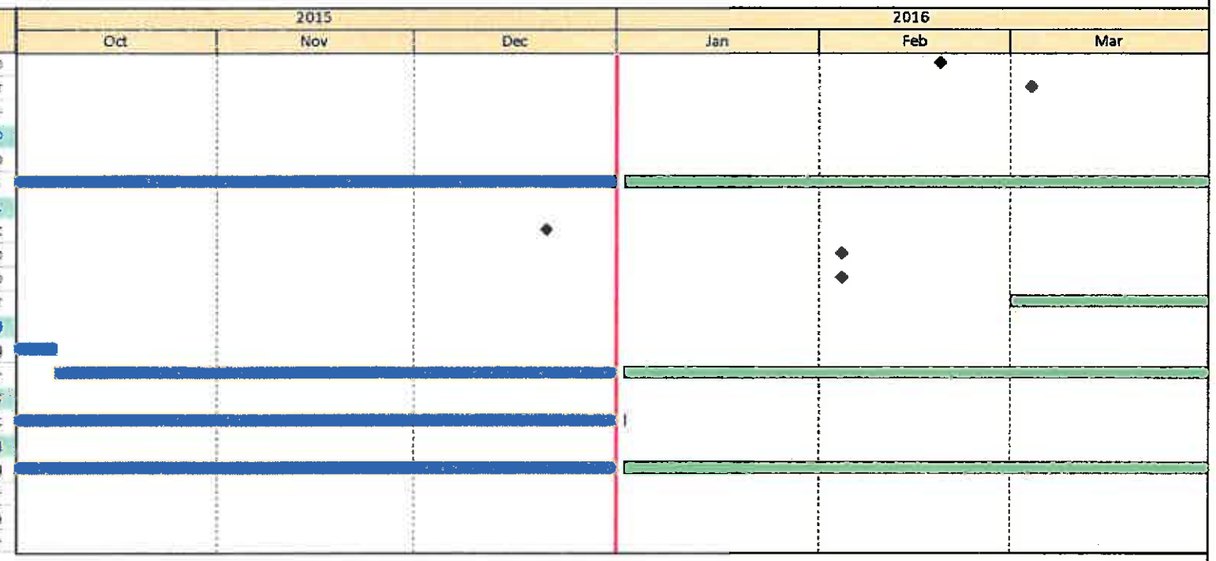
Date Date: 01-Jan-16

MSD CMOM FY16 Annual Commitments Schedule (01 October 2015 - 31 December 2015)

Date: 20-Jan-16

Activity ID	Activity Name	Physical % Complete	Start
A6590	Bid Open	0%	19-Feb
A6600	Award	0%	04-Mar
A6610	Construction	0%	04-Apr
SWOR 2 Improvements			15-Sep
A6620	Construction	100%	15-Sep
A6850	Warranty	45%	20-Jul
MPWCJTC Rubbertown FM Manhole Sampling (H14108)			21-Dec
A6630	AD	100%	21-Dec
A6640	Bid Open	0%	04-Feb
A6650	Award	0%	04-Feb
A6660	Construction	0%	01-Mar
Boggess Property Rehab (H12159)			13-Aug
A6700	Construction	100%	13-Aug
A6710	Warranty	24%	07-Oct
17th Street FPS SWO Elimination (H09138)			18-Dec
A6730	Warranty	99%	18-Dec
South Pope Lick PS			01-Aug
A6740	Design	63%	01-Aug
A6750	Ad	0%	30-Apr
A6760	Bid Open	0%	31-May
A6770	Award	0%	30-Jun



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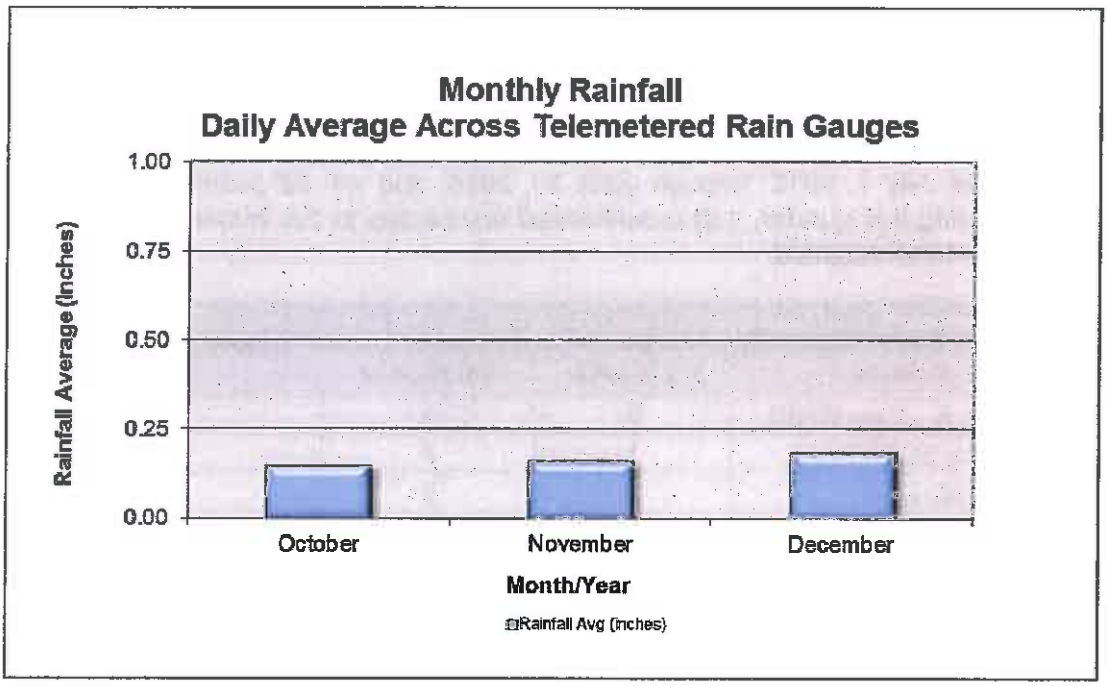
Date Date: 01-Jan-16

SECTION 6: Project WIN Performance Overview

6.1 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. The following graph shows the Jefferson County average rainfall amounts for the last quarter. Data was pulled from MSD's Rain Gauge Network.



A storm frequency analysis for CSOs is included as **Appendix B**.

October, November and December Weather Event Summary

According to the National Weather Service the weather patterns were considered "quiet" for October and November 2015. There were no severe weather events in the surrounding region. The National Weather Service (NWS) describes December 2015 in Louisville as "warm and wet". Much of the month was warm with many days experiencing temperatures well above average, and along with the warm temperatures came rainfall. According to NWS, the region experienced between four and eight inches of rain, occurring mostly toward the end of the month between December 21, 2015 and December 28, 2015. Louisville set a new daily record rainfall in 2015 of 2.21 inches for December 27. MSD's own rain gauge network registered between 3 and 6 inches of rainfall for the same period of time. Overall, December 2015 will be recorded as the tenth wettest December on record for Louisville.

As a result of significant precipitation at the end of December, overflows occurred in the vicinity of the Fairmount Road PS and wet weather storage facility. Four Unauthorized

Discharges occurred at three locations in the vicinity of the Fairmount Road PS. Three of the overflows began on December 27, 2015. One location discharged a second time on December 30, 2015. These overflows were the result of a lack of system capacity in the sewers conveying flow to the pump station. For a detailed summary of activities and events at the Fairmount Road PS, see Appendix G.

6.2 Collection System Unauthorized Discharges

6.2.1 Collection System Overflows to Waters of the United States (WUS)

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 will be included in the Annual Report for the period of July 1, 2015, through June 30, 2016, and will be posted on the Project WIN website. During this quarter, 118 unauthorized discharges to the Waters of the United States (WUS) have been reported.

Unauthorized Discharges (Waters of the United States) - October 1, 2015, to December 31, 2015			
Problem	**Dry Weather**	**Wet Weather**	**Total**
Blending At J-Town WQTC	0	3	**3**
Bypass At WQTC	1	2	**3**
Grease Blockage	1	0	**1**
Lack Of System Capacity	0	104	**104**
Obstruction-Not Grease / Roots	2	0	**2**
Pumped Overflow	0	1	**1**
Structural Failure	4	0	**4**
Total	**8**	**110**	**118**

6.2.2 Overflows to Ground (EXT)

MSD recorded information related to overflows to the ground that did not reach Waters of the United States for the reporting period. This information is entered and maintained in Hansen utilizing procedures reviewed and improved through efforts associated with various components of the Amended Consent Decree. These overflows will be included in the Annual Report for the period of July 1, 2015, through June 30, 2016.

6.2.3 Overflows to Interior (INT)

MSD recorded information related to overflows to building interiors for the reporting period. This information is entered and maintained in Hansen utilizing procedures reviewed and improved through efforts associated with various components of the Amended Consent Decree. These overflows, that are the result of an issue in the main line, will be included in the Annual Report for the period of July 1, 2015, through June 30, 2016.

6.2.4 Dry Weather CSOs

MSD recorded information related to dry weather overflows from permitted combined sewer overflow outfalls. This information is entered and maintained in Hansen utilizing procedures reviewed and improved through efforts associated with various components of the Amended Consent Decree. A detailed report of these overflows will be included in the Annual Report for the period of July 1, 2015, through June 30, 2016. The table below summarizes dry weather CSOs that occurred during the quarter. **Appendix A-1** includes details on the dry weather overflows that occurred in the quarter.

There were two dry weather overflows recorded at a CSO.

Dry Weather CSO - October 1, 2015 to December 31, 2015					
CSO	**Type of Discharge**	**Date/Time**	**Problem**	**Cause**	**Volume (Gal)**
CSO113	DISDW	11/02/15 10:19: AM	OBSTRUCTION-NOT GREASE / ROOTS	UNKNOWN OBSTRUCTION IN LOW FLOW LINE	9
CSO113	DISDW	11/23/15 10:16: AM	OBSTRUCTION-NOT GREASE / ROOTS	HEAVY LEAVES (BUILD UP AT REDUCER/LOW-FLOW	82

6.3 CSO Reductions

Included in **Appendix B** is the CSO data for this reporting period. A summary of any data anomalies and the CSO data for each monitored overflow has been graphed along with rainfall information from the nearest rain gauge to facilitate review of the overflows that occurred. Below are CSO reduction projects that were completed during this reporting period.

- CSO093 Structural Modifications/Green Infrastructure Project was completed on December 23, 2015. This project focused on achieving a level of control of 0 overflows for the Typical Year event for CSO093.
- CSO140 Sewer Separation Project was completed on December 23, 2015. This project focused on achieving a level of control of 0 overflows for the Typical Year event for CSO140.
- CSO160 Sewer Separation Project was completed on December 10, 2015.

6.4 SSO Reductions

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

- Jeffersontown WQTC Elimination Project was completed December 23, 2015. This project focused on eliminating the following SSOs: 28391, 64505, 28392, 28395, IS028-SI, 31733, 28551, MSD0255 and 28173.
- Lea Ann Way System Improvements – System rehabilitation was completed December 4, 2015. This project focused on eliminating the following SSOs: MSD1200-PS, 29933, 31074, 31073, 57874, 29948 and MSD1010-PS.

- Prospect #1 – WQTC Eliminations Project was completed December 15, 2015. This project focused on eliminating the following SSOs: MSD0192-PS, MSD1063-PS, MSD0123-PS, MSD0193-PS, 40870, MSD1044-PS, MSD0183-PS, 22436, 40872, 40871, 65635, 42680, 89791, 89646, 40879, 42675, 40880, MSD0186-PS,65633 and 65623.
- Prospect #2 – Harrods Creek PS & FM was completed November 13, 2015. This project focused on eliminating the following SSOs: 40870, 89791, 65623, MSD0123-PS, MSD1044-PS, 89646, 40879, 40880, MSD0186-PS, MSD1063-PS, MSD0192-PS, MSD0183-PS, 65633, 22436, 42675, 40872, 65635, MSD0193-PS, 40871 and 42680.

6.5 Gravity Line Preventive Maintenance

Each quarter, data and statistics relating to the cleaning, inspection, and maintenance of sewer assets performed under the Gravity Line Preventive Maintenance (GLPM) are reported. The following data was compiled for the period of October 1, 2015, through December 31, 2015. The first table includes data and targets. The second table includes unplanned maintenance and other maintenance activities that are performed in response to inspection.

Rolling Quarterly GLPM Performance With Targets							
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Total	Target/ QTR	% of Annual Target
COMBINED SEWER AREA							
Catch Basins Cleaned CSO Area - PM	6,015	5,943	5,175	6,087	23,220	4,460	34%
CSO Inspections	1,239	1,301	1,235	1,364	5,139	1,272	27%
SANITARY SEWER AREA							
Catch Basins Cleaned SSO Area - PM	45	188	2,659	1,444	4,336	1,144	32%
COUNTY WIDE							
Sewer Main Inspections MSD Crews (LF)	166,228	33,463	13,523	0	213,214	198,000	0%
Sewer Main Inspections Contractor (LF)	272,606	186,018	129,759	217,581	805,964	198,000	27%
Total Inspections (LF)	438,834	219,480	143,282	217,581	1,019,177	396,000	14%

Rolling quarterly GLPM performance is related to unplanned maintenance; therefore no targets have been developed.

Rolling Quarterly GLPM Performance					
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Total
COMBINED SEWER AREA					
Catch Basins Cleaned CSO Area - UM	194	319	363	226	1,102
CSO Debris Removal WO	78	169	146	169	562
Chemical Root Treatment CSO Area (LF)	0	0	0	11,980	11,980

Rolling Quarterly GLPM Performance					
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Total
Root Cutting CSO Area (LF)	475	1,804	1,855	**0**	4,134
Flushing and Cleaning of Sewer Mains CSO Area (LF)	5,798	7,112	4,837	**27,496**	45,243
Sanitary Sewer Area					
Catch Basins Cleaned SSO Area - UM	42	105	95	**85**	327
Chemical Root Treatment SSO Area (LF)	178,302	49,808	0	**85,820**	313,930
Root Cutting SSO Area (LF)	15,057	19,004	7,892	**15,303**	57,256
Flushing and Cleaning of Sewer Mains SSO Area (LF)	23,000	30,170	39,361	**41,861**	134,392

6.6 Water Quality Treatment Center Bypasses

6.6.1 Bypass Events

The table below summarizes the bypasses that occurred during this reporting period.

Bypass Events - October 1, 2015 to December 31, 2015			
Type of Bypass	**Date**	**ID**	**Facility Name**
Rain Event Discharge	12/1/2015	MSD0228	McNeely Lake
Rain Event Discharge	12/1/2015	MSD0247	Starview
Dry Weather Discharge	10/5/2015	MSD0278	Morris Forman

6.6.2 Bypass Corrective Actions

Each quarter, an assessment of bypasses is conducted to determine the root cause of the bypass, the failure category, corrective actions to be taken, possible programmatic solutions, and corrective action completion date. Refer to the table below for causes of bypasses and respective corrective actions that occurred October 1, 2015, through December 31, 2015.

BYPASS SUMMARY - OCTOBER 1, 2015, TO DECEMBER 31, 2015					
DATE	WQTC	WORK ORDER	FAILURE CODE	BYPASS DESCRIPTION	FAILURE RESOLUTION
Capacity (CAP)					
12/1/2015 7:25:00 AM	MCNEELY LAKE	2467155	CAP	The characteristic of this rain event precipitated a larger amount of rain than previously forecasted. We were unable to mobilize staff to the McNeely Treatment facility before the bypass occurred. Upon arrival, due to the increased flow rates, the operator found biosolids bypassing secondary treatment. The plant operator immediately turned off the blowers to the aeration tanks and allowed the biosolids to settle which stopped the bypass. The total bypassed volume 0.031 received full disinfection and dechlorination treatment. The design flow is 0.205 with a peak flow rate of 0.574. The 24 hour flow was 0.321.	This Plant is to be eliminated within the next few months. Plant is to be eliminated. MSD personnel cleaned the contact tank.
12/1/2015 8:20:00 AM	STARVIEW	2467165.00	CAP	The characteristic of this rain event precipitated a larger amount of rain than previously forecasted. We were unable to mobilize staff to the Starview Treatment facility before the bypass occurred. Upon arrival, due to the increased flow rates, the operator found biosolids bypassing secondary treatment. The plant operator immediately turned off the blowers to the aeration tanks and allowed the biosolids to settle which stopped the bypass. The total bypassed volume 0.017 received full disinfection and dechlorination treatment. The design flow is 0.100 with a peak flow rate of 0.336. The 24 hour flow was 0.314.	This Plant is to be eliminated within the next few months. Plant is to be eliminated. MSD personnel cleaned the contact tank.
Human Error (OPN)					
10/5/2015 9:50:00 AM	MORRIS FORMAN	2439679	OPN	While dewatering the West Headworks for contractor access, the operator noticed the level rising in front of the individual channel isolation gates. Operations immediately turned off the dewatering pumps however the level continued to rise causing raw sewage to leave the channel and flow to a catch basin which drains to the Ohio River. It is estimated that approximately 300 gallons of raw sewage bypassed treatment and entered the Ohio River. Operations then ensured that all gates and drain valves are in the correct positions before dewatering the Headworks.	The primary operations SOP will be reviewed to ensure the instructions for draining tanks in the West Headworks are up-to-date and accurate.
Facility Failure (Mechanical - MCH, Electrical - ELE, Structural - SRT)					
External Power failures (LGE Related-PWR)					
Utility Damage					

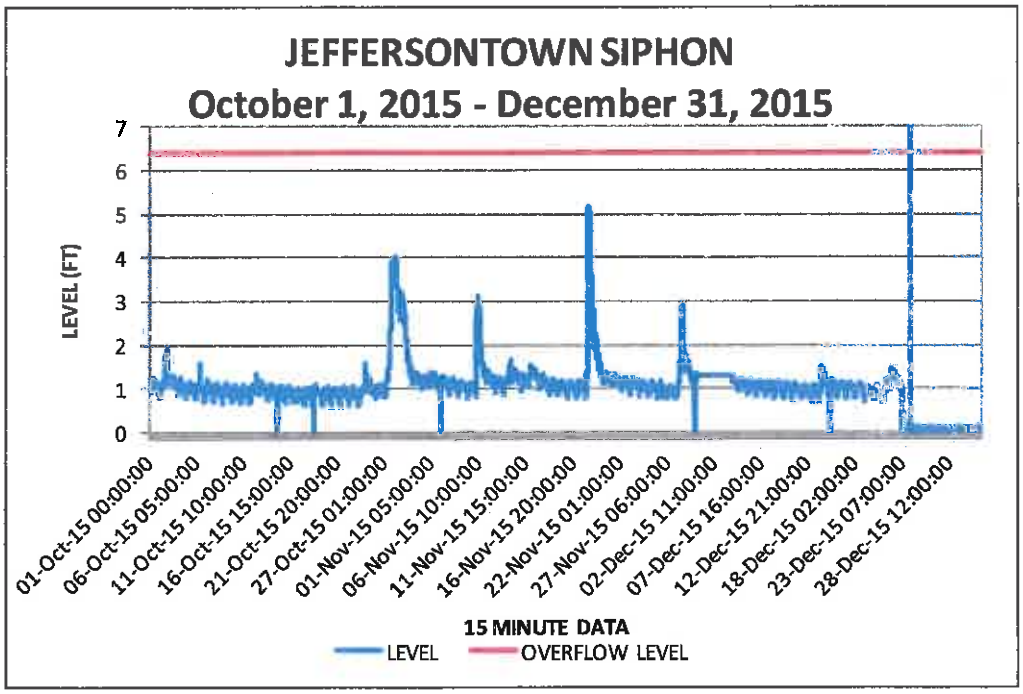
6.6.3 Jeffersontown Water Quality Treatment Center

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

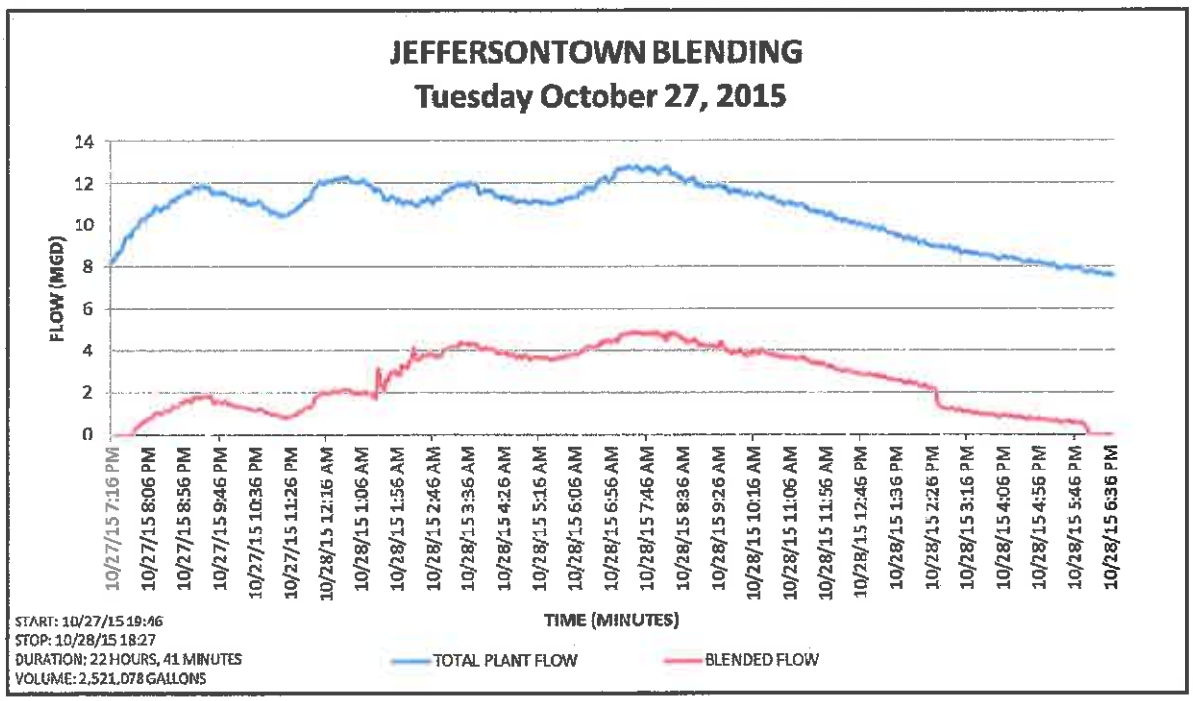
In order to eliminate the Jeffersontown WQTC the influent flow was designed to be permanently diverted in the following ways: 1) Two-thirds of the flow would be diverted to the new Grand Avenue Pump Station to be further conveyed to Morris Forman WQTC, and 2) the remaining one-third of the flow would be diverted to the Upper Billtown Interceptor which flows to the Billtown Pump Station and on to the Cedar Creek WQTC.

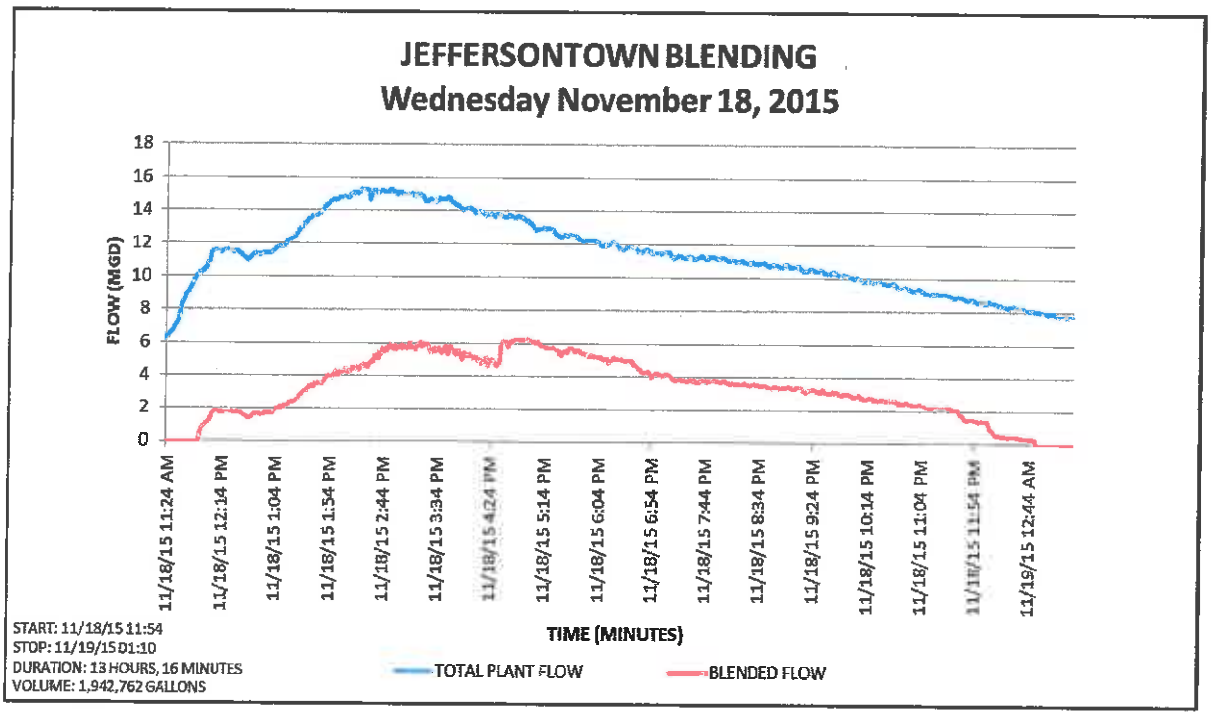
Inspections were conducted upstream of the Jeffersontown WQTC Headworks five times during the reporting period. Refer to Section 2 for SSO Route information. Overflows were reported upstream of the siphon at manhole 28173 one time, November 18, 2015.

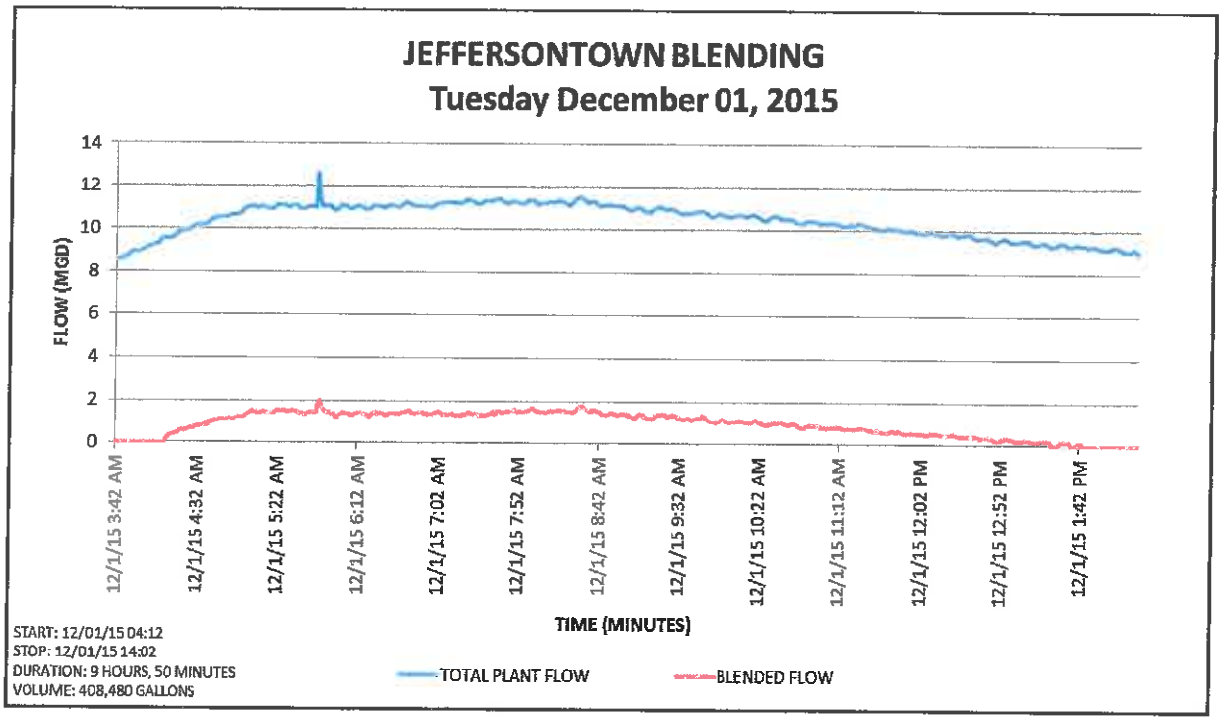
On Wednesday December 23, 2015, coordinated efforts allowed MSD contractors to permanently divert all flow away from the Jeffersontown Siphon and WQTC, and toward the new Grand Avenue Pump Station and new sewer piping diverts flow around the previous siphon to the Upper Billtown Interceptor. The Jeffersontown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



There were three blending events during the reporting period. Below are charts for each blending event that show total plant flow during the blending event.







6.7 Phosphorus Monitoring at the Prospect WQTCs

All Prospect Treatment Plants have been eliminated per the Amended Consent Decree. All plants were offline as of September 2015; there is no Phosphorus data to report this quarter.

Appendix A-1 - Discharge Work Orders – Dry Weather CSOs

APPENDIX A-1
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
OCTOBER 1, 2015 THROUGH DECEMBER 31, 2015

Associated Wastewater Treatment Plant Name	Associated Treatment Plant KPDES #	Overflow Location	Overflow Start Date & Time	Overflow Stop Date & Time	Volume of Overflow	Source Asset Type	Source Asset ID	Facility Discharges To	Receiving Stream	Cause of Overflow	Due To	WO #	Cleanup Efforts by MSD	Repair Efforts by MSD
MORRIS FORMAN	KY0022411	1215 ELLISON AVE	11/02/15 10:19: AM	11/02/15 10:37 AM	9	SEWER MANHOLE	CSO113	STREAM	SOUTH FORK BEARGRASS CREEK	UNKNOWN OBSTRUCTION IN LOW FLOW LINE	OBSTRUCTION-NOT GREASE / ROOTS	2456311	FLUSHED LINE TO MITIGATE. NO CLEAN-UP NECESSARY	FLUSHED THE LINE TO MITIGATE
MORRIS FORMAN	KY0022411	1215 ELLISON AVE	11/23/15 10:16: AM	11/23/15 11:38 AM	82	SEWER MANHOLE	CSO113	STREAM	SOUTH FORK BEARGRASS CREEK	HEAVY LEAVES (BUILD UP AT REDUCER/LOW-FLOW	OBSTRUCTION-NOT GREASE / ROOTS	2464186	NONE NOTED. OVERFLOWS DIRECTLY INTO CREEK	FLUSHED LINE AND RELIEVED OBSTRUCTION

Appendix A-2 - Discharge Work Orders – Bypass

APPENDIX A-2
UNAUTHORIZED DISCHARGES TO WATERS OF UNITED STATES
OCTOBER 1, 2015 THROUGH DECEMBER 31, 2015

Associated Wastewater Treatment Plant Name	Associated Treatment Plant KPDES #	Overflow Location	Overflow Start Date & Time	Overflow Stop Date & Time	Volume of Overflow	Source Asset Type	Source Asset ID	Facility Discharges To	Receiving Stream	Cause of Overflow	Due To	WO #	Cleanup Efforts by MSD	Repair Efforts by MSD
MCNEELY LAKE	KY0029416	10300 ROD N REEL RD	12/01/15 7:25: AM	12/01/15 09:10 AM	31,000	SEWER TREATMENT PLANT	MSD0228	STREAM	PENNSYLVANIA RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BYPASS AT WQTC	2467155	CLEANUP NOT POSSIBLE DUE TO MAGNITUDE OF STORM	OPERATOR TURNED AIR OFF PLANT TO STOP SOLIDS FROM GOING OVER WEIR
STARVIEW	KY0031712	423 BERMUDA WAY	12/01/15 8:20: AM	12/01/15 10:00 AM	17,000	SEWER TREATMENT PLANT	MSD0247	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BYPASS AT WQTC	2467165	CLEANUP NOT POSSIBLE DUE TO MAGNITUDE OF STORM	OPERATOR TURNED AIR OFF TO STOP BYPASSING OVER WEIR
MORRIS FORMAN	KY0022411	4522 ALGONQUIN PKY	10/05/15 9:50: AM	10/05/15 10:00 AM	300	SEWER TREATMENT PLANT	MSD0278	STREAM	OHIO RIVER	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BYPASS AT WQTC	2439679	MSD CLEANED AND SANITIZED AREA	SUMP PUMP WAS TURNED OFF

Appendix A-3 - Discharge Work Orders – Blending

APPENDIX A-3
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
OCTOBER 1, 2015 THROUGH DECEMBER 31, 2015

Associated Wastewater Treatment Plant Name	Associated Treatment Plant KPDES #	Overflow Location	Overflow Start Date & Time	Overflow Stop Date & Time	Volume of Overflow	Source Asset Type	Source Asset ID	Facility Discharges To	Receiving Stream	Cause of Overflow	Due To	WO #	Cleanup Efforts by MSD	Repair Efforts by MSD
JEFFERSONTOWN	KY0025194	10725 OLD TAYLORSVILLE RD	10/27/15 7:46 PM	10/28/15 06:27 PM	2,514,321	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BLENDING AT JTOWN WQTC	2452977	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED FOR THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER
JEFFERSONTOWN	KY0025194	10725 OLD TAYLORSVILLE RD	11/18/15 11:54 AM	11/19/15 01:10 AM	1,940,645	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BLENDING AT JTOWN WQTC	2462919	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED AT THIS LOCATION WHEN FLOW HAS BEEN OPTIMIZED DURING WET WEATHER.
JEFFERSONTOWN	KY0025194	10725 OLD TAYLORSVILLE RD	12/01/15 4:12: AM	12/01/15 02:02 PM	407,810	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BLENDING AT JTOWN WQTC	2467069	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED FOR THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER

Appendix A-4 - Discharge Work Orders – Waters of the United States

APPENDIX A-4
UNAUTHORIZED DISCHARGES TO WATERS OF UNITED STATES
OCTOBER 1, 2015 THROUGH DECEMBER 31, 2015

Associated Wastewater Treatment Plant Name	Associated Treatment Plant KPDES #	Overflow Location	Overflow Start Date & Time	Overflow Stop Date & Time	Volume of Overflow	Source Asset Type	Source Asset ID	Facility Discharges To	Receiving Stream	Cause of Overflow	Due To	WO #	Cleanup Efforts by MSD	Repair Efforts by MSD
HITE CREEK	KY0022420	5500 HITT RD	12/27/15 12:05 PM	12/27/15 06:00 PM	17,750	SEWER MANHOLE	11877A	STREAM	HITE CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476584	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
HITE CREEK	KY0022420	8619 WESTOVER DR	12/15/15 11:37 AM	12/15/15 11:42 AM	25	SEWER MAIN	MSD1064-PS	GROUND	HUNTING CREEK	FORCE MAIN BREAK	STRUCTURAL FAILURE	2472955	NO CLEAN UP- THIS IS AN ACTIVE CONSTRUCTION SITE.	CONTRACTOR REPAIRED THE FORCE MAIN
MCNEELY LAKE	KY0029416	10300 ROD N REEL RD	12/1/15 7:25 AM	12/01/15 09:10 AM	31,000	SEWER TREATMENT PLANT	MSD0228	STREAM	PENNSYLVANIA RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BYPASS AT WQTC	2467155	DUE TO HIGH FLOW IN CREEK NO CLEAN UP	OPERATOR TURNED AIR OFF PLANT TO STOP SOLIDS FROM GOING OVER WEIR
STARVIEW	KY0031712	423 BERMUDA WAY	12/1/15 8:20 AM	12/01/15 10:00 AM	17,000	SEWER TREATMENT PLANT	MSD0247	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BYPASS AT WQTC	2467165	DUE TO HIGH FLOW IN CREEK NO CLEAN UP NEEDED	OPERATOR TURNED AIR OFF TO STOP BYPASSING OVER WEIR
JEFFERSONTOWN	KY0025194	10725 OLD TAYLORSVILLE RD	10/27/15 7:46 PM	10/28/15 06:27 PM	2,514,321	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BLENDING AT JTOWN WQTC	2452977	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED FOR THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER
JEFFERSONTOWN	KY0025194	10725 OLD TAYLORSVILLE RD	11/18/15 11:54 AM	11/19/15 01:10 AM	1,940,645	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BLENDING AT JTOWN WQTC	2462919	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED AT THIS LOCATION WHEN FLOW HAS BEEN OPTIMIZED DURING WET WEATHER.
JEFFERSONTOWN	KY0025194	10725 OLD TAYLORSVILLE RD	12/1/15 4:12 AM	12/01/15 02:02 PM	407,810	SEWER TREATMENT PLANT	MSD0255	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	BLENDING AT JTOWN WQTC	2467069	PIPE DISCHARGE SUBMERGED- NO CLEAN UP	TEMPORARY BLENDING HAS BEEN NEGOTIATED FOR THIS LOCATION WHEN FLOW THROUGH THE PLANT HAS BEEN OPTIMIZED DURING WET WEATHER
DEREK R. GUTHRIE	KY0078956	9114 CINDERELLA LN	11/18/15 4:02 PM	11/18/15 09:12 PM	7,750	SEWER MANHOLE	102339	GROUND	FISHPOOL CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463087	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9317 LANTANA DR	11/18/15 3:15 PM	11/18/15 05:30 PM	1,350	SEWER MANHOLE	25484	STREAM	PENNSYLVANIA RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463081	NO DEBRIS	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9317 LANTANA DR	12/27/15 1:42 PM	12/28/15 07:40 AM	10,780	SEWER MANHOLE	25484	STREAM	PENNSYLVANIA RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476651	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	10/27/15 8:00 PM	10/29/15 12:30 PM	49,200	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2452992	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	11/18/15 1:00 PM	11/19/15 07:30 AM	27,750	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2462984	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	12/1/15 7:03 AM	12/01/15 10:25 PM	24,000	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2467174	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	10304 CAVEN AVE	12/27/15 1:50 PM	12/29/15 04:00 AM	36,000	SEWER MANHOLE	27116	STREAM	MUD CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476629	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	6810 SANDSTONE BLVD	12/27/15 12:00 AM	12/27/15 03:00 PM	1,875	SEWER MANHOLE	29948	GROUND	FERN CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476624	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	6808 SANDSTONE BLVD	12/27/15 12:00 AM	12/27/15 03:00 PM	1,875	SEWER MANHOLE	31073	DITCH	FERN CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476617	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	6808 SANDSTONE BLVD	12/27/15 12:00 AM	12/27/15 03:00 PM	1,875	SEWER MANHOLE	31074	DITCH	FERN CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476621	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	9114 CINDERELLA LN	12/27/15 2:20 PM	12/28/15 08:40 AM	22,000	SEWER MANHOLE	60679	DITCH	FISHPOOL CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476648	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
DEREK R. GUTHRIE	KY0078956	4005 KIRBY LN	12/27/15 12:05 PM	12/28/15 06:00 AM	53,750	SEWER MANHOLE	61266	DITCH	FERN CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476656	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP

APPENDIX A-4
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
OCTOBER 1, 2015 THROUGH DECEMBER 31, 2015

Associated Wastewater Treatment Plant Name	Associated Treatment Plant KPDES #	Overflow Location	Overflow Start Date & Time	Overflow Stop Date & Time	Volume of Overflow	Source Asset Type	Source Asset ID	Facility Discharges To	Receiving Stream	Cause of Overflow	Due To	WO #	Cleanup Efforts by MSD	Repair Efforts by MSD
DEREK R. GUTHRIE	KY0078956	5006 LEA ANN WAY	12/27/15 1:20 PM	12/27/15 09:45 PM	1,990,000	SEWER LIFT STATION	MSD1010-PS	STREAM	NORTHERN DITCH	LACK OF SYSTEM CAPACITY - HEAVY RAIN	PUMPED OVERFLOW	2476660	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	12/27/15 2:42 PM	12/29/15 06:00 AM	58,950	SEWER MANHOLE	00056-W	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476693	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	806 PINE WAY	12/27/15 2:15 PM	12/28/15 08:11 AM	21,525	SEWER MANHOLE	0057-W	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476687	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	11/18/15 7:02 PM	11/19/15 12:10 AM	3,080	SEWER MANHOLE	00746	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463107	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	804 N ARBOR DR	12/27/15 2:42 PM	12/29/15 06:00 AM	58,950	SEWER MANHOLE	00746	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476688	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	7900 SHELBYVILLE RD	12/27/15 2:10 PM	12/28/15 08:31 AM	162,000	SEWER MANHOLE	02933	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476739	WO# 2479655	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	7900 SHELBYVILLE RD	12/27/15 2:08 PM	12/28/15 08:29 AM	24,000	SEWER MANHOLE	02935	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476738	WO# 2479634	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4315 PRUITT CT	12/27/15 3:47 PM	12/28/15 10:26 AM	2,500	SEWER MANHOLE	08426	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476723	WO# 2479570	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4313 PRUITT CT	12/27/15 3:46 PM	12/28/15 10:25 AM	2,500	SEWER MANHOLE	08427	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476722	WO# 2479568	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	11/18/15 12:54 PM	11/18/15 07:20 PM	10,000	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463122	WO# 2463152	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	12/23/15 8:18 PM	12/24/15 09:37 AM	18,000	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476082	WO# 2476226	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	12/27/15 11:50 AM	12/29/15 12:50 PM	2,500	SEWER MANHOLE	08717	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476726	WO# 2479862	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	11/18/15 2:16 PM	11/18/15 10:37 PM	712,477	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463115	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	12/23/15 9:03 PM	12/24/15 11:01 PM	342,732	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476093	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1001 BRECKENRIDGE LN	12/27/15 11:38 AM	12/29/15 09:21 PM	14,161,636	SEWER MANHOLE	08935-SM	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476714	NO CLEAN UP PERFORMED – PIPE DISCHARGING UNDERWATER, DIRECTLY INTO STREAM	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4103 LEE AVE	12/23/15 8:34 PM	12/23/15 09:55 PM	3,000	SEWER MANHOLE	104223	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476084	WO# 2476243	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4103 LEE AVE	12/27/15 11:37 AM	12/28/15 11:00 AM	15,000	SEWER MANHOLE	104223	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476719	WO# 2479564	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	7713 WESTPORT RD	12/27/15 3:56 PM	12/28/15 09:04 AM	162,000	SEWER MANHOLE	105936	GROUND	GOOSE CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476749	WO# 2479692	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4716 BURKLEY AVE	12/27/15 2:56 PM	12/28/15 08:44 AM	27,000	SEWER MANHOLE	10793	CATCH BASIN	OHIO RIVER	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476743	WO# 2479674	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP

APPENDIX A-4
UNAUTHORIZED DISCHARGES TO WATERS OF UNITED STATES
OCTOBER 1, 2015 THROUGH DECEMBER 31, 2015

Associated Wastewater Treatment Plant Name	Associated Treatment Plant KPDES #	Overflow Location	Overflow Start Date & Time	Overflow Stop Date & Time	Volume of Overflow	Source Asset Type	Source Asset ID	Facility Discharges To	Receiving Stream	Cause of Overflow	Due To	WO #	Cleanup Efforts by MSD	Repair Efforts by MSD
MORRIS FORMAN	KY0022411	973 SWAN ST	12/16/15 2:15 PM	12/16/15 02:35 PM	200	SEWER MAIN	11777A	STREAM	SOUTH FORK BEARGRASS CREEK	CONTRACTOR HIT SIPHON WHILE WORKING IN AREA	STRUCTURAL FAILURE	2473390	MSD CONTRACTOR CLEANED AND SANITIZED THE IMPACTED AREA	MSD CONTRACTOR REPAIRED THE LINE
MORRIS FORMAN	KY0022411	1600 BELMAR DR	12/23/15 8:25 PM	12/23/15 09:52 PM	2,500	SEWER MANHOLE	13946	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476088	WO# 2476255	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1600 BELMAR DR	12/27/15 11:34 AM	12/28/15 11:04 AM	27,000	SEWER MANHOLE	13946	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476717	WO# 2479561	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1726 FRASER DR	12/27/15 12:15 PM	12/27/15 09:00 PM	218,305	SEWER MANHOLE	16649	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476720	WO# 2479566	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	7404 ARROWWOOD RD	12/28/15 1:00 AM	12/28/15 05:45 AM	2,850	SEWER MANHOLE	21628-W	DITCH	GOOSE CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2479181	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3302 TROUT CREEK DR	12/27/15 6:49 PM	12/28/15 10:36 AM	129,600	SEWER MANHOLE	23211	STREAM	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476765	WO# 2479752	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3317 BROWNSBORO RD	12/27/15 4:55 PM	12/28/15 09:48 AM	67,500	SEWER MANHOLE	26752	DITCH	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476756	WO# 2479735	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1013 ALTA CIR	11/18/15 1:52 PM	11/18/15 06:13 AM	144,000	SEWER MANHOLE	27007	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463110	WO# 2463209	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1013 ALTA CIR	12/23/15 1:33 PM	12/24/15 10:46 AM	6,000	SEWER MANHOLE	27007	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476096	WO# 2476267	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1013 ALTA CIR	12/27/15 1:21 PM	12/29/15 11:16 AM	5,000	SEWER MANHOLE	27007	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476730	WO# 2479826	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3500 ST EDWARDS DR	11/18/15 2:02 PM	11/18/15 06:34 PM	6,000	SEWER MANHOLE	28249	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463117	WO# 2463150	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3500 ST EDWARDS DR	12/27/15 2:50 PM	12/28/15 07:45 AM	2,000	SEWER MANHOLE	28249	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476712	WO# 2479823	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3506 CHARLANE PKY	11/18/15 2:05 PM	11/18/15 05:59 AM	24,000	SEWER MANHOLE	28250	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463119	WO# 2463170	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3506 CHARLANE PKY	12/27/15 2:40 PM	12/28/15 07:45 AM	2,000	SEWER MANHOLE	28250	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476711	WO# 2479817	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	9707 WILLOWWOOD WAY	12/27/15 2:55 PM	12/29/15 05:35 AM	34,500	SEWER MANHOLE	28336	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2479745	DISCLN WO# 2479751	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3406 DELL RD	12/27/15 2:25 PM	12/28/15 07:30 AM	1,000	SEWER MANHOLE	28415	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476686	WO# 2479796	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3406 CHARLANE PKY	10/28/15 5:15 AM	10/28/15 12:45 PM	10,500	SEWER MANHOLE	28451	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2454325	WO# 2454548	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3406 CHARLANE PKY	11/18/15 2:03 PM	11/18/15 06:05 AM	24,000	SEWER MANHOLE	28451	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463118	WO# 2463169	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3406 CHARLANE PKY	12/27/15 2:35 PM	12/28/15 07:35 AM	2,000	SEWER MANHOLE	28451	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476709	WO# 2479810	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP

APPENDIX A-4
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
OCTOBER 1, 2015 THROUGH DECEMBER 31, 2015

Associated Wastewater Treatment Plant Name	Associated Treatment Plant KPDES #	Overflow Location	Overflow Start Date & Time	Overflow Stop Date & Time	Volume of Overflow	Source Asset Type	Source Asset ID	Facility Discharges To	Receiving Stream	Cause of Overflow	Due To	WO #	Cleanup Efforts by MSD	Repair Efforts by MSD
MORRIS FORMAN	KY0022411	3402 CHARLANE PKY	10/28/15 5:20 AM	10/28/15 12:45 PM	10,500	SEWER MANHOLE	28453	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2454328	WO#2454553	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3402 CHARLANE PKY	12/27/15 2:30 PM	12/29/15 05:20 AM	3,000	SEWER MANHOLE	28453	DITCH	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476706	WO# 24799801	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	8113 SHELBYVILLE RD	12/27/15 3:06 PM	12/28/15 08:52 AM	153,000	SEWER MANHOLE	30376	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476747	WO# 2479678	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1552 CHEROKEE RD	11/18/15 2:27 PM	11/18/15 06:30 AM	48,000	SEWER MANHOLE	40471	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463114	WO# 2463251	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1552 CHEROKEE RD	12/23/15 9:59 PM	12/24/15 11:01 AM	10,000	SEWER MANHOLE	40471	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476105	WO# 2476285	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1012 ALTA CIR	12/27/15 1:26 PM	12/28/15 09:51 PM	144,000	SEWER MANHOLE	40559	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476728	WO# 2479613	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	300 MOCKINGBIRD VALLEY RD	12/27/15 4:55 PM	12/28/15 09:48 AM	22,500	SEWER MANHOLE	41374	DITCH	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476755	WO# 2479730	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1108 DUPONT CIR	12/27/15 5:35 PM	12/28/15 10:33 AM	24,000	SEWER MANHOLE	43726	GROUND	WEICHER CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476759	WO# 2479739	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	11/18/15 1:52 PM	11/18/15 06:13 AM	288,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463111	WO# 2463229	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	12/23/15 9:47 PM	12/24/15 10:46 AM	28,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476098	WO# 2476274	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1011 ALTA CIR	12/27/15 1:21 PM	12/29/15 11:16 AM	540,000	SEWER MANHOLE	45796	DITCH	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476731	WO# 2479830	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	11/18/15 1:48 PM	11/18/15 05:21 PM	13,500	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463112	WO# 2463139	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	12/23/15 9:32 PM	12/24/15 01:57 PM	6,000	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476100	WO# 2476276	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1132 ROSTREVOR CIR	12/27/15 1:16 PM	12/29/15 03:15 PM	384,000	SEWER MANHOLE	45835	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476734	WO# 2479992	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1122 ROSTREVOR CIR	12/23/15 9:59 PM	12/24/15 11:01 AM	10,000	SEWER MANHOLE	45900	DITCH	HAWKINS RILL	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476106	WO# 2476288	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4801 CASSIA CT	12/27/15 4:21 PM	12/29/15 09:38 AM	270,000	SEWER MANHOLE	46623	STREAM	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476751	WO# 2479726	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	201 BULLITT LN	12/23/15 10:13 PM	12/24/15 11:30 AM	10,000	SEWER MANHOLE	47582	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476103	WO# 2476282	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	202 OXMOOR LN	11/11/15 2:57 PM	11/18/15 06:45 AM	28,800	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463113	WO# 2463250	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	202 OXMOOR LN	12/23/15 10:14 PM	12/24/15 11:30 AM	18,000	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476101	WO# 2476278	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP

APPENDIX A-4
UNAUTHORIZED DISCHARGES TO WATERS OF UNITED STATES
OCTOBER 1, 2015 THROUGH DECEMBER 31, 2015

Associated Wastewater Treatment Plant Name	Associated Treatment Plant KPDES #	Overflow Location	Overflow Start Date & Time	Overflow Stop Date & Time	Volume of Overflow	Source Asset Type	Source Asset ID	Facility Discharges To	Receiving Stream	Cause of Overflow	Due To	WO #	Cleanup Efforts by MSD	Repair Efforts by MSD
MORRIS FORMAN	KY0022411	202 OXMOOR LN	12/27/15 2:04 PM	12/29/15 12:25 PM	576,000	SEWER MANHOLE	47583	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476735	WO# 2479849	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	8021 CHRISTIAN CT	12/27/15 2:30 PM	12/28/15 08:36 AM	108,000	SEWER MANHOLE	47593	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476741	WO# 2479663	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	8016 SHELBYVILLE RD	12/27/15 2:41 PM	12/28/15 08:38 AM	108,000	SEWER MANHOLE	47603	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476742	WO# 2479667	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3305 INDIAN CREEK CT	12/27/15 6:58 PM	12/29/15 12:45 PM	3,000	SEWER MANHOLE	51160	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476764	WO# 2479863	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	10/27/15 8:19 PM	10/27/15 09:09 PM	3,000	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2452991	WO# 2454452	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	11/18/15 1:12 PM	11/18/15 06:00 PM	3,500	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463123	WO# 2463130	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	12/23/15 7:50 PM	12/23/15 09:40 PM	5,000	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476085	WO# 2476246	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1418 TREVILIAN WAY	12/27/15 11:45 AM	12/28/15 10:55 AM	22,500	SEWER MANHOLE	51594	DITCH	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476721	WO# 2479567	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1804 ROUND RIDGE RD	12/27/15 4:21 PM	12/29/15 09:38 AM	45,000	SEWER MANHOLE	65623	STREAM	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476750	WO# 2479719	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	11/18/15 12:55 PM	11/18/15 06:12 PM	3,000	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463121	WO# 2463151	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	12/23/15 8:15 PM	12/24/15 09:38 AM	3,000	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476081	WO# 2476221	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3726 FINCASTLE RD	12/27/15 11:51 AM	12/28/15 11:15 AM	21,000	SEWER MANHOLE	66349	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476724	WO# 2479571	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	9 MUIRFIELD PL	12/27/15 2:56 PM	12/28/15 08:44 AM	27,000	SEWER MANHOLE	67535	GROUND	HURSTBOURNE CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476745	WO# 2479676	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1700 SULGRAVE RD	11/18/15 2:13 PM	11/18/15 05:31 PM	13,500	SEWER MANHOLE	72289	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463109	WO# 2463125	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1700 SULGRAVE RD	12/27/15 1:26 PM	12/28/15 11:03 AM	33,000	SEWER MANHOLE	72289	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476727	WO# 2479589	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3705 BARDSTOWN RD	12/16/15 11:30 AM	12/16/15 11:45 AM	250	SEWER MAIN	73111	CATCH BASIN	SOUTH FORK BEARGRASS CREEK	GREASE IN THE MAIN SEWER	GREASE BLOCKAGE	2473300	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	REFERRED TO IWD
MORRIS FORMAN	KY0022411	1106 BROADFIELDS DR	12/27/15 5:29 PM	12/28/15 10:26 AM	45,000	SEWER MANHOLE	74513	STREAM	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476760	WO# 2479746	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	7913 SHELBYVILLE RD	12/27/15 3:37 PM	12/28/15 08:57 AM	153,000	SEWER MANHOLE	84155	GROUND	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476748	WO# 2479679	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	37 ARROWHEAD RD	12/27/15 4:51 PM	12/28/15 09:39 AM	24,000	SEWER MANHOLE	89791	GROUND	MUDDY FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476754	WO# 2479714	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP

APPENDIX A-4
UNAUTHORIZED DISCHARGES TO WATERS OF UNITED STATES
OCTOBER 1, 2015 THROUGH DECEMBER 31, 2015

Associated Wastewater Treatment Plant Name	Associated Treatment Plant KPDES #	Overflow Location	Overflow Start Date & Time	Overflow Stop Date & Time	Volume of Overflow	Source Asset Type	Source Asset ID	Facility Discharges To	Receiving Stream	Cause of Overflow	Due To	WO #	Cleanup Efforts by MSD	Repair Efforts by MSD
MORRIS FORMAN	KY0022411	8021 CHRISTIAN CT	12/27/15 2:20 PM	12/28/15 08:33 AM	54,000	SEWER MANHOLE	90700	CATCH BASIN	MIDDLE FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476740	WO# 2479660	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3920 DUTCHMANS LN	12/27/15 5:33 PM	12/28/15 10:31 AM	45,000	SEWER MANHOLE	96673	STREAM	WEICHER CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476762	WO# 2479750	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	3305 BENT CREEK CT	12/27/15 6:53 PM	12/28/15 10:37 AM	54,000	SEWER SERVICE LINE	BU05074039	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476766	WO# 2479756	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1215 ELLISON AVE	11/2/15 10:19 AM	11/02/15 10:37 AM	9	SEWER MANHOLE	CSO113	STREAM	SOUTH FORK BEARGRASS CREEK	UNKNOWN OBSTRUCTION IN LOW FLOW LINE	OBSTRUCTION-NOT GREASE / ROOTS	2456311	FLUSHED LINE TO MITIGATE. NO CLEAN-UP NECESSARY	FLUSHED THE LINE TO MITIGATE
MORRIS FORMAN	KY0022411	1215 ELLISON AVE	11/23/15 10:16 AM	11/23/15 11:38 AM	82	SEWER MANHOLE	CSO113	STREAM	SOUTH FORK BEARGRASS CREEK	HEAVY LEAVES (BUILD UP AT REDUCER/LOW-FLOW	OBSTRUCTION-NOT GREASE / ROOTS	2464186	NONE NOTED. OVERFLOWS DIRECTLY INTO CREEK	FLUSHED LINE AND RELIEVED OBSTRUCTION
MORRIS FORMAN	KY0022411	4108 LEE AVE	12/23/15 8:39 PM	12/23/15 09:50 PM	1,500	SEWER SERVICE LINE	KK14815019	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476087	WO# 2476246	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4108 LEE AVE	12/27/15 11:32 AM	12/28/15 11:03 AM	27,000	SEWER SERVICE LINE	KK14815019	GROUND	CAMP TAYLOR DITCH	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476716	WO# 2479559	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4107 LEE AVE	12/23/15 8:30 PM	12/23/15 09:53 PM	2,500	SEWER SERVICE LINE	KK14855239	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476090	WO# 2476263	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	4107 LEE AVE	12/27/15 11:33 AM	12/28/15 11:00 AM	5,400	SEWER SERVICE LINE	KK14855239	GROUND	SOUTH FORK BEARGRASS CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476718	WO# 2479563	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
MORRIS FORMAN	KY0022411	1800 NIGHTINGALE RD	12/31/15 3:00 PM	12/31/15 11:40 PM	621,132	SEWER LIFT STATION	MSD0022-PS	STREAM	SOUTH FORK BEARGRASS CREEK	FAILURE OF FORCE MAIN ON PHILLIPS LANE STATION HAD TO BE SHUT DOWN FOR REPAIR CAUSING WET WELL TO OVERFLOW	STRUCTURAL FAILURE	2481317	PIPE DISCHARGE SUBMERGED- NO CLEANUP	CONTRACTOR REPAIRED FORCE MAIN AND STATION PLACED BACK IN SERVICE @ 2330 HRS 12/31/15
MORRIS FORMAN	KY0022411	4522 ALGONQUIN PKY	10/5/15 9:50 AM	10/05/15 10:00 AM	300	SEWER TREATMENT PLANT	MSD0278	STREAM	OHIO RIVER	VALVING NOT SET UP CORRECTLY	BYPASS AT WQTC	2439679	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	SUMP PUMP WAS TURNED OFF
CEDAR CREEK	KY0098540	10801 FAIRMOUNT RD	12/27/15 4:00 PM	12/28/15 11:00 AM	456,000	SEWER MANHOLE	116106	GROUND	BIG RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476682	DISCLN #2480336	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
CEDAR CREEK	KY0098540	3258 RUCKRIEGEL PKY	11/18/15 1:49 PM	11/18/15 06:25 PM	9,000	SEWER MANHOLE	28173	GROUND	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463116	WO# 2463143	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
CEDAR CREEK	KY0098540	11401 GRAND AVE	11/18/15 1:33 PM	11/18/15 05:45 AM	48,000	SEWER MANHOLE	28551	STREAM	CHENOWETH RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2463120	WO# 2463189	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
CEDAR CREEK	KY0098540	9300 HAYES AVE	12/27/15 12:00 PM	12/27/15 04:05 PM	3,150	SEWER MANHOLE	63095	STREAM	CEDAR CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476615	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
CEDAR CREEK	KY0098540	6810 GLENDALE RD	12/27/15 2:00 PM	12/27/15 05:00 PM	900	SEWER MANHOLE	63531	GROUND	LITTLE CEDAR CREEK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476633	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
CEDAR CREEK	KY0098540	10800 FAIRMOUNT RD	12/27/15 3:45 PM	12/28/15 11:00 AM	172,800	SEWER MANHOLE	97363	STREAM	BIG RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476685	DISCLN #2480332	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
CEDAR CREEK	KY0098540	10800 FAIRMOUNT RD	12/27/15 9:45 AM	12/30/15 08:09 AM	450,225	SEWER MANHOLE	97365	GROUND	BIG RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476557	DISCLN #2480333	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
CEDAR CREEK	KY0098540	10800 FAIRMOUNT RD	12/30/15 3:30 PM	12/31/15 08:00 AM	99,000	SEWER MANHOLE	97365	GROUND	BIG RUN	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2480711	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP

APPENDIX A-4
UNAUTHORIZED DISCHARGES
TO WATERS OF UNITED STATES
OCTOBER 1, 2015 THROUGH DECEMBER 31, 2015

Associated Wastewater Treatment Plant Name	Associated Treatment Plant KPDES #	Overflow Location	Overflow Start Date & Time	Overflow Stop Date & Time	Volume of Overflow	Source Asset Type	Source Asset ID	Facility Discharges To	Receiving Stream	Cause of Overflow	Due To	WO #	Cleanup Efforts by MSD	Repair Efforts by MSD
FLOYDS FORK	KY0102784	815 TUCKER STATION RD	12/27/15 2:00 PM	12/27/15 05:00 PM	900	SEWER MANHOLE	33003	STREAM	POPE LICK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476632	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
FLOYDS FORK	KY0102784	12400 BRIERLY HILL PL	12/27/15 12:00 AM	12/27/15 05:00 PM	900	SEWER MANHOLE	65516	GROUND	POPE LICK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476636	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
FLOYDS FORK	KY0102784	15026 BIRCHAM RD	12/27/15 3:25 PM	12/28/15 07:40 AM	24,375	SEWER MANHOLE	69305	GROUND	FLOYDS FORK	LACK OF SYSTEM CAPACITY - HEAVY RAIN	LACK OF SYSTEM CAPACITY	2476697	NO DEBRIS	A SOLUTION FOR THIS LOCATION IS INCLUDED IN THE IOAP
FLOYDS FORK	KY0102784	912 EASTWOOD FISHERVILLE RD	10/23/15 8:00 PM	10/23/15 08:30 PM	500	SEWER MAIN	96911A-V	GROUND	LONG RUN	FORCE MAIN BREAK	STRUCTURAL FAILURE	2451472	MSD PERSONNEL CLEANED AND SANITIZED THE IMPACTED AREA	CLOSED 16" FM OPENED 24" FM DISCHARGE STOPPED

Appendix B – CSO Flow Monitoring Data

CSO	Status	Volume	Events	Project	Project Date
CSO015	I	45,430,600.77	13.00	Bells Lane Wet Weather Treatment Facility	12/31/2016
CSO016	I	83,993,644.85	12.00	Southern Outfall In-line Storage at 43rd St (SOR1), Southern Outfall In-line Storage at 12th St & Wilson Ave (SOR2)	12/31/2018
CSO018	I	4,232,653.64	6.00	Nightingale Pump Station Replacement & Storage	12/31/2015
CSO019	I	64,139,125.53	17.00	34th Street Flood Pump Station, Portland Wharf Storage Basin, 27th Street Flood Pump Station	12/31/2012, 12/31/2019, 6/30/2013
CSO020	I	224,839,887.14	11.00	Story Avenue and Main Street Storage Basin	12/31/2020
CSO022	I	1,897,556.80	3.00	4th Street Flood Pump Station, 13th Street and Rowan Street Storage Basin	12/31/2012, 12/31/2020
CSO023	I	48,073.07	1.00	4th Street Flood Pump Station, 13th Street and Rowan Street Storage Basin	12/31/2012, 12/31/2020
CSO026	O				
CSO027	I	No Overflows			
CSO028	I	9,102.68	3.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO029	I	642,197.68	7.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO030	O				
CSO031	I	No Overflows			
CSO032	O				
CSO033	O				
CSO034	I	117,312.93	4.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO035	I	2,573,257.96	6.00		
CSO036	I	383,256.06	12.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO038	I	208,176.41	2.00		
CSO049-SM	O				
CSO050	I	7,870,601.90	18.00	13th Street and Rowan Street Storage Basin	12/31/2020
CSO051	I	126,836.34	6.00	13th Street and Rowan Street Storage Basin	12/31/2020
CSO052	I	2,437,631.98	12.00	13th Street and Rowan Street Storage Basin	12/31/2020
CSO053	I	2,306,334.13	18.00	13th Street and Rowan Street Storage Basin	12/31/2020
CSO054	I	458,990.00	20.00	13th Street and Rowan Street Storage Basin	12/31/2020
CSO055	I	750,010.22	11.00	13th Street and Rowan Street Storage Basin	12/31/2020
CSO056	I	NA		13th Street and Rowan Street Storage Basin	12/31/2020
CSO057	I	18.80	2.00		
CSO058	I	16,327.85	10.00	13th Street and Rowan Street Storage Basin, CSO058 In-Line Storage & Green Infrastructure	12/31/2020, 12/31/2014
CSO062	I	NA			
CSO065	O				
CSO080	O				
CSO081	O				
CSO082	I	5,946,172.41	7.00	Lexington Road and Payne Street Storage Basin	12/31/2020
CSO083	I	161,742.70	4.00	Lexington Road and Payne Street Storage Basin	12/31/2020
CSO084	I	84,207.78	11.00	Lexington Road and Payne Street Storage Basin	12/31/2020

CSO	Status	Volume	Events	Project	Project Date
CSO086	O				
CSO087	O				
CSO088	I	5,662,933.21	7.00	Clifton Heights Storage Basin	12/31/2018
CSO091	I	34,054.82	2.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO092	I	109,159.81	8.00		
CSO093	I	42,480.91	15.00	CSO093 Structural Modifications & Green Infrastructure	12/31/2015
CSO097	I	11,511,899.08	15.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO104	I	945,994.59	5.00	Southwestern Parkway Storage Basin, Shawnee Flood Pump Station	12/31/2018, 6/30/2013
CSO105	I	101,124,283.59	17.00	Southwestern Parkway Storage Basin, Shawnee Flood Pump Station	12/31/2018, 6/30/2013
CSO106	I	26,707.30	3.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO108	I	6,800,145.95	9.00	CSO108 Dam Modification	12/31/2010
CSO109	I	19,193,904.64	6.00		
CSO110	I	15,936,346.48	16.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO111	I	190,005.72	6.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO113	I	No Overflows		Logan and Breckinridge Street Storage Basin	12/31/2017
CSO117	I	24,672,863.08	17.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO118	I	No Overflows		Lexington Road and Payne Street Storage Basin	12/31/2020
CSO119	I	2,808,493.50	12.00	Lexington Road and Payne Street Storage Basin	12/31/2020
CSO120	I	2,657,188.78	12.00	Lexington Road and Payne Street Storage Basin	12/31/2020
CSO121	I	1,138,201.35	13.00	Lexington Road and Payne Street Storage Basin	12/31/2020
CSO123	O			CSO123 Downspout Disconnection	12/31/2012
CSO125	I	30,702,187.52	12.00	I-64 and Grinstead Drive Storage Basin	12/31/2020
CSO126	I	6,845,935.25	6.00	I-64 and Grinstead Drive Storage Basin	12/31/2020
CSO127	I	6,613,253.59	21.00	I-64 and Grinstead Drive Storage Basin	12/31/2020
CSO130	I	15,617.58	3.00	Story Avenue and Spring Street Storage Basin	12/31/2016
CSO131	I	288,412.63	4.00	Clifton Heights Storage Basin	12/31/2018
CSO132	I	28,547,255.78	14.00	Clifton Heights Storage Basin	12/31/2018
CSO137	I	429,295.91	4.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO140	I	2,096,617.33	10.00	CSO140 In-Line Storage & Green Infrastructure Controls	12/31/2015
CSO141	I	NA		Lexington Road and Payne Street Storage Basin	12/31/2020
CSO142	I	76,184.19	2.00		
CSO143	O				
CSO144	I	4,592.58	3.00		
CSO145	O				
CSO146	I	25,480,269.65	19.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO147	O				
CSO148	I	700,048.88	9.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO149	I	18,029,195.05	15.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO150	I	1,600,206.46	10.00	13th Street and Rowan Street Storage Basin	12/31/2020
CSO151	I	5,793,617.74	20.00	Logan and Breckinridge Street Storage Basin	12/31/2017
CSO152	I	7,062,251.14	20.00	Logan and Breckinridge Street Storage Basin	12/31/2017

CSO	Status	Volume	Events	Project	Project Date
CSO153	I	4,228,209.10	20.00	Lexington Road and Payne Street Storage Basin	12/31/2020
CSO154	I	20,911,718.38	7.00	Clifton Heights Storage Basin	12/31/2018
CSO155	I	140,571.72	11.00	13th Street and Rowan Street Storage Basin	12/31/2020
CSO156	O				
CSO160	I	No Overflows		CSO160 In-Line Storage & Green Infrastructure Controls	12/31/2015
CSO161	I	24,270.21	3.00		
CSO162	O				
CSO166	I	21,061,345.83	12.00	I-64 and Grinstead Drive Storage Basin	12/31/2020
CSO167	I	5,564,982.14	16.00	Clifton Heights Storage Basin	12/31/2018
CSO172	O			Adams Street Sewer Separation	12/31/2012
CSO174	I	2,764,638.84	2.00		
CSO178	I		8.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO179	I	82,270.76	2.00		
CSO180	I	378,479.70	2.00		
CSO181	I	505,032.38	4.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO182	I	321,155.22	2.00		
CSO183	I	No Overflows			
CSO184	I	179,375.69	2.00		
CSO185	I	360,662.12	2.00		
CSO186	I	No Overflows			
CSO187	I	1,453.49	2.00		
CSO188	I	No Overflows			
CSO189	I	84,638,551.44	12.00	Southwestern Parkway Storage Basin,Shawnee Flood Pump Station	12/31/2018, 6/30/2013
CSO190	I	10,112,591.18	18.00	CSO190 Green Infrastructure Solution, 17th Street Flood Pump Station	12/31/2017, 12/31/2014
CSO191	I	1,887,403.90	5.00	Bells Lane Wet Weather Treatment Facility	12/31/2016
CSO192	O				
CSO193	I	50,399.16	4.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO194	O				
CSO195	I	28,044.84	7.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO196	I	212,894.59	10.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO197	I	788,774.47	11.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO198	I	No Overflows			
CSO199	I	81,534.21	7.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO200	I	143,351.35	7.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO201	I		13.00		
CSO202	I	22,798.34	4.00	Central Relief Drain CSO In-line Storage, Green Infrastructure & Distributed Storage	12/31/2018
CSO203	I	67,425.22	7.00		
CSO204	O				
CSO205	I	3,344.42	1.00		
CSO206	I	7,684,267.60	20.00	CSO206 Sewer Separation	12/30/2013

CSO	Status	Volume	Events	Project	Project Date
CSO207	I	39,767.69	2.00		
CSO208	I	No Overflows			
CSO209	O				
CSO210	I	8,038,552.47	13.00	Southern Outfall In-line Storage at 43rd St (SOR1), Southern Outfall In-line Storage at 12th St & Wilson Ave (SOR2)	12/31/2018
CSO211	I	13,971,672.39	3.00	Southern Outfall In-line Storage at 12th St & Wilson Ave (SOR2)	12/31/2018

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO015	10/2/2015 17:00	10/3/2015 0:30	3,347,780.65	0.313	0.47	7122937.55	0.216	12	Atlas	
CSO015	10/27/2015 17:45	10/28/2015 16:15	5,842,259.97	0.938	3.43	1703282.79	1.745	24	Cloudburst	
CSO015	11/6/2015 4:00	11/6/2015 10:30	2,232,454.93	0.271	1.01	2210351.42	0.640	3	Atlas	
CSO015	11/12/2015 0:30	11/12/2015 4:00	244,127.23	0.146	0.35	697506.37	0.213	3	Atlas	
CSO015	11/18/2015 10:00	11/19/2015 1:45	7,087,279.47	0.656	1.83	3872830.31	0.918	6	Atlas	
CSO015	11/28/2015 17:45	11/29/2015 0:00	682,595.18	0.260	0.91	750104.59	0.295	48	Atlas	
CSO015	11/30/2015 22:00	12/1/2015 10:15	2,187,226.92	0.510	0.65	3364964.49	0.289	12	Atlas	
CSO015	12/7/2015 9:00	12/7/2015 9:00	3,558.92	0.000	0.01	355891.67	0.009	1	Atlas	
CSO015	12/22/2015 2:00	12/22/2015 7:30	1,422,225.62	0.229	0.65	2188039.41	0.250	24	Atlas	
CSO015	12/23/2015 19:15	12/25/2015 1:45	6,426,538.88	0.802	0.91	7047937.16	0.626	1	Atlas	
CSO015	12/26/2015 14:15	12/26/2015 21:15	282,800.43	0.292	0.60	471334.05	0.266	12	Atlas	
CSO015	12/27/2015 10:45	12/27/2015 20:30	14,941,160.58	0.406	2.80	5336128.78	0.909	48	Atlas	
CSO015	12/28/2015 17:00	12/29/2015 2:45	730,591.99	0.406	2.80	260925.71	0.909	48	Atlas	
CSO015 Events			13.00							
CSO015 Total Volume (gal)			45,430,600.77							
CSO016	10/2/2015 19:45	10/2/2015 21:00	69,102.09	0.052	0.46	150221.95	0.211	12	Atlas	
CSO016	10/27/2015 16:00	10/28/2015 11:00	24,014,667.78	0.792	3.44	6981008.08	1.843	24	Cloudburst	
CSO016	11/6/2015 3:45	11/6/2015 8:30	5,188,809.62	0.198	1.05	4941723.45	0.647	3	Atlas	
CSO016	11/9/2015 21:00	11/10/2015 0:30	1,214,918.66	0.146	0.60	2024864.43	0.275	12	Atlas	
CSO016	11/12/2015 1:30	11/12/2015 3:30	924,830.30	0.083	0.30	3082767.66	0.173	3	Atlas	
CSO016	11/18/2015 10:15	11/18/2015 21:00	13,911,229.51	0.448	1.76	7904107.67	0.891	6	Atlas	
CSO016	11/28/2015 18:15	11/28/2015 21:45	244,612.66	0.146	0.87	281163.98	0.271	12	Atlas	
CSO016	11/30/2015 22:00	12/1/2015 7:00	6,556,963.63	0.375	0.56	11708863.63	0.252	12	Atlas	
CSO016	12/22/2015 3:45	12/22/2015 6:00	1,912,834.18	0.094	0.70	2732620.25	0.269	24	Atlas	
CSO016	12/23/2015 19:15	12/24/2015 0:45	4,974,538.31	0.229	1.01	4925285.46	0.670	1	Atlas	
CSO016	12/26/2015 13:30	12/26/2015 20:00	1,873,951.12	0.271	0.58	3230950.21	0.261	12	Atlas	
CSO016	12/27/2015 10:30	12/29/2015 0:00	23,107,186.99	1.563	2.53	9133275.49	0.821	48	Atlas	
CSO016 Events			12.00							
CSO016 Total Volume (gal)			83,993,644.85							
CSO018	10/27/2015 21:15	10/27/2015 21:15	942.40	0.000	2.93	321.64	0.893	48	Atlas	
CSO018	11/6/2015 4:00	11/6/2015 4:30	13,227.30	0.021	1.01	13096.33	0.633	3	Atlas	
CSO018	11/18/2015 11:00	11/18/2015 21:00	389,702.87	0.417	1.87	208397.25	0.956	6	Atlas	
CSO018	12/23/2015 19:30	12/24/2015 2:15	101,025.59	0.281	1.03	98083.09	0.774	1	Atlas	
CSO018	12/27/2015 10:45	12/29/2015 14:15	3,111,417.25	2.146	2.50	1244566.90	0.812	48	Atlas	
CSO018	12/31/2015 15:00	12/31/2015 23:30	616,338.24	0.354	Discharge		DWO			
CSO018 Events			6.00							

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO018 Total Volume (gal)			4,232,653.64							
CSO019	10/2/2015 16:00	10/3/2015 2:15	1,216,952.16	0.427	0.47	2589259.92	0.230	6	Atlas	
CSO019	10/12/2015 17:45	10/12/2015 21:15	437,406.25	0.146	0.25	1749625.01	0.191	1	Atlas	
CSO019	10/24/2015 17:00	10/24/2015 22:00	378,446.02	0.208	0.19	1991821.17	0.093	6	Atlas	
CSO019	10/27/2015 3:15	10/29/2015 1:00	20,934,374.05	1.906	3.54	5913664.99	1.843	24	Cloudburst	
CSO019	10/31/2015 22:15	11/1/2015 1:15	55,429.15	0.125	0.17	326053.80	0.113	3	Atlas	
CSO019	11/6/2015 2:45	11/6/2015 17:00	6,079,033.15	0.594	0.82	7413455.06	0.493	3	Atlas	
CSO019	11/9/2015 16:00	11/10/2015 2:15	1,368,721.50	0.427	0.61	2243805.73	0.275	12	Atlas	
CSO019	11/12/2015 0:00	11/12/2015 8:00	1,305,965.17	0.333	0.28	4664161.31	0.153	3	Atlas	
CSO019	11/18/2015 8:30	11/19/2015 3:45	12,040,956.70	0.802	1.71	7041495.15	0.831	6	Atlas	
CSO019	11/21/2015 15:00	11/21/2015 16:15	11,990.34	0.052	0.12	99919.54	0.096	1	Atlas	
CSO019	11/28/2015 12:00	11/29/2015 12:30	1,145,562.93	1.021	0.65	1762404.51	0.261	12	Atlas	
CSO019	11/30/2015 22:00	12/1/2015 15:30	1,773,369.93	0.729	0.59	3005711.75	0.266	12	Atlas	
CSO019	12/14/2015 5:30	12/14/2015 10:45	190,852.51	0.219	0.25	763410.03	0.131	6	Atlas	
CSO019	12/21/2015 10:45	12/22/2015 11:45	1,457,578.16	1.042	0.58	2513065.79	0.223	24	Atlas	
CSO019	12/23/2015 7:00	12/24/2015 5:30	7,355,621.84	0.938	1.79	4109285.95	1.826	1	Atlas	
CSO019	12/26/2015 12:15	12/26/2015 23:30	359,230.09	0.469	0.48	748396.02	0.227	3	Atlas	
CSO019	12/27/2015 9:45	12/31/2015 17:45	8,027,635.57	1.740	2.88	2691076.20	0.935	48	Atlas	
CSO019 Events			17.00							
CSO019 Total Volume (gal)			64,139,125.53							
CSO020	10/27/2015 17:30	10/28/2015 10:15	26,995,616.50	0.698	2.37	11390555.48	0.785	24	Atlas	
CSO020	11/6/2015 3:45	11/6/2015 6:30	5,097,530.44	0.115	0.87	5859230.39	0.533	3	Atlas	
CSO020	11/9/2015 20:15	11/9/2015 23:00	1,211,292.14	0.115	0.57	2125073.93	0.252	12	Atlas	
CSO020	11/12/2015 0:45	11/12/2015 2:15	1,294,119.98	0.063	0.28	4621857.09	0.167	3	Atlas	
CSO020	11/18/2015 9:45	11/18/2015 20:15	22,391,682.87	0.438	1.34	16710211.10	0.694	6	Atlas	
CSO020	11/28/2015 17:00	11/28/2015 21:30	844,212.63	0.188	0.66	1279110.04	0.275	12	Atlas	
CSO020	11/30/2015 23:00	12/1/2015 6:30	3,761,288.83	0.313	0.60	6268814.72	0.271	12	Atlas	
CSO020	12/22/2015 0:00	12/22/2015 6:15	5,124,407.53	0.260	0.55	9317104.61	0.212	24	Atlas	
CSO020	12/23/2015 19:15	12/24/2015 3:00	12,938,961.56	0.323	0.79	16378432.35	0.617	1	Atlas	
CSO020	12/26/2015 13:00	12/26/2015 15:15	1,563,993.07	0.094	0.32	4887478.34	0.147	12	Atlas	
CSO020	12/27/2015 10:30	12/29/2015 22:30	143,616,781.59	2.500	2.10	68388943.62	0.694	6	Atlas	
CSO020 Events			11.00							
CSO020 Total Volume (gal)			224,839,887.14							
CSO022	10/27/2015 18:45	10/27/2015 20:15	286,076.15	0.063	2.43	117726.81	0.819	24	Atlas	
CSO022	11/6/2015 3:30	11/6/2015 4:15	751,029.64	0.031	0.92	816336.56	0.560	3	Atlas	
CSO022	11/18/2015 10:15	11/18/2015 14:00	860,451.02	0.156	1.31	656832.84	0.667	6	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO022 Events			3.00							
CSO022 Total Volume (gal)			1,897,556.80							
CSO023	12/9/2015 19:15	12/9/2015 19:30	48,073.07	0.010	Discharge		DWO			
CSO023 Events			1.00							
CSO023 Total Volume (gal)			48,073.07							
CSO028	11/18/2015 10:45	11/18/2015 10:45	399.04	0.000	1.22	327.08	0.607	6	Atlas	
CSO028	12/23/2015 19:30	12/23/2015 19:45	7,612.00	0.010	0.79	9635.44	0.626	1	Atlas	
CSO028	12/27/2015 10:45	12/27/2015 10:45	1,091.64	0.000	2.13	512.50	0.747	3	Atlas	
CSO028 Events			3.00							
CSO028 Total Volume (gal)			9,102.68							
CSO029	10/27/2015 18:45	10/27/2015 20:00	21,415.10	0.052	2.39	8960.29	0.792	24	Atlas	
CSO029	10/28/2015 5:45	10/28/2015 5:45	645.15	0.000	2.39	269.94	0.792	24	Atlas	
CSO029	11/6/2015 3:00	11/6/2015 3:45	15,432.76	0.031	0.94	16417.83	0.587	3	Atlas	
CSO029	11/12/2015 0:45	11/12/2015 0:45	33,784.25	0.000	0.25	135137.00	0.140	3	Atlas	
CSO029	11/18/2015 9:30	11/18/2015 13:45	63,321.85	0.177	1.22	51903.15	0.607	6	Atlas	
CSO029	12/23/2015 19:15	12/23/2015 20:00	376,875.68	0.031	0.79	477057.82	0.626	1	Atlas	
CSO029	12/27/2015 10:30	12/27/2015 12:45	130,722.89	0.094	2.13	61372.25	0.747	3	Atlas	
CSO029 Events			7.00							
CSO029 Total Volume (gal)			642,197.68							
CSO034	11/6/2015 4:00	11/6/2015 4:00	21,958.01	0.000	0.94	23359.59	0.587	3	Atlas	
CSO034	11/18/2015 11:00	11/18/2015 11:15	20,900.53	0.010	1.22	17131.58	0.607	6	Atlas	
CSO034	12/23/2015 19:30	12/23/2015 19:45	68,548.46	0.010	0.79	86770.20	0.626	1	Atlas	
CSO034	12/27/2015 10:45	12/27/2015 10:45	5,905.93	0.000	2.13	2772.74	0.747	3	Atlas	
CSO034 Events			4.00							
CSO034 Total Volume (gal)			117,312.93							
CSO035	11/6/2015 3:15	11/6/2015 4:15	533,890.44	0.042	0.76	702487.43	0.460	3	Atlas	
CSO035	11/12/2015 1:00	11/12/2015 1:00	1,041.75	0.000	0.26	4006.73	0.142	6	Atlas	
CSO035	11/18/2015 11:00	11/18/2015 13:45	589,822.65	0.115	1.31	450246.30	0.656	6	Atlas	
CSO035	12/22/2015 3:15	12/22/2015 3:15	46,431.19	0.000	0.39	119054.33	0.200	1	Atlas	
CSO035	12/23/2015 19:30	12/23/2015 20:00	784,080.75	0.021	0.96	816750.78	0.765	1	Atlas	
CSO035	12/27/2015 10:45	12/27/2015 13:15	617,991.18	0.104	1.90	325258.52	0.653	3	Atlas	
CSO035 Events			6.00							
CSO035 Total Volume (gal)			2,573,257.96							
CSO036	10/27/2015 18:45	10/28/2015 7:45	26,328.11	0.542	2.25	11701.38	0.742	24	Atlas	
CSO036	11/6/2015 3:00	11/6/2015 4:15	31,293.99	0.052	0.76	41176.30	0.460	3	Atlas	
CSO036	11/9/2015 12:00	11/9/2015 12:00	16,569.63	0.000	0.48	34520.05	0.220	12	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO036	11/12/2015 0:00	11/12/2015 0:45	7,532.48	0.031	0.26	28971.07	0.142	6	Atlas	
CSO036	11/18/2015 9:30	11/18/2015 13:45	39,529.40	0.177	1.31	30175.12	0.656	6	Atlas	
CSO036	11/30/2015 23:30	12/1/2015 3:45	3,639.99	0.177	0.82	4439.01	0.372	12	Atlas	
CSO036	12/22/2015 0:00	12/22/2015 4:00	7,387.71	0.167	0.39	18942.84	0.200	1	Atlas	
CSO036	12/23/2015 19:15	12/23/2015 20:15	167,749.82	0.042	0.96	174739.40	0.765	1	Atlas	
CSO036	12/25/2015 9:15	12/25/2015 9:15	1,056.02	0.000	0.13	8123.24	0.073	3	Atlas	
CSO036	12/26/2015 12:45	12/26/2015 17:45	3,554.22	0.208	0.33	10770.36	0.153	3	Atlas	
CSO036	12/27/2015 10:30	12/27/2015 13:30	75,837.16	0.125	1.90	39914.29	0.653	3	Atlas	
CSO036	12/28/2015 16:45	12/28/2015 16:45	2,777.53	0.000	1.90	1461.86	0.653	3	Atlas	
CSO036 Events			12.00							
CSO036 Total Volume (gal)			383,256.06							
CSO038	12/23/2015 19:15	12/23/2015 19:30	136,768.36	0.010	0.79	173124.50	0.626	1	Atlas	
CSO038	12/27/2015 11:30	12/27/2015 13:45	71,408.05	0.094	2.13	33524.91	0.747	3	Atlas	
CSO038 Events			2.00							
CSO038 Total Volume (gal)			208,176.41							
CSO050	10/2/2015 17:15	10/2/2015 22:30	42,077.06	0.219	0.54	77920.49	0.257	6	Atlas	
CSO050	10/12/2015 18:00	10/12/2015 19:30	31,026.48	0.063	0.35	88647.09	0.261	1	Atlas	
CSO050	10/24/2015 17:00	10/24/2015 17:30	16,450.45	0.021	0.31	53065.98	0.153	6	Atlas	
CSO050	10/27/2015 10:00	10/28/2015 9:30	1,879,800.53	0.979	2.99	628695.83	0.965	24	Atlas	
CSO050	10/28/2015 18:00	10/28/2015 22:30	13,990.42	0.188	2.99	4679.07	0.965	24	Atlas	
CSO050	10/31/2015 23:15	10/31/2015 23:15	1,768.59	0.000	0.16	11053.71	0.107	3	Atlas	
CSO050	11/6/2015 3:00	11/6/2015 5:45	439,384.73	0.115	0.80	549230.91	0.487	3	Atlas	
CSO050	11/9/2015 16:15	11/9/2015 22:00	37,501.13	0.240	0.63	59525.61	0.284	12	Atlas	
CSO050	11/12/2015 0:00	11/12/2015 1:15	37,269.21	0.052	0.31	120223.25	0.180	3	Atlas	
CSO050	12/14/2015 4:45	12/14/2015 7:00	30,735.16	0.094	0.27	113833.91	0.148	6	Atlas	
CSO050	12/21/2015 10:45	12/21/2015 11:30	19,672.26	0.031	0.57	34512.73	0.219	24	Atlas	
CSO050	12/21/2015 23:00	12/22/2015 4:00	142,809.12	0.208	0.57	250542.32	0.219	24	Atlas	
CSO050	12/23/2015 6:15	12/23/2015 6:30	5,078.81	0.010	0.84	6046.20	0.557	1	Atlas	
CSO050	12/23/2015 19:00	12/23/2015 22:30	995,879.32	0.146	0.84	1185570.62	0.557	1	Atlas	
CSO050	12/25/2015 9:00	12/25/2015 9:15	8,703.23	0.010	0.13	66947.92	0.060	6	Atlas	
CSO050	12/26/2015 11:45	12/26/2015 17:45	526,757.72	0.250	0.66	798117.75	0.307	3	Atlas	
CSO050	12/27/2015 9:45	12/28/2015 6:15	3,025,781.75	0.854	2.49	1215173.39	0.808	48	Atlas	
CSO050	12/28/2015 15:15	12/28/2015 22:45	615,915.91	0.313	2.49	247355.79	0.808	48	Atlas	
CSO050 Events			18.00							
CSO050 Total Volume (gal)			7,870,601.90							
CSO051	10/27/2015 18:00	10/28/2015 7:45	30,772.41	0.573	2.99	10291.78	0.965	24	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO051	11/6/2015 3:00	11/6/2015 4:00	5,660.25	0.042	0.80	7075.31	0.487	3	Atlas	
CSO051	11/18/2015 10:30	11/18/2015 17:45	33,631.97	0.302	1.37	24548.88	0.678	6	Atlas	
CSO051	12/22/2015 3:30	12/22/2015 3:30	537.07	0.000	0.57	942.23	0.219	24	Atlas	
CSO051	12/23/2015 19:45	12/23/2015 20:30	16,356.53	0.031	0.84	19472.06	0.557	1	Atlas	
CSO051	12/27/2015 10:15	12/27/2015 13:30	39,878.11	0.135	2.49	16015.31	0.808	48	Atlas	
CSO051 Events			6.00							
CSO051 Total Volume (gal)			126,836.34							
CSO052	10/27/2015 16:45	10/28/2015 8:30	940,067.34	0.656	2.55	368653.86	0.858	24	Atlas	
CSO052	10/28/2015 17:30	10/28/2015 17:30	417.97	0.000	0.17	2458.64	0.093	6	Atlas	
CSO052	11/6/2015 2:45	11/6/2015 5:15	116,233.56	0.104	0.95	122351.12	0.593	3	Atlas	
CSO052	11/9/2015 19:00	11/9/2015 21:45	28,869.53	0.115	0.60	48115.89	0.271	12	Atlas	
CSO052	11/11/2015 23:45	11/12/2015 0:45	22,229.94	0.042	0.32	69468.57	0.193	3	Atlas	
CSO052	11/18/2015 8:30	11/18/2015 18:00	431,500.46	0.396	1.25	345200.36	0.623	6	Atlas	
CSO052	11/30/2015 23:00	12/1/2015 5:00	24,400.11	0.250	0.66	36969.87	0.298	12	Atlas	
CSO052	12/22/2015 3:15	12/22/2015 3:15	196.35	0.000	0.60	327.26	0.231	24	Atlas	
CSO052	12/23/2015 18:45	12/23/2015 21:45	217,273.51	0.125	0.74	293612.85	0.557	1	Atlas	
CSO052	12/26/2015 13:45	12/26/2015 17:15	10,339.57	0.146	0.54	19147.36	0.260	3	Atlas	
CSO052	12/27/2015 10:00	12/28/2015 1:15	545,550.18	0.635	2.21	246855.29	0.721	6	Atlas	
CSO052	12/28/2015 16:15	12/28/2015 20:30	100,553.45	0.177	2.21	45499.30	0.721	6	Atlas	
CSO052 Events			12.00							
CSO052 Total Volume (gal)			2,437,631.98							
CSO053	10/2/2015 17:30	10/2/2015 19:15	10,145.66	0.073	0.57	17799.40	0.273	6	Atlas	
CSO053	10/12/2015 18:00	10/12/2015 19:15	15,824.32	0.052	0.35	45212.35	0.261	1	Atlas	
CSO053	10/24/2015 17:00	10/24/2015 17:00	3,508.84	0.000	0.31	11318.85	0.142	6	Atlas	
CSO053	10/27/2015 14:15	10/28/2015 7:45	416,446.10	0.729	2.55	163312.20	0.858	24	Atlas	
CSO053	10/28/2015 17:45	10/28/2015 18:00	43,380.54	0.010	0.17	255179.67	0.093	6	Atlas	
CSO053	11/6/2015 3:00	11/6/2015 4:30	263,584.64	0.063	0.95	277457.52	0.593	3	Atlas	
CSO053	11/9/2015 19:15	11/9/2015 20:30	9,022.25	0.052	0.60	15037.08	0.271	12	Atlas	
CSO053	11/12/2015 0:00	11/12/2015 0:45	55,551.52	0.031	0.32	173598.50	0.193	3	Atlas	
CSO053	11/18/2015 8:30	11/18/2015 17:45	464,055.92	0.385	1.25	371244.74	0.623	6	Atlas	
CSO053	11/28/2015 13:45	11/28/2015 13:45	759.42	0.000	0.68	1116.79	0.275	12	Atlas	
CSO053	11/30/2015 21:45	12/1/2015 4:30	119,580.83	0.281	0.66	181183.08	0.298	12	Atlas	
CSO053	12/21/2015 11:00	12/21/2015 11:15	11,891.02	0.010	0.60	19818.37	0.231	24	Atlas	
CSO053	12/21/2015 23:45	12/22/2015 4:00	89,183.32	0.177	0.60	148638.86	0.231	24	Atlas	
CSO053	12/23/2015 19:15	12/23/2015 20:15	258,808.04	0.042	0.74	349740.60	0.557	1	Atlas	
CSO053	12/26/2015 13:30	12/26/2015 17:30	53,692.21	0.167	0.54	99430.03	0.260	3	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO053	12/27/2015 10:00	12/27/2015 16:30	460,578.94	0.271	2.21	208406.76	0.721	6	Atlas	
CSO053	12/28/2015 5:45	12/28/2015 5:45	957.77	0.000	2.21	433.38	0.721	6	Atlas	
CSO053	12/28/2015 16:00	12/28/2015 20:15	29,362.78	0.177	2.21	13286.32	0.721	6	Atlas	
CSO053 Events			18.00							
CSO053 Total Volume (gal)			2,306,334.13							
CSO054	10/2/2015 15:00	10/2/2015 22:15	1,829.48	0.302	0.57	3209.61	0.273	6	Atlas	
CSO054	10/12/2015 18:00	10/12/2015 20:00	3,314.90	0.083	0.35	9471.13	0.261	1	Atlas	
CSO054	10/24/2015 14:45	10/24/2015 18:00	940.01	0.135	0.31	3032.29	0.142	6	Atlas	
CSO054	10/27/2015 9:45	10/28/2015 23:15	90,281.85	1.563	2.55	35404.65	0.858	24	Atlas	
CSO054	10/31/2015 21:45	10/31/2015 23:15	1,362.95	0.063	0.15	9086.32	0.100	3	Atlas	
CSO054	11/6/2015 3:00	11/6/2015 7:00	21,693.79	0.167	0.95	22835.57	0.593	3	Atlas	
CSO054	11/9/2015 16:00	11/9/2015 23:30	3,314.33	0.313	0.60	5523.89	0.271	12	Atlas	
CSO054	11/11/2015 23:30	11/12/2015 2:00	4,217.80	0.104	0.32	13180.63	0.193	3	Atlas	
CSO054	11/18/2015 8:30	11/18/2015 19:00	77,431.15	0.438	1.25	61944.92	0.623	6	Atlas	
CSO054	11/21/2015 15:00	11/21/2015 15:15	665.95	0.010	0.07	9513.54	0.052	1	Atlas	
CSO054	11/28/2015 12:00	11/28/2015 20:15	2,460.70	0.344	0.68	3618.67	0.275	12	Atlas	
CSO054	11/30/2015 21:30	12/1/2015 5:30	4,373.15	0.333	0.66	6625.98	0.298	12	Atlas	
CSO054	12/14/2015 4:45	12/14/2015 9:00	2,372.81	0.177	0.26	9126.20	0.137	6	Atlas	
CSO054	12/21/2015 10:30	12/21/2015 12:00	1,017.74	0.063	0.60	1696.23	0.231	24	Atlas	
CSO054	12/21/2015 23:00	12/22/2015 4:30	4,850.64	0.229	0.60	8084.39	0.231	24	Atlas	
CSO054	12/23/2015 6:15	12/23/2015 7:00	253.34	0.031	0.03	8444.79	0.020	3	Atlas	
CSO054	12/23/2015 19:15	12/23/2015 21:00	113,494.86	0.073	0.74	153371.43	0.557	1	Atlas	
CSO054	12/25/2015 9:00	12/25/2015 9:15	187.60	0.010	0.13	1443.11	0.067	3	Atlas	
CSO054	12/26/2015 11:00	12/26/2015 18:30	2,694.15	0.313	0.54	4989.16	0.260	3	Atlas	
CSO054	12/27/2015 9:45	12/28/2015 21:15	122,232.80	1.479	2.21	55308.96	0.721	6	Atlas	
CSO054 Events			20.00							
CSO054 Total Volume (gal)			458,990.00							
CSO055	10/12/2015 18:00	10/12/2015 18:00	1,309.13	0.000	0.35	3740.36	0.261	1	Atlas	
CSO055	10/27/2015 17:15	10/28/2015 8:45	363,012.72	0.646	2.55	142357.93	0.858	24	Atlas	
CSO055	11/6/2015 3:00	11/6/2015 4:45	35,793.77	0.073	0.95	37677.66	0.593	3	Atlas	
CSO055	11/12/2015 0:00	11/12/2015 0:00	944.90	0.000	0.32	2952.80	0.193	3	Atlas	
CSO055	11/18/2015 8:45	11/18/2015 19:00	187,361.87	0.427	1.25	149889.49	0.623	6	Atlas	
CSO055	11/30/2015 23:30	12/1/2015 5:30	12,221.78	0.250	0.66	18517.85	0.298	12	Atlas	
CSO055	12/22/2015 3:15	12/22/2015 3:30	935.29	0.010	0.60	1558.82	0.231	24	Atlas	
CSO055	12/23/2015 19:15	12/23/2015 22:15	123,299.75	0.125	0.74	166621.29	0.557	1	Atlas	
CSO055	12/26/2015 14:30	12/26/2015 14:30	256.41	0.000	0.54	474.83	0.260	3	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO055	12/27/2015 10:30	12/27/2015 13:15	23,538.30	0.115	2.21	10650.82	0.721	6	Atlas	
CSO055	12/28/2015 19:30	12/28/2015 20:45	1,336.30	0.052	2.21	604.66	0.721	6	Atlas	
CSO055 Events			11.00							
CSO055 Total Volume (gal)			750,010.22							
CSO057	12/26/2015 12:30	12/26/2015 12:30	9.67	0.000	0.43	22.48	0.197	12	Atlas	
CSO057	12/27/2015 10:30	12/27/2015 10:30	9.14	0.000	2.10	4.35	0.716	6	Atlas	
CSO057 Events			2.00							
CSO057 Total Volume (gal)			18.80							
CSO058	10/27/2015 18:00	10/28/2015 3:15	844.14	0.385	2.35	359.21	0.781	24	Atlas	
CSO058	11/6/2015 3:00	11/6/2015 4:00	3,002.30	0.042	0.92	3263.37	0.547	3	Atlas	
CSO058	11/12/2015 0:00	11/12/2015 0:45	313.23	0.031	0.27	1160.11	0.160	3	Atlas	
CSO058	11/18/2015 9:15	11/18/2015 13:45	3,746.63	0.188	1.31	2860.03	0.667	6	Atlas	
CSO058	12/14/2015 5:00	12/14/2015 5:00	58.91	0.000	0.24	245.44	0.127	3	Atlas	
CSO058	12/21/2015 11:00	12/21/2015 11:15	96.54	0.010	0.70	137.92	0.270	1	Atlas	
CSO058	12/21/2015 23:45	12/22/2015 3:45	951.32	0.167	0.70	1359.03	0.270	1	Atlas	
CSO058	12/23/2015 19:15	12/23/2015 20:00	5,426.67	0.031	0.70	7752.38	0.513	1	Atlas	
CSO058	12/26/2015 17:30	12/26/2015 17:30	95.61	0.000	0.42	227.65	0.193	12	Atlas	
CSO058	12/27/2015 10:15	12/27/2015 13:15	1,792.50	0.125	2.05	874.39	0.693	3	Atlas	
CSO058 Events			10.00							
CSO058 Total Volume (gal)			16,327.85							
CSO082	10/27/2015 18:00	10/28/2015 8:30	494,722.79	0.604	2.51	197100.71	0.782	48	Atlas	
CSO082	11/6/2015 3:45	11/6/2015 5:15	120,669.46	0.063	0.85	141964.07	0.487	3	Atlas	
CSO082	11/18/2015 9:45	11/18/2015 18:45	648,424.97	0.375	1.40	463160.69	0.716	6	Atlas	
CSO082	12/1/2015 4:15	12/1/2015 4:30	1,101.21	0.010	0.64	1720.64	0.289	12	Atlas	
CSO082	12/22/2015 3:15	12/22/2015 4:45	52,627.68	0.063	0.74	71118.49	0.304	1	Atlas	
CSO082	12/23/2015 19:15	12/23/2015 22:15	335,491.72	0.125	0.72	465960.73	0.574	1	Atlas	
CSO082	12/27/2015 10:30	12/29/2015 0:15	4,293,134.58	1.573	1.97	2179256.13	0.647	3	Atlas	
CSO082 Events			7.00							
CSO082 Total Volume (gal)			5,946,172.41							
CSO083	11/6/2015 4:00	11/6/2015 4:00	14,341.98	0.000	0.83	17279.49	0.500	3	Atlas	
CSO083	11/18/2015 11:00	11/18/2015 13:30	16,034.27	0.104	1.57	10212.91	0.803	6	Atlas	
CSO083	12/23/2015 19:00	12/23/2015 19:45	98,003.17	0.031	0.82	119516.07	0.643	1	Atlas	
CSO083	12/27/2015 10:45	12/27/2015 13:00	33,363.28	0.094	2.01	16598.65	0.653	3	Atlas	
CSO083 Events			4.00							
CSO083 Total Volume (gal)			161,742.70							
CSO084	10/12/2015 19:15	10/12/2015 19:15	1,811.77	0.000	0.22	8235.32	0.147	3	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO084	10/27/2015 18:00	10/28/2015 6:00	18,860.59	0.500	2.34	8060.08	0.769	24	Atlas	
CSO084	11/6/2015 4:15	11/6/2015 4:30	2,408.21	0.010	0.83	2901.46	0.500	3	Atlas	
CSO084	11/12/2015 0:00	11/12/2015 1:00	4,002.44	0.042	0.28	14294.42	0.173	3	Atlas	
CSO084	11/18/2015 9:15	11/18/2015 14:15	21,495.97	0.208	1.57	13691.70	0.803	6	Atlas	
CSO084	11/30/2015 21:45	12/1/2015 4:15	18,655.58	0.271	0.73	25555.59	0.330	12	Atlas	
CSO084	12/21/2015 23:45	12/22/2015 4:00	8,996.14	0.177	0.50	17992.27	0.262	6	Atlas	
CSO084	12/23/2015 20:15	12/23/2015 20:15	1,564.00	0.000	0.82	1907.32	0.643	1	Atlas	
CSO084	12/26/2015 17:30	12/26/2015 17:30	1,776.85	0.000	0.25	7107.42	0.115	12	Atlas	
CSO084	12/27/2015 12:15	12/27/2015 16:45	3,772.43	0.188	2.01	1876.83	0.653	3	Atlas	
CSO084	12/28/2015 16:15	12/28/2015 16:30	863.80	0.010	2.01	429.75	0.653	3	Atlas	
CSO084 Events			11.00							
CSO084 Total Volume (gal)			84,207.78							
CSO088	10/27/2015 18:15	10/28/2015 3:30	50,120.07	0.385	2.38	21058.85	0.785	24	Atlas	
CSO088	11/6/2015 3:30	11/6/2015 4:30	50,974.75	0.042	0.74	68884.79	0.447	3	Atlas	
CSO088	11/12/2015 1:00	11/12/2015 1:00	5,444.55	0.000	0.31	17563.05	0.187	3	Atlas	
CSO088	11/18/2015 9:45	11/18/2015 14:15	122,314.43	0.188	1.38	88633.64	0.705	6	Atlas	
CSO088	12/22/2015 3:15	12/22/2015 4:00	14,859.81	0.031	0.47	31616.62	0.270	1	Atlas	
CSO088	12/23/2015 19:30	12/23/2015 20:30	93,542.71	0.042	0.83	112702.06	0.626	1	Atlas	
CSO088	12/27/2015 10:45	1/1/2016 0:00	5,325,676.90	4.552	1.98	2689735.81	0.647	3	Atlas	
CSO088 Events			7.00							
CSO088 Total Volume (gal)			5,662,933.21							
CSO091	10/12/2015 19:15	10/12/2015 19:15	1,435.49	0.000	0.25	5741.96	0.167	3	Atlas	
CSO091	10/27/2015 17:00	10/28/2015 6:00	32,619.33	0.542	2.55	12791.90	0.831	24	Atlas	
CSO091 Events			2.00							
CSO091 Total Volume (gal)			34,054.82							
CSO092	11/6/2015 3:15	11/6/2015 4:00	15,833.84	0.031	0.75	21111.79	0.453	3	Atlas	
CSO092	11/11/2015 23:45	11/12/2015 1:00	887.47	0.052	0.29	3060.24	0.180	3	Atlas	
CSO092	11/18/2015 7:15	11/18/2015 14:30	48,236.96	0.302	1.67	28884.40	0.852	6	Atlas	
CSO092	11/30/2015 23:15	12/1/2015 4:15	522.79	0.208	0.69	757.67	0.312	12	Atlas	
CSO092	12/22/2015 3:00	12/22/2015 3:45	954.64	0.031	0.55	1735.70	0.290	6	Atlas	
CSO092	12/23/2015 19:15	12/23/2015 19:30	41,418.42	0.010	0.83	49901.71	0.635	1	Atlas	
CSO092	12/26/2015 13:45	12/26/2015 17:30	56.02	0.156	0.28	200.07	0.128	12	Atlas	
CSO092	12/27/2015 11:00	12/27/2015 13:15	1,249.68	0.094	2.02	618.65	0.667	3	Atlas	
CSO092 Events			8.00							
CSO092 Total Volume (gal)			109,159.81							
CSO093	10/2/2015 17:45	10/2/2015 19:30	2,433.44	0.073	0.56	4345.42	0.268	6	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO093	10/12/2015 18:45	10/12/2015 19:30	561.90	0.031	0.28	2006.77	0.187	3	Atlas	
CSO093	10/24/2015 17:15	10/24/2015 17:15	89.42	0.000	0.32	279.43	0.167	3	Atlas	
CSO093	10/27/2015 10:00	10/28/2015 8:30	10,749.67	0.938	2.51	4282.74	0.819	24	Atlas	
CSO093	10/31/2015 23:15	10/31/2015 23:15	29.43	0.000	0.18	163.48	0.107	3	Atlas	
CSO093	11/6/2015 3:00	11/6/2015 5:00	1,399.73	0.083	0.85	1646.74	0.520	3	Atlas	
CSO093	11/9/2015 16:15	11/9/2015 21:30	1,505.68	0.219	0.55	2737.59	0.248	12	Atlas	
CSO093	11/12/2015 0:00	11/12/2015 1:00	452.92	0.042	0.29	1561.78	0.167	3	Atlas	
CSO093	11/18/2015 9:15	11/18/2015 18:15	15,315.22	0.375	1.51	10142.53	0.776	6	Atlas	
CSO093	11/21/2015 15:00	11/21/2015 15:15	356.43	0.010	0.11	3240.25	0.096	1	Atlas	
CSO093	11/28/2015 12:15	11/28/2015 20:30	2,969.04	0.344	0.64	4639.13	0.257	12	Atlas	
CSO093	11/30/2015 21:45	12/1/2015 5:00	2,984.38	0.302	0.67	4454.29	0.303	12	Atlas	
CSO093	12/14/2015 5:00	12/14/2015 7:15	2,521.82	0.094	0.25	10087.29	0.131	6	Atlas	
CSO093	12/21/2015 23:15	12/22/2015 4:00	821.74	0.198	0.59	1392.78	0.330	1	Atlas	
CSO093	12/23/2015 19:30	12/23/2015 19:30	290.11	0.000	0.87	333.47	0.704	1	Atlas	
CSO093 Events			15.00							
CSO093 Total Volume (gal)			42,480.91							
CSO097	10/2/2015 18:45	10/2/2015 20:30	18,519.05	0.073	0.60	30865.09	0.290	6	Atlas	
CSO097	10/12/2015 19:15	10/12/2015 20:15	11,628.89	0.042	0.29	40099.60	0.193	3	Atlas	
CSO097	10/27/2015 12:30	10/28/2015 11:30	543,860.90	0.958	2.68	202933.17	0.870	48	Atlas	
CSO097	10/28/2015 23:30	10/28/2015 23:30	20.86	0.000	0.15	139.10	0.082	6	Atlas	
CSO097	11/6/2015 3:15	11/6/2015 11:15	275,719.95	0.333	0.66	417757.51	0.407	3	Atlas	
CSO097	11/9/2015 19:00	11/10/2015 0:00	149,867.59	0.208	0.50	299735.17	0.220	12	Atlas	
CSO097	11/12/2015 0:15	11/12/2015 3:00	96,967.48	0.115	0.31	312798.31	0.193	3	Atlas	
CSO097	11/18/2015 9:15	11/19/2015 5:00	701,971.59	0.823	1.91	367524.39	0.978	6	Atlas	
CSO097	11/21/2015 15:45	11/21/2015 16:30	875.54	0.031	0.14	6253.87	0.122	1	Atlas	
CSO097	11/28/2015 13:15	11/29/2015 1:45	456,107.18	0.521	0.68	670745.85	0.275	12	Atlas	
CSO097	11/30/2015 21:45	12/2/2015 0:00	777,093.62	1.094	0.74	1050126.51	0.335	12	Atlas	
CSO097	12/14/2015 6:30	12/14/2015 9:45	88,498.10	0.135	0.28	316064.63	0.153	6	Atlas	
CSO097	12/21/2015 11:45	12/21/2015 12:30	6,256.28	0.031	0.78	8020.87	0.328	6	Atlas	
CSO097	12/21/2015 23:15	12/22/2015 16:00	409,877.36	0.698	0.78	525483.80	0.328	6	Atlas	
CSO097	12/23/2015 19:15	12/31/2015 23:45	7,974,634.69	8.188	0.95	8394352.31	0.652	1	Atlas	
CSO097 Events			15.00							
CSO097 Total Volume (gal)			11,511,899.08							
CSO104	10/27/2015 18:30	10/27/2015 20:30	42,299.51	0.083	3.38	12514.65	1.471	24	Cloudburst	
CSO104	11/6/2015 3:45	11/6/2015 5:00	71,106.71	0.052	0.91	78139.24	0.560	3	Atlas	
CSO104	11/18/2015 10:30	11/18/2015 14:00	109,159.53	0.146	1.75	62376.88	0.902	6	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO104	12/23/2015 19:15	12/23/2015 21:15	514,308.85	0.083	1.28	401803.79	0.809	1	Atlas	
CSO104	12/27/2015 10:30	12/27/2015 14:15	209,119.98	0.156	2.65	78913.20	0.860	48	Atlas	
CSO104 Events			5.00							
CSO104 Total Volume (gal)			945,994.59							
CSO105	10/2/2015 15:30	10/2/2015 23:00	868,788.88	0.313	0.47	1848486.98	0.216	12	Atlas	
CSO105	10/12/2015 17:45	10/12/2015 20:45	208,877.63	0.125	0.35	596793.23	0.252	1	Atlas	
CSO105	10/24/2015 16:45	10/24/2015 18:45	11,102.59	0.083	0.32	34695.61	0.165	1	Atlas	
CSO105	10/27/2015 15:30	10/28/2015 10:30	24,702,890.67	0.792	3.38	7308547.54	1.471	24	Cloudburst	
CSO105	11/6/2015 2:45	11/6/2015 7:00	7,347,087.44	0.177	0.91	8073722.46	0.560	3	Atlas	
CSO105	11/9/2015 20:00	11/9/2015 23:00	1,031,975.32	0.125	0.65	1587654.33	0.294	12	Atlas	
CSO105	11/11/2015 23:45	11/12/2015 3:00	1,277,279.47	0.135	0.29	4404411.97	0.167	3	Atlas	
CSO105	11/18/2015 9:30	11/18/2015 17:45	16,317,924.22	0.344	1.75	9324528.13	0.902	6	Atlas	
CSO105	11/28/2015 12:00	11/28/2015 20:45	530,487.92	0.365	0.83	639142.07	0.269	48	Atlas	
CSO105	11/30/2015 21:30	12/1/2015 6:45	2,962,604.34	0.385	0.51	5809028.11	0.234	12	Atlas	
CSO105	12/14/2015 7:30	12/14/2015 8:45	50,091.31	0.052	0.27	185523.39	0.142	6	Atlas	
CSO105	12/21/2015 10:30	12/21/2015 12:15	26,855.77	0.073	0.50	53711.54	0.192	24	Atlas	
CSO105	12/21/2015 23:45	12/22/2015 6:00	1,893,437.88	0.260	0.50	3786875.77	0.192	24	Atlas	
CSO105	12/23/2015 19:00	12/23/2015 23:30	14,579,100.48	0.188	1.28	11389922.25	0.809	1	Atlas	
CSO105	12/26/2015 11:00	12/26/2015 19:30	2,185,897.96	0.354	0.42	5204518.96	0.193	12	Atlas	
CSO105	12/27/2015 3:45	12/27/2015 19:15	24,011,541.87	0.646	2.65	9060959.20	0.860	48	Atlas	
CSO105	12/28/2015 5:15	12/28/2015 22:15	3,118,339.83	0.708	2.65	1176732.01	0.860	48	Atlas	
CSO105 Events			17.00							
CSO105 Total Volume (gal)			101,124,283.59							
CSO106	10/12/2015 19:00	10/12/2015 19:00	4,748.58	0.000	0.29	16374.43	0.193	3	Atlas	
CSO106	10/27/2015 17:00	10/28/2015 6:30	11,753.36	0.563	2.68	4385.58	0.870	48	Atlas	
CSO106	11/6/2015 3:45	11/6/2015 5:30	10,205.35	0.073	0.66	15462.66	0.407	3	Atlas	
CSO106 Events			3.00							
CSO106 Total Volume (gal)			26,707.30							
CSO108	10/29/2015 2:15	10/30/2015 4:00	6,613.04	0.219	3.01	2197.02	0.912	48	Atlas	
CSO108	11/6/2015 3:45	11/7/2015 10:45	188,901.39	0.042	1.05	179906.09	0.647	3	Atlas	
CSO108	11/12/2015 19:00	11/14/2015 9:00	50,637.42	0.604	0.41	123505.90	0.267	3	Atlas	
CSO108	11/19/2015 2:15	11/20/2015 9:15	97,272.55	0.313	1.83	53154.40	0.940	6	Atlas	
CSO108	11/21/2015 19:30	11/22/2015 10:15	19,501.04	0.615	0.16	121881.51	0.130	1	Atlas	
CSO108	12/2/2015 22:30	12/4/2015 8:15	81,856.66	0.552	0.03	2728555.28	0.017	1	Atlas	
CSO108	12/23/2015 19:45	12/24/2015 11:30	1,022,339.98	0.656	0.99	1032666.65	0.748	1	Atlas	
CSO108	12/27/2015 11:00	12/28/2015 17:15	5,307,090.58	1.260	3.13	1695556.10	0.893	48	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO108	12/29/2015 8:30	12/29/2015 18:30	25,933.29	0.417	0.01	2593329.18	0.009	1	Atlas	
CSO108 Events			9.00							
CSO108 Total Volume (gal)			6,800,145.95							
CSO109	11/6/2015 3:30	11/6/2015 4:15	388,573.46	0.031	1.01	384726.20	0.633	3	Atlas	
CSO109	11/12/2015 0:00	11/12/2015 0:00	46,689.69	0.000	0.41	113877.29	0.260	3	Atlas	
CSO109	11/18/2015 10:45	11/18/2015 15:00	1,167,164.08	0.177	1.87	624151.91	0.956	6	Atlas	
CSO109	12/22/2015 3:15	12/22/2015 4:00	228,367.99	0.031	0.87	262491.94	0.366	6	Atlas	
CSO109	12/23/2015 19:30	12/23/2015 21:00	2,011,886.74	0.063	1.03	1953288.10	0.774	1	Atlas	
CSO109	12/27/2015 10:45	12/27/2015 20:45	15,351,222.68	0.417	2.50	6140489.07	0.812	48	Atlas	
CSO109 Events			6.00							
CSO109 Total Volume (gal)			19,193,904.64							
CSO110	10/2/2015 19:00	10/2/2015 20:30	108,734.73	0.063	0.62	175378.60	0.295	6	Atlas	
CSO110	10/12/2015 19:30	10/12/2015 20:15	92,021.05	0.031	0.29	317313.97	0.193	3	Atlas	
CSO110	10/27/2015 15:45	10/28/2015 9:15	2,077,733.89	0.729	2.65	784050.52	0.860	48	Atlas	
CSO110	10/28/2015 23:00	10/28/2015 23:00	4,555.07	0.000	0.17	26794.53	0.087	6	Atlas	
CSO110	11/6/2015 3:45	11/6/2015 7:45	858,820.42	0.167	0.66	1301243.06	0.400	3	Atlas	
CSO110	11/9/2015 19:30	11/9/2015 23:00	281,612.71	0.146	0.49	574719.82	0.216	12	Atlas	
CSO110	11/12/2015 0:15	11/12/2015 2:15	311,184.02	0.083	0.32	972450.06	0.193	3	Atlas	
CSO110	11/18/2015 9:30	11/18/2015 20:45	3,410,718.75	0.469	1.76	1937908.38	0.902	6	Atlas	
CSO110	11/28/2015 14:15	11/28/2015 22:00	746,672.28	0.323	0.68	1098047.47	0.280	12	Atlas	
CSO110	11/30/2015 22:15	12/1/2015 8:30	1,033,855.48	0.427	0.73	1416240.39	0.330	12	Atlas	
CSO110	12/14/2015 7:15	12/14/2015 8:30	19,328.49	0.052	0.26	74340.36	0.137	6	Atlas	
CSO110	12/22/2015 0:00	12/22/2015 5:45	876,348.70	0.240	0.56	1564908.40	0.295	6	Atlas	
CSO110	12/23/2015 19:45	12/24/2015 2:15	1,404,020.89	0.271	0.95	1477916.73	0.670	1	Atlas	
CSO110	12/25/2015 9:30	12/25/2015 10:45	57,695.78	0.052	0.11	524507.12	0.060	6	Atlas	
CSO110	12/26/2015 11:30	12/26/2015 19:00	266,727.34	0.313	0.31	860410.78	0.142	12	Atlas	
CSO110	12/27/2015 10:15	12/29/2015 0:15	4,386,316.87	1.583	2.05	2139666.77	0.666	48	Atlas	
CSO110 Events			16.00							
CSO110 Total Volume (gal)			15,936,346.48							
CSO111	10/27/2015 18:00	10/27/2015 18:00	482.91	0.000	2.65	182.23	0.860	48	Atlas	
CSO111	11/6/2015 3:45	11/6/2015 4:15	1,684.58	0.021	0.66	2552.40	0.400	3	Atlas	
CSO111	11/18/2015 9:30	11/18/2015 11:00	1,160.11	0.063	1.76	659.16	0.902	6	Atlas	
CSO111	11/30/2015 21:45	11/30/2015 21:45	276.26	0.000	0.73	378.44	0.330	12	Atlas	
CSO111	12/22/2015 3:15	12/22/2015 4:00	2,364.17	0.031	0.56	4221.73	0.295	6	Atlas	
CSO111	12/23/2015 19:30	12/23/2015 20:30	184,037.69	0.042	0.95	193723.88	0.670	1	Atlas	
CSO111 Events			6.00							

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO111 Total Volume (gal)			190,005.72							
CSO117	10/2/2015 18:00	10/2/2015 20:30	375,162.44	0.104	0.63	595495.94	0.301	6	Atlas	
CSO117	10/12/2015 19:15	10/12/2015 20:15	246,149.83	0.042	0.26	946730.13	0.167	3	Atlas	
CSO117	10/27/2015 15:45	10/28/2015 9:00	4,535,649.44	0.719	2.25	2015844.19	0.742	24	Atlas	
CSO117	10/28/2015 23:00	10/28/2015 23:15	2,977.57	0.010	0.13	22904.41	0.070	1	Atlas	
CSO117	11/6/2015 3:15	11/6/2015 5:45	1,477,367.87	0.104	0.80	1846709.83	0.487	3	Atlas	
CSO117	11/9/2015 19:30	11/9/2015 22:30	356,634.39	0.125	0.50	713268.78	0.220	12	Atlas	
CSO117	11/12/2015 0:15	11/12/2015 2:00	597,873.52	0.073	0.26	2299513.55	0.147	3	Atlas	
CSO117	11/18/2015 9:15	11/18/2015 18:45	3,269,054.06	0.396	1.37	2386170.85	0.694	6	Atlas	
CSO117	11/28/2015 14:15	11/28/2015 21:00	592,007.54	0.281	0.70	845725.06	0.280	12	Atlas	
CSO117	11/30/2015 22:00	12/1/2015 5:30	1,364,449.84	0.313	0.85	1605235.11	0.385	12	Atlas	
CSO117	12/14/2015 5:45	12/14/2015 7:30	145,703.27	0.073	0.25	582813.09	0.133	3	Atlas	
CSO117	12/21/2015 11:45	12/21/2015 12:00	23,141.71	0.010	0.18	128565.05	0.093	6	Atlas	
CSO117	12/21/2015 23:45	12/22/2015 5:00	1,465,021.80	0.219	0.41	3573223.89	0.213	6	Atlas	
CSO117	12/23/2015 19:15	12/24/2015 0:15	2,784,170.70	0.208	0.90	3093523.00	0.713	1	Atlas	
CSO117	12/26/2015 12:30	12/26/2015 18:30	512,460.91	0.250	0.31	1653099.72	0.142	12	Atlas	
CSO117	12/27/2015 10:30	12/28/2015 7:00	6,325,571.83	0.854	1.92	3294568.66	0.653	3	Atlas	
CSO117	12/28/2015 15:45	12/28/2015 18:00	599,466.35	0.094	1.92	312222.06	0.653	3	Atlas	
CSO117 Events			17.00							
CSO117 Total Volume (gal)			24,672,863.08							
CSO119	10/12/2015 19:00	10/12/2015 19:15	26,656.40	0.010	0.22	121165.44	0.147	3	Atlas	
CSO119	10/27/2015 16:45	10/28/2015 6:15	515,815.04	0.563	2.34	220433.78	0.769	24	Atlas	
CSO119	11/6/2015 2:45	11/6/2015 4:45	231,421.12	0.083	0.83	278820.62	0.500	3	Atlas	
CSO119	11/11/2015 23:45	11/12/2015 1:00	104,102.42	0.052	0.28	371794.35	0.173	3	Atlas	
CSO119	11/18/2015 9:00	11/18/2015 14:30	600,498.65	0.229	1.57	382483.21	0.803	6	Atlas	
CSO119	11/30/2015 21:45	12/1/2015 4:30	186,432.20	0.281	0.73	255386.57	0.330	12	Atlas	
CSO119	12/21/2015 23:30	12/22/2015 4:00	170,146.75	0.188	0.50	340293.50	0.262	6	Atlas	
CSO119	12/23/2015 19:00	12/23/2015 20:30	214,202.33	0.063	0.82	261222.35	0.643	1	Atlas	
CSO119	12/26/2015 13:45	12/26/2015 17:30	18,756.94	0.156	0.25	75027.76	0.115	12	Atlas	
CSO119	12/27/2015 10:15	12/27/2015 17:15	634,467.30	0.292	2.01	315655.37	0.653	3	Atlas	
CSO119	12/28/2015 5:45	12/28/2015 5:45	7,736.10	0.000	2.01	3848.81	0.653	3	Atlas	
CSO119	12/28/2015 15:15	12/28/2015 16:45	98,258.26	0.063	2.01	48884.71	0.653	3	Atlas	
CSO119 Events			12.00							
CSO119 Total Volume (gal)			2,808,493.50							
CSO120	10/12/2015 19:15	10/12/2015 19:15	52,519.04	0.000	0.27	194514.97	0.180	3	Atlas	
CSO120	10/27/2015 17:00	10/28/2015 6:15	351,297.07	0.552	2.51	139958.99	0.782	48	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO120	11/6/2015 3:00	11/6/2015 4:30	361,532.01	0.063	0.85	425331.77	0.487	3	Atlas	
CSO120	11/12/2015 0:00	11/12/2015 1:00	92,412.76	0.042	0.28	330045.57	0.160	3	Atlas	
CSO120	11/18/2015 9:15	11/18/2015 14:15	555,223.54	0.208	1.40	396588.24	0.716	6	Atlas	
CSO120	11/21/2015 15:00	11/21/2015 15:00	725.69	0.000	0.08	9071.09	0.070	1	Atlas	
CSO120	11/30/2015 21:45	12/1/2015 4:30	126,386.74	0.281	0.64	197479.28	0.289	12	Atlas	
CSO120	12/21/2015 23:45	12/22/2015 4:00	154,488.67	0.177	0.74	208768.47	0.304	1	Atlas	
CSO120	12/23/2015 19:15	12/23/2015 20:30	209,783.93	0.052	0.72	291366.57	0.574	1	Atlas	
CSO120	12/26/2015 12:45	12/26/2015 17:45	56,465.60	0.208	0.36	156848.89	0.165	12	Atlas	
CSO120	12/27/2015 10:30	12/27/2015 21:45	637,261.21	0.469	1.97	323482.85	0.647	3	Atlas	
CSO120	12/28/2015 15:30	12/28/2015 16:45	59,092.53	0.052	1.97	29996.21	0.647	3	Atlas	
CSO120 Events			12.00							
CSO120 Total Volume (gal)			2,657,188.78							
CSO121	10/2/2015 18:15	10/2/2015 18:15	543.82	0.000	0.60	906.37	0.290	6	Atlas	
CSO121	10/12/2015 19:00	10/12/2015 19:15	13,066.30	0.010	0.27	48393.70	0.180	3	Atlas	
CSO121	10/27/2015 17:00	10/28/2015 6:15	79,284.89	0.552	2.51	31587.60	0.782	48	Atlas	
CSO121	11/6/2015 3:00	11/6/2015 7:30	69,772.43	0.188	0.85	82085.21	0.487	3	Atlas	
CSO121	11/12/2015 0:00	11/12/2015 1:00	10,713.04	0.042	0.28	38260.86	0.160	3	Atlas	
CSO121	11/18/2015 8:45	11/18/2015 14:15	152,486.63	0.229	1.40	108919.02	0.716	6	Atlas	
CSO121	11/30/2015 21:45	12/1/2015 4:30	66,396.36	0.281	0.64	103744.31	0.289	12	Atlas	
CSO121	12/22/2015 3:15	12/22/2015 4:00	6,133.76	0.031	0.74	8288.87	0.304	1	Atlas	
CSO121	12/23/2015 19:15	12/23/2015 19:45	212,850.20	0.021	0.72	295625.27	0.574	1	Atlas	
CSO121	12/25/2015 9:15	12/25/2015 10:45	6,726.34	0.063	0.12	56052.86	0.067	3	Atlas	
CSO121	12/26/2015 12:15	12/26/2015 17:45	27,156.51	0.229	0.36	75434.74	0.165	12	Atlas	
CSO121	12/27/2015 10:00	12/28/2015 6:00	487,816.41	0.833	1.97	247622.55	0.647	3	Atlas	
CSO121	12/28/2015 16:30	12/28/2015 16:45	5,254.66	0.010	1.97	2667.34	0.647	3	Atlas	
CSO121 Events			13.00							
CSO121 Total Volume (gal)			1,138,201.35							
CSO125	10/12/2015 19:15	10/12/2015 19:30	114,026.67	0.010	0.26	438564.10	0.173	3	Atlas	
CSO125	10/16/2015 20:00	10/16/2015 21:00	188,843.48	0.042	Discharge		DWO			
CSO125	10/27/2015 17:15	10/28/2015 6:45	1,175,662.32	0.563	2.73	430645.54	0.886	48	Atlas	
CSO125	11/6/2015 3:15	11/6/2015 5:00	879,498.14	0.073	1.00	879498.14	0.620	3	Atlas	
CSO125	11/12/2015 0:00	11/12/2015 1:15	267,596.99	0.052	0.30	891989.97	0.180	3	Atlas	
CSO125	11/18/2015 9:15	11/18/2015 14:30	384,051.21	0.219	1.96	195944.49	1.083	6	Cloudburst	
CSO125	11/28/2015 17:00	11/28/2015 18:00	56,335.97	0.042	0.59	95484.69	0.239	12	Atlas	
CSO125	11/30/2015 22:00	12/1/2015 4:45	231,949.30	0.281	0.69	336158.41	0.312	12	Atlas	
CSO125	12/22/2015 0:00	12/22/2015 4:30	611,492.94	0.188	0.80	764366.18	0.339	6	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO125	12/23/2015 19:30	12/24/2015 3:30	661,085.98	0.333	0.86	768704.62	0.687	1	Atlas	
CSO125	12/27/2015 10:45	12/28/2015 6:00	26,104,868.42	0.802	2.17	12029893.28	0.733	3	Atlas	
CSO125	12/28/2015 16:15	12/28/2015 17:00	26,776.11	0.031	2.17	12339.22	0.733	3	Atlas	
CSO125 Events			12.00							
CSO125 Total Volume (gal)			30,702,187.52							
CSO126	10/27/2015 22:45	10/27/2015 22:45	2,146.17	0.000	2.73	786.14	0.886	48	Atlas	
CSO126	11/6/2015 4:00	11/6/2015 4:00	33,279.52	0.000	1.00	33279.52	0.620	3	Atlas	
CSO126	11/18/2015 11:00	11/18/2015 15:15	541,331.47	0.177	1.96	276189.52	1.083	6	Cloudburst	
CSO126	12/22/2015 3:15	12/22/2015 4:00	10,385.41	0.031	0.80	12981.76	0.339	6	Atlas	
CSO126	12/23/2015 19:30	12/23/2015 21:45	692,412.54	0.094	0.86	805130.86	0.687	1	Atlas	
CSO126	12/27/2015 10:45	12/28/2015 10:00	5,566,380.16	0.969	2.17	2565152.15	0.733	3	Atlas	
CSO126 Events			6.00							
CSO126 Total Volume (gal)			6,845,935.25							
CSO127	10/2/2015 17:30	10/2/2015 19:45	29,795.14	0.094	0.52	57298.34	0.257	6	Atlas	
CSO127	10/12/2015 18:15	10/12/2015 19:30	17,077.87	0.052	0.29	58889.22	0.193	3	Atlas	
CSO127	10/24/2015 20:00	10/24/2015 20:00	3,764.71	0.000	0.31	12144.22	0.133	12	Atlas	
CSO127	10/27/2015 11:30	10/28/2015 7:15	496,590.96	0.823	2.65	187392.82	0.860	48	Atlas	
CSO127	10/28/2015 22:30	10/28/2015 23:00	18,430.32	0.021	0.18	102390.69	0.096	1	Atlas	
CSO127	10/31/2015 23:15	10/31/2015 23:30	6,414.17	0.010	0.18	35634.26	0.107	3	Atlas	
CSO127	11/6/2015 3:00	11/6/2015 5:15	129,649.53	0.094	1.04	124663.01	0.640	3	Atlas	
CSO127	11/9/2015 18:30	11/9/2015 22:15	33,431.10	0.156	0.51	65551.18	0.225	12	Atlas	
CSO127	11/12/2015 0:00	11/12/2015 1:30	66,492.57	0.063	0.35	189978.78	0.220	3	Atlas	
CSO127	11/18/2015 8:45	11/18/2015 18:15	271,836.41	0.396	1.93	140847.88	0.984	6	Atlas	
CSO127	11/21/2015 15:00	11/21/2015 15:30	8,145.73	0.021	0.14	58183.78	0.122	1	Atlas	
CSO127	11/28/2015 12:30	11/28/2015 20:15	49,894.64	0.323	0.65	76760.98	0.257	12	Atlas	
CSO127	11/30/2015 22:00	12/1/2015 5:15	115,270.56	0.302	0.63	182969.14	0.284	12	Atlas	
CSO127	12/14/2015 6:45	12/14/2015 9:30	15,643.41	0.115	0.28	55869.31	0.153	6	Atlas	
CSO127	12/21/2015 11:30	12/21/2015 11:45	12,677.79	0.010	0.18	70432.18	0.087	6	Atlas	
CSO127	12/21/2015 23:15	12/22/2015 4:45	177,463.80	0.229	0.52	341276.53	0.278	1	Atlas	
CSO127	12/23/2015 19:30	12/23/2015 22:15	1,406,618.30	0.115	0.85	1654845.06	0.687	1	Atlas	
CSO127	12/25/2015 9:30	12/25/2015 9:45	7,605.31	0.010	0.11	69139.20	0.060	6	Atlas	
CSO127	12/26/2015 12:15	12/26/2015 18:00	43,024.80	0.240	0.28	153660.01	0.140	3	Atlas	
CSO127	12/27/2015 10:15	12/28/2015 6:45	3,355,977.18	0.854	2.23	1504922.50	0.747	3	Atlas	
CSO127	12/28/2015 15:00	12/28/2015 18:00	347,449.30	0.125	2.23	155806.86	0.747	3	Atlas	
CSO127 Events			21.00							
CSO127 Total Volume (gal)			6,613,253.59							

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO130	10/13/2015 1:30	10/13/2015 3:15	2,076.33	0.073	0.32	6488.54	0.217	1	Atlas	
CSO130	11/6/2015 4:00	11/6/2015 4:00	4,310.89	0.000	0.74	5825.52	0.447	3	Atlas	
CSO130	12/23/2015 19:30	12/23/2015 19:30	9,230.37	0.000	0.83	11120.92	0.626	1	Atlas	
CSO130 Events			3.00							
CSO130 Total Volume (gal)			15,617.58							
CSO131	11/6/2015 3:45	11/6/2015 3:45	35,625.00	0.000	0.74	48141.89	0.447	3	Atlas	
CSO131	11/18/2015 10:45	11/18/2015 13:15	46,809.34	0.104	1.38	33919.81	0.705	6	Atlas	
CSO131	12/23/2015 19:00	12/23/2015 19:30	106,875.00	0.021	0.83	128765.06	0.626	1	Atlas	
CSO131	12/27/2015 10:15	12/27/2015 13:00	99,103.29	0.115	1.98	50052.17	0.647	3	Atlas	
CSO131 Events			4.00							
CSO131 Total Volume (gal)			288,412.63							
CSO132	11/6/2015 4:30	11/6/2015 5:45	163,464.93	0.052	0.79	206917.64	0.487	3	Atlas	
CSO132	11/9/2015 19:30	11/9/2015 22:45	449,025.23	0.135	0.55	816409.50	0.243	12	Atlas	
CSO132	11/12/2015 0:00	11/12/2015 1:45	263,377.71	0.073	0.31	849605.51	0.180	3	Atlas	
CSO132	11/18/2015 9:00	11/18/2015 20:30	1,334,116.63	0.479	1.51	883520.94	0.781	6	Atlas	
CSO132	11/21/2015 15:00	11/21/2015 15:30	43,844.62	0.021	0.09	487162.41	0.078	1	Atlas	
CSO132	11/28/2015 12:45	11/28/2015 21:30	597,373.78	0.365	0.63	948212.35	0.257	12	Atlas	
CSO132	11/30/2015 21:45	12/1/2015 6:30	734,173.70	0.365	0.68	1079667.20	0.307	12	Atlas	
CSO132	12/14/2015 5:15	12/14/2015 7:15	152,648.56	0.083	0.24	636035.66	0.127	3	Atlas	
CSO132	12/21/2015 11:15	12/21/2015 11:45	52,514.48	0.021	0.67	78379.82	0.330	1	Atlas	
CSO132	12/21/2015 23:30	12/22/2015 5:15	270,634.88	0.240	0.67	403932.66	0.330	1	Atlas	
CSO132	12/23/2015 19:30	12/24/2015 1:00	670,511.76	0.229	0.81	827792.30	0.626	1	Atlas	
CSO132	12/25/2015 9:15	12/25/2015 9:45	57,173.67	0.021	0.11	519760.62	0.067	3	Atlas	
CSO132	12/26/2015 12:15	12/26/2015 18:15	332,508.55	0.250	0.34	977966.33	0.156	12	Atlas	
CSO132	12/27/2015 10:00	12/31/2015 9:15	23,425,887.29	3.177	1.96	11951983.31	0.647	3	Atlas	
CSO132 Events			14.00							
CSO132 Total Volume (gal)			28,547,255.78							
CSO137	10/12/2015 19:15	10/12/2015 19:15	28,268.49	0.000	0.29	97477.55	0.193	3	Atlas	
CSO137	10/27/2015 17:00	10/28/2015 6:15	151,570.65	0.552	2.68	56556.21	0.870	48	Atlas	
CSO137	10/28/2015 22:30	10/28/2015 22:30	934.77	0.000	0.15	6231.81	0.082	6	Atlas	
CSO137	11/6/2015 3:15	11/6/2015 4:45	248,522.00	0.063	0.66	376548.48	0.407	3	Atlas	
CSO137 Events			4.00							
CSO137 Total Volume (gal)			429,295.91							
CSO140	10/12/2015 19:00	10/12/2015 19:15	6,148.09	0.010	0.28	21957.48	0.187	3	Atlas	
CSO140	10/27/2015 18:00	10/28/2015 6:00	339,372.72	0.500	2.51	135208.26	0.819	24	Atlas	
CSO140	10/28/2015 22:15	10/28/2015 22:15	7,356.18	0.000	0.17	43271.63	0.093	6	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO140	11/6/2015 4:00	11/6/2015 4:30	65,643.48	0.021	0.85	77227.62	0.520	3	Atlas	
CSO140	11/18/2015 11:00	11/18/2015 13:45	191,256.89	0.115	1.51	126660.19	0.776	6	Atlas	
CSO140	12/21/2015 23:45	12/22/2015 4:00	73,650.50	0.177	0.59	124831.35	0.330	1	Atlas	
CSO140	12/23/2015 19:15	12/23/2015 20:30	387,197.72	0.052	0.87	445054.85	0.704	1	Atlas	
CSO140	12/26/2015 17:30	12/26/2015 17:30	18,170.55	0.000	0.28	64894.82	0.128	12	Atlas	
CSO140	12/27/2015 10:15	12/28/2015 0:15	979,229.71	0.583	2.06	475354.23	0.687	3	Atlas	
CSO140	12/28/2015 15:15	12/28/2015 16:45	28,591.49	0.063	2.06	13879.36	0.687	3	Atlas	
CSO140 Events			10.00							
CSO140 Total Volume (gal)			2,096,617.33							
CSO142	10/12/2015 19:15	10/12/2015 19:15	1,020.96	0.000	0.25	4083.83	0.167	3	Atlas	R
CSO142	11/6/2015 3:30	11/6/2015 4:00	36,585.77	0.021	0.77	47513.99	0.473	3	Atlas	R
CSO142	11/12/2015 0:00	11/12/2015 0:00	2,486.33	0.000	0.29	8573.56	0.180	3	Atlas	R
CSO142	11/18/2015 10:45	11/18/2015 13:45	26,180.46	0.125	1.42	18436.95	0.710	6	Atlas	
CSO142	12/1/2015 3:45	12/1/2015 3:45	2,756.58	0.000	0.74	3725.11	0.335	12	Atlas	R
CSO142	12/22/2015 3:15	12/22/2015 3:15	3,960.45	0.000	0.51	7765.58	0.268	6	Atlas	R
CSO142	12/23/2015 19:30	12/23/2015 19:45	47,609.67	0.010	0.76	62644.31	0.583	1	Atlas	R
CSO142	12/27/2015 10:45	12/27/2015 13:15	50,003.72	0.104	1.85	27029.04	0.607	3	Atlas	
CSO142 Events			8.00							
CSO142 Total Volume (gal)			170,603.95							
CSO144	12/23/2015 19:15	12/23/2015 19:30	3,777.78	0.010	0.91	4151.41	0.739	1	Atlas	
CSO144	12/27/2015 10:45	12/27/2015 10:45	813.65	0.000	2.13	381.99	0.707	3	Atlas	
CSO144	12/27/2015 20:45	12/27/2015 20:45	1.16	0.000	2.13	0.54	0.707	3	Atlas	
CSO144 Events			3.00							
CSO144 Total Volume (gal)			4,592.58							
CSO146	10/2/2015 18:00	10/2/2015 20:15	441,656.18	0.094	0.64	690087.78	0.301	6	Atlas	
CSO146	10/12/2015 18:45	10/12/2015 20:00	209,386.95	0.052	0.25	837547.79	0.167	3	Atlas	
CSO146	10/24/2015 20:15	10/24/2015 20:30	27,714.55	0.010	0.32	86607.98	0.153	3	Atlas	
CSO146	10/27/2015 12:15	10/28/2015 8:45	4,155,669.47	0.854	2.33	1783549.13	0.765	24	Atlas	
CSO146	10/28/2015 22:45	10/28/2015 23:15	143,519.78	0.021	0.17	844234.02	0.093	6	Atlas	
CSO146	10/31/2015 23:45	11/1/2015 0:00	20,894.67	0.010	0.17	122909.81	0.113	3	Atlas	
CSO146	11/6/2015 3:15	11/6/2015 5:45	2,137,041.39	0.104	0.77	2775378.43	0.473	3	Atlas	
CSO146	11/9/2015 19:45	11/9/2015 22:30	127,465.67	0.115	0.50	254931.35	0.220	12	Atlas	
CSO146	11/12/2015 0:15	11/12/2015 1:45	514,342.31	0.063	0.29	1773594.17	0.180	3	Atlas	
CSO146	11/18/2015 9:00	11/18/2015 18:45	2,766,272.21	0.406	1.42	1948079.02	0.710	6	Atlas	
CSO146	11/28/2015 14:00	11/28/2015 21:15	321,461.65	0.302	0.74	434407.64	0.298	12	Atlas	
CSO146	11/30/2015 22:00	12/1/2015 5:45	747,103.30	0.323	0.74	1009599.06	0.335	12	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO146	12/14/2015 5:45	12/14/2015 7:45	57,646.13	0.083	0.24	240192.20	0.131	6	Atlas	
CSO146	12/21/2015 11:45	12/21/2015 12:00	16,301.66	0.010	0.18	90564.76	0.093	6	Atlas	
CSO146	12/21/2015 23:30	12/22/2015 5:00	715,079.89	0.229	0.51	1402117.43	0.268	6	Atlas	
CSO146	12/23/2015 19:30	12/23/2015 22:00	3,007,088.92	0.104	0.76	3956695.95	0.583	1	Atlas	
CSO146	12/25/2015 9:45	12/25/2015 10:00	43,797.57	0.010	0.11	398159.76	0.060	6	Atlas	
CSO146	12/26/2015 12:15	12/26/2015 18:15	537,081.05	0.250	0.34	1579650.15	0.151	12	Atlas	
CSO146	12/27/2015 10:30	12/28/2015 18:30	9,490,746.29	1.333	1.85	5130133.13	0.607	3	Atlas	
CSO146 Events			19.00							
CSO146 Total Volume (gal)			25,480,269.65							
CSO148	10/2/2015 17:30	10/2/2015 19:15	4,366.48	0.073	0.60	7277.47	0.290	6	Atlas	
CSO148	11/6/2015 3:00	11/6/2015 4:30	77,088.61	0.063	0.66	116800.92	0.407	3	Atlas	
CSO148	11/12/2015 0:00	11/12/2015 1:00	34,298.75	0.042	0.31	110641.12	0.193	3	Atlas	
CSO148	11/18/2015 9:15	11/18/2015 14:00	91,873.17	0.198	1.91	48101.13	0.978	6	Atlas	
CSO148	11/30/2015 21:45	12/1/2015 3:45	10,880.74	0.250	0.74	14703.70	0.335	12	Atlas	
CSO148	12/21/2015 23:00	12/22/2015 4:00	28,434.08	0.208	0.78	36453.95	0.328	6	Atlas	
CSO148	12/23/2015 19:15	12/23/2015 20:15	222,255.22	0.042	0.95	233952.87	0.652	1	Atlas	
CSO148	12/27/2015 10:45	12/27/2015 16:30	228,543.82	0.240	2.22	102947.66	0.721	48	Atlas	
CSO148	12/28/2015 16:00	12/28/2015 16:30	2,308.02	0.021	2.22	1039.65	0.721	48	Atlas	
CSO148 Events			9.00							
CSO148 Total Volume (gal)			700,048.88							
CSO149	10/2/2015 17:45	10/2/2015 19:45	147,572.26	0.083	0.64	230581.66	0.301	6	Atlas	
CSO149	10/12/2015 18:45	10/12/2015 19:45	306,048.85	0.042	0.25	1224195.40	0.167	3	Atlas	
CSO149	10/27/2015 15:45	10/28/2015 8:30	4,069,790.40	0.698	2.33	1746691.16	0.765	24	Atlas	
CSO149	10/28/2015 22:45	10/28/2015 22:45	1,219.39	0.000	0.17	7172.86	0.093	6	Atlas	
CSO149	11/6/2015 3:00	11/6/2015 10:30	1,706,308.66	0.313	0.77	2215985.27	0.473	3	Atlas	
CSO149	11/9/2015 19:30	11/9/2015 22:00	92,896.66	0.104	0.50	185793.32	0.220	12	Atlas	
CSO149	11/12/2015 0:00	11/12/2015 1:30	897,814.72	0.063	0.29	3095912.84	0.180	3	Atlas	
CSO149	11/18/2015 8:45	11/18/2015 22:30	4,994,189.41	0.573	1.42	3517034.80	0.710	6	Atlas	
CSO149	11/28/2015 14:00	11/28/2015 20:30	182,475.43	0.271	0.74	246588.42	0.298	12	Atlas	
CSO149	11/30/2015 21:45	12/1/2015 5:30	1,847,932.62	0.323	0.74	2497206.24	0.335	12	Atlas	
CSO149	12/14/2015 5:15	12/14/2015 7:15	58,928.25	0.083	0.24	245534.39	0.131	6	Atlas	
CSO149	12/21/2015 23:30	12/22/2015 4:45	1,267,967.33	0.219	0.51	2486210.46	0.268	6	Atlas	
CSO149	12/23/2015 19:15	12/23/2015 21:15	1,904,750.26	0.083	0.76	2506250.35	0.583	1	Atlas	
CSO149	12/27/2015 10:45	12/28/2015 6:00	548,892.58	0.802	1.85	296698.69	0.607	3	Atlas	
CSO149	12/28/2015 16:15	12/28/2015 17:00	2,408.22	0.031	1.85	1301.74	0.607	3	Atlas	
CSO149 Events			15.00							

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO149 Total Volume (gal)			18,029,195.05							
CSO150	10/24/2015 14:45	10/24/2015 16:45	7,706.33	0.083	0.31	24859.14	0.142	6	Atlas	
CSO150	10/27/2015 17:15	10/28/2015 8:45	554,379.84	0.646	2.55	217403.86	0.858	24	Atlas	
CSO150	11/6/2015 4:00	11/6/2015 5:30	92,173.32	0.063	0.95	97024.55	0.593	3	Atlas	
CSO150	11/18/2015 10:45	11/18/2015 18:30	295,302.88	0.323	1.25	236242.30	0.623	6	Atlas	
CSO150	12/1/2015 4:15	12/1/2015 5:30	17,475.12	0.052	0.66	26477.45	0.298	12	Atlas	
CSO150	12/14/2015 8:15	12/14/2015 8:15	755.73	0.000	0.26	2906.65	0.137	6	Atlas	
CSO150	12/23/2015 19:15	12/23/2015 22:00	110,599.96	0.115	0.74	149459.41	0.557	1	Atlas	
CSO150	12/26/2015 14:15	12/26/2015 14:30	9,939.66	0.010	0.54	18406.77	0.260	3	Atlas	
CSO150	12/27/2015 10:30	12/28/2015 1:45	422,065.42	0.635	2.21	190979.83	0.721	6	Atlas	
CSO150	12/28/2015 16:30	12/28/2015 21:30	89,808.20	0.208	2.21	40637.20	0.721	6	Atlas	
CSO150 Events			10.00							
CSO150 Total Volume (gal)			1,600,206.46							
CSO151	10/2/2015 17:30	10/2/2015 22:00	129,208.60	0.188	0.59	218997.62	0.279	6	Atlas	
CSO151	10/9/2015 11:45	10/9/2015 11:45	271.32	0.000	0.11	2466.54	0.061	1	Atlas	
CSO151	10/12/2015 18:30	10/12/2015 20:45	63,909.84	0.094	0.29	220378.76	0.193	3	Atlas	
CSO151	10/24/2015 20:00	10/24/2015 20:00	6,848.96	0.000	0.32	21403.00	0.148	6	Atlas	
CSO151	10/27/2015 12:00	10/28/2015 10:00	1,076,891.36	0.917	2.66	404846.37	0.864	48	Atlas	
CSO151	10/28/2015 22:45	10/29/2015 0:00	41,460.87	0.052	0.17	243887.48	0.093	6	Atlas	
CSO151	10/31/2015 23:30	11/1/2015 0:15	25,419.40	0.031	0.17	149525.88	0.100	3	Atlas	
CSO151	11/6/2015 3:15	11/6/2015 8:45	147,017.75	0.229	0.77	190932.15	0.473	3	Atlas	
CSO151	11/9/2015 16:30	11/9/2015 23:45	225,252.44	0.302	0.51	441671.44	0.220	12	Atlas	
CSO151	11/12/2015 0:15	11/12/2015 2:15	88,405.62	0.083	0.30	294685.39	0.187	3	Atlas	
CSO151	11/18/2015 9:00	11/18/2015 23:15	607,231.77	0.594	1.81	335487.17	0.923	6	Atlas	
CSO151	11/21/2015 15:15	11/21/2015 15:30	13,625.59	0.010	0.13	104812.22	0.113	1	Atlas	
CSO151	11/28/2015 12:45	11/29/2015 0:00	458,327.43	0.469	0.69	664242.65	0.275	12	Atlas	
CSO151	11/30/2015 22:00	12/1/2015 10:15	429,942.69	0.510	0.69	623105.35	0.317	12	Atlas	
CSO151	12/14/2015 5:30	12/14/2015 9:30	82,839.43	0.167	0.25	331357.71	0.137	6	Atlas	
CSO151	12/21/2015 11:45	12/21/2015 12:30	9,262.42	0.031	0.70	13232.03	0.304	1	Atlas	
CSO151	12/21/2015 23:15	12/22/2015 6:15	315,044.38	0.292	0.70	450063.41	0.304	1	Atlas	
CSO151	12/23/2015 20:15	12/24/2015 3:45	299,508.42	0.313	0.86	348265.61	0.652	1	Atlas	
CSO151	12/26/2015 11:15	12/26/2015 19:30	191,266.49	0.344	0.26	735640.35	0.120	3	Atlas	
CSO151	12/27/2015 6:30	12/27/2015 21:30	1,581,882.96	0.625	2.25	703059.09	0.760	3	Atlas	
CSO151 Events			20.00							
CSO151 Total Volume (gal)			5,793,617.74							
CSO152	10/2/2015 17:45	10/2/2015 20:30	105,247.01	0.115	0.61	172536.08	0.290	6	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO152	10/12/2015 19:00	10/12/2015 20:15	104,767.03	0.052	0.25	419068.14	0.167	3	Atlas	
CSO152	10/24/2015 20:15	10/24/2015 20:30	7,891.51	0.010	0.32	24660.96	0.148	6	Atlas	
CSO152	10/27/2015 11:45	10/28/2015 9:00	1,427,976.07	0.885	2.55	559990.62	0.831	24	Atlas	
CSO152	10/28/2015 22:45	10/28/2015 23:15	26,953.55	0.021	0.17	158550.31	0.087	6	Atlas	
CSO152	10/31/2015 23:45	11/1/2015 0:00	22,066.05	0.010	0.16	137912.78	0.107	3	Atlas	
CSO152	11/6/2015 3:30	11/6/2015 5:45	204,501.95	0.094	0.75	272669.26	0.453	3	Atlas	
CSO152	11/9/2015 19:30	11/9/2015 22:45	203,548.12	0.135	0.49	415404.33	0.220	12	Atlas	
CSO152	11/12/2015 0:15	11/12/2015 2:00	211,298.54	0.073	0.29	728615.67	0.180	3	Atlas	
CSO152	11/18/2015 9:15	11/18/2015 18:45	896,444.72	0.396	1.67	536793.25	0.852	6	Atlas	
CSO152	11/21/2015 15:30	11/21/2015 15:45	13,168.85	0.010	0.12	109740.38	0.096	1	Atlas	
CSO152	11/28/2015 13:00	11/28/2015 21:45	413,177.78	0.365	0.70	590253.96	0.280	12	Atlas	
CSO152	11/30/2015 22:00	12/1/2015 6:00	731,808.65	0.333	0.69	1060592.24	0.312	12	Atlas	
CSO152	12/14/2015 5:45	12/14/2015 8:15	76,796.62	0.104	0.24	319985.92	0.127	3	Atlas	
CSO152	12/21/2015 11:30	12/21/2015 11:45	16,766.41	0.010	0.15	111776.08	0.077	6	Atlas	
CSO152	12/21/2015 23:30	12/22/2015 5:15	503,742.60	0.240	0.55	915895.64	0.290	6	Atlas	
CSO152	12/23/2015 19:45	12/23/2015 22:00	255,728.81	0.094	0.83	308106.99	0.635	1	Atlas	
CSO152	12/25/2015 9:45	12/25/2015 10:00	15,074.71	0.010	0.11	137042.82	0.060	6	Atlas	
CSO152	12/26/2015 12:15	12/26/2015 18:30	166,962.83	0.260	0.28	596295.83	0.128	12	Atlas	
CSO152	12/27/2015 10:15	12/28/2015 18:15	1,658,329.33	1.333	2.02	820955.12	0.667	3	Atlas	
CSO152 Events			20.00							
CSO152 Total Volume (gal)			7,062,251.14							
CSO153	10/2/2015 18:15	10/2/2015 19:15	26,833.92	0.042	0.60	44723.19	0.290	6	Atlas	
CSO153	10/12/2015 19:15	10/12/2015 19:15	22,029.25	0.000	0.27	81589.81	0.180	3	Atlas	
CSO153	10/27/2015 17:00	10/28/2015 8:30	663,210.51	0.646	2.51	264227.29	0.782	48	Atlas	
CSO153	10/28/2015 22:30	10/28/2015 22:30	2,915.64	0.000	2.51	1161.61	0.782	48	Atlas	
CSO153	11/6/2015 3:00	11/6/2015 5:15	460,500.67	0.094	0.85	541765.49	0.487	3	Atlas	
CSO153	11/9/2015 19:15	11/9/2015 21:15	40,312.41	0.083	0.55	73295.28	0.252	12	Atlas	
CSO153	11/12/2015 0:00	11/12/2015 1:15	103,690.33	0.052	0.28	370322.60	0.160	3	Atlas	
CSO153	11/18/2015 9:00	11/18/2015 14:00	673,705.08	0.208	1.40	481217.92	0.716	6	Atlas	
CSO153	11/21/2015 15:00	11/21/2015 15:00	5,320.92	0.000	0.08	66511.46	0.070	1	Atlas	
CSO153	11/28/2015 14:00	11/28/2015 17:45	32,877.17	0.156	0.69	47648.07	0.275	12	Atlas	
CSO153	11/30/2015 21:45	12/1/2015 5:00	200,526.68	0.302	0.64	313322.94	0.289	12	Atlas	
CSO153	12/14/2015 5:15	12/14/2015 5:15	2,391.35	0.000	0.24	9963.98	0.126	6	Atlas	
CSO153	12/21/2015 11:15	12/21/2015 11:15	5,753.60	0.000	0.74	7775.14	0.304	1	Atlas	
CSO153	12/21/2015 23:45	12/22/2015 4:30	211,592.21	0.198	0.74	285935.42	0.304	1	Atlas	
CSO153	12/23/2015 19:30	12/23/2015 20:30	486,416.98	0.042	0.72	675579.14	0.574	1	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO153	12/25/2015 9:15	12/25/2015 9:15	3,135.85	0.000	0.12	26132.12	0.067	3	Atlas	
CSO153	12/26/2015 12:00	12/26/2015 17:45	56,002.49	0.240	0.36	155562.48	0.165	12	Atlas	
CSO153	12/27/2015 10:15	12/27/2015 13:45	1,034,391.67	0.146	1.97	525071.91	0.647	3	Atlas	
CSO153	12/28/2015 0:15	12/28/2015 6:15	100,850.00	0.250	1.97	51192.89	0.647	3	Atlas	
CSO153	12/28/2015 15:30	12/28/2015 16:45	95,752.37	0.052	1.97	48605.26	0.647	3	Atlas	
CSO153 Events			20.00							
CSO153 Total Volume (gal)			4,228,209.10							
CSO154	10/27/2015 19:00	10/27/2015 20:30	29,949.23	0.063	2.72	11010.75	0.847	48	Atlas	
CSO154	10/28/2015 6:15	10/28/2015 6:15	2,188.57	0.000	2.72	804.62	0.847	48	Atlas	
CSO154	11/6/2015 4:00	11/6/2015 4:00	13,432.69	0.000	0.79	17003.40	0.487	3	Atlas	
CSO154	11/18/2015 10:45	11/18/2015 20:15	1,698,514.82	0.396	1.51	1124844.25	0.781	6	Atlas	
CSO154	12/22/2015 4:00	12/22/2015 4:00	1,814.91	0.000	0.67	2708.82	0.330	1	Atlas	
CSO154	12/23/2015 19:30	12/24/2015 4:45	1,719,684.41	0.385	0.81	2123067.17	0.626	1	Atlas	
CSO154	12/26/2015 9:45	12/29/2015 1:45	17,446,133.75	2.667	0.34	51312158.10	0.156	12	Atlas	
CSO154 Events			7.00							
CSO154 Total Volume (gal)			20,911,718.38							
CSO155	10/12/2015 19:00	10/12/2015 19:00	55.29	0.000	0.35	157.98	0.261	1	Atlas	
CSO155	10/27/2015 17:45	10/28/2015 3:15	22,510.22	0.396	2.99	7528.50	0.965	24	Atlas	
CSO155	11/6/2015 2:45	11/6/2015 3:45	11,775.32	0.042	0.80	14719.15	0.487	3	Atlas	
CSO155	11/9/2015 18:00	11/9/2015 21:45	1,007.09	0.156	0.63	1598.56	0.284	12	Atlas	
CSO155	11/12/2015 0:45	11/12/2015 0:45	119.55	0.000	0.31	385.65	0.180	3	Atlas	
CSO155	11/18/2015 8:45	11/18/2015 13:30	38,911.27	0.198	1.37	28402.39	0.678	6	Atlas	
CSO155	11/30/2015 23:15	12/1/2015 4:15	6,336.13	0.208	0.63	10057.34	0.284	12	Atlas	
CSO155	12/21/2015 23:45	12/21/2015 23:45	1,009.17	0.000	0.57	1770.47	0.219	24	Atlas	
CSO155	12/23/2015 19:00	12/23/2015 19:45	34,018.21	0.031	0.84	40497.87	0.557	1	Atlas	
CSO155	12/26/2015 13:45	12/26/2015 13:45	60.13	0.000	0.66	91.10	0.307	3	Atlas	
CSO155	12/27/2015 9:45	12/27/2015 13:00	24,769.34	0.135	2.49	9947.53	0.808	48	Atlas	
CSO155 Events			11.00							
CSO155 Total Volume (gal)			140,571.72							
CSO161	11/18/2015 10:45	11/18/2015 10:45	1,622.16	0.000	1.29	1257.49	0.650	6	Atlas	
CSO161	12/23/2015 19:15	12/23/2015 19:30	15,609.41	0.010	0.72	21679.73	0.513	1	Atlas	
CSO161	12/27/2015 10:30	12/27/2015 10:30	7,038.65	0.000	2.10	3351.74	0.716	6	Atlas	
CSO161 Events			3.00							
CSO161 Total Volume (gal)			24,270.21							
CSO166	10/12/2015 19:30	10/12/2015 19:45	63,690.24	0.010	0.29	219621.51	0.193	3	Atlas	
CSO166	10/27/2015 17:45	10/28/2015 7:15	3,615,714.88	0.563	2.65	1364420.71	0.860	48	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO166	11/6/2015 3:15	11/6/2015 5:30	739,862.76	0.094	1.04	711406.50	0.640	3	Atlas	
CSO166	11/12/2015 0:15	11/12/2015 1:45	598,939.96	0.063	0.35	1711257.02	0.220	3	Atlas	
CSO166	11/18/2015 9:30	11/18/2015 19:00	2,248,855.59	0.396	1.93	1165210.15	0.984	6	Atlas	
CSO166	11/28/2015 17:15	11/28/2015 18:15	122,366.29	0.042	0.65	188255.84	0.257	12	Atlas	
CSO166	11/30/2015 22:00	12/1/2015 5:30	1,952,376.49	0.313	0.63	3099010.31	0.284	12	Atlas	
CSO166	12/22/2015 0:45	12/22/2015 5:00	1,104,138.71	0.177	0.52	2123343.68	0.278	1	Atlas	
CSO166	12/23/2015 19:15	12/24/2015 3:45	4,606,565.95	0.354	0.85	5419489.35	0.687	1	Atlas	
CSO166	12/26/2015 14:15	12/26/2015 14:45	103,395.33	0.021	0.28	369269.04	0.140	3	Atlas	
CSO166	12/27/2015 10:30	12/27/2015 13:45	2,378,772.76	0.135	2.23	1066714.24	0.747	3	Atlas	
CSO166	12/28/2015 0:15	12/29/2015 3:45	3,526,666.86	1.146	2.23	1581464.96	0.747	3	Atlas	
CSO166 Events			12.00							
CSO166 Total Volume (gal)			21,061,345.83							
CSO167	10/2/2015 18:15	10/2/2015 19:00	9,823.29	0.031	0.51	19261.36	0.246	6	Atlas	
CSO167	10/12/2015 18:30	10/12/2015 19:45	44,924.98	0.052	0.30	149749.94	0.200	3	Atlas	
CSO167	10/27/2015 15:45	10/28/2015 8:30	844,051.08	0.698	2.72	310312.90	0.847	48	Atlas	
CSO167	10/28/2015 22:45	10/28/2015 23:00	2,760.07	0.010	2.72	1014.73	0.847	48	Atlas	
CSO167	11/6/2015 3:15	11/6/2015 5:30	422,125.31	0.094	0.79	534335.84	0.487	3	Atlas	
CSO167	11/9/2015 19:45	11/9/2015 22:15	37,333.74	0.104	0.55	67879.53	0.243	12	Atlas	
CSO167	11/12/2015 0:15	11/12/2015 1:30	196,129.57	0.052	0.31	632676.04	0.180	3	Atlas	
CSO167	11/18/2015 9:15	11/18/2015 18:45	1,042,103.34	0.396	1.51	690134.66	0.781	6	Atlas	
CSO167	11/21/2015 15:30	11/21/2015 15:30	511.65	0.000	0.09	5684.95	0.078	1	Atlas	
CSO167	11/28/2015 14:15	11/28/2015 20:45	36,865.76	0.271	0.63	58517.08	0.257	12	Atlas	
CSO167	11/30/2015 22:00	12/1/2015 5:30	256,635.12	0.313	0.68	377404.59	0.307	12	Atlas	
CSO167	12/21/2015 11:30	12/21/2015 11:45	2,222.30	0.010	0.67	3316.87	0.330	1	Atlas	
CSO167	12/21/2015 23:30	12/22/2015 4:45	368,936.79	0.219	0.67	550651.92	0.330	1	Atlas	
CSO167	12/23/2015 19:30	12/23/2015 22:15	465,966.23	0.115	0.81	575266.95	0.626	1	Atlas	
CSO167	12/26/2015 12:45	12/26/2015 18:15	34,290.34	0.229	0.34	100853.94	0.156	12	Atlas	
CSO167	12/27/2015 10:15	12/29/2015 1:00	1,800,302.56	1.615	1.96	918521.72	0.647	3	Atlas	
CSO167 Events			16.00							
CSO167 Total Volume (gal)			5,564,982.14							
CSO174	10/27/2015 18:00	10/28/2015 6:00	51,170.08	0.500	2.33	21961.41	0.765	24	Atlas	R
CSO174	11/6/2015 3:15	11/6/2015 4:30	550,065.24	0.052	0.77	714370.45	0.473	3	Atlas	R
CSO174	11/12/2015 0:00	11/12/2015 1:00	101,703.33	0.042	0.29	350701.12	0.180	3	Atlas	R
CSO174	11/18/2015 9:15	11/18/2015 14:15	828,752.51	0.208	1.42	583628.53	0.710	6	Atlas	
CSO174	11/30/2015 21:45	12/1/2015 3:45	59,797.54	0.250	0.74	80807.49	0.335	12	Atlas	R
CSO174	12/22/2015 3:00	12/22/2015 4:00	207,032.14	0.042	0.51	405945.37	0.268	6	Atlas	R

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO174	12/23/2015 19:15	12/23/2015 20:30	1,768,741.59	0.052	0.76	2327291.56	0.583	1	Atlas	R
CSO174	12/27/2015 10:30	12/27/2015 16:30	1,935,886.33	0.250	1.85	1046425.04	0.607	3	Atlas	
CSO174	12/28/2015 16:15	12/28/2015 16:30	2,715.44	0.010	1.85	1467.80	0.607	3	Atlas	R
CSO174 Events			9.00							
CSO174 Total Volume (gal)			5,505,864.19							
CSO179	12/23/2015 19:30	12/23/2015 19:45	35,163.81	0.010	0.76	46268.17	0.583	1	Atlas	
CSO179	12/27/2015 12:45	12/27/2015 18:15	47,106.95	0.229	1.85	25463.22	0.607	3	Atlas	
CSO179 Events			2.00							
CSO179 Total Volume (gal)			82,270.76							
CSO180	10/12/2015 19:00	10/12/2015 19:00	484.77	0.000	0.25	1939.08	0.167	3	Atlas	R
CSO180	10/28/2015 3:15	10/28/2015 3:15	917.73	0.000	2.33	393.88	0.765	24	Atlas	R
CSO180	11/6/2015 3:00	11/6/2015 4:00	61,710.36	0.042	0.77	80143.32	0.473	3	Atlas	R
CSO180	11/12/2015 0:30	11/12/2015 0:45	10,429.97	0.010	0.29	35965.41	0.180	3	Atlas	R
CSO180	11/18/2015 9:15	11/18/2015 13:45	148,972.07	0.188	1.42	104909.91	0.710	6	Atlas	
CSO180	11/30/2015 21:45	11/30/2015 23:15	8,478.83	0.063	0.74	11457.88	0.335	12	Atlas	R
CSO180	12/22/2015 3:00	12/22/2015 3:45	58,388.38	0.031	0.51	114487.01	0.268	6	Atlas	R
CSO180	12/23/2015 19:15	12/23/2015 20:00	232,474.88	0.031	0.76	305888.00	0.583	1	Atlas	R
CSO180	12/27/2015 10:30	12/27/2015 13:15	229,507.63	0.115	1.85	124058.18	0.607	3	Atlas	
CSO180 Events			9.00							
CSO180 Total Volume (gal)			751,364.62							
CSO181	11/6/2015 4:15	11/6/2015 4:30	93,172.11	0.010	0.76	122594.89	0.460	3	Atlas	
CSO181	11/18/2015 11:15	11/18/2015 11:30	144,157.41	0.010	1.31	110043.82	0.656	6	Atlas	
CSO181	12/23/2015 19:30	12/23/2015 20:15	90,812.09	0.031	0.96	94595.92	0.765	1	Atlas	
CSO181	12/27/2015 11:00	12/27/2015 12:15	176,890.77	0.052	1.90	93100.41	0.653	3	Atlas	
CSO181 Events			4.00							
CSO181 Total Volume (gal)			505,032.38							
CSO182	10/2/2015 17:30	10/2/2015 19:45	48,657.27	0.094	0.63	77233.76	0.295	6	Atlas	R
CSO182	10/9/2015 11:45	10/9/2015 11:45	720.64	0.000	0.13	5543.35	0.073	3	Atlas	R
CSO182	10/12/2015 18:15	10/12/2015 19:45	22,609.27	0.063	0.28	80747.39	0.187	3	Atlas	R
CSO182	10/24/2015 20:00	10/24/2015 20:15	4,090.15	0.010	0.39	10487.55	0.187	3	Atlas	R
CSO182	10/27/2015 11:30	10/28/2015 8:15	185,066.09	0.865	2.42	76473.59	0.788	24	Atlas	R
CSO182	10/28/2015 22:30	10/28/2015 23:00	9,334.87	0.021	0.17	54910.97	0.087	6	Atlas	R
CSO182	10/31/2015 23:30	11/1/2015 0:45	4,758.02	0.052	0.21	22657.24	0.140	3	Atlas	R
CSO182	11/6/2015 4:45	11/6/2015 5:30	11,991.81	0.031	0.71	16889.88	0.433	3	Atlas	R
CSO182	11/9/2015 16:30	11/9/2015 22:15	55,220.85	0.240	0.53	104190.29	0.234	12	Atlas	R
CSO182	11/12/2015 0:00	11/12/2015 1:45	9,137.65	0.073	0.29	31509.13	0.187	3	Atlas	R

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO182	11/18/2015 8:45	11/18/2015 18:30	80,518.98	0.406	1.48	54404.71	0.770	6	Atlas	
CSO182	11/21/2015 15:15	11/21/2015 15:30	1,576.91	0.010	0.11	14335.51	0.087	1	Atlas	R
CSO182	11/28/2015 13:15	11/28/2015 21:00	43,287.57	0.323	0.71	60968.41	0.294	12	Atlas	R
CSO182	11/30/2015 0:30	11/30/2015 2:30	42,705.80	0.083	0.05	854116.01	0.023	12	Atlas	R
CSO182	11/30/2015 22:15	12/1/2015 5:30	53,574.00	0.302	0.71	75456.34	0.321	12	Atlas	R
CSO182	12/14/2015 5:15	12/14/2015 7:15	39,671.41	0.083	0.24	165297.53	0.126	6	Atlas	R
CSO182	12/21/2015 11:15	12/21/2015 11:45	6,199.55	0.021	0.20	30997.76	0.104	6	Atlas	R
CSO182	12/21/2015 23:15	12/22/2015 5:00	13,042.23	0.240	0.56	23289.69	0.295	6	Atlas	R
CSO182	12/23/2015 19:30	12/23/2015 22:15	108,924.15	0.115	0.84	129671.61	0.643	1	Atlas	R
CSO182	12/25/2015 9:15	12/25/2015 9:45	8,680.03	0.021	0.12	72333.60	0.073	3	Atlas	R
CSO182	12/26/2015 11:15	12/26/2015 18:00	42,642.47	0.281	0.33	129219.60	0.151	12	Atlas	R
CSO182	12/27/2015 10:15	12/28/2015 20:15	240,636.25	1.417	1.89	127320.77	0.647	3	Atlas	
CSO182 Events			22.00							
CSO182 Total Volume (gal)			1,033,045.96							
CSO183	10/2/2015 14:30	10/2/2015 21:30	148,697.62	0.292	0.60	247829.37	0.279	6	Atlas	R
CSO183	10/12/2015 19:45	10/13/2015 6:45	68,152.52	0.458	0.38	179348.73	0.253	3	Atlas	R
CSO183	11/6/2015 4:00	11/6/2015 4:00	150.90	0.000	0.73	206.71	0.447	3	Atlas	R
CSO183	12/23/2015 19:30	12/23/2015 19:30	1,183.03	0.000	0.95	1245.30	0.748	1	Atlas	R
CSO183 Events			4.00							
CSO183 Total Volume (gal)			218,184.07							
CSO184	11/6/2015 3:15	11/6/2015 4:15	15,031.26	0.042	0.73	20590.77	0.447	3	Atlas	R
CSO184	11/18/2015 11:00	11/18/2015 13:45	68,818.56	0.115	1.54	44687.38	0.798	6	Atlas	
CSO184	11/30/2015 23:30	11/30/2015 23:30	1,497.60	0.000	0.69	2170.44	0.317	12	Atlas	R
CSO184	12/22/2015 3:15	12/22/2015 4:00	23,610.54	0.031	0.56	42161.68	0.290	6	Atlas	R
CSO184	12/23/2015 19:30	12/23/2015 20:15	227,394.16	0.031	0.95	239362.27	0.748	1	Atlas	R
CSO184	12/27/2015 10:45	12/27/2015 13:15	110,557.14	0.104	2.00	55278.57	0.667	3	Atlas	
CSO184 Events			6.00							
CSO184 Total Volume (gal)			446,909.26							
CSO185	10/13/2015 1:00	10/13/2015 2:00	1,241.77	0.042	0.38	3267.82	0.253	3	Atlas	R
CSO185	11/6/2015 3:15	11/6/2015 4:15	58,306.70	0.042	0.73	79872.19	0.447	3	Atlas	R
CSO185	11/12/2015 0:15	11/12/2015 1:00	4,756.98	0.031	0.32	14865.56	0.200	3	Atlas	R
CSO185	11/18/2015 9:30	11/18/2015 14:00	137,365.67	0.188	1.54	89198.48	0.798	6	Atlas	
CSO185	11/30/2015 22:00	11/30/2015 22:00	615.58	0.000	0.69	892.15	0.317	12	Atlas	R
CSO185	12/22/2015 3:15	12/22/2015 4:00	56,225.09	0.031	0.56	100401.95	0.290	6	Atlas	R
CSO185	12/23/2015 19:30	12/23/2015 20:15	355,869.60	0.031	0.95	374599.58	0.748	1	Atlas	R
CSO185	12/27/2015 10:45	12/27/2015 13:30	223,296.45	0.115	2.00	111648.23	0.667	3	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO185 Events			8.00							
CSO185 Total Volume (gal)			837,677.85							
CSO186	12/27/2015 9:45	12/27/2015 9:45	119,543.26	0.000	1.85	64617.98	0.607	3	Atlas	R
CSO186	12/28/2015 16:45	12/28/2015 19:45	502,490.53	0.125	1.85	271616.50	0.607	3	Atlas	R
CSO186 Events			2.00							
CSO186 Total Volume (gal)			622,033.79							
CSO187	11/6/2015 4:00	11/6/2015 4:00	25,749.92	0.000	0.77	33441.45	0.473	3	Atlas	R
CSO187	11/18/2015 11:00	11/18/2015 11:00	977.42	0.000	1.42	688.32	0.710	6	Atlas	
CSO187	12/23/2015 19:30	12/23/2015 19:45	61,890.09	0.010	0.76	81434.33	0.583	1	Atlas	R
CSO187	12/27/2015 10:45	12/27/2015 10:45	476.07	0.000	1.85	257.34	0.607	3	Atlas	
CSO187 Events			4.00							
CSO187 Total Volume (gal)			89,093.50							
CSO189	10/27/2015 17:15	10/28/2015 9:00	19,334,701.36	0.656	3.38	5720325.85	1.471	24	Cloudburst	
CSO189	11/6/2015 3:15	11/6/2015 6:15	6,704,335.01	0.125	0.91	7367401.11	0.560	3	Atlas	
CSO189	11/9/2015 21:00	11/9/2015 21:45	26,767.77	0.031	0.65	41181.19	0.294	12	Atlas	
CSO189	11/12/2015 1:00	11/12/2015 1:45	391,452.47	0.031	0.29	1349836.09	0.167	3	Atlas	
CSO189	11/18/2015 9:15	11/18/2015 16:15	13,758,939.57	0.292	1.75	7862251.18	0.902	6	Atlas	
CSO189	12/1/2015 0:15	12/1/2015 5:15	961,466.01	0.208	0.51	1885227.47	0.234	12	Atlas	
CSO189	12/22/2015 0:15	12/22/2015 4:30	166,676.39	0.177	0.50	333352.78	0.192	24	Atlas	
CSO189	12/23/2015 19:00	12/24/2015 0:30	17,532,316.70	0.229	1.28	13697122.42	0.809	1	Atlas	
CSO189	12/26/2015 13:45	12/26/2015 15:15	890,831.66	0.063	0.42	2121027.75	0.193	12	Atlas	
CSO189	12/27/2015 10:15	12/27/2015 19:00	21,745,050.63	0.365	2.65	8205679.48	0.860	48	Atlas	
CSO189	12/28/2015 6:15	12/28/2015 7:00	226,287.12	0.031	2.65	85391.37	0.860	48	Atlas	
CSO189	12/28/2015 16:15	12/28/2015 21:30	2,899,726.76	0.219	2.65	1094236.51	0.860	48	Atlas	
CSO189 Events			12.00							
CSO189 Total Volume (gal)			84,638,551.44							
CSO190	10/2/2015 17:00	10/2/2015 22:15	24,419.01	0.219	0.54	45220.39	0.257	6	Atlas	
CSO190	10/12/2015 17:45	10/12/2015 19:15	21,510.83	0.063	0.35	61459.52	0.261	1	Atlas	
CSO190	10/24/2015 16:45	10/24/2015 18:15	6,892.94	0.063	0.31	22235.28	0.153	6	Atlas	
CSO190	10/27/2015 3:45	10/28/2015 17:45	2,050,496.42	1.583	2.99	685784.76	0.965	24	Atlas	
CSO190	11/6/2015 3:00	11/6/2015 9:15	1,068,909.79	0.260	0.80	1336137.24	0.487	3	Atlas	
CSO190	11/9/2015 17:00	11/9/2015 21:30	30,153.87	0.188	0.63	47863.28	0.284	12	Atlas	
CSO190	11/11/2015 23:45	11/12/2015 1:30	150,464.16	0.073	0.31	485368.27	0.180	3	Atlas	
CSO190	11/18/2015 8:30	11/18/2015 19:15	1,746,201.69	0.448	1.37	1274599.78	0.678	6	Atlas	
CSO190	11/28/2015 13:45	11/28/2015 17:30	5,979.99	0.156	0.66	9060.59	0.271	12	Atlas	
CSO190	11/30/2015 21:30	12/1/2015 6:45	251,677.37	0.385	0.63	399487.89	0.284	12	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO190	12/14/2015 4:45	12/14/2015 6:30	1,759.56	0.073	0.27	6516.90	0.148	6	Atlas	
CSO190	12/21/2015 10:45	12/21/2015 11:30	7,324.58	0.031	0.57	12850.15	0.219	24	Atlas	
CSO190	12/21/2015 23:45	12/22/2015 5:00	155,370.70	0.219	0.57	272580.17	0.219	24	Atlas	
CSO190	12/23/2015 19:15	12/23/2015 20:45	1,781,468.16	0.063	0.84	2120795.43	0.557	1	Atlas	
CSO190	12/25/2015 9:00	12/25/2015 9:00	3.55	0.000	0.13	27.32	0.060	6	Atlas	
CSO190	12/26/2015 12:00	12/26/2015 18:15	258,150.63	0.260	0.66	391137.32	0.307	3	Atlas	
CSO190	12/27/2015 9:45	12/28/2015 6:15	2,411,926.79	0.854	2.49	968645.30	0.808	48	Atlas	
CSO190	12/28/2015 16:00	12/28/2015 20:30	139,881.13	0.188	2.49	56177.16	0.808	48	Atlas	
CSO190 Events			18.00							
CSO190 Total Volume (gal)			10,112,591.18							
CSO191	10/27/2015 17:45	10/28/2015 8:00	695,618.36	0.594	3.43	202804.19	1.745	24	Cloudburst	
CSO191	11/6/2015 4:15	11/6/2015 4:30	70,298.87	0.010	1.01	69602.84	0.640	3	Atlas	
CSO191	11/18/2015 10:15	11/18/2015 10:15	3,954.31	0.000	1.83	2160.83	0.918	6	Atlas	
CSO191	12/23/2015 19:15	12/23/2015 20:45	714,961.48	0.063	0.91	785671.96	0.626	1	Atlas	
CSO191	12/27/2015 10:45	12/27/2015 10:45	402,570.88	0.000	2.80	143775.31	0.909	48	Atlas	
CSO191 Events			5.00							
CSO191 Total Volume (gal)			1,887,403.90							
CSO193	11/6/2015 3:45	11/6/2015 3:45	3,402.07	0.000	0.94	3619.23	0.587	3	Atlas	
CSO193	11/18/2015 10:45	11/18/2015 10:45	4,597.86	0.000	1.22	3768.74	0.607	6	Atlas	
CSO193	12/23/2015 19:30	12/23/2015 19:45	30,281.80	0.010	0.79	38331.40	0.626	1	Atlas	
CSO193	12/27/2015 10:45	12/27/2015 12:00	12,117.42	0.052	2.13	5688.93	0.747	3	Atlas	
CSO193 Events			4.00							
CSO193 Total Volume (gal)			50,399.16							
CSO195	10/12/2015 19:00	10/12/2015 19:00	144.38	0.000	0.26	555.29	0.173	3	Atlas	
CSO195	11/6/2015 3:00	11/6/2015 4:00	6,605.16	0.042	0.75	8806.87	0.467	3	Atlas	
CSO195	11/12/2015 0:30	11/12/2015 0:30	36.09	0.000	0.29	124.46	0.180	3	Atlas	
CSO195	11/18/2015 10:30	11/18/2015 13:30	6,749.53	0.125	1.22	5532.40	0.623	6	Atlas	
CSO195	12/22/2015 3:00	12/22/2015 3:00	505.31	0.000	0.50	1010.63	0.278	1	Atlas	
CSO195	12/23/2015 19:15	12/23/2015 20:00	3,753.75	0.031	0.77	4875.00	0.548	1	Atlas	
CSO195	12/27/2015 10:30	12/27/2015 13:15	10,250.62	0.115	1.91	5366.82	0.647	3	Atlas	
CSO195 Events			7.00							
CSO195 Total Volume (gal)			28,044.84							
CSO196	10/12/2015 19:15	10/12/2015 19:15	662.46	0.000	0.26	2547.92	0.173	3	Atlas	
CSO196	10/27/2015 18:00	10/27/2015 20:15	2,780.95	0.094	2.27	1225.09	0.746	24	Atlas	
CSO196	11/6/2015 3:00	11/6/2015 4:15	30,786.65	0.052	0.75	41048.86	0.467	3	Atlas	
CSO196	11/12/2015 0:45	11/12/2015 0:45	1,587.06	0.000	0.29	5472.63	0.180	3	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO196	11/18/2015 9:30	11/18/2015 13:45	35,983.54	0.177	1.22	29494.71	0.623	6	Atlas	
CSO196	11/30/2015 23:30	12/1/2015 3:45	3,773.83	0.177	0.77	4901.08	0.349	12	Atlas	
CSO196	12/22/2015 3:15	12/22/2015 3:15	2,425.82	0.000	0.50	4851.65	0.278	1	Atlas	
CSO196	12/23/2015 19:30	12/23/2015 20:15	56,641.55	0.031	0.77	73560.46	0.548	1	Atlas	
CSO196	12/26/2015 17:45	12/26/2015 17:45	982.02	0.000	0.37	2654.11	0.170	12	Atlas	
CSO196	12/27/2015 10:45	12/27/2015 13:30	77,270.70	0.115	1.91	40455.87	0.647	3	Atlas	
CSO196 Events			10.00							
CSO196 Total Volume (gal)			212,894.59							
CSO197	10/12/2015 19:00	10/12/2015 19:00	2,100.66	0.000	0.26	8079.45	0.173	3	Atlas	
CSO197	10/27/2015 18:00	10/28/2015 6:00	7,524.05	0.500	2.27	3314.56	0.746	24	Atlas	
CSO197	11/6/2015 3:00	11/6/2015 4:30	51,086.33	0.063	0.75	68115.10	0.467	3	Atlas	
CSO197	11/12/2015 0:00	11/12/2015 0:45	2,182.94	0.031	0.29	7527.37	0.180	3	Atlas	
CSO197	11/18/2015 9:00	11/18/2015 14:15	77,834.61	0.219	1.22	63798.86	0.623	6	Atlas	
CSO197	11/30/2015 21:45	12/1/2015 4:15	1,239.43	0.271	0.77	1609.65	0.349	12	Atlas	
CSO197	12/22/2015 3:00	12/22/2015 4:00	18,189.06	0.042	0.50	36378.12	0.278	1	Atlas	
CSO197	12/23/2015 19:15	12/23/2015 21:30	184,674.20	0.094	0.77	239836.62	0.548	1	Atlas	
CSO197	12/25/2015 9:00	12/25/2015 9:30	1,116.01	0.021	0.11	10145.55	0.060	3	Atlas	
CSO197	12/26/2015 11:45	12/26/2015 18:00	25,884.21	0.260	0.37	69957.32	0.170	12	Atlas	
CSO197	12/27/2015 10:00	12/28/2015 17:00	416,942.98	1.292	1.91	218294.76	0.647	3	Atlas	
CSO197 Events			11.00							
CSO197 Total Volume (gal)			788,774.47							
CSO199	10/27/2015 15:45	10/27/2015 15:45	6,039.58	0.000	2.27	2660.61	0.746	24	Atlas	
CSO199	11/6/2015 3:00	11/6/2015 4:15	11,315.45	0.052	0.75	15087.26	0.467	3	Atlas	
CSO199	11/18/2015 10:45	11/18/2015 13:45	8,560.01	0.125	1.22	7016.40	0.623	6	Atlas	
CSO199	12/22/2015 3:15	12/22/2015 3:15	789.10	0.000	0.50	1578.21	0.278	1	Atlas	
CSO199	12/23/2015 19:30	12/23/2015 20:15	23,273.80	0.031	0.77	30225.72	0.548	1	Atlas	
CSO199	12/25/2015 9:45	12/25/2015 9:45	7,305.77	0.000	0.11	66416.10	0.060	3	Atlas	
CSO199	12/27/2015 10:45	12/27/2015 13:45	24,250.49	0.125	1.91	12696.59	0.647	3	Atlas	
CSO199 Events			7.00							
CSO199 Total Volume (gal)			81,534.21							
CSO200	10/27/2015 19:45	10/27/2015 19:45	181.26	0.000	2.27	79.85	0.746	24	Atlas	
CSO200	11/6/2015 3:00	11/6/2015 4:00	10,543.16	0.042	0.75	14057.54	0.467	3	Atlas	
CSO200	11/18/2015 9:15	11/18/2015 13:30	15,822.77	0.177	1.22	12969.48	0.623	6	Atlas	
CSO200	11/30/2015 23:15	11/30/2015 23:15	10.63	0.000	0.77	13.80	0.349	12	Atlas	
CSO200	12/22/2015 3:00	12/22/2015 3:45	859.01	0.031	0.50	1718.02	0.278	1	Atlas	
CSO200	12/23/2015 19:15	12/23/2015 20:00	81,775.79	0.031	0.77	106202.33	0.548	1	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO200	12/27/2015 10:30	12/27/2015 13:30	34,158.74	0.125	1.91	17884.16	0.647	3	Atlas	
CSO200 Events			7.00							
CSO200 Total Volume (gal)			143,351.35							
CSO202	11/6/2015 8:30	11/6/2015 11:30	4,830.95	0.125	0.75	6441.26	0.467	3	Atlas	
CSO202	11/18/2015 10:45	11/18/2015 13:30	5,338.74	0.115	1.22	4376.02	0.623	6	Atlas	
CSO202	12/23/2015 19:30	12/23/2015 19:45	10,572.54	0.010	0.77	13730.57	0.548	1	Atlas	
CSO202	12/27/2015 10:45	12/27/2015 13:15	2,056.11	0.104	1.91	1076.50	0.647	3	Atlas	
CSO202 Events			4.00							
CSO202 Total Volume (gal)			22,798.34							
CSO203	10/2/2015 19:45	10/2/2015 23:15	3,290.14	0.146	0.64	5140.84	0.295	6	Atlas	
CSO203	10/27/2015 20:00	10/27/2015 20:15	724.85	0.010	2.27	319.32	0.746	24	Atlas	
CSO203	11/6/2015 4:00	11/6/2015 4:00	6,788.21	0.000	0.75	9050.94	0.467	3	Atlas	
CSO203	11/18/2015 11:00	11/18/2015 11:00	1,741.48	0.000	1.22	1427.44	0.623	6	Atlas	
CSO203	11/28/2015 16:45	11/29/2015 11:45	30,033.61	0.792	0.71	42300.87	0.289	12	Atlas	
CSO203	12/23/2015 19:30	12/23/2015 19:45	19,730.07	0.010	0.77	25623.47	0.548	1	Atlas	
CSO203	12/27/2015 10:45	12/27/2015 13:15	5,116.85	0.104	1.91	2678.98	0.647	3	Atlas	
CSO203 Events			7.00							
CSO203 Total Volume (gal)			67,425.22							
CSO205	11/6/2015 3:45	11/6/2015 3:45	145.41	0.000	0.71	204.80	0.433	3	Atlas	R
CSO205	11/18/2015 9:15	11/18/2015 13:45	3,344.42	0.188	1.48	2259.74	0.770	6	Atlas	
CSO205	12/1/2015 3:30	12/1/2015 3:30	217.54	0.000	0.71	306.40	0.321	12	Atlas	R
CSO205 Events			3.00							
CSO205 Total Volume (gal)			3,707.36							
CSO206	10/2/2015 17:15	10/2/2015 19:30	56,222.51	0.094	0.56	100397.34	0.273	6	Atlas	
CSO206	10/12/2015 18:15	10/12/2015 19:45	40,427.57	0.063	0.23	175772.03	0.153	3	Atlas	
CSO206	10/24/2015 19:45	10/24/2015 20:15	43,265.33	0.021	0.36	120181.46	0.164	6	Atlas	
CSO206	10/27/2015 11:15	10/28/2015 6:45	293,744.57	0.813	2.75	106816.21	0.893	48	Atlas	
CSO206	10/28/2015 22:30	10/28/2015 23:00	18,965.01	0.021	0.19	99815.85	0.104	1	Atlas	
CSO206	10/31/2015 23:15	10/31/2015 23:30	9,349.53	0.010	0.16	58434.57	0.100	3	Atlas	
CSO206	11/6/2015 3:00	11/6/2015 5:00	659,492.10	0.083	0.85	775873.06	0.520	3	Atlas	
CSO206	11/9/2015 19:45	11/9/2015 21:15	55,863.54	0.063	0.52	107429.89	0.234	12	Atlas	
CSO206	11/12/2015 0:00	11/12/2015 1:15	57,998.42	0.052	0.38	152627.42	0.247	3	Atlas	
CSO206	11/18/2015 8:45	11/18/2015 18:00	326,667.39	0.385	1.84	177536.63	0.951	6	Atlas	
CSO206	11/21/2015 15:00	11/21/2015 15:15	38,218.57	0.010	0.17	224815.12	0.139	1	Atlas	
CSO206	11/28/2015 12:15	11/28/2015 21:45	532,223.84	0.396	0.89	598004.31	0.289	12	Atlas	
CSO206	11/30/2015 22:15	12/1/2015 5:00	216,394.40	0.281	0.69	313615.07	0.312	12	Atlas	

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet
CSO206	12/14/2015 5:15	12/14/2015 7:45	66,842.87	0.104	0.30	222809.58	0.164	6	Atlas	
CSO206	12/21/2015 11:15	12/21/2015 11:45	14,081.74	0.021	0.74	19029.38	0.290	6	Atlas	
CSO206	12/21/2015 23:15	12/22/2015 4:30	273,187.61	0.219	0.74	369172.44	0.290	6	Atlas	
CSO206	12/23/2015 19:30	12/23/2015 19:45	2,904,135.63	0.010	0.86	3376901.89	0.652	1	Atlas	
CSO206	12/25/2015 9:15	12/25/2015 9:30	22,062.27	0.010	0.12	183852.22	0.067	3	Atlas	
CSO206	12/26/2015 11:15	12/26/2015 14:15	191,514.33	0.125	0.31	617788.18	0.147	3	Atlas	
CSO206	12/27/2015 10:30	12/28/2015 6:30	1,863,610.37	0.833	2.30	810265.38	0.747	48	Atlas	
CSO206 Events			20.00							
CSO206 Total Volume (gal)			7,684,267.60							
CSO207	12/23/2015 19:15	12/23/2015 19:15	15,599.93	0.000	0.72	21666.57	0.513	1	Atlas	
CSO207	12/27/2015 10:30	12/27/2015 10:30	24,167.76	0.000	2.10	11508.46	0.716	6	Atlas	
CSO207 Events			2.00							
CSO207 Total Volume (gal)			39,767.69							
CSO210	10/2/2015 19:15	10/2/2015 21:30	36,128.10	0.094	0.46	78539.36	0.211	12	Atlas	
CSO210	10/27/2015 15:30	10/28/2015 11:15	900,441.21	0.823	3.44	261756.16	1.843	24	Cloudburst	
CSO210	11/6/2015 3:15	11/6/2015 9:15	414,804.54	0.250	1.05	395051.95	0.647	3	Atlas	
CSO210	11/9/2015 20:15	11/10/2015 1:00	105,808.64	0.198	0.60	176347.73	0.275	12	Atlas	
CSO210	11/12/2015 1:15	11/12/2015 3:45	33,788.52	0.104	0.30	112628.41	0.173	3	Atlas	
CSO210	11/18/2015 10:00	11/18/2015 21:15	1,127,653.28	0.469	1.76	640712.09	0.891	6	Atlas	
CSO210	11/28/2015 15:15	11/28/2015 22:45	125,015.93	0.313	0.87	143696.47	0.271	12	Atlas	
CSO210	11/30/2015 22:00	12/1/2015 7:15	237,542.36	0.385	0.56	424182.79	0.252	12	Atlas	
CSO210	12/14/2015 8:15	12/14/2015 9:15	19,576.02	0.042	0.28	69914.36	0.148	6	Atlas	
CSO210	12/22/2015 1:00	12/22/2015 6:15	78,526.88	0.219	0.70	112181.26	0.269	24	Atlas	
CSO210	12/23/2015 19:15	12/24/2015 1:00	1,800,292.82	0.240	1.01	1782468.13	0.670	1	Atlas	
CSO210	12/26/2015 14:15	12/26/2015 20:00	114,708.02	0.240	0.58	197772.45	0.261	12	Atlas	
CSO210	12/27/2015 10:45	12/29/2015 0:15	3,044,266.16	1.563	2.53	1203267.26	0.821	48	Atlas	
CSO210 Events			13.00							
CSO210 Total Volume (gal)			8,038,552.47							
CSO211	11/18/2015 11:15	11/18/2015 11:15	5,208,333.50	0.000	1.76	2959280.40	0.891	6	Atlas	
CSO211	12/23/2015 19:45	12/23/2015 20:30	3,203,873.94	0.031	1.01	3172152.41	0.670	1	Atlas	
CSO211	12/27/2015 11:45	12/27/2015 12:15	5,559,464.95	0.021	2.53	2197416.98	0.821	48	Atlas	
CSO211 Events			3.00							
CSO211 Total Volume (gal)			13,971,672.39							
Grand Events			829.00							
Grand Total Volume (gal)			965,702,053.50							

CSO	Start Date-Time	End Date-Time	Total Volume (gal)	Duration (days)	Rain Total (Inch)	Volume per Inch	Frequency (yrs)	Period	Standard	SBRet

Note
R denotes events that were retained by the Sneads Branch Inflatable Dam and therefore did not reach the Waters of the US.

Appendix C – Acronyms

Appendix C - Acronyms for Project WIN Quarterly Report

AAM	Advanced Asset Management
AAOV	Annual Average Overflow Volume
ADAPS	Automated Data Processing System
BGC	Beargrass Creek
BMP	Best Management Practices
CCP	Composite Correction Plan
CD	Consent Decree
CMF	Central Maintenance Facility
CMMS	Computerized Maintenance Management System
CMOM	Capacity Management Operations and Maintenance
CPE	Comprehensive Performance Evaluations
CSO	Combined Sewer Overflow
CSS	Combined Sewer System
CSSA	Continuing Sewer System Assessment
DAP	Discharge Abetement Plan (DAP)
DMR	Discharge Monitoring Report
eB	Enterprise Bridge (Spescom scanning software for document management)
EMC	Event Mean Concentration
EPA	Environmental Protection Agency
ERP	Enforcement Response Plan
FM	Force Main
FOG	Fats, Oil & Grease
FPS	Flood Pump Station
FSE	Food Service Establishment
FY	Fiscal Year
GCE	Grease Control Equipment
GIS	Geographical Information System
GLPM	Gravity Line Preventive Maintenance
HMI	Human Machine Interface
I&FP	Infrastructure & Flood Protection (MSD Division)
ICA	Interceptor Condition Assessment
ID	Identification
I&I	Inflow and Infiltration
IMS	Information Management System
IOAP	Integrated Overflow Abatement Plan
ISSDP	Interim Sanitary Sewer Discharge Plan
IT	Information Technology
IWD	Industrial Waste Department
JCPS	Jefferson County Public Schools
KDEP	Kentucky Department of Environmental Protection
KPDES	Kentucky Pollutant Discharge Elimination System
KY	Kentucky
LE	Lateral Extension
LID	Low Impact Development
LIMS	Laboratory Information Management System
LTC	Long Term Control
LTCP	Long Term Control Plan
LOJIC	Louisville and Jefferson County Information Consortium
MDS	Main Diversion Structure
MEB	Main Equipment Building

Appendix C - Acronyms for Project WIN Quarterly Report

MFWTP	Morris Forman Wastewater Treatment Plant
MG	Million Gallons
MGD	Million Gallons Per Day
MLK	Martin Luther King
MO	Metro Operations
MOA	Memorandum of Agreement
MOR	Monthly Operating Report
MOU	Memorandum of Understanding
MSD	Metropolitan Sewer District (Louisville and Jefferson County)
NDD	Non-Domestic Dischargers
NMC	Nine Minimum Controls
NPR	National Public Radio
ORSANCO	Ohio River Valley Water Sanitation Commission
PACP	Pipeline Assessment and Certification Program
PCM	Post Construction Monitoring
PI	Plant Information System
PM	Preventive Maintenance
POC	Pollutants of Concern
PP	Pumping Package
PS	Pump Station
PSC	Property Service Connection
RDII	Rainfall-Derived Infiltration and Inflow
RS	Regulatory Services
RTC	Real Time Control
SCADA	Supervisory Control And Data Acquisition
SCAP	System Capacity Assurance Plan
SIU	Significant Industrial User
SOP	Standard Operating Procedure
SORP	Sewer Overflow Response Protocol
SSDP	Sanitary Sewer Discharge Plan
SSES	Sanitary Sewer Evaluation Study
SSO	Sanitary Sewer Overflow
SSOP	Sanitary Sewer Overflow Plan
SWOR2	Southwestern Outfall Relief - Phase 2
SWPS	Southwestern Pump Station
TM	Technical Memorandum
TMDL	Total Maximum Daily Load
TV	Television
UIM	Utility Information Management
UK	University of Kentucky
USACE	US Army Corps of Engineers
USF&W	United States Fish and Wildlife
USGS	United States Geological Survey
WDR	Wastewater Discharge Regulators
WIN	Waterway Improvements Now
WQT	Water Quality Tool
WQTC	Water Quality Treatment Center
WW	Wet Weather
WWT	Wet Weather Team

Appendix D – SCAP Balance

msd
Safe, clean waterways

Capacity Credit Balance Sheet per Credit Basin

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
CCREEK						
235533	CEDAR CK IFP WORK AUG05-NOV08	SCAPCREDIT		11/1/08	6,521	6,521
236380	FAIRMOUNT ROAD MH REHAB	SCAPCREDIT		6/5/09	10,734	17,255
362688	CCRK IFP ACTIVITY NOV08-MAY12	SCAPCREDIT		5/1/12	2,161	19,416
362689	CCRK IFP ACTIVITY JUN12-AUG12	SCAPCREDIT		8/31/12	2,047	21,463
320989	LITTLE CEDAR CREEK I/I REHABIL	SCAPCREDIT		9/27/12	652,907	674,370
263934	ST JAMES CROSSINGS	LAT EXT	9,000	11/30/12	-19,575	654,795
196927	SONIC SPRINGS	LAT EXT	3,600	12/5/12	-7,830	646,965
14SC1000	FY13 IFP ACTIVITY FIRST HALF - CEDAR CREEK	SCAPCREDIT		12/31/13	2,048	649,013
13LE1155	RAISING CANE'S CEDARLOOK DRIVE	LAT EXT	1,175	5/23/14	-2,556	646,457
239030	POPLAR LAKES PH 1	LAT EXT	18,000	1/26/15	-39,150	607,307
13LE1003	Bardstown Woods Sec 6	LAT EXT	5,200	5/26/15	-11,310	595,997
LE916330	Altawood Development	LAT EXT	1,600	9/14/15	-3,480	592,517
FFORK						
235557	FLOYDSFRK IFP WORK AUG05-NOV08	SCAPCREDIT		11/1/08	14,540	14,540
362638	FY09 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/08	1	14,541
362647	FY09 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/09	4	14,545
362651	FY10 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/09	524	15,069
230379	SHAKES RUN SECTION 4	LAT EXT	3,770	1/5/10	-8,200	6,869
362655	FY10 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/10	81	6,950
362661	FY11 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/10	14,155	21,105
362669	FY11 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/11	22,707	43,812
242480	CLAIBOURNE CROSSINGS PHASE 2	LAT EXT	0	10/17/11	0	43,812
359320	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	4,000	47,812

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
362674	FY12 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/11	2	47,814
362678	FY12 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/12	331	48,145
332823	SINGLE FAMILY HOME	LAT EXT	400	7/13/12	-870	47,275
315945	BROOKFIELD SEC 3	LAT EXT	12,800	10/26/12	-27,840	19,435
361689	LAKE FOREST REHAB PH1	SCAPCREDIT		12/18/12	174,769	194,204
362683	FY13 IFP ACTIVITY FIRST HALF - FFORK	SCAPCREDIT		12/31/12	3	194,207
331397	BROOKFIELD SEC 2A	LAT EXT	14,400	5/8/13	-31,320	162,887
13LE1062	SPEEDWAY #9451	LAT EXT	540	2/18/15	-1,175	161,713
LE941673	Locust Creek Section 8B	LAT EXT	2,000	1/7/16	-4,350	157,363
HCREEK						
235561	HITE CK IFP WORK AUG05-NOV08	SCAPCREDIT		11/1/08	6,404	6,404
362641	FY09 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/08	2	6,406
362648	FY09 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/09	8	6,414
362652	FY10 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/09	8	6,422
362657	FY10 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/10	329	6,751
295322	FLOYDSBURG RD I/I INVEST/REHAB	SCAPCREDIT		12/17/10	28,437	35,188
320906	FLOYDSBURG ROAD I/I REHABILITA	SCAPCREDIT		12/17/10	28,437	63,625
362662	FY11 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/10	3	63,628
362670	FY11 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/11	5	63,633
246638	CHAPMAN COURT S/S	LAT EXT	800	9/28/11	-1,740	61,893
362675	FY12 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/11	332	62,225
362679	FY12 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/12	5,002	67,227
290181	CAMDEN WOOD APARTMENTS	LAT EXT	12,400	8/31/12	-26,970	40,257
304536	MAGNOLIA SPRINGS EAST PRIV P/S	LAT EXT	9,500	12/1/12	-20,663	19,595
335610	ROCK SPRINGS FARM SEC 4B	LAT EXT	6,400	12/7/12	-13,920	5,675

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
362684	FY13 IFP ACTIVITY FIRST HALF - HCREEK	SCAPCREDIT		12/31/12	3	5,678
JTOWN						
235563	J-TOWN IFP WORK AUG05-NOV08	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
337261	SINGLE FAMILY 2909 PELHAM CT	LAT EXT	400	5/28/13	-870	1,005,344
13LE1010	SWOPE HR & TRAINING BLDG	LAT EXT	400	6/28/13	-870	1,004,474
13LE1092	BALE EQUIPMENT	LAT EXT	450	10/25/13	-979	1,003,495
14SC1002	FY13 IFP ACTIVITY FIRST HALF - JEFFERSONTC	SCAPCREDIT		12/31/13	3,458	1,006,953
13LE1098	UNIPAK	LAT EXT	720	2/27/14	-1,566	1,005,387
LE924043	Bluegrass Indoor Carting	LAT EXT	400	5/1/14	-870	1,004,517
13LE1067	PARK COMMUNITY	LAT EXT	2,220	12/31/14	-4,829	999,688
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	MILL CK IFP WORK AUG05-NOV08	SCAPCREDIT		11/1/08	51,530	87,530
359382	CALENDAR 2008 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/08	16,000	103,530
362642	FY09 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/08	93	103,623
362649	FY09 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/09	1,507	105,130
236614	DEVEROES	LAT EXT	960	9/9/09	-2,088	103,042
362653	FY10 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/09	25,272	128,314
359383	CALENDAR 2009 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/09	32,000	160,314

Capacity Credit Balance Sheet per Credit Basin

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
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	FY10 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/10	6,213	160,916
259408	FAMILY DOLLAR 5105 DIXIE	LAT EXT	1,200	7/2/10	-2,610	158,306
264294	SAINT PETER THE APOSTLE CATHOL	LAT EXT	2,000	7/23/10	-4,350	153,956
276215	FAMILY DOLLAR - KRISTIN WAY	LAT EXT	400	10/12/10	-870	153,086
362664	FY11 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/10	22,740	175,826
359384	CALENDAR 2010 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/10	4,000	179,826
359325	CALENDAR 2010 SUMP PUMP CREDIT	SCAPCREDIT		12/31/10	8,000	187,826
320916	SONNE AVE PS REHABILITATION -	SCAPCREDIT		6/30/11	120,800	308,626
362671	FY11 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/11	11,615	320,241
299399	FAMILY DOLLAR - GREENWOOD RD	LAT EXT	800	10/4/11	-1,740	318,501
309018	PRP PERFORMING ARTS ADDITION	LAT EXT	1,134	11/9/11	-2,466	316,034
359385	CALENDAR 2011 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/11	12,000	328,034
362676	FY12 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/11	3,245	331,279
359326	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	12,000	343,279
318096	CRACKER BARREL OLD COUNTRY	LAT EXT	6,000	1/19/12	-13,050	330,229
262545	DIXIE MANOR SHOPPING CENTER	LAT EXT	965	5/21/12	-2,099	328,130
300374	FORT KNOX FEDERAL CREDIT UNION	LAT EXT	400	6/26/12	-870	327,260
362680	FY12 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/12	2,807	330,067
361693	FY12 MILL CREEK REHAB	SCAPCREDIT		6/30/12	81,675	411,742
231800	PIONEER MOBILE HOME PARK	LAT EXT	11,200	7/24/12	-24,360	387,382
237457	WAVERLY HILLS	LAT EXT	400	9/18/12	-870	386,512
341883	NHK SPRING PRECISION	LAT EXT	17,800	10/19/12	-38,715	347,797
334997	BEECHLAND BAPTIST CHURCH	LAT EXT	2,715	12/5/12	-5,905	341,892
359327	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	148,000	489,892

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
362685	FY13 IFP ACTIVITY FIRST HALF - MCREEK	SCAPCREDIT		12/31/12	3,458	493,350
359386	CALENDAR 2012 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/12	4,000	497,350
343763	SOUTHEAST CHRISTIAN CHURCH SW	LAT EXT	6,000	1/18/13	-13,050	484,300
224875	ASHBY GREEN APARTMENT HOMES	LAT EXT	36,400	3/20/13	-79,170	405,130
265944	RIVERPORT PHASE 4A - MICHELIN	LAT EXT	400	6/6/13	-870	404,260
314887	DAYTON FREIGHT	LAT EXT	1,200	9/10/13	-2,610	401,650
13LE1014	LOUISVILLE FREE PUBLIC LIBRARY SOUTHWES	LAT EXT	8,200	9/26/13	-17,835	383,815
357140	FAMILY DOLLAR CANE RUN ROAD	LAT EXT	832	10/3/13	-1,810	382,005
13LE1171	SINGLE FAMILY HOME 3700 ROMANIA DR	LAT EXT	400	1/29/14	-870	381,135
LE937142	ZAXBYS DIXIE HWY	LAT EXT	924	8/10/15	-2,010	379,126
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	MID FORK IFP WORK AUG05-NOV08	SCAPCREDIT		11/1/08	43,779	147,779
359329	CALENDAR 2008 SUMP PUMP CREDIT	SCAPCREDIT		12/31/08	8,000	155,779
236517	ANCHOR ESTATES MH REHAB	SCAPCREDIT		1/16/09	15,552	171,331
217235	SINKING FORK ICA PHASE I REHAB	SCAPCREDIT		3/30/09	437,967	609,298
235376	MIDDLE FORK INT REHAB PH1	SCAPCREDIT		5/15/09	487,744	1,097,042
179246	SHADY GLEN OF LYNDON PERSONAL	LAT EXT	-500	5/26/09	1,088	1,098,130
250572	1316 WITAWANGA AVE	LAT EXT	400	11/4/09	-870	1,097,260
359331	CALENDAR 2009 SUMP PUMP CREDIT	SCAPCREDIT		12/31/09	24,000	1,121,260
359401	CALENDAR 2009 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/09	4,000	1,125,260
197432	ALMOST HOME KENNELS - ALL PET	LAT EXT	3,700	3/16/10	-8,048	1,117,212
260064	OXMOOR GOLF FRONT 9	LAT EXT	400	4/15/10	-870	1,116,342
260065	OXMOOR GOLF BACK 9	LAT EXT	400	4/15/10	-870	1,115,472

Capacity Credit Balance Sheet per Credit Basin

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
229834	THE BROOK HOS- DUPONT ADDITION	LAT EXT	1,763	4/27/10	-3,835	1,111,637
265723	Z-XPRESS CAR WASH	LAT EXT	5,449	7/2/10	-11,852	1,099,786
255793	HERR LANE APARTMENTS - 4 PLEX	LAT EXT	1,200	7/14/10	-2,610	1,097,176
255792	HERR LANE APARTMENTS - 8 PLEX	LAT EXT	2,400	7/14/10	-5,220	1,091,956
274303	FARM CREDIT SERVICES	LAT EXT	525	9/9/10	-1,142	1,090,814
278015	METROPOLITAN UROLOGY	LAT EXT	400	12/15/10	-870	1,089,944
359402	CALENDAR 2010 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/10	8,000	1,097,944
359333	CALENDAR 2010 SUMP PUMP CREDIT	SCAPCREDIT		12/31/10	12,000	1,109,944
285637	SHELBYHURST OFFICE BUILDING 1	LAT EXT	6,600	1/20/11	-14,355	1,095,589
313465	DORSEY POINTE/CODOMINIUMS 8-13	LAT EXT	2,400	1/27/11	-5,220	1,090,369
291263	BROWNS LANE BUILDING	LAT EXT	400	4/14/11	-870	1,089,499
293400	FOUR PLEX APARTMENTS	LAT EXT	1,200	6/14/11	-2,610	1,086,889
330019	FY11 ANCHOR ESTATES REHAB	SCAPCREDIT		8/11/11	1,359	1,088,248
310046	EL NAPEL - MCMAHAN CENTER	LAT EXT	3,100	10/31/11	-6,743	1,081,506
314591	CHOCOLATE MARTINI BAR/REST	LAT EXT	3,275	11/29/11	-7,123	1,074,382
320983	HURSTBOURNE I/I INVESTIGATION	SCAPCREDIT		12/27/11	1,408,279	2,482,661
359335	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	16,000	2,498,661
321228	SINGLE FAMILY UNIT	LAT EXT	400	2/15/12	-870	2,497,791
321647	SINGLE FAMILY	LAT EXT	400	3/27/12	-870	2,496,921
328074	SINGLE FAMILY-703 FOUNTAIN AVE	LAT EXT	400	6/22/12	-870	2,496,051
193195	CEDAR LAKE LODGE WASHBURN	LAT EXT	1,900	8/20/12	-4,133	2,491,919
320923	ST MATTHEWS I/I REHABILITATION	SCAPCREDIT		8/23/12	20,841	2,512,760
337796	CHAMPPS	LAT EXT	635	9/5/12	-1,381	2,511,379
347126	ADVANCE PRODUCTION SYSTEMS	LAT EXT	400	12/28/12	-870	2,510,509
359336	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	92,000	2,602,509
339367	BAPTIST RADIATION ONCOLOGY	LAT EXT	1,500	1/4/13	-3,263	2,599,246

Capacity Credit Balance Sheet per Credit Basin

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
340778	PANDA RESTAURANT	LAT EXT	1,725	1/16/13	-3,752	2,595,494
349044	BLAIRWOOD POOL ADDITION	LAT EXT	400	1/29/13	-870	2,594,624
328659	SINGLE FAMILY HOME - 6911 AMBR	LAT EXT	400	2/4/13	-870	2,593,754
352805	POOL HOUSE 9213 REIGATE COURT	LAT EXT	200	2/20/13	-435	2,593,319
14LE1001	MIRANDA LAGRANGE RD	LAT EXT	400	3/19/13	-870	2,592,449
350246	SINGLE FAMILY - 218 BLISS AVE	LAT EXT	400	3/20/13	-870	2,591,579
349974	SINGLE FAMILY 205 N WATTERSON	LAT EXT	400	3/26/13	-870	2,590,709
342433	SHELBYHURST 700 OFFICE BLDG	LAT EXT	7,500	4/15/13	-16,313	2,574,397
350340	JARED THE GALLERY OF JEWELRY	LAT EXT	770	4/16/13	-1,675	2,572,722
13LE1009	Single family 11716 Wetherby Ave	LAT EXT	400	6/7/13	-870	2,571,852
13SC1000	FY14 STARVIEW REHABILITATION	SCAPCREDIT		6/30/13	14,183	2,586,035
13LE1001	Single Family 835 Fountain Ave	LAT EXT	400	8/28/13	-870	2,585,165
355162	PROPOSED RESTAURANT	LAT EXT	7,540	9/10/13	-16,400	2,568,766
13LE1045	SINGLE FAMILY 8325 WHIPPS MILL RD	LAT EXT	400	9/30/13	-870	2,567,896
319292	WATERMARK ON HURSTBOURNE	LAT EXT	71,600	10/22/13	-155,730	2,412,166
331542	DENTAL/MEDICAL OFFICE BLDG	LAT EXT	400	10/28/13	-870	2,411,296
13LE1128	SINGLE FAMILY HOME 1327 ETAWAH AVE	LAT EXT	400	11/5/13	-870	2,410,426
13LE1144	SINGLE FAMILY 1329 ETAWAH AVE	LAT EXT	400	11/5/13	-870	2,409,556
13LE1165	SINGLE FAMILY 8504 LORE LANE	LAT EXT	400	11/25/13	-870	2,408,686
13LE1146	CITY OF ST MATTHEWS COMMUNITY CTR PARI	LAT EXT	1,500	11/26/13	-3,263	2,405,423
13LE1099	NICKLIES - ST MATTHEWS	LAT EXT	1,920	12/11/13	-4,176	2,401,247
353963	DORSEY COMMONS TRACTS 1.2.3	LAT EXT	4,335	12/18/13	-9,429	2,391,819
14SC1003	FY13 IFP ACTIVITY FIRST HALF - MIDDLE FORK	SCAPCREDIT		12/31/13	3,230	2,395,049
352026	MCMAHAN PLAZA PHASE II BLDG B	LAT EXT	766	12/31/13	-1,666	2,393,382
13LE1117	THE VININGS	LAT EXT	850	4/10/14	-1,849	2,391,534
14LE1021	KODA KENTUCKY ORGAN DONOR AFFILIATES	LAT EXT	400	6/18/14	-870	2,390,664

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
14LE1128	WALDORF SCHOOL OF LOUISVILLE	LAT EXT	400	6/30/14	-870	2,389,794
NDITCH						
359404	CALENDAR 2007 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/07	28,000	28,000
235569	N.DITCH IFP WORK AUG05-NOV08	SCAPCREDIT		11/1/08	11,147	39,147
236363	NORTHERN DITCH INT REHAB PH1	SCAPCREDIT		11/25/08	108,760	147,907
359339	CALENDAR 2009 SUMP PUMP CREDIT	SCAPCREDIT		12/31/09	4,000	151,907
234678	THE LIGHTHOUSE PROMISE COMPLEX	LAT EXT	2,825	3/5/10	-6,144	145,763
284728	SUBWAY - NEW CUT RD	LAT EXT	1,314	12/21/10	-2,858	142,905
359340	CALENDAR 2010 SUMP PUMP CREDIT	SCAPCREDIT		12/31/10	4,000	146,905
320908	PARKVIEW ESTATES REHABILITATIO	SCAPCREDIT		6/28/11	36	146,941
312810	WILLOW PLACE APT COMMUNITY CEN	LAT EXT	400	11/11/11	-870	146,071
359341	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	24,000	170,071
359405	CALENDAR 2011 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/11	12,000	182,071
315723	JCPS EARLY CHILDHOOD DEVELOP	LAT EXT	6,000	1/26/12	-13,050	169,021
312057	DOLLAR GENERAL - MEDALLION CT	LAT EXT	400	3/21/12	-870	168,151
312659	KROGER L-350 FUEL STATION	LAT EXT	400	8/20/12	-870	167,281
359343	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	24,000	191,281
13LE1147	CARLON ROOFING	LAT EXT	992	12/5/13	-2,158	189,123
13LE1126	JENNINGS CROSSING TRACT 3	LAT EXT	2,100	12/12/13	-4,568	184,556
14SC1004	FY13 IFP ACTIVITY FIRST HALF - NORTHERN DI	SCAPCREDIT		12/31/13	329	184,885
LE947316	Heimbrock I	LAT EXT	400	8/14/15	-870	184,015
LE947318	Heimbrock II	LAT EXT	400	8/14/15	-870	183,145
ORFM						
359433	CALENDAR 2007 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/07	56,000	56,000

Capacity Credit Balance Sheet per Credit Basin

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
359344	CALENDAR 2007 SUMP PUMP CREDIT	SCAPCREDIT		12/31/07	4,000	60,000
235572	ORFM IFP WORK AUG05-NOV08	SCAPCREDIT		11/1/08	19,826	79,826
362643	FY09 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/08	2	79,828
362650	FY09 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/09	3,836	83,664
362654	FY10 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/09	7,322	90,986
263548	SINGLE FAMILY CONNECTION	LAT EXT	400	5/18/10	-870	90,116
213488	NORTHEAST CHRISTIAN CHURCH	LAT EXT	10,000	6/28/10	-21,750	68,366
362660	FY10 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/10	6,630	74,996
362665	FY11 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/10	165	75,161
362672	FY11 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/11	4,124	79,285
280837	SPRINGHURST TOWNE CTR LOT C	LAT EXT	400	9/20/11	-870	78,415
320920	SHADOW WOOD I/I REHABILITATION	SCAPCREDIT		9/30/11	14,279	92,694
311412	SPRINGHURST CHEVROLET	LAT EXT	855	10/14/11	-1,860	90,834
359345	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	16,000	106,834
359434	CALENDAR 2011 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/11	16,000	122,834
362677	FY12 IFP ACTIVITY FIRST HALF	SCAPCREDIT		12/31/11	7,258	130,092
320921	DERINGTON COURT I/I REHABILITA	SCAPCREDIT		3/1/12	56,208	186,300
187028	GLENVIEW PARK SUBD SECTION 1	LAT EXT	4,400	3/5/12	-9,570	176,730
213450	GLENVIEW PARK SUB. SEC 2	LAT EXT	5,600	3/5/12	-12,180	164,550
322455	FIRST LADY NAILS	LAT EXT	400	3/12/12	-870	163,680
362681	FY12 IFP ACTIVITY SECOND HALF	SCAPCREDIT		6/30/12	18,220	181,900
292239	SPRINGHURST RESTAURANT/ RETAIL	LAT EXT	3,440	7/5/12	-7,482	174,418
323821	TIRE DISCOUNTERS WESTPORT RD	LAT EXT	400	12/11/12	-870	173,548
363238	FY13 PROSPECT MANHOLE REHAB	SCAPCREDIT		12/18/12	72,703	246,251
341319	RAISING CANES RETAIL CENTER	LAT EXT	1,225	12/18/12	-2,664	243,587
359346	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	24,000	267,587

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
363235	FY13 MUDDY FORK MH REHAB	SCAPCREDIT		12/31/12	41,653	309,240
362686	FY13 IFP ACTIVITY FIRST HALF - ORFM	SCAPCREDIT		12/31/12	1,148	310,388
360262	SINGLE FAMILY 3419 HILLVALE RD	LAT EXT	400	5/13/13	-870	309,518
343729	RETAIL & RESTAURANT	LAT EXT	3,500	6/21/13	-7,613	301,906
334154	GLENVIEW PARK SUBD SEC 4	LAT EXT	3,600	11/7/13	-7,830	294,076
13LE1024	Overlook at Beech Spring Farm Sec 4	LAT EXT	5,600	12/31/13	-12,180	281,896
199896	SPRINGDALE OFFICE BUILDING	LAT EXT	4,210	3/11/14	-9,157	272,739
225863	SPRING FARM LAKES SEC 1	LAT EXT	4,800	5/16/14	-10,440	262,299
177756	SUMMIT GARDENS PHASE 1	LAT EXT	32,000	9/22/14	-69,600	192,699
14LE1121	Riverside Sewer Extension	LAT EXT	1,200	11/10/14	-2,610	190,089
13LE1071	SPRING FARM LAKE SEC 2	LAT EXT	6,000	1/16/15	-13,050	177,039
352634	BAUER PROPERTY	LAT EXT	2,920	2/12/15	-6,351	170,688
LE929244	Summit Gardens Phase 2	LAT EXT	18,000	10/21/15	-39,150	131,538
LE938166	Spring Farm Lake Section 3	LAT EXT	3,200	12/14/15	-6,960	124,578
PCREEK						
235574	POND CRK IFP WORK AUG05-NOV08	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
359439	CALENDAR 2009 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/09	12,000	91,782
359348	CALENDAR 2009 SUMP PUMP CREDIT	SCAPCREDIT		12/31/09	4,000	95,782
192513	BANNON CROSSINGS SECTION 3A-1	LAT EXT	800	2/17/10	-1,740	94,042
261115	EMERGENCY RESTORATION	LAT EXT	400	4/27/10	-870	93,172
276977	DADISMAN BUILDERS-POPLAR TREE	LAT EXT	400	10/13/10	-870	92,302
266833	THORNTONS @ PRESTON HWY	LAT EXT	400	12/1/10	-870	91,432
280751	NOTTINGTON HILLS SEC 1	LAT EXT	4,400	12/29/10	-9,570	81,862

Capacity Credit Balance Sheet per Credit Basin

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
359350	CALENDAR 2010 SUMP PUMP CREDIT	SCAPCREDIT		12/31/10	12,000	93,862
187739	GLENGARRY INDUSTRIAL PARK	LAT EXT	4,300	1/13/11	-9,353	84,510
277777	TIRE DISCOUNTERS - BOERSTE WAY	LAT EXT	2,960	3/21/11	-6,438	78,072
304408	UPS SUPPLY CHAIN SOLUTIONS #7	LAT EXT	2,250	9/14/11	-4,894	73,178
320918	EDSEL I/I REHABILITATION - FY1	SCAPCREDIT		9/27/11	106,700	179,878
313444	PLANET FITNESS - JEFF BLVD	LAT EXT	1,600	11/4/11	-3,480	176,398
312391	LONGHORN STEAKHOUSE RESTAURANT	LAT EXT	4,840	11/29/11	-10,527	165,871
320919	LANTANA I/I REHABILITATION - F	SCAPCREDIT		12/29/11	5,000	170,871
359351	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	20,000	190,871
310845	ZAXBY'S RESTAURANT	LAT EXT	3,750	2/28/12	-8,156	182,715
255044	ISA-RECYCLING CENTER	LAT EXT	400	3/13/12	-870	181,845
312814	MILLER TRANSPORTATION	LAT EXT	1,800	3/19/12	-3,915	177,930
324554	NORTONS TEMPORARY OFFICE	LAT EXT	900	4/16/12	-1,958	175,972
234102	ETHOS AT VALLEY FARM SR LIVING	LAT EXT	7,050	6/19/12	-15,334	160,638
322367	SHEPHERDS CARE MEMORY HOME	LAT EXT	2,000	6/21/12	-4,350	156,288
307332	LOUISVILLE INDUSTRIAL BLDG B	LAT EXT	2,520	8/6/12	-5,481	150,807
279860	BANNON CROSSINGS SEC 3B-2	LAT EXT	9,600	8/10/12	-20,880	129,927
312053	DOLLAR GENERAL - CLEARWATER FA	LAT EXT	400	8/13/12	-870	129,057
343455	SINGLE FAMILY 1812 GREYLING DR	LAT EXT	400	10/12/12	-870	128,187
243109	OVERBROOK APARTMENTS	LAT EXT	41,200	11/9/12	-89,610	38,577
359354	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	56,000	94,577
329624	COPART	LAT EXT	400	2/20/13	-870	93,707
346082	ZAXBYS	LAT EXT	2,065	5/2/13	-4,491	89,216
320924	LEA ANN WAY INTERCEPTOR I&I RE	SCAPCREDIT		6/30/13	1,017,423	1,106,639
335385	HARRISON LOW PRESSURE S/S	LAT EXT	1,600	7/2/13	-3,480	1,103,159
320940	4 RESIDENCE SFU 7821 MANSLICK	LAT EXT	400	8/16/13	-870	1,102,289

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
361336	RENAISSANCE SOUTH BUSINESS	LAT EXT	540	9/6/13	-1,175	1,101,114
324886	PNC BANK	LAT EXT	400	9/6/13	-870	1,100,244
13LE1083	SINGLE FAMILY HOME 5402 (H) E MANSLICK RD	LAT EXT	400	9/26/13	-870	1,099,374
353125	PEGASUS TRANSPORTATION	LAT EXT	250	12/9/13	-544	1,098,831
341439	PRESTON GARDENS APTS	LAT EXT	22,200	12/10/13	-48,285	1,050,546
308206	APPLEGATE FARMS	LAT EXT	57,200	12/10/13	-124,410	926,136
14SC1005	FY13 IFP ACTIVITY FIRST HALF - POND CREEK	SCAPCREDIT		12/31/13	21,344	947,480
13LE1179	TIMBERBEND SUBDIVISION SEC 5B	LAT EXT	6,400	2/14/14	-13,920	933,560
13LE1035	RENAISSANCE SOUTH BUSINESS PARK TRACT	LAT EXT	5,415	4/10/14	-11,778	921,782
13LE1115	VERIZON-OUTER LOOP	LAT EXT	400	4/22/14	-870	920,912
348014	ASHTON PARK TOWN HOMES	LAT EXT	9,000	4/24/14	-19,575	901,337
280180	LOUISVILLE INDUSTRIAL CTR F	LAT EXT	2,480	5/16/14	-5,394	895,943
14LE1085	Williams Properties - Self Storage Facility	LAT EXT	400	5/28/14	-870	895,073
13LE1034	6300 GEIL LANE WAREHOUSE	LAT EXT	720	6/9/14	-1,566	893,507
284215	HURSTBOURNE POINTE APTS	LAT EXT	9,600	7/7/14	-20,880	872,627
344230	AUSTIN PARK APARTMENTS PH6	LAT EXT	27,600	8/25/14	-60,030	812,597
13LE1105	JEFFERSON COMMONS	LAT EXT	17,075	11/13/14	-37,138	775,459
13LE1017	APEX ON PRESTON APT HOMES(Formally CITYS	LAT EXT	84,400	1/13/15	-183,570	591,889
354207	COOPER FARMS SEC 11B	LAT EXT	12,400	4/29/15	-26,970	564,919
354209	COOPER FARMS SEC 11A	LAT EXT	13,200	4/29/15	-28,710	536,209
LE948692	Jim's Express Wash	LAT EXT	10,500	7/28/15	-22,838	513,371
LE951121	Allgeier Site	LAT EXT	400	8/7/15	-870	512,501
13LE1086	WOODS OF PENN RUN OFFSITE SS	LAT EXT	1,000	8/25/15	-2,175	510,326
13LE1140	JEFFERSON POST APARTMENTS	LAT EXT	28,800	10/2/15	-62,640	447,686
14LE1116	CATALPA SPRINGS	LAT EXT	2,800	12/30/15	-6,090	441,596
SC939830	Lea Ann Way West Quad 1 & 2 Rehabilitation Proje	SCAPCREDIT		12/31/15	445,911	887,507

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
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	SE DIV IFP WORK AUG05-NOV08	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
229854	TINY HANDS DAYCARE	LAT EXT	1,225	10/20/09	-2,664	662,304
359357	CALENDAR 2009 SUMP PUMP CREDIT	SCAPCREDIT		12/31/09	12,000	674,304
359443	CALENDAR 2009 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/09	8,000	682,304
235291	SULLIVAN COLLEGE OF TECHNOLOGY	LAT EXT	900	2/11/10	-1,958	680,346
238328	LOUISVILLE COLLEGIATE SPORTS	LAT EXT	400	3/1/10	-870	679,476
241759	FRISCHS BIG BOY RESTAURANT	LAT EXT	2,400	3/5/10	-5,220	674,256
257275	LOUISVILLE JUNIOR ACADEMY	LAT EXT	520	4/16/10	-1,131	673,125
320993	BEARGRASS CREEK PHASE II - FY1	SCAPCREDIT		12/14/10	10,368	683,493
359358	CALENDAR 2010 SUMP PUMP CREDIT	SCAPCREDIT		12/31/10	4,000	687,493
359444	CALENDAR 2010 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/10	24,000	711,493
286513	GARDINER POINT RESIDENCE HALL	LAT EXT	10,800	2/16/11	-23,490	688,003
276378	TIRE DISCOUNTERS - BARDSTOWN	LAT EXT	1,500	5/6/11	-3,263	684,741
287888	BEVERAGE WAREHOUSE	LAT EXT	1,180	5/30/11	-2,567	682,174
296295	KEN TOWERY -3800 S HURSTBOURNE	LAT EXT	400	7/1/11	-870	681,304
359445	CALENDAR 2011 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/11	8,000	689,304
359359	CALENDAR 2011 SUMP PUMP CREDIT	SCAPCREDIT		12/31/11	64,000	753,304
307018	HOOK PROPERTY FAMILY DOLLAR	LAT EXT	400	8/10/12	-870	752,434

Capacity Credit Balance Sheet per Credit Basin

APNO	APNAME	APTYPE	FLOW	Release Date	Approved Credit Required/ Flow Reduction	Running Total
359361	CALENDAR 2012 SUMP PUMP CREDIT	SCAPCREDIT		12/31/12	68,000	820,434
359446	CALENDAR 2012 DOWNSPOUT CREDIT	SCAPCREDIT		12/31/12	4,000	824,434
187741	BROOKSTONE SENIOR APARTMENTS	LAT EXT	16,800	3/11/13	-36,540	787,894
232601	RAINTREE/MARIAN CT P/S ELIM	LAT EXT	105,800	6/14/13	-230,115	557,779
330437	COLLEGIATE ATHLETIC FIELD	LAT EXT	800	11/26/13	-1,740	556,039
14SC1006	FY13 IFP ACTIVITY FIRST HALF - SE DIVERSION	SCAPCREDIT		12/31/13	20,623	576,662
LE919560	Todd's Place Express Car Wash	LAT EXT	4,830	12/22/15	-10,505	566,157

Appendix E – IOAP Project Crosswalk

Project Name	PROGRAM	ASSET ID	PROJECT ID
Avanti PS Elimination	IOAP	21229-W	S_PO_WC_PC07_M_01_A
Sinking Fork Relief Sewer	ISSDP	21103	SFRS
Sinking Fork Relief Sewer	ISSDP	63319	SFRS
Sinking Fork Relief Sewer	ISSDP	25012	SFRS
Beargrass Interceptor Rehab Ph. 2	IOAP	51594	S_SD_MF_NB06_S_13_C
Floydsburg Rd. I/I Investigation & Rehabilitation	IOAP	108958	S_HC_HC_MSD1086_M_07_C_A
Floydsburg Rd. I/I Investigation & Rehabilitation	IOAP	108956	S_HC_HC_MSD1086_M_07_C_A
Floydsburg Rd. I/I Investigation & Rehabilitation	IOAP	MSD1086-PS	S_HC_HC_MSD1086_M_07_C_A
Floydsburg Rd. I/I Investigation & Rehabilitation	IOAP	90776	S_HC_HC_MSD1086_M_07_C_A
Floydsburg Rd. I/I Investigation & Rehabilitation	IOAP	108957	S_HC_HC_MSD1086_M_07_C_A
Floydsburg Rd. I/I Investigation & Rehabilitation	IOAP	108953	S_HC_HC_MSD1086_M_07_C_A
Running Fox PS Elimination	IOAP	MSD1080-LS	S_CC_CC_MSD1080_S_01_C
Beechwood Village Sanitary Sewer Replacement	ISSDP	21153	BVSSR
Beechwood Village Sanitary Sewer Replacement	ISSDP	21101	BVSSR
Beechwood Village Sanitary Sewer Replacement	ISSDP	21156	BVSSR
Beechwood Village Sanitary Sewer Replacement	ISSDP	21061	BVSSR
Hazelwood PS I/I Investigation & Rehabilitation	IOAP	55667	S_MC_MF_55665_S_07_C
Hazelwood PS I/I Investigation & Rehabilitation	IOAP	55665	S_MC_MF_55665_S_07_C
Parkview Estates I/I Investigation & Rehabilitation	IOAP	47250	S_SD_MF_NB03_S_07_C
Sonne PS I/I Investigation & Rehabilitation	IOAP	MSD0042-PS	S_OR_MF_42007_S_07_C
Woodland Hills PS Diversion	IOAP	33003	S_FF_FF_NB01_S_01_C_A
Anchor Estates- Anchor Ests PS 1 & 2 PS Eliminations	IOAP	0057-W	S_MI_MF_NB06_M_01_A_A - 1 S_MI_MF_NB06_M_01_A_A - 1
Northern Ditch Diversion Interceptor	ISSDP	MSD0271	NDDI
Edsel PS I/I Investigation & Rehabilitation	IOAP	MSD1048-PS	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	92098	S_PO_WC_PC11_M_07_C
Edsel PS I/I Investigation & Rehabilitation	IOAP	92099	S_PO_WC_PC11_M_07_C
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	13946	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	44396	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	66349	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	51301	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	36763	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	8717	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	44397	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	13931	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	99259	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	104223	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	13943	S_SF_MF_30917_M_09_A

Project Name	PROGRAM	ASSET ID	PROJECT ID
Camp Taylor System Improvements 3 - Sewer Replacement & Sewer Rehabilitation	IOAP	104231	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	44397	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	104223	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	104231	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	13946	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	13931	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	66349	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	51301	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	99259	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	36763	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	13943	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	44396	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 1 - SSES	IOAP	8717	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	13943	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	13931	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	66349	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	8717	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	13946	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	99259	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	51301	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	36763	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	104223	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	104231	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	44397	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 2 - Sewer Replacement and Rehabilitation	IOAP	44396	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	44397	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	51301	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	99259	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	13943	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	8717	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	13946	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	13931	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	44396	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	104223	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	36763	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	66349	S_SF_MF_30917_M_09_A
Camp Taylor System Improvements Phase 4 - Storage Basin and Sewer Upsize	IOAP	104231	S_SF_MF_30917_M_09_A
Hurstbourne I/I Investigation & Rehabilitation	IOAP	67535	S_MI_MF_NB07_S_07_C
Hurstbourne I/I Investigation & Rehabilitation	IOAP	47650	S_MI_MF_NB07_S_07_C

Project Name	PROGRAM	ASSET ID	PROJECT ID
Hurstbourne I/I Investigation & Rehabilitation	IOAP	47656	S_MI_MF_NB07_S_07_C
Hurstbourne I/I Investigation & Rehabilitation	IOAP	1793	S_MI_MF_NB07_S_07_C
Lantana PS #1 I/I Investigation and Rehabilitation	IOAP	25484	S_PO_WC_PC05_M_07_C
Lantana PS #1 I/I Investigation and Rehabilitation	IOAP	MSD0101-PS	S_PO_WC_PC05_M_07_C
Lantana PS #1 I/I Investigation and Rehabilitation	IOAP	93719	S_PO_WC_PC05_M_07_C
Derington Ct. PS I/I Investigation & Rehabilitation	IOAP	MSD0095-PS	S_OR_MF_NB03_S_07_C
Derington Ct. PS I/I Investigation & Rehabilitation	IOAP	20155	S_OR_MF_NB03_S_07_C
Southeastern Diversion Structure and Interceptor	ISSDP	72571-X	SDSI
Southeastern Diversion Structure and Interceptor	ISSDP	30704	SDSI
Southeastern Diversion Structure and Interceptor	ISSDP	30702	SDSI
Southeastern Diversion Structure and Interceptor	ISSDP	63779	SDSI
Southeastern Diversion Structure and Interceptor	ISSDP	8426	SDSI
Southeastern Diversion Structure and Interceptor	ISSDP	8427	SDSI
Southeastern Diversion Structure and Interceptor	ISSDP	8431	SDSI
Southeastern Diversion Structure and Interceptor	ISSDP	49647	SDSI
Southeastern Diversion Structure and Interceptor	ISSDP	8430	SDSI
Southeastern Diversion Structure and Interceptor	ISSDP	18654	SDSI
Southeastern Diversion Structure and Interceptor	ISSDP	30701	SDSI
Derek R. Guthrie WQTC Wet Weather Facility	ISSDP	MSD0277	DRGWQTC
Derek R. Guthrie WQTC Wet Weather Facility	ISSDP	32688	DRGWQTC
Derek R. Guthrie WQTC Wet Weather Facility	ISSDP	59169	DRGWQTC
Derek R. Guthrie WQTC Wet Weather Facility	ISSDP	22307	DRGWQTC
Derek R. Guthrie WQTC Wet Weather Facility	ISSDP	22385	DRGWQTC
Derek R. Guthrie WQTC Wet Weather Facility	ISSDP	22370	DRGWQTC
Derek R. Guthrie WQTC Wet Weather Facility	ISSDP	32682	DRGWQTC
Hikes Lane Interceptor and Highgate Springs	ISSDP	18370	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	18434	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	30681	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	MSD0012-PS	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	49673	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	49236	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	18483	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	49224	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	18134	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	18471	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	18318-W	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	18505	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	18595	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	73111	HLIHSPS

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Hikes Lane Interceptor and Highgate Springs	ISSDP	49672	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	17571	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	18302	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	18297	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	18299	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	30680	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	48886	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	48888	HLIHSPS
Hikes Lane Interceptor and Highgate Springs	ISSDP	48885	HLIHSPS
Lake Forest PS SSO Investigation	IOAP	MSD1169-LS	S_FF_LF_NB01_S_13_C_A
Meadow Stream Pump Station & Force Main Upgrade	IOAP	MSD1082-PS	S_HC_HC_MSD1082_S_09A_C
Meadow Stream Pump Station & Force Main Upgrade	IOAP	91087	S_HC_HC_MSD1082_S_09A_C
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	IOAP	41374	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	IOAP	MSD0007-PS	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	IOAP	MSD0024-PS	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	IOAP	26752	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	IOAP	MSD0023-PS	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	IOAP	MSD0010-PS	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	IOAP	24472	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	IOAP	MSD0006-PS	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Mellwood PS and FM Improvements	IOAP	24152-W	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	IOAP	MSD0007-PS	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	IOAP	24472	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	IOAP	41374	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	IOAP	26752	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	IOAP	MSD0023-PS	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	IOAP	MSD0024-PS	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	IOAP	24152-W	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	IOAP	MSD0010-PS	S_OR_MF_NB01_M_01_B
Mellwood System Improvements & PS Elimination - Winton and Mockingbird Valley Elimination	IOAP	MSD0006-PS	S_OR_MF_NB01_M_01_B

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Anchor Estates PS Elimination 1 - Vannah PS Elimination	IOAP	MSD0057-LS	S_MI_MF_NB06_M_01_A_A - 2
Anchor Estates PS Elimination 1 - Vannah PS Elimination	IOAP	00056-W	S_MI_MF_NB06_M_01_A_A - 2
Anchor Estates PS Elimination 1 - Vannah PS Elimination	IOAP	817	S_MI_MF_NB06_M_01_A_A - 2
Anchor Estates PS Elimination 1 - Vannah PS Elimination	IOAP	0057-W	S_MI_MF_NB06_M_01_A_A - 2
Anchor Estates PS Elimination 1 - Vannah PS Elimination	IOAP	746	S_MI_MF_NB06_M_01_A_A - 2
Anchor Estates PS Elimination 1 - Vannah PS Elimination	IOAP	1106	S_MI_MF_NB06_M_01_A_A - 2
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	47583	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	47604	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	47603	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	2933	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	2935	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	8537	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	72289	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	30376	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	45796	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	115183	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	84155	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	23211	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	40559	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	51160	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	51180	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	47582	S_MISF_MF_NB01_M_01_C_A1

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Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	47034	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	72288	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	115184	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	115185	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	08935-SM	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	45835	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	51161	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	IS021A-SI	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	23212	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	47593	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	27005	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	15194	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	2932	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	27007	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 1- Buechel Basin	IOAP	90700	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	47583	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	115184	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	45796	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	47582	S_MISF_MF_NB01_M_01_C_A1

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Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	72289	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	40559	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	23211	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	27007	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	08935-SM	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	15194	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	IS021A-SI	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	51180	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	2933	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	51161	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	51160	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	47604	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	115185	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	23212	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	47603	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	27005	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	2935	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	8537	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	90700	S_MISF_MF_NB01_M_01_C_A1

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Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	2932	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	47034	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	72288	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	47593	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	30376	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	84155	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	115183	S_MISF_MF_NB01_M_01_C_A1
Middle Fork Relief Interceptor, Wet Weather Storage, and UMFLS Diversion 2 - PS Diversion and Storage	IOAP	45835	S_MISF_MF_NB01_M_01_C_A1
Fairway View PS Improvements	IOAP	MSD1065-PS	S_HC_HS_NB01_S_03_C_A
Riding Ridge PS Improvements	IOAP	MSD1060-LS	S_HC_HN_NB01_S_03_C_A
Shively Interceptor	IOAP	MSD0047-PS	S_MC_WC_NB01_M_01_A
Shively Interceptor	IOAP	4498	S_MC_WC_NB01_M_01_A
Shively Interceptor	IOAP	MSD0049-PS	S_MC_WC_NB01_M_01_A
Shively Interceptor	IOAP	4542	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	MSD0044-PS	S_MC_WC_NB01_M_01_A
Shively Interceptor	IOAP	MSD0048-PS	S_MC_WC_NB01_M_01_A
Shively Interceptor	IOAP	MSD0050-PS	S_MC_WC_NB01_M_01_A
Shively Interceptor	IOAP	MSD0043-PS	S_MC_WC_NB01_M_01_A
Chenoweth Hills WQTC Elimination & PS Improvements	IOAP	92061	S_JT_JT_NB01A_M_03_C
Chenoweth Hills WQTC Elimination & PS Improvements	IOAP	86052	S_JT_JT_NB01A_M_03_C
Chenoweth Hills WQTC Elimination & PS Improvements	IOAP	MSD0263	S_JT_JT_NB01A_M_03_C
Chenoweth Hills WQTC Elimination & PS Improvements	IOAP	MSD1043-PS	S_JT_JT_NB01A_M_03_C
Chenoweth Hills WQTC Elimination & PS Improvements	IOAP	MSD0196-PS	S_JT_JT_NB01A_M_03_C
Chenoweth Hills WQTC Elimination & PS Improvements	IOAP	64096	S_JT_JT_NB01A_M_03_C
Chenoweth Hills WQTC Elimination & PS Improvements	IOAP	MSD0263A-PS	S_JT_JT_NB01A_M_03_C
Fairmount Road Pump Station Off-Line Storage	IOAP	81316	S_FF_CC_81316_M_03_C_A
Fairmount Road Pump Station Off-Line Storage	IOAP	97362	S_FF_CC_81316_M_03_C_A
Jeffersontown WQTC Elimination	IOAP	28391	S_JT_JT_NB01_M_01_C_A
Jeffersontown WQTC Elimination	IOAP	64505	S_JT_JT_NB01_M_01_C_A

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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	IS028-SI	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	28551	S_JT_JT_NB01_M_01_C_A
Jeffersontown WQTC Elimination	IOAP	MSD0255	S_JT_JT_NB01_M_01_C_A
Jeffersontown WQTC Elimination	IOAP	28173	S_JT_JT_NB01_M_01_C_A
Klondike Interceptor	IOAP	26651	S_SD_MF_NB04_S_01_B_A
Klondike Interceptor	IOAP	26650	S_SD_MF_NB04_S_01_B_A
Klondike Interceptor	IOAP	20644	S_SD_MF_NB04_S_01_B_A
Klondike Interceptor	IOAP	66232	S_SD_MF_NB04_S_01_B_A
Klondike Interceptor	IOAP	49513	S_SD_MF_NB04_S_01_B_A
Klondike Interceptor	IOAP	25676	S_SD_MF_NB04_S_01_B_A
Lea Ann Way System Improvements	IOAP	MSD1200-PS	S_PO_WC_PC08_M_01_C
Lea Ann Way System Improvements	IOAP	29933	S_PO_WC_PC08_M_01_C
Lea Ann Way System Improvements	IOAP	31074	S_PO_WC_PC08_M_01_C
Lea Ann Way System Improvements	IOAP	31073	S_PO_WC_PC08_M_01_C
Lea Ann Way System Improvements	IOAP	57874	S_PO_WC_PC08_M_01_C
Lea Ann Way System Improvements	IOAP	29948	S_PO_WC_PC08_M_01_C
Lea Ann Way System Improvements	IOAP	MSD1010-PS	S_PO_WC_PC08_M_01_C
Prospect #1 - WQTC Eliminations	IOAP	MSD0192-PS	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	MSD1063-PS	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	MSD0123-PS	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	MSD0193-PS	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	40870	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	MSD1044-PS	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	MSD0183-PS	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	22436	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	40872	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	40871	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	65635	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	42680	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	89791	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	89646	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	40879	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	42675	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	40880	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	MSD0186-PS	S_OR_MF_NB04_M_03_B_B
Prospect #1 - WQTC Eliminations	IOAP	65633	S_OR_MF_NB04_M_03_B_B

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Prospect #1 - WQTC Eliminations	IOAP	65623	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	40870	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	89791	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	65623	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	MSD0123-PS	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	MSD1044-PS	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	89646	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	40879	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	40880	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	MSD0186-PS	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	MSD1063-PS	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	MSD0192-PS	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	MSD0183-PS	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	65633	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	22436	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	42675	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	40872	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	65635	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	MSD0193-PS	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	40871	S_OR_MF_NB04_M_03_B_B
Prospect #2 - Harrods Creek PS and FM	IOAP	42680	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	40871	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	65635	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	22436	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	89646	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	40879	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	40880	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	MSD0193-PS	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	MSD0183-PS	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	MSD1063-PS	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	MSD0192-PS	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	42675	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	40872	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	65633	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	MSD1044-PS	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	MSD0186-PS	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	MSD0123-PS	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	40870	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	65623	S_OR_MF_NB04_M_03_B_B

Project Name	PROGRAM	ASSET ID	PROJECT ID
Prospect #3 - ORFM System Improvements	IOAP	42680	S_OR_MF_NB04_M_03_B_B
Prospect #3 - ORFM System Improvements	IOAP	89791	S_OR_MF_NB04_M_03_B_B
Anchor Estates PS Elimination 2 - Anchor Estates #1 and #2 PS Elimination	IOAP	1106	S_MI_MF_NB06_M_01_A_A - 1
Anchor Estates PS Elimination 2 - Anchor Estates #1 and #2 PS Elimination	IOAP	MSD0057-LS	S_MI_MF_NB06_M_01_A_A - 1
Anchor Estates PS Elimination 2 - Anchor Estates #1 and #2 PS Elimination	IOAP	817	S_MI_MF_NB06_M_01_A_A - 1
Anchor Estates PS Elimination 2 - Anchor Estates #1 and #2 PS Elimination	IOAP	00056-W	S_MI_MF_NB06_M_01_A_A - 1
Anchor Estates PS Elimination 2 - Anchor Estates #1 and #2 PS Elimination	IOAP	746	S_MI_MF_NB06_M_01_A_A - 1
Caven Ave Pump Station Elimination	IOAP	70212	S_PO_WC_PC09_M_09B_C
Caven Ave Pump Station Elimination	IOAP	61667	S_PO_WC_PC09_M_09B_C
Caven Ave Pump Station Elimination	IOAP	MSD0133-PS	S_PO_WC_PC09_M_09B_C
Caven Ave Pump Station Elimination	IOAP	17724	S_PO_WC_PC09_M_09B_C
Caven Ave Pump Station Elimination	IOAP	61687	S_PO_WC_PC09_M_09B_C
Caven Ave Pump Station Elimination	IOAP	27116	S_PO_WC_PC09_M_09B_C
Ashburton PS Improvements & Diversion	IOAP	MSD0165-PS	S_FF_FF_NB03_M_01_C_A
Bardstown Rd. PS Improvements	IOAP	88545	S_CC_CC_MSD1025_S_03_B
East Rockford PS Relocation	IOAP	04699-W	S_MC_WC_NB02_S_03_C
Fox Harbor Inline Storage	IOAP	62769	S_HC_HN_NB03_S_09A_A_A
Gunpowder PS Inline Storage	IOAP	MSD1055-LS	S_HC_HN_NB02_S_09A_C_B
Lucas Lane PS Inline Storage	IOAP	MSD0199-LS	S_FF_BT_NB01_S_09A_C_A
Raintree and Marian Ct 1 - PS Elimination	IOAP	28395A	S_JT_JT_NB03_M_01_C
Raintree and Marian Ct 1 - PS Elimination	IOAP	28719	S_JT_JT_NB03_M_01_C
Raintree and Marian Ct 1 - PS Elimination	IOAP	28729-W	S_JT_JT_NB03_M_01_C
Raintree and Marian Ct 1 - PS Elimination	IOAP	MSD0149-PS	S_JT_JT_NB03_M_01_C
Raintree and Marian Ct 2 - Pipe Upgrades	IOAP	MSD0149-PS	S_JT_JT_NB03_M_01_C
Raintree and Marian Ct 2 - Pipe Upgrades	IOAP	28395A	S_JT_JT_NB03_M_01_C
Raintree and Marian Ct 2 - Pipe Upgrades	IOAP	28719	S_JT_JT_NB03_M_01_C
Raintree and Marian Ct 2 - Pipe Upgrades	IOAP	28729-W	S_JT_JT_NB03_M_01_C
St. Rene Rd. PS Inline Storage	IOAP	94187	S_FF_CH_NB01_S_09A_C_A
Charleswood Interceptor Extension	IOAP	25480	S_PO_WC_PC03_M_01_C
Charleswood Interceptor Extension	IOAP	25479	S_PO_WC_PC03_M_01_C
Charleswood Interceptor Extension	IOAP	25477	S_PO_WC_PC03_M_01_C
Charleswood Interceptor Extension	IOAP	MSD0130-PS	S_PO_WC_PC03_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	28415	S_JT_JT_NB02_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	98564	S_JT_JT_NB02_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	28250	S_JT_JT_NB02_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	99649	S_JT_JT_NB02_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	28416	S_JT_JT_NB02_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	28340	S_JT_JT_NB02_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	104289	S_JT_JT_NB02_M_01_C

Project Name	PROGRAM	ASSET ID	PROJECT ID
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	28414	S_JT_JT_NB02_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	28417	S_JT_JT_NB02_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	28413	S_JT_JT_NB02_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	28249	S_JT_JT_NB02_M_01_C
Dell Rd and Charlane Pkwy Interceptor Improvements	IOAP	28336	S_JT_JT_NB02_M_01_C
Leven PS Elimination	IOAP	36419	S_PO_WC_PC10_M_01_C
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
Cinderella PS Elimination	IOAP	MSD1013-PS	S_PO_WC_PC04_M_01_C
Cinderella PS Elimination	IOAP	60679	S_PO_WC_PC04_M_01_C
Cinderella PS Elimination	IOAP	35309	S_PO_WC_PC04_M_01_C
Idlewood Inline Storage	IOAP	63094	S_CC_CC_70158_M_09A_C
Idlewood Inline Storage	IOAP	63095	S_CC_CC_70158_M_09A_C
Idlewood Inline Storage	IOAP	70158	S_CC_CC_70158_M_09A_C
Idlewood Inline Storage	IOAP	28984	S_CC_CC_70158_M_09A_C
Idlewood Inline Storage	IOAP	28998	S_CC_CC_70158_M_09A_C
Sutherland Interceptor	IOAP	16649	S_SD_MF_NB05_M_01_A
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale Wet Weather Storage	IOAP	43472	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale Wet Weather Storage	IOAP	MSD1024-PS	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale Wet Weather Storage	IOAP	105936	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale Wet Weather Storage	IOAP	62418	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale Wet Weather Storage	IOAP	62420	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale Wet Weather Storage	IOAP	21628-W	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale Wet Weather Storage	IOAP	91630	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale Wet Weather Storage	IOAP	46891	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 1 - Devondale Wet Weather Storage	IOAP	91629	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	IOAP	62420	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	IOAP	91629	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	IOAP	46891	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	IOAP	MSD1024-PS	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	IOAP	62418	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	IOAP	43472	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	IOAP	91630	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	IOAP	105936	S_MI_MF_NB04_M_03_B
Goose Creek PS Improvements & Wet Weather Storage 2 - PS and FM Upgrades	IOAP	21628-W	S_MI_MF_NB04_M_03_B
Government Center PS Elimination	IOAP	94541	S_PO_WC_PC06_M_01_C
Government Center PS Elimination	IOAP	MSD0180-PS	S_PO_WC_PC06_M_01_C
Government Center PS Elimination	IOAP	94542	S_PO_WC_PC06_M_01_C
Kavanaugh Rd. PS Improvements	IOAP	MSD1085-PS	S_HC_HC_MSD1085_S_03_A

Project Name	PROGRAM	ASSET ID	PROJECT ID
Little Cedar Creek Interceptor Improvements	IOAP	67997	S_CC_CC_67997_M_01_C
Little Cedar Creek Interceptor Improvements	IOAP	89197	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	86423	S_CC_CC_67997_M_01_C
Little Cedar Creek Interceptor Improvements	IOAP	89195	S_CC_CC_67997_M_01_C
Little Cedar Creek Interceptor Improvements	IOAP	86424	S_CC_CC_67997_M_01_C
Eden Care PS SSO Investigation	IOAP	MSD1105-PS	S_FF_FF_NB02_S_13_C
Leland Road SSO Investigation	IOAP	96020	S_OR_MF_NB02_S_13_C

Appendix F – CSO108 Semi-Annual Report #15

MSD
Metropolitan Sewer District

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org

December 29, 2015

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

Subject: CSO 108 Semi-Annual Report #15

Dear Ms. Bender:

As required in Paragraph #10 of the document titled "Memorandum of Understanding by and between the Kentucky State Nature Preserve Commission and the Louisville and Jefferson County Metropolitan Sewer District", MSD submits to you the MOU Semi-Annual Report #15. This report summarizes activities at the CSO 108 CDS Site during the reporting period of July 1, 2015 to December 31, 2015.

Should you have any questions or comments, please feel free to contact me via email at julie.potempa@louisvillemsd.org or phone at (502) 540-6112.

Sincerely,

Julie L. Potempa
Project Administrator

cc: J. Loechle A. Akridge D. Thompson File

INTRODUCTION

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

This is the fifteenth Semi-Annual Report submitted in accordance with Paragraph 10 of the MOU. This report covers the time period of July 1, 2015 to December 31, 2015.

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

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

Paragraph #10 of the MOU:

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

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

      The CSO 108 CDS Unit is inspected weekly and cleaned on an as-needed basis. Between the dates of July 1, 2015, and December 31, 2015, MSD cleaned the CDS Unit bar racks four times. The information, shown in Table 1, is generated from work orders initiated whenever the CDS Unit is inspected and needs to be cleaned. Cleaning consists of either washing debris off of the bar racks or hauling the solids and floatables from the site. Both operations result in removing debris that would otherwise overflow into Beargrass Creek. When cleaning the bar racks, the debris is

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

TABLE 1: CSO 108 CDS Unit Debris Removal

ACTCO	UNITID	QTY	COMMENTS	COMPDTTM
Debris	CSO 108	Unknown	Cleaned medium debris off the rack bars	10/06/15
Debris	CSO 108	Unknown	Crewman cleaned medium debris from the rack bars at this location	11/09/15
Debris	CSO 108	1 cubic yard	Work order for removing debris from CCDS Unit (underflow pump well) also flushed all debris forward to well for removal	12/02/15
Debris	CSO 108	Unknown	Cleaned medium debris off rack bars	12/15/15

- Maintenance Activities:

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

- Captured Flow

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

Water Quality Treatment Center (MFWQTC).

In an effort to estimate the volume of debris captured by the CDS Unit and kept within the sewer system, a study of the efficiency of the unit was performed in the early 2002. The results of the study indicated that the concentration of solids kept within the sewer system was approximately 1ml/l. Using pump run times and knowing the efficiency of the pumps, MSD was able to determine a volume of solids captured by the CDS technology. MSD estimates that the CDS Unit captured 54.44 tons of solids during the reporting period. Attachment "B" lists the pump run times and calculations MSD used to determine the amount of debris captured by the CDS Unit and sent to the MFWQTC for treatment.

MSD
Metropolitan Sewer District

ATTACHMENT "A"

PHOTOS
OF AREA ADJACENT TO
CSO 108 AND THE CDS UNIT
(dated December 16, 2015)

December 29, 2015

MSD
Metropolitan Sewer District

MOU Semi-Annual Report #15
July 1, 2015 – December 31, 2015

Figures 1 and 2 – Entrance to CDS Unit

December 29, 2015

Figures 3 and 4 – Area Adjacent to CDS Unit

December 29, 2015

Figure 5 – Area Adjacent to Creek

ATTACHMENT "B"

CDS UNIT
PUMP RUN TIMES

December 29, 2015

CSO 108 Underflow Pump Flow Meter Data

Date	Daily Volume (MG)	Daily Volume (CF)	Daily Volume (gal)	Daily Volume Debris (gal)
6/27/2015	0.079386249	10,612.40	79,386.25	79.39
6/28/2015	0.124212563	16,604.80	124,212.56	124.21
6/29/2015	0.10212823	13,652.56	102,128.23	102.13
6/30/2015	0.041259214	5,515.55	41,259.21	41.26
7/1/2015	0.12127205	16,211.72	121,272.05	121.27
7/2/2015	0.03692849	4,936.62	36,928.49	36.93
7/3/2015	0.041700881	5,574.60	41,700.88	41.70
7/4/2015	0.03690261	4,933.16	36,902.61	36.90
7/5/2015	0.075147361	10,045.74	75,147.36	75.15
7/6/2015	0.041137125	5,499.23	41,137.13	41.14
7/7/2015	0.03692849	4,936.62	36,928.49	36.93
7/8/2015	0.03692849	4,936.62	36,928.49	36.93
7/9/2015	0.03690261	4,933.16	36,902.61	36.90
7/10/2015	0.040427737	5,404.40	40,427.74	40.43
7/11/2015	0.03692849	4,936.62	36,928.49	36.93
7/12/2015	0.197194815	26,361.11	197,194.81	197.19
7/13/2015	0.04560237	6,096.15	45,602.37	45.60
7/14/2015	1.207486868	161,417.52	1,207,486.87	1,207.49
7/15/2015	0.245489359	32,817.15	245,489.36	245.49
7/16/2015	0.394372523	52,719.94	394,372.52	394.37
7/17/2015	0.063518681	8,491.21	63,518.68	63.52
7/18/2015	0.045595139	6,095.18	45,595.14	45.60
7/19/2015	0.147691861	19,743.53	147,691.86	147.69
7/20/2015	0.453237802	60,589.08	453,237.80	453.24
7/21/2015	0.049632933	6,634.96	49,632.93	49.63
7/22/2015	0.045530733	6,086.57	45,530.73	45.53
7/23/2015	0.03692849	4,936.62	36,928.49	36.93
7/24/2015	0.04115352	5,501.43	41,153.52	41.15
7/25/2015	0.03690261	4,933.16	36,902.61	36.90
7/26/2015	0.03692849	4,936.62	36,928.49	36.93
7/27/2015	0.03692849	4,936.62	36,928.49	36.93
7/28/2015	0.03692849	4,936.62	36,928.49	36.93
7/29/2015	0.03692849	4,936.62	36,928.49	36.93
7/30/2015	0.03692849	4,936.62	36,928.49	36.93
7/31/2015	0.041547667	5,554.12	41,547.67	41.55
8/1/2015	0.03692849	4,936.62	36,928.49	36.93
8/2/2015	0.037817907	5,055.52	37,817.91	37.82
8/3/2015	0.03690261	4,933.16	36,902.61	36.90
8/4/2015	0.03692849	4,936.62	36,928.49	36.93
8/5/2015	0.03692849	4,936.62	36,928.49	36.93
8/6/2015	0.03690261	4,933.16	36,902.61	36.90
8/7/2015	0.075114481	10,041.35	75,114.48	75.11
8/8/2015	0.119237356	15,939.72	119,237.36	119.24
8/9/2015	0.03692849	4,936.62	36,928.49	36.93
8/10/2015	0.041538224	5,552.85	41,538.22	41.54
8/11/2015	0.03692849	4,936.62	36,928.49	36.93

CSO 108 Underflow Pump Flow Meter Data

Date	Daily Volume (MG)	Daily Volume (CF)	Daily Volume (gal)	Daily Volume Debris (gal)
8/12/2015	0.03692849	4,936.62	36,928.49	36.93
8/13/2015	0.03692849	4,936.62	36,928.49	36.93
8/14/2015	0.036954369	4,940.08	36,954.37	36.95
8/15/2015	0.03692849	4,936.62	36,928.49	36.93
8/16/2015	0.036954369	4,940.08	36,954.37	36.95
8/17/2015	0.03692849	4,936.62	36,928.49	36.93
8/18/2015	0.03692849	4,936.62	36,928.49	36.93
8/19/2015	0.036954369	4,940.08	36,954.37	36.95
8/20/2015	0.041480836	5,545.18	41,480.84	41.48
8/21/2015	0.077092797	10,305.81	77,092.80	77.09
8/22/2015	0.041785799	5,585.95	41,785.80	41.79
8/23/2015	0.03692849	4,936.62	36,928.49	36.93
8/24/2015	0.03692849	4,936.62	36,928.49	36.93
8/25/2015	0.03692849	4,936.62	36,928.49	36.93
8/26/2015	0.036954369	4,940.08	36,954.37	36.95
8/27/2015	0.03692849	4,936.62	36,928.49	36.93
8/28/2015	0.03692849	4,936.62	36,928.49	36.93
8/29/2015	0.03692849	4,936.62	36,928.49	36.93
8/30/2015	0.03692849	4,936.62	36,928.49	36.93
8/31/2015	0.03692849	4,936.62	36,928.49	36.93
9/1/2015	0.03692849	4,936.62	36,928.49	36.93
9/2/2015	0.041518245	5,550.18	41,518.24	41.52
9/3/2015	0.036954369	4,940.08	36,954.37	36.95
9/4/2015	0.03692849	4,936.62	36,928.49	36.93
9/5/2015	0.03692849	4,936.62	36,928.49	36.93
9/6/2015	0.03692849	4,936.62	36,928.49	36.93
9/7/2015	0.03692849	4,936.62	36,928.49	36.93
9/8/2015	0.03692849	4,936.62	36,928.49	36.93
9/9/2015	0.138945848	18,574.36	138,945.85	138.95
9/10/2015	0.14624384	19,549.96	146,243.84	146.24
9/11/2015	0.041482192	5,545.36	41,482.19	41.48
9/12/2015	0.050412685	6,739.20	50,412.68	50.41
9/13/2015	0.03692849	4,936.62	36,928.49	36.93
9/14/2015	0.03692849	4,936.62	36,928.49	36.93
9/15/2015	0.036954369	4,940.08	36,954.37	36.95
9/16/2015	0.03692849	4,936.62	36,928.49	36.93
9/17/2015	0.03692849	4,936.62	36,928.49	36.93
9/18/2015	0.03692849	4,936.62	36,928.49	36.93
9/19/2015	0.03692849	4,936.62	36,928.49	36.93
9/20/2015	0.03692849	4,936.62	36,928.49	36.93
9/21/2015	0.03692849	4,936.62	36,928.49	36.93
9/22/2015	0.03692849	4,936.62	36,928.49	36.93
9/23/2015	0.03692849	4,936.62	36,928.49	36.93
9/24/2015	0.03692849	4,936.62	36,928.49	36.93
9/25/2015	0.03692849	4,936.62	36,928.49	36.93
9/26/2015	0.036954369	4,940.08	36,954.37	36.95

CSO 108 Underflow Pump Flow Meter Data

Date	Daily Volume (MG)	Daily Volume (CF)	Daily Volume (gal)	Daily Volume Debris (gal)
9/27/2015	0.03692849	4,936.62	36,928.49	36.93
9/28/2015	0.03692849	4,936.62	36,928.49	36.93
9/29/2015	0.03692849	4,936.62	36,928.49	36.93
9/30/2015	0.03692849	4,936.62	36,928.49	36.93
10/1/2015	0.03692849	4,936.62	36,928.49	36.93
10/2/2015	0.03692849	4,936.62	36,928.49	36.93
10/3/2015	0.036954369	4,940.08	36,954.37	36.95
10/4/2015	0.03692849	4,936.62	36,928.49	36.93
10/5/2015	0.036928546	4,936.63	36,928.55	36.93
10/6/2015	0.03692849	4,936.62	36,928.49	36.93
10/7/2015	0.03692849	4,936.62	36,928.49	36.93
10/8/2015	0.03692849	4,936.62	36,928.49	36.93
10/9/2015	0.03692849	4,936.62	36,928.49	36.93
10/10/2015	0.06512408	8,705.82	65,124.08	65.12
10/11/2015	0.03692849	4,936.62	36,928.49	36.93
10/12/2015	0.03692849	4,936.62	36,928.49	36.93
10/13/2015	0.036928602	4,936.64	36,928.60	36.93
10/14/2015	0.03692849	4,936.62	36,928.49	36.93
10/15/2015	0.036954369	4,940.08	36,954.37	36.95
10/16/2015	0.036928572	4,936.63	36,928.57	36.93
10/17/2015	0.036933403	4,937.28	36,933.40	36.93
10/18/2015	0.036928494	4,936.62	36,928.49	36.93
10/19/2015	0.037019651	4,948.81	37,019.65	37.02
10/20/2015	0.037237879	4,977.98	37,237.88	37.24
10/21/2015	0.037193008	4,971.98	37,193.01	37.19
10/22/2015	0.036949992	4,939.50	36,949.99	36.95
10/23/2015	0.036935035	4,937.50	36,935.04	36.94
10/24/2015	0.036954369	4,940.08	36,954.37	36.95
10/25/2015	0.03692849	4,936.62	36,928.49	36.93
10/26/2015	0.03692849	4,936.62	36,928.49	36.93
10/27/2015	0.03692849	4,936.62	36,928.49	36.93
10/28/2015	0.03692849	4,936.62	36,928.49	36.93
10/29/2015	0.04073162	5,445.03	40,731.62	40.73
10/30/2015	0.04569833	6,108.98	45,698.33	45.70
10/31/2015	0.036928579	4,936.63	36,928.58	36.93
11/1/2015	0.036934491	4,937.42	36,934.49	36.93
11/2/2015	0.036929443	4,936.75	36,929.44	36.93
11/3/2015	0.03692849	4,936.62	36,928.49	36.93
11/4/2015	0.036928505	4,936.62	36,928.50	36.93
11/5/2015	0.036954448	4,940.09	36,954.45	36.95
11/6/2015	0.03692849	4,936.62	36,928.49	36.93
11/7/2015	0.041241251	5,513.15	41,241.25	41.24
11/8/2015	0.084282599	11,266.94	84,282.60	84.28
11/9/2015	0.053223476	7,114.94	53,223.48	53.22
11/10/2015	0.051474869	6,881.19	51,474.87	51.47
11/11/2015	0.037181631	4,970.46	37,181.63	37.18

CSO 108 Underflow Pump Flow Meter Data

Date	Daily Volume (MG)	Daily Volume (CF)	Daily Volume (gal)	Daily Volume Debris (gal)
11/12/2015	0.036935538	4,937.56	36,935.54	36.94
11/13/2015	0.03758762	5,024.73	37,587.62	37.59
11/14/2015	0.042469312	5,677.32	42,469.31	42.47
11/15/2015	0.037016112	4,948.33	37,016.11	37.02
11/16/2015	0.037455551	5,007.08	37,455.55	37.46
11/17/2015	0.037304826	4,986.93	37,304.83	37.30
11/18/2015	0.037182242	4,970.54	37,182.24	37.18
11/19/2015	0.03692849	4,936.62	36,928.49	36.93
11/20/2015	0.184844762	24,710.15	184,844.76	184.84
11/21/2015	0.044073325	5,891.75	44,073.32	44.07
11/22/2015	0.0731728	9,781.78	73,172.80	73.17
11/23/2015	0.037276465	4,983.14	37,276.47	37.28
11/24/2015	0.038044438	5,085.80	38,044.44	38.04
11/25/2015	0.037894107	5,065.71	37,894.11	37.89
11/26/2015	0.037548747	5,019.54	37,548.75	37.55
11/27/2015	0.037262611	4,981.29	37,262.61	37.26
11/28/2015	0.036964197	4,941.39	36,964.20	36.96
11/29/2015	0.03692849	4,936.62	36,928.49	36.93
11/30/2015	0.036929023	4,936.69	36,929.02	36.93
12/1/2015	0.036989722	4,944.81	36,989.72	36.99
12/2/2015	0.041199017	5,507.51	41,199.02	41.20
12/3/2015	0.055148009	7,372.22	55,148.01	55.15
12/4/2015	0.05584722	7,465.69	55,847.22	55.85
12/5/2015	0.037623432	5,029.52	37,623.43	37.62
12/6/2015	0.037772622	5,049.47	37,772.62	37.77
12/7/2015	0.037629653	5,030.35	37,629.65	37.63
12/8/2015	0.037524514	5,016.30	37,524.51	37.52
12/9/2015	0.036942001	4,938.43	36,942.00	36.94
12/10/2015	0.03730841	4,987.41	37,308.41	37.31
12/11/2015	0.037091684	4,958.44	37,091.68	37.09
12/12/2015	0.037023671	4,949.34	37,023.67	37.02
12/13/2015	0.03692849	4,936.62	36,928.49	36.93
12/14/2015	0.03692849	4,936.62	36,928.49	36.93
12/15/2015	0.03692849	4,936.62	36,928.49	36.93
12/16/2015	0.03692849	4,936.62	36,928.49	36.93
12/17/2015	0.036959074	4,940.71	36,959.07	36.96
				10,038.94

108,871.51 Pounds

54.44 **Tons**

CSO 108 CDS Facility			
Date	Pump 1 Run Hours	Pump 2 Run Hours	Pump 3 Run Hours
27-Jun-2015	0.40	0.00	0.50
28-Jun-2015	0.70	0.00	1.20
29-Jun-2015	0.00	0.00	0.82
30-Jun-2015	0.00	0.00	0.05
1-Jul-2015	0.67	0.00	0.98
2-Jul-2015	0.00	0.00	0.00
3-Jul-2015	0.00	0.00	0.05
4-Jul-2015	0.00	0.00	0.00
5-Jul-2015	0.18	0.00	0.45
6-Jul-2015	0.00	0.00	0.05
7-Jul-2015	0.00	0.00	0.00
8-Jul-2015	0.00	0.00	0.00
9-Jul-2015	0.00	0.00	0.00
10-Jul-2015	0.00	0.00	0.03
11-Jul-2015	0.00	0.00	0.00
12-Jul-2015	1.00	0.00	1.65
13-Jul-2015	0.00	0.00	0.08
14-Jul-2015	11.35	0.00	12.62
15-Jul-2015	1.38	0.23	2.67
16-Jul-2015	2.23	7.85	8.50
17-Jul-2015	0.00	0.00	0.27
18-Jul-2015	0.00	0.00	0.10
19-Jul-2015	0.67	0.37	1.23
20-Jul-2015	1.03	4.05	5.47
21-Jul-2015	0.00	0.00	0.12
22-Jul-2015	0.00	0.00	0.08
23-Jul-2015	0.00	0.00	0.00
24-Jul-2015	0.00	0.00	0.05
25-Jul-2015	0.00	0.00	0.00
26-Jul-2015	0.00	0.00	0.00
27-Jul-2015	0.00	0.00	0.00
28-Jul-2015	0.00	0.00	0.00
29-Jul-2015	0.00	0.00	0.00
30-Jul-2015	0.00	0.00	0.00
31-Jul-2015	0.00	0.00	0.03
1-Aug-2015	0.00	0.00	0.00
2-Aug-2015	0.00	0.00	0.02
3-Aug-2015	0.00	0.00	0.00
4-Aug-2015	0.00	0.00	0.00
5-Aug-2015	0.00	0.00	0.00
6-Aug-2015	0.00	0.00	0.00
7-Aug-2015	0.00	0.00	0.42
8-Aug-2015	0.17	0.62	0.92

CSO 108 CDS Facility			
Date	Pump 1 Run Hours	Pump 2 Run Hours	Pump 3 Run Hours
9-Aug-2015	0.00	0.00	0.00
10-Aug-2015	0.00	0.00	0.03
11-Aug-2015	0.00	0.00	0.00
12-Aug-2015	0.00	0.00	0.00
13-Aug-2015	0.00	0.00	0.00
14-Aug-2015	0.00	0.00	0.00
15-Aug-2015	0.00	0.00	0.00
16-Aug-2015	0.00	0.00	0.00
17-Aug-2015	0.00	0.00	0.00
18-Aug-2015	0.00	0.00	0.00
19-Aug-2015	0.00	0.00	0.00
20-Aug-2015	0.00	0.00	0.05
21-Aug-2015	0.25	0.00	0.45
22-Aug-2015	0.00	0.00	0.05
23-Aug-2015	0.00	0.00	0.00
24-Aug-2015	0.00	0.00	0.00
25-Aug-2015	0.00	0.00	0.00
26-Aug-2015	0.00	0.00	0.00
27-Aug-2015	0.00	0.00	0.00
28-Aug-2015	0.00	0.00	0.00
29-Aug-2015	0.00	0.00	0.00
30-Aug-2015	0.00	0.00	0.00
31-Aug-2015	0.00	0.00	0.00
1-Sep-2015	0.00	0.00	0.00
2-Sep-2015	0.00	0.00	0.07
3-Sep-2015	0.00	0.00	0.00
4-Sep-2015	0.00	0.00	0.00
5-Sep-2015	0.00	0.00	0.00
6-Sep-2015	0.00	0.00	0.00
7-Sep-2015	0.00	0.00	0.00
8-Sep-2015	0.00	0.00	0.00
9-Sep-2015	0.73	0.48	6.43
10-Sep-2015	0.00	0.00	20.73
11-Sep-2015	0.00	0.00	0.07
12-Sep-2015	0.00	0.00	0.22
13-Sep-2015	0.00	0.00	0.00
14-Sep-2015	0.00	0.00	0.00
15-Sep-2015	0.00	0.00	0.00
16-Sep-2015	0.00	0.00	0.00
17-Sep-2015	0.00	0.00	0.00
18-Sep-2015	0.00	0.00	0.00
19-Sep-2015	0.00	0.00	0.00
20-Sep-2015	0.00	0.00	0.00

CSO 108 CDS Facility			
Date	Pump 1 Run Hours	Pump 2 Run Hours	Pump 3 Run Hours
21-Sep-2015	0.00	0.00	0.00
22-Sep-2015	0.00	0.00	0.00
23-Sep-2015	0.00	0.00	0.00
24-Sep-2015	0.00	0.00	0.00
25-Sep-2015	0.00	0.00	0.00
26-Sep-2015	0.00	0.00	0.00
27-Sep-2015	0.00	0.00	0.00
28-Sep-2015	0.00	0.00	0.00
29-Sep-2015	0.00	0.00	0.00
30-Sep-2015	0.00	0.00	0.00
1-Oct-2015	0.00	0.00	0.00
2-Oct-2015	0.00	0.00	0.00
3-Oct-2015	0.00	0.00	0.00
4-Oct-2015	0.00	0.00	0.00
5-Oct-2015	0.00	0.00	0.00
6-Oct-2015	0.00	0.00	0.00
7-Oct-2015	0.00	0.00	0.00
8-Oct-2015	0.00	0.00	0.00
9-Oct-2015	0.00	0.00	0.00
10-Oct-2015	0.00	0.00	0.08
11-Oct-2015	0.00	0.00	0.00
12-Oct-2015	0.00	0.00	0.00
13-Oct-2015	0.00	0.00	0.00
14-Oct-2015	0.00	0.00	0.00
15-Oct-2015	0.00	0.00	0.00
16-Oct-2015	0.00	0.00	0.00
17-Oct-2015	0.00	0.00	0.00
18-Oct-2015	0.00	0.00	0.00
19-Oct-2015	0.00	0.00	0.00
20-Oct-2015	0.00	0.00	0.00
21-Oct-2015	0.00	0.00	0.00
22-Oct-2015	0.00	0.00	0.00
23-Oct-2015	0.00	0.00	0.00
24-Oct-2015	0.00	0.00	0.00
25-Oct-2015	0.00	0.00	0.00
26-Oct-2015	0.00	0.00	0.00
27-Oct-2015	0.00	0.00	0.00
28-Oct-2015	0.00	0.00	0.00
29-Oct-2015	0.00	0.00	0.05
30-Oct-2015	0.00	0.00	0.08
31-Oct-2015	0.00	0.00	0.00
1-Nov-2015	0.00	0.00	0.00
2-Nov-2015	0.00	0.00	0.00

CSO 108 CDS Facility			
Date	Pump 1 Run Hours	Pump 2 Run Hours	Pump 3 Run Hours
3-Nov-2015	0.00	0.00	0.00
4-Nov-2015	0.00	0.00	0.00
5-Nov-2015	0.00	0.00	0.00
6-Nov-2015	0.00	0.00	0.00
7-Nov-2015	0.00	0.00	0.05
8-Nov-2015	0.32	1.15	20.32
9-Nov-2015	0.00	0.00	23.20
10-Nov-2015	0.00	0.00	10.30
11-Nov-2015	0.00	0.00	4.50
12-Nov-2015	0.00	0.00	0.00
13-Nov-2015	0.00	0.00	0.42
14-Nov-2015	0.00	0.00	10.42
15-Nov-2015	0.00	0.00	0.00
16-Nov-2015	0.00	0.00	0.00
17-Nov-2015	0.00	0.00	0.00
18-Nov-2015	0.00	0.00	0.00
19-Nov-2015	0.00	0.00	0.00
20-Nov-2015	4.38	2.35	14.73
21-Nov-2015	0.00	0.00	24.00
22-Nov-2015	0.00	0.00	9.58
23-Nov-2015	0.00	0.00	0.00
24-Nov-2015	0.00	0.00	0.00
25-Nov-2015	0.00	0.00	0.00
26-Nov-2015	0.00	0.00	0.00
27-Nov-2015	0.00	0.00	0.00
28-Nov-2015	0.00	0.00	0.00
29-Nov-2015	0.00	0.00	0.00
30-Nov-2015	0.00	0.00	0.00
1-Dec-2015	0.00	0.00	0.00
2-Dec-2015	0.00	0.00	0.07
3-Dec-2015	0.00	0.00	0.22
4-Dec-2015	0.00	0.00	0.27
5-Dec-2015	0.00	0.00	0.00
6-Dec-2015	0.00	0.00	0.00
7-Dec-2015	0.00	0.00	0.00
8-Dec-2015	0.00	0.00	0.00
9-Dec-2015	0.00	0.00	0.00
10-Dec-2015	0.00	0.00	0.00
11-Dec-2015	0.00	0.00	0.00
12-Dec-2015	0.00	0.00	0.00
13-Dec-2015	0.00	0.00	0.00
14-Dec-2015	0.00	0.00	0.00
15-Dec-2015	0.00	0.00	0.00

CSO 108 CDS Facility			
Date	Pump 1 Run Hours	Pump 2 Run Hours	Pump 3 Run Hours
16-Dec-2015	0.00	0.00	0.00
17-Dec-2015	0.00	0.00	0.00

Appendix G – December Event Summary, Fairmount Road PS

DATE: **January 27, 2016**

TO: **Dennis Sayre, EPA Region 4, Courtney Seitz, KDEP**

FROM: **Angela Akridge, PE, Chief Engineer**

SUBJECT: **December 2015 Fairmount Road Pump Station Wet Weather Event Summary**

Per our letter to the EPA dated December 21, 2015, this report is offered as the written report related to significant rainfall that coincided with the operation of the Fairmount Road Pump Station and associated wet weather storage facility, December 23, 2015.

The Fairmount Road Pump Station and SSO Storage Basin is a 4.2 MGD pump station and a 3.4 MG storage basin originally proposed to be completed by December 31, 2015. The pump station and storage basin are sized to eliminate SSOs up to the 1.82-inch cloudburst storm event. The letter dated December 21, 2015 requested a revised project completion date of March 31, 2016. Additionally, the letter outlines temporary measures to mitigate potential overflows during the final phase of construction. See Attachment A for details related to the revision of the project.

DECEMBER WEATHER SUMMARY

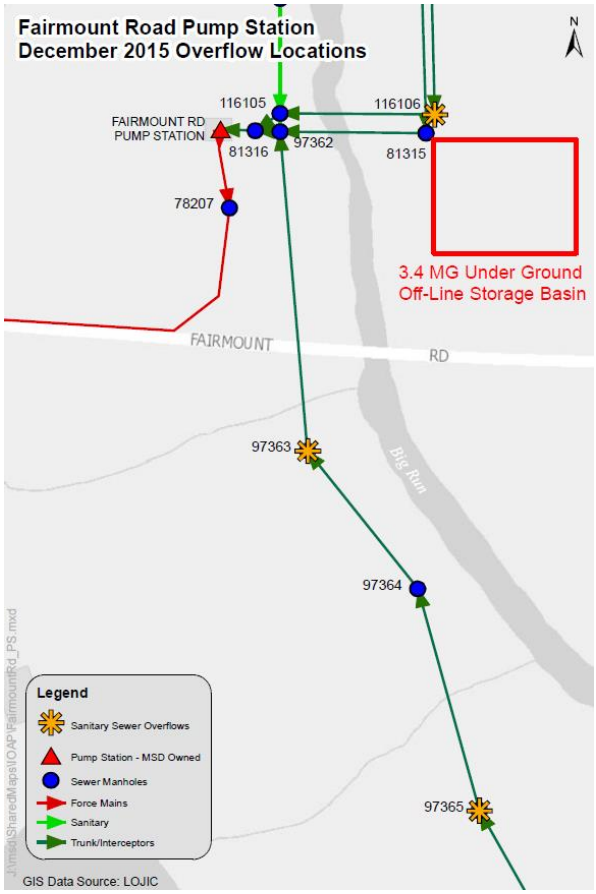
The National Weather Service describes December 2015 in Louisville as "warm and wet". Much of the month was warm with many days experiencing temperatures well above average. Along with the warm temperatures came precipitation in the form of rainfall. According to the National Weather Service, the region experienced between four and eight inches of rain, occurring mostly toward the end of the month between December 21, 2015 and December 28, 2015. Louisville set a new daily record rainfall of 2.21 inches on December 27, 2015. See Attachment B for a map of December rainfall distribution based on National Weather Service Data. MSD's own rain gage network registered between 3 and 6 inches of rainfall for the same period of time, with TR22 registering 4.78 inches of rainfall. See Attachment C for a chart that summarizes the rainfall at MSD Rain Gage TR22, the closest rain gage to the Fairmount Road PS. Overall, December 2015 will be recorded as the tenth wettest December on record for Louisville.

FAIRMOUNT ROAD PS WET WEATHER EVENT

Four Unauthorized Discharges occurred at three locations in the vicinity of the Fairmount Road PS. Three of the overflows began on December 27, 2015. One location discharged a second time on December 30, 2015. These overflows were the result of a lack of system capacity in the sewers conveying flow to the pump station. Each of these overflows occurred below the 1-year rainfall frequency based on the 1 hour and 6 hour Cloudburst Standard. See the table below for details related to the discharges that occurred near the Fairmount Road PS.

UNIT ID	LOCATION	DATE INITIATED	DATE COMPLETED	PROBLEM	RECEIVING STREAM	VOLUME (GAL)
97365	10800 FAIRMOUNT RD	12/27/2015 9:45	12/30/2015 8:09	LACK OF SYSTEM CAPACITY	BIG RUN	450,225
116106	10801 FAIRMOUNT RD	12/27/2015 16:00	12/28/2015 11:00	LACK OF SYSTEM CAPACITY	BIG RUN	456,000
97363	10800 FAIRMOUNT RD	12/27/2015 15:45	12/28/2015 11:00	LACK OF SYSTEM CAPACITY	BIG RUN	172,800
97365	10800 FAIRMOUNT RD	12/30/2015 15:30	12/31/2015 8:00	LACK OF SYSTEM CAPACITY	BIG RUN	99,000

During the late hours of December 23, the flow at the Fairmount Pump Station increased due to the wet weather event to the point of putting into action the interim Wet Weather Standard Operation Procedure (SOP) for the Fairmount Road Pump Station and SSO Storage Basin. See Attachment C for details related to the SOP. The flow in the manhole just outside the basin overtopped the weir, and the basin began to fill per the SOP. The basin continued to slowly fill through the night. The next morning the contractor began the dewatering operation in accordance with the SOP. However, while performing the basin dewatering operation through December 24 and 25 the basin continued to slowly fill due to the increased flow in the system as the wet weather event continued.



Late in the day on December 26, the basin had filled to capacity. In accordance with the SOP, the influent gate was closed and the dewatering operation was suspended until MSD could confirm that flow dropped below the capacity of the Fairmount Pump Station. MSD Operations staff added granular chlorine to the filled basin on December 27, in accordance with the SOP.

MSD confirmed that flow dropped below the capacity of the Fairmount Pump Station on the morning of December 30 and the dewatering operation resumed. However, later in the day the system began to experience high flows coming from upstream in the system. The level in the basin again began to rise while dewatering activities were ongoing. Since the higher flow was negating the effectiveness of the dewatering operation, the basin dewatering pumps were turned off. The level in the basin later reached storage capacity and the influent gate to the basin was shut in accordance with the SOP. The dewatering operation was again suspended until MSD could confirm that flow dropped below the capacity of the Fairmount Pump Station.

Manhole 97365 in field across street from Fairmount Road

MSD staff reviewed flow and pumping data for the Fairmount PS and the upstream Billtown PS from December 29, in efforts to provide more effective dewatering operations while the system continued to handle the wet weather event. That data indicated higher flows at both stations between approximately noon and 8 PM. This data confirmed the conditions experienced at the Fairmount Road PS December 29 and 30. The data also indicated lower flows between the approximate times of 8 PM December 29 and noon December 30.

Flow again dropped below the capacity of the Fairmount Pump Station on the morning of December 31 and the dewatering operation resumed. Following the review of the previous days' flow data, MSD expected high daytime flow from the upstream system, similar to conditions experienced on previous days. As expected, the system experienced the high daytime flow and the basin began to refill. Because the higher flow was negating the effectiveness of the dewatering operation, the basin dewatering pumps were turned off. However, review of the daytime flow on December 31 MSD concluded that the system experienced less daytime flow than previous days. Consequently, the basin was able to help relieve the system throughout the day without reaching storage capacity.

Fairmount Road Storage Basin De-Watering Line & Overflow at Manhole 116106.

Expecting continued, yet progressively less-intense, high daytime flow in the system, MSD directed the contractor to temporarily suspend daytime dewatering operation, and to resume dewatering the basin between 10:30 PM, December 31 and 9 AM, January 1. In accordance with the SOP, the contractor provided 24-hour staffing through the night to monitor the dewatering operation. Additionally, MSD's computer room was asked to periodically monitor levels at the Fairmount Pump station for higher wet well level readings throughout the night and to make necessary contacts if high levels were indicated.

Overnight the system did not experience any unexpected higher flow. By 9 AM January 1, the basin dewatering operation was able to lower the level of the basin by two feet, or approximately 8%. The dewatering operation was then suspended for the daytime and the basin was prepared to help relieve the system of the expected higher daytime flow. Again the system experienced the expected higher daytime flow and the basin was able to provide relief in the system without reaching the basin's storage capacity.

The nighttime dewatering operation resumed on January 2, 3, 4, and 5. The effectiveness of the dewatering increased every night presumably due to the system slowly gaining relief away from the previous wet weather event.

Daily review of daytime pumping operation of the Fairmount Pump Station revealed progressively lower daytime flow. MSD verified adequate daytime capacity at the Fairmount Pump Station on January 4, and directed the contractor to start 24/7 dewatering operations starting that night at 10:30 PM. The basin and influent chamber were completely dewatered and cleaning operation commenced on January 7. At that time, the dewatering operation was deemed complete and the Fairmount Pump Station returned to normal flow operation, ready for the next wet weather event.

EVENT ASSESSMENT

With this event MSD was able to establish additional wet well level benchmarks at the existing Fairmount Pump Station. These new benchmarks can now be monitored by the SCADA system, and help provide additional notification of the flow levels in the system in relation to the elements of the SOP. For example MSD learned that readings of wet well level of approximately 12.75 feet at the Fairmount Pump Station notifies MSD that the weir has been overtopped and flow is entering the basin. This notification can be used in addition to the auto-dialer tilt bulb notification per the SOP. Additionally MSD learned that following major

wet weather events this local sewer system should expect larger flows during the afternoon hours approximately between the hours of 12 PM and 8 PM. Lower flows should be expected during the nighttime hours.

The SOP was followed and worked as planned with the following exceptions:

- The contractor failed to follow the SOP by failing to immediately notify MSD that the auto dialer had called him indicating that the basin was filling on the night of December 23. The contractor contacted MSD the following morning. MSD corresponded with the contractor reminding them of the importance of following the SOP, including the notification guidelines.
- The influent gate between the basin and the new wet well was closed to prevent sewage from entering the new wet well per the SOP, but presumably leaked. The wet well partially filled and needed to be dewatered and cleaned. The contractor plans to address the gate to prevent future leaks.

Slight structural damage was reported at manhole no. 97365. MSD is currently reviewing a plan to repair the damage. A work order has been created to track the repair.

Looking forward, MSD does not anticipate any additional problems beyond what is currently being addressed. At this time, nothing will be changed operationally at the pump station or with the basin SOP based on what was experienced during this weather event.

cc: James A. Parrott
Paula Purifoy
File

ATTACHMENT A – Fairmount Road PS Modification Letter and Interim Wet Weather SOP

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org

December 21, 2015

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington, DC 20044-7611

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

Chief, NPDES Permitting and Enforcement Branch
Water Protection Division
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Fairmount Road Pump Station and SSO Storage Basin
Minor Project Modification
IOAP Project No. S_FF_CC_81316_M_03_C_A
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the Fairmount Road Pump Station and SSO Storage Basin project (IOAP Project No. S_FF_CC_81316_M_03_C_A). As we discussed in our December 9, 2015, meeting at EPA Region 4 offices in Atlanta, we are requesting the project completion date be revised from December 31, 2015 to March 31, 2016.

Project Description

The Fairmount Road Pump Station and SSO Storage Basin is a 4.2 MGD pump station and a 3.4 MG storage basin originally proposed to be completed by December 31, 2016. The pump station and storage basin are sized to eliminate SSOs up to the 1.82-inch cloudburst storm event.

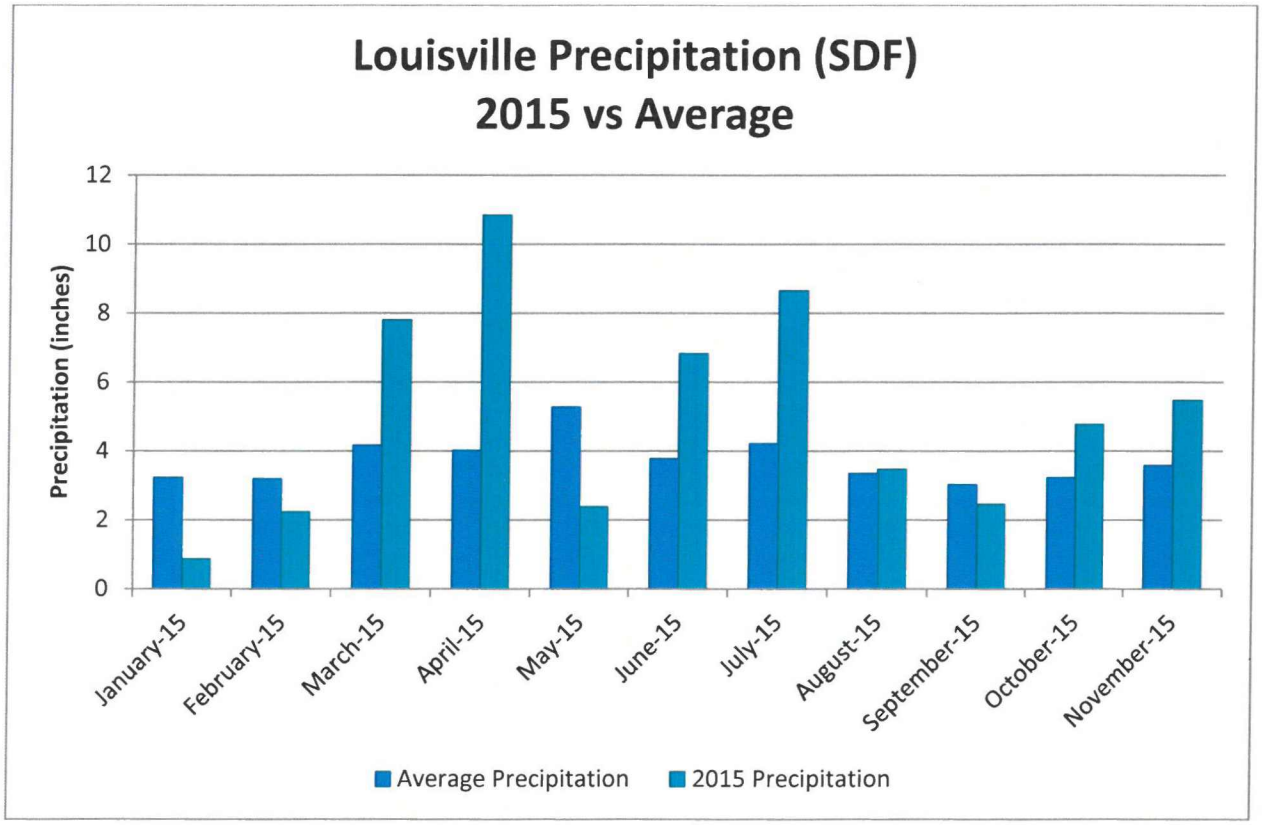
Project Modification Request

This project modification request does not change the size or level of control for the project. The modification only requests a revision of the completion date to March 31, 2016, with the understanding that MSD will implement a Wet Weather Standard Operating Procedure (SOP) to minimize the frequency, duration, and volume of sanitary sewer overflows associated with the Fairmount Road Pump Station during the time period from January 1, 2016 until project substantial completion. The Wet Weather SOP will utilize the existing pump station, a new inlet drop structure and wet weather storage basin (which are operational), a temporary

diversion weir, and a portable basin dewatering pump to enable the facility to control the 1.82-inch cloudburst storm without causing SSOs, which is the approved level of control for this project.

Technical Justification

Construction of the Fairmount Road Pump Station and SSO Storage Basin has been impacted by unusually severe weather in 2015. On December 9, 2015, we indicated that this year is likely to go on record in the top 10 wettest years ever, and based on recent precipitation this has in fact happened. The storms of March, April, June, and July were particularly severe as shown in the following figure:

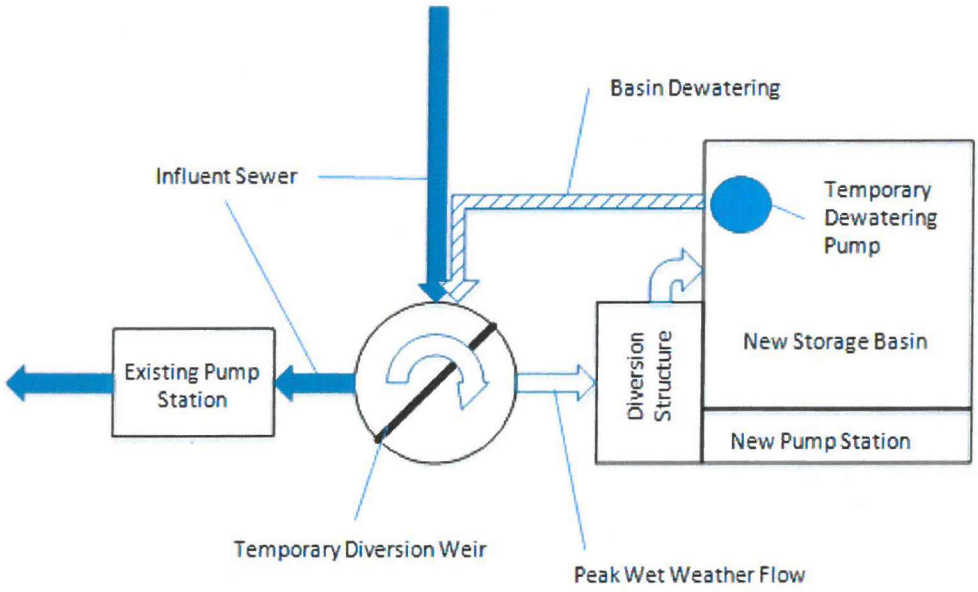


It is worth noting that flooding resulting from the storms in April, 2015, resulted in a Federal Disaster declaration. The construction site experienced significant flooding during these events. In addition, unusually cold and snowy weather in February impacted concrete work scheduled for that time period. Ice, snow, and cold temperatures caused the Contractor to stop rebar placement and wall forming due to safety concerns.

As a result of these severe and unusual weather impacts, the Contractor will not be able to achieve substantial completion prior to the current required date. Based on information provided us by the Contractor, it appears that substantial completion of the project can be expected by March 31, 2016. MSD proposes to mitigate the impacts of this delayed substantial completion date through the operation of temporary facilities that will allow the project to achieve the target level of control of a 1.82-inch 3-hour cloudburst storm by December 31, 2015.

Mitigation Approach

A schematic illustrating the mitigation approach is shown below:



During dry weather all flows will continue to be pumped by the existing Fairmount Road Pump Station. During wet weather when flows exceed the capacity of the existing pump station, a temporary static diversion weir will send the excess flow to the new storage basin. When flow drops below the capacity of the existing pump station, the temporary dewatering pump will pump from the storage basin to the diversion manhole, where it will route to the existing pump station. Given the limitations of the temporary pump system, the storage basin may take longer than 24 hours to empty, raising the potential for odor generation. Should odors become a problem, MSD will add a granular chlorine compound to the storage basin to control the odors.

MSD has already installed the temporary diversion weir and the temporary dewatering pump, and a successful test of the system was completed on December 18, 2015. A detailed Wet Weather SOP has been developed to guide both MSD and Contractor staff during operation. A copy of the Wet Weather SOP is attached for your reference.

Based on the mitigation approach described, we believe environmental impacts will be minimized from this delay in achieving substantial completion, and we request approval to the minor modification to change the substantial completion date to March 31, 2016.

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

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

Sincerely,

Angela L. Akridge, PE
Chief Engineer

cc: Tony Parrott Paula Purifoy

Attachments

X:\Data\IOAP\2014 IOAP\2014 Modification\Mod Letters\ Fairmount Road – Dec 21, 2015.docx

WET WEATHER

STANDARD OPERATING PROCEDURE

Temporary Flow Diversion with Wetwell Bypass
Fairmount Road Pump Station and
Sanitary Sewer Overflow Storage Basin

Louisville and Jefferson County
Metropolitan Sewer District

700 West Liberty Street
Louisville, KY 40203

Revision Date:
December 21, 2015

Table of Contents

OVERVIEW

This document outlines the wet weather standard procedure to temporarily operate the Fairmount Road Pump Station and SSO Storage Basin in conjunction with the existing pump station at Fairmount Road if wet weather flow diversion needs to occur before the new pump station wetwell is complete. The Basin would only be used during wet weather events. The basin contractor, Judy Construction Co., will be responsible for operating the temporary facilities during this period. MSD will remain responsible for operation of the existing Fairmount Road Pump Station.

FLOW DIVERSION SCHEME

A temporary weir will be installed in Manhole #116,106. This weir elevation will be set to El. 509.0. Modeling concluded that the existing pump station can handle up to a 0.65-inch rainfall without reaching that wet well elevation. When the existing pump station receives wet weather flows in excess of available capacity the wet well level will rise above the level of the temporary weir and the additional flow will travel over the weir into the influent drop structure for the new Fairmount Road Pump Station and SSO Basin. The modeled peak flow rate into the basin during the 2-year cloudburst storm is 7.8 MGD. A detail of the weir can be seen in Appendix A. A 2-inch pump will be placed behind the weir to pump any dry-weather leakage back over to the upstream side of the weir.

To fill the basin and isolate the wetwell, gates G001, G002, G003, and G006 shall be locked out and tagged out in the closed position. Gate G004 shall be locked and tagged open. Gate G005 shall be operational and normally open. See Sheet D-7 in Appendix B.

After overtopping the weir, flow will enter a 42” drop pipe and travel into the influent drop structure. As the water level rises in the influent drop structure, flow will travel through a static upflow screen with a peak design flow rate of 18.1 MGD. The screen shall facilitate removal of solids greater than 1/6 inch. If the screen becomes blinded, flow can bypass the screen through a fixed weir at Elevation 509.0. Flow will then enter the Wetwell Bypass chamber through Gate G004 and flow into the Basin through Gate G005.

DEWATERING

Overflow will be stored in the basin until it can be paced back into the system. To dewater the Basin, an 8” hydraulic submersible diesel pump with a 2 MGD capacity will be placed into the sump of the storage basin. This pump will utilize a 175 gallon diesel storage tank with an auxiliary 500 gallon tank. Secondary spill containment will be provided in accordance with local regulations. The discharge line will exit the basin through Hatch H022 and will travel along the west side of the basin and back into MH #116,106. The discharge line shall be securely anchored to prevent accidental disconnection from vibrations or the weight of water in the line. During installation of the weir, the top of this manhole will be removed. When the top is put back in place, it will be turned so that the manhole lid is oriented above the upstream side of the weir. This will allow discharge back into the gravity sewer system. Flow will travel to the existing Fairmount Road Pump Station. The basin dewatering pumps were tested on December 18, 2015, prior to the facility being put into use. Testing guidelines can be found in Appendix D.

MSD (Mike Brazel, Marc Thomas, Greg Powell, or Jay Thomas) will notify Judy Construction Co. when dewatering activities can begin by monitoring flows and water levels at the existing Fairmount Road Pump Station. To eliminate a complex control scheme for returning flow to the system, the basin pump will be turned on and allowed to run continuously until dewatering is completed. If the pump is dewatering the

basin at a faster rate than the existing gravity system can handle, flow will recirculate back over the weir and follow the flow path back into the basin. During dewatering, Gate G005 between the Influent Drop Chamber and the Basin shall be in the open position. See Sheet D-7 in Appendix B.

If the basin level begins to rise and approaches elevation 505 during dewatering, the pumps shall be turned off, and Gate G005 shall be closed.

During dewatering the discharge line will be inspected several times daily by the contractor. Should any leaks be found in the discharge line(s), the dewater pumps will be immediately turned off until the leaks are repaired. MSD shall be notified of any leaks or overflows. The 100 year flood level of the Big Run Creek is Elevation 515.5. The rim elevation of Manhole #116,106 is Elevation 515.76. If the creek nears the 100 year flood elevation, the discharge line will be pulled from the manhole and the lid will be closed.

The influent box will be pumped down after any storage event. This will be done by placing an electric submersible solids handling pump into the influent box. This pump will discharge into the basin.

WASH-DOWN

Wash-down activities shall be completed within 24 hours of basin dewatering completion.

The influent box shall be dewatered and washed down before the basin wash-down begins. The static upflow screen will be inspected through Hatch H016 and will be sprayed down manually as needed. The walls of the influent drop structure and wetwell bypass chamber shall be sprayed down manually through hatches H015, H016, and H017.

The tipping buckets and the automatic wall wash-down system will be used to clean the storage basin after its initial dewatering. The automatic wall wash-down system will be operated first through hand mode at the control panel in the electrical room. After wall wash-down is complete, the tipping buckets will be filled by operating the valves in hand mode at the tipping bucket control panel in the electrical room.

For the standard operating procedure for wall and tipping bucket wash-down, see Appendix B.

MONITORING

An auto dialer will be connected to a level instrument in the influent drop structure. The auto-dialer will notify Judy Construction Co. contacts located on the notification tree on page 4 when the influent drop structure water surface elevation reaches El. 480.0.

There will also be an auto-dialer on a level instrument in the basin. If the level reaches El. 499.0, the auto-dialer will notify Judy Construction Co. to allow someone to get to the site to be ready to perform emergency shutdown if required. Once Judy is on-site they should monitor the basin level. If the Elevation reaches 506.5, Judy shall immediately perform Emergency Shutdown.

One level transducer will be provided by MSD to monitor the water depth in the basin. This level transducer will have a 30-foot measuring range and will be provided with a 75-foot cable. The level transducer is equipped with a waterproof enclosed display so that level can be read on-site. Level Transducer 1 will be placed in the basin sump.

Judy Construction Co. will be required to physically staff and monitor the site 24/7 during basin filling for the first storage event only. During any subsequent events, Judy will be required to visit the site at the initiation of an event, but can leave after an initial inspection takes place confirming proper gate positions, fuel levels, and pump readiness. Judy Construction Co. shall monitor the weather and if an event occurs that could potentially flood the site, they will be required to monitor and pull pump discharge lines if the Big Run Creek approaches the Manhole # 116,106 rim elevation.

Judy Construction Co. will be required to physically staff and monitor the site 24/7 during dewatering and wash-down activities.

ODOR CONTROL

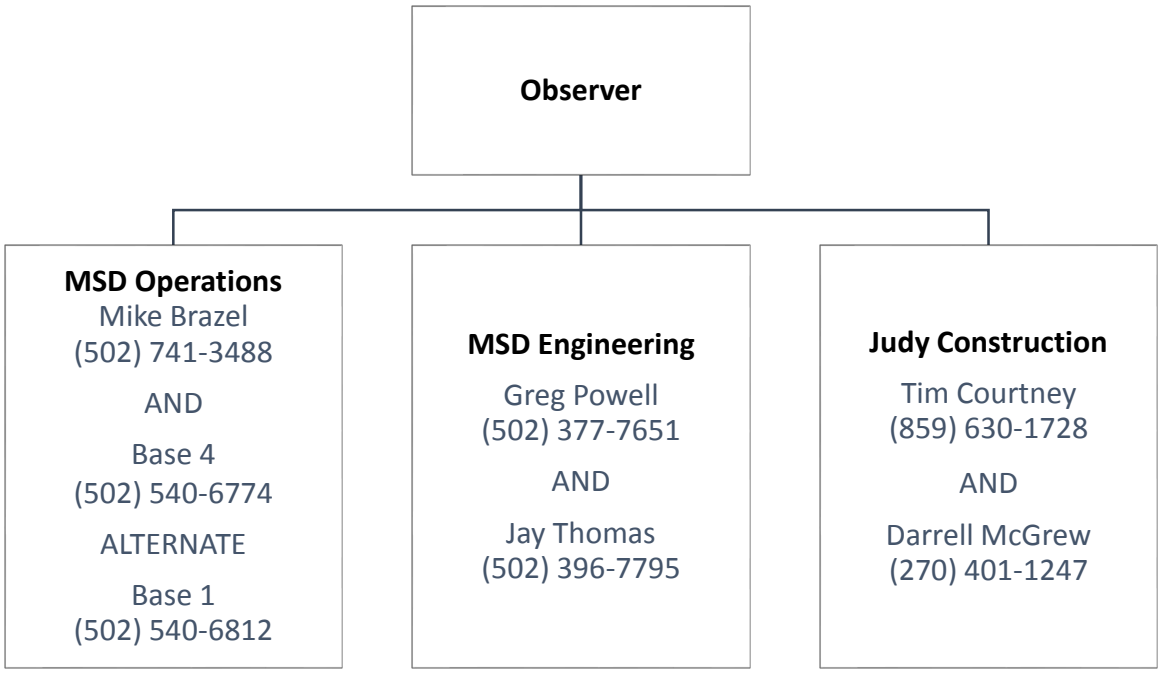
Odor issues will be handled by MSD on an as needed basis. Odor should only be an issue if the basin volume is held for several days. In this case, if dewatering is not possible due to high flows in the gravity system, pumps will be turned on to allow the basin volume to circulate back into the manhole. MSD will manually add granular chlorine from hatch H015 in the influent drop structure. Gate G005 shall be in the open position.

EMERGENCY SHUTDOWN

The basin will be shut down at a high water elevation of 506.5. This will be achieved by closing the 42" sluice gate, G005 between the influent drop structure and the basin. The contractor will utilize the Level Transmitter in the basin to manually read basin water level and manually close the gate. To better protect the unfinished wetwell from any splashing in the basin, temporary blocking will be placed in the two 8' x 3' overflow weirs between the basin and the wetwell. These temporary bulkheads are not considered watertight and are not meant to handle the pressure of water behind them.

After gate G005 is shut, the contractor shall monitor the site as well as the low manhole, #97365, for overflows. This manhole is located two manholes south of Fairmount Road on the west side of Big Run Creek. Any overflows observed shall immediately be reported to MSD Customer Relations at (502) 587-0603. In addition, overflows observed shall also be reported to all contacts in the notification tree.

NOTIFICATION TREE



The notification tree above shall be used for the facility. All parties above shall be contacted during the following events:

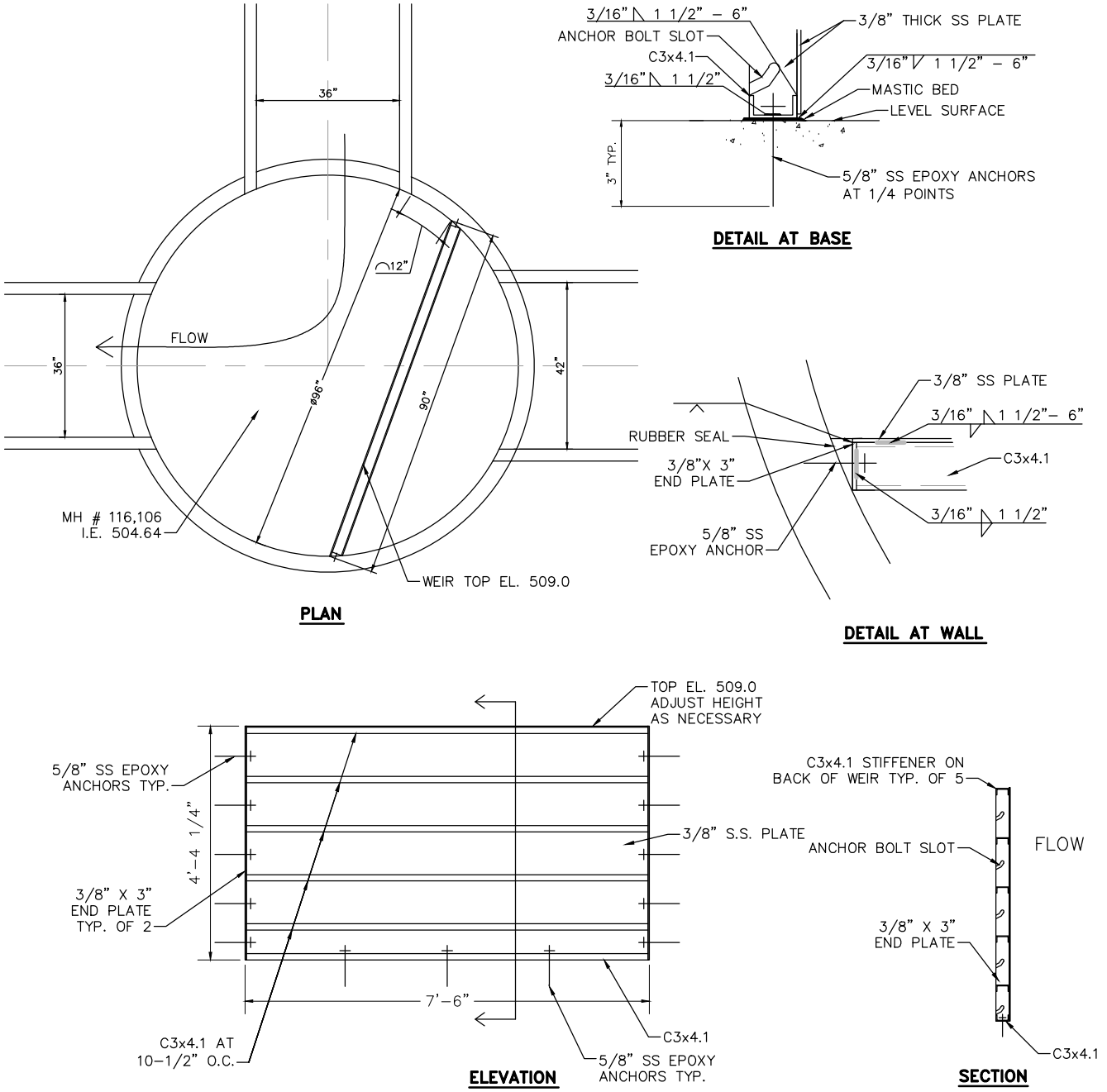
1. Initiation of a Storage Event - Influent Drop Structure Begins Filling (WSE 480.0)
2. Potential Shutdown Event – Rising Water Level in Basin to El. 499.0
3. Emergency Shutdown - High Water Level in the Basin (WSE 506.5)
4. Dewatering commencement and at 8 hour intervals during dewatering
5. Completion of wash-down with empty basin and influent drop structure
6. Overflow or Discharge
7. Equipment Failure

Events 1 and 2 will use level instrument with an auto dialer to automatically call Judy Construction Co. After receiving the call from the auto dialer, Judy will immediately notify the parties from MSD Operations and MSD Engineering. For event 2, the auto dialer cannot differentiate between a rising and falling water level. The auto dialer will make a false call when the basin is being dewatered if the level falls to El. 499. During dewatering, Judy will be on site to differentiate this situation.

In the event of an overflow or discharge the Observer shall immediately be report the overflow to MSD Customer Relations at (502) 587-0603. In addition, overflows observed shall also be reported to all contacts in the notification tree. MSD respondents will follow MSD's Standard Overflow Response Protocol (SORP). The MSD observer will record the start time, stop time, volume discharged, and the location.

EQUIPMENT CATALOG

Equipment Number	Equipment Name	Location	Notes
G001	36” x 42” Sluice Gate/Actuator	Influent Drop Structure	Locked CLOSED
G002	36” x 42” Sluice Gate/Actuator	Influent Drop Structure	Locked CLOSED
G003	48” x 24” Sluice Gate/Actuator	Wetwell	Locked CLOSED
G004	42” x 42” Sluice Gate/Actuator	Influent Drop Structure	Locked OPEN
G005	42” x 42” Sluice Gate/Actuator	Basin	Operational OPEN
G006	36” x 36” Sluice Gate/Actuator	Basin	Locked CLOSED
S001	13’-3” x 7’-6” Hydrostatic Upflow Screen	Influent Drop Structure	Check after each event and spray down if required.
T001	Tipping Bucket #1	Basin	Operated in LOCAL at control panel inside electrical building
T002	Tipping Bucket #2	Basin	Operated in LOCAL at control panel inside electrical building
T003	Tipping Bucket #3	Basin	Operated in LOCAL at control panel inside electrical building
T004	Tipping Bucket #4	Basin	Operated in LOCAL at control panel inside electrical building
T005	Tipping Bucket #5	Basin	Operated in LOCAL at control panel inside electrical building
T006	Tipping Bucket #6	Basin	Operated in LOCAL at control panel inside electrical building
W001	7.5-ft weir	MH# 116,106	Fixed Weir inspect periodically
L001	Level Transducer #1	Basin	0-30 ft Range with Local Display
P001	Heidra 200 Hydraulic Submersible Pump with 8” discharge into MH #116,106	Basin	Allied Pump Rental Josh Mangan (859) 321-1578
P002	Pump to dewater influent drop structure, discharge into basin	Influent Drop Structure	Allied Pump Rental Josh Mangan (859) 321-1578
P003	Pump Behind Weir	MH #116,106	Allied Pump Rental Josh Mangan (859) 321-1578
A001	Auto-dialer #1	Influent Drop Structure	Allied Pump Rental Josh Mangan (859) 321-1578
A002	Auto-dialer #2	Basin	Allied Pump Rental Josh Mangan (859) 321-1578
X001	Wall Washdown System	Basin	Operated in LOCAL at control panel inside electrical building



WEIR DETAIL

NOT TO SCALE

APPENDIX B
Basin Wash-down Standard Operating Procedure

Description

The basin tipping buckets and automatic wall wash-down systems will be operated in hand mode from the wash-down control panel in the electrical building. A complete sequence will include one wall flushing cycle and two tipping bucket cycles.

Components

- Flushing Nozzles
- Three (3) Tipping Buckets – 1,315 gallons each
- Two (2) Tipping Buckets – 1,400 gallons each
- One (1) Tipping Bucket – 225 gallons
- Various Control/Isolation Valves (Motor-actuated ball valves)
- Solenoid Valves (Drain Valves)
- Four (4) Hotboxes for Valve Freeze Protection
- Tipping Bucket Proximity/Limit Switches
- Wall Flushing and Tipping Bucket Local Control Station

Controls

The Wall Flushing and Tipping Bucket Systems will operate through the Tipping Bucket Local Control Panel (TBCP). When the LOCAL/REMOTE/MANUAL switch on the TBCP is in the LOCAL position, the wall flushing nozzles and tipping buckets can be controlled manually through the HMI including the control of individual flush zones and individual buckets and wash cycles.

Operation

The wall flushing system is divided into zones. There are a total of five (5) wall flushing zones that use a series of high pressure flush nozzles to automatically spray down basin walls. These Zones consist of South Zone 1, South Zone 2, West Zone, North Zone 1, and North Zone 2. Each zone is isolated by its own 2-1/2" motorized ball valve.

To initiate a wall flushing sequence, "Solenoid Valve South Wall Washdown 1" shall be turned to the open position and the nozzles should be allowed to spray for ten minutes before the valve is closed. After the South Zone 1 valve is closed, South Zone 2 shall be opened and allowed to spray for ten minutes. This sequence shall be performed on all zones in the following order: South Zone 1, South Zone 2, West Zone, North Zone 1, and then North Zone 2.

To initiate a tipping bucket sequence, a 2-1/2" motorized ball valve on the fill piping to Tipping Bucket #1 (T001) shall be opened by turning "Solenoid Valve Tipping Bucket #1" to the open position. When the bucket is filled via the non-potable water system, the bucket automatically spills washing any sediment/debris longitudinally through the flushing lane to the west side of the SSO Basin. The switch shall be turned to the close position after the tipping bucket spills. This sequence shall be performed on

all tipping buckets in the following order: Tipping Bucket #1, Tipping Bucket #2, Tipping Bucket #3, Tipping Bucket #4, Tipping Bucket #5, and Tipping Bucket #6. Tipping Buckets #1-5, located on the east side of the basin, wash sediment longitudinally through the flushing lanes to the west side of the basin. Tipping Bucket #6, located in the north-west corner of the basin, washes the basin laterally within the sump channel along the west side of the basin.

The tipping bucket sequence is repeated for a second time to complete the full washdown sequence. The basin dewatering pump shall be run as needed during the basin washdown process to keep water from standing on the floor of the basin.

PLOTTED: 3/28/2014 1:54:51 PM

CODED NOTES:

1. PROVIDE STILLING WELL PER DETAIL ON SHEET D-14.
2. HUBBELL POWER SYSTEMS, INC HOTBOX MODEL HB3H OR EQUAL, INTERIOR FLOOR 70"x26".
3. HUBBELL MODEL HB3NS OR EQUAL, INTERIOR FLOOR 83"x26".
4. REMOVABLE BOLLARD 1' FROM EDGE OF WETWELL AND VALVE VAULT. SPACE EVERY 5 FEET. SEE DETAIL SHEET S-19 (TYP. OF 8)
5. 6" GOOSENECK VENT. SEE DETAIL ON SHEET D-14.
6. FLUSH MOUNT FLOOR SLEEVE DBI-SALA MODEL 8510311 AND HEAVY DUTY SLEEVE CAP DBI-SALA MODEL 8510827 TO ACCOMMODATE ADJUSTABLE OFFSET DAVIT MASTS DBI-SALA MODEL NUMBERS 8518001 AND 8518006. CENTERLINE OF SLEEVE SHALL BE LOCATED A MINIMUM OF 23-1/2" AND MAXIMUM 27-1/2" FROM CENTERLINE OF ACCESS LADDER, OR IF NO LADDER, FROM CENTERLINE OF ACCESS HATCH.
7. DIMENSIONS ARE CLEAR OPENING.
8. HANDRAIL DIRECTLY BEHIND HOTBOX SHALL BE 36" HIGH TO ALLOW HOTBOX TO OPEN.
9. SURFACE MOUNTED BOLLARD 5' FROM EDGE OF BASIN. SPACE EVERY FIVE FEET. SEE DETAIL SHEET S-19 (TYP. OF 4)
10. PROVIDE ONE (1) SURFACE MOUNTED BOLLARD AS SHOWN TO PROTECT GOOSENECK VENT.

Place 8" hydraulic pump in this hatch

Place hydraulic power pack and 500 gallon fuel tank next to the basin on gravel road area

Run pump discharge pipe along this side of basin wall

Place discharge of pump into manhole on west side of the metal weir plate

Install a metal weir plate to El. 509

Gate Normally Open

Gate Closed when basins is full

Wet weather flow

Dry weather flow

Wet Weather Flow

190'-0"

100'-0"

32'-8"

89'-6"

10'-0"

5'-0"

10'-0"

BASIN

WETWELL

FUTURE WETWELL

VALVE VAULT

CONTROL/ ELECTRICAL ROOM

CHEMICAL FEED/ EQUIPMENT ROOM

CONTROL BUILDING SEE SHEET D-8

CATWALK PLATFORM

LIFT OFF SLAB

INCLINED WALK

ALUMINUM HANDRAIL

102/120 INTAKE HOOD, IH1

58/70 DUCT DOWN

123/156 INTAKE HOOD, IH2

68/94 DUCT DOWN

102/120 INTAKE HOOD, IH4

123/156 INTAKE HOOD, IH3

SUPPLY FAN, SF1

74/74 DUCT DOWN

SUPPLY FAN, SF2

SUPPLY FAN, SF3

74/74 DUCT DOWN

ROOF CURB

EXHAUST FAN, EF1

EXHAUST FAN, EF2

EXHAUST FAN, EF3

EXHAUST FAN, EF4

7 19' x 4' FLOOR PLATE FOR TIPPING BUCKET ACCESS (TYP. OF 2)

7 18' x 4' FLOOR PLATE FOR TIPPING BUCKET ACCESS (TYP. OF 3)

3' x 7' FLOOR PLATE FOR TIPPING BUCKET ACCESS 7

ALUM. HANDRAIL

FENCE H017

WETWELL BYPASS CHAMBER

FLOOR PLATE FOR SLUICE GATE REMOVAL

INFLUENT GRINDER/ SCREEN CHAMBER

42" INFLUENT DROP SEWER

36" SEWER

8' MH #116,106 RIM EL. 515.76 I.E. 504.64

PROP. 24" SEWER INSIDE EX. 36" (SEE DETAIL ON SHEET C-8)

CONDUIT RACK & 8" CMU WALL. SEE DETAIL ON SHEET E-14.

36" X 36" ALUM. ACCESS HATCH TYP. OF 5

FLOOR PLATE FOR FUTURE SLUICE GATE (SEE DETAIL ON S-18)

36" X 78" ALUM. ACCESS HATCH

36" X 36" ALUM. ACCESS HATCH

54" x 36" ALUM. ACCESS HATCH (TYP. OF 4)

60" x 42" ALUM. ACCESS HATCH (TYP. OF 3)

48" x 48" ALUM. ACCESS HATCH (TYP. OF 5)

36" X 60" ALUM. ACCESS HATCH TYP. OF 2

8" ø CAST IRON FLOOR BOX AND COVER FOR CLEANOUT ACCESS; NEENAH SERIES R-7506-D OR EQUAL. (TYP. OF 2)

WALL MOUNTED FENCE SEE DETAIL ON SHEET C-10

H001 H002 H003 H004 H005 H006 H007 H008 H009 H010 H011 H012 H013 H014 H015 H016 H017 H018 H019 H020 H021 H022 H023 H024

EL. 523.0 EL. 522.31 EL. 522.50 EL. 522.5 EL. 522.0 EL. 523.00

INTAKE HOOD SCHEDULE

SYMBOL	CFM	THROAT WIDTH (IN)	THROAT LENGTH (IN)	E.S.P. (IN.W.C.)	THROAT AREA (SQ FT)	WEIGHT (LBS)	REMARKS
IH1	58,000	58	70	0.1	28.2	235	1, 2, 3, 4
IH2	29,000	68	94	0.1	44.4	399	1, 2, 3, 4
IH3	29,000	68	94	0.1	44.4	399	1, 2, 3, 4
IH4	18,000	58	70	0.1	28.2	235	1, 2, 3, 4

REMARKS
1. PROVIDE 12 INCH CURB.
2. PROVIDE ALUMINUM CONSTRUCTION.
3. PROVIDE HI-PRO POLYESTER POWDER COAT.
4. PROVIDE 0.5 INCH ALUMINUM BIRDSCREEN.

FAN SCHEDULE

SYMBOL	CFM	E.S.P. (IN.W.C.)	RPM	MOTOR HP	POWER	DRIVE	WEIGHT (LBS)	INLET DBA (DB)	GREENHECK MODEL	REMARKS
EF1 - 4	58,000	0.25	713	20	460/60/3	BELT	1,770	88	TBI-CA-4L50	1, 2, 3, 4, 5, 7, 8, 12
EF5	700	0.25	734	1/4	115/60/1	BELT	141	58	SBE-1H20	6, 9, 10, 11, 12
SF1 - 3	46,000	0.5	550	10	460/60/3	BELT	1,118	84	RBCS-3H72-100	1, 2, 3, 4, 6, 8, 12

NOTES
1. PROVIDE NEMA 3R DISCONNECT SWITCH.
2. PROVIDE AMCA TYPE B SPARK RESISTANT CONSTRUCTION.
3. PROVIDE HI-PRO POLYESTER POWDER COAT.
4. PROVIDE MOTOR COVER.
5. PROVIDE OUTLET GUARD.
6. PROVIDE INLET GUARD.
7. PROVIDE EXPLOSION PROOF MOTOR.
8. PROVIDE 12 INCH ROOF CURB.
9. PROVIDE GRAVITY DAMPER.
10. PROVIDE FLUSH EXTERIOR WALL HOUSING
11. PROVIDE NEMA 1 DISCONNECT.
12. PROVIDE BIRD SCREEN.

ROOF PLAN
1/8" = 1'-0"
0 1 2 4 8
FEET

Professional Engineer's Seal

RECORD DWGS:		
CHECKED BY:	DES	3/28/14
DESIGNED BY:	DND	3/28/14
DRAWN BY:	DND	3/28/14
FILE NAME: D-101.dwg		
PLOT DATE: 3/28/2014		

PLANS PREPARED AND SUBMITTED BY:

MSD
Louisville and Jefferson County Metropolitan Sewer District
700 W. Liberty Street - Louisville, Kentucky 40203-1913
502-587-0603 - WWW.MSDLOUKY.ORG

NO.	REVISION	DATE

SHEET TITLE: BASIN ROOF PLAN

PROJECT TITLE: FAIRMOUNT ROAD PUMP STATION & SANITARY SEWER OVERFLOW STORAGE BASIN

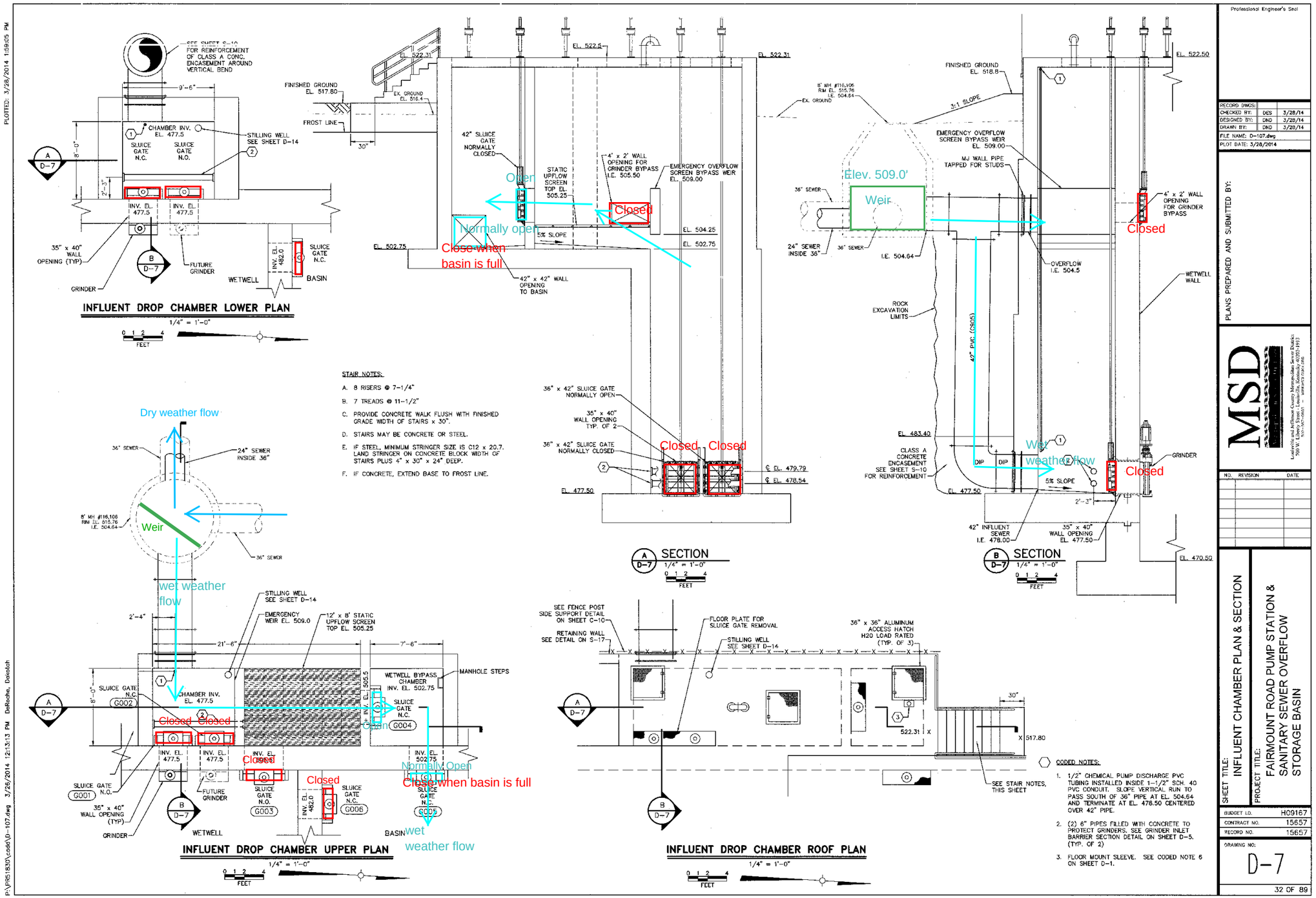
BUDGET I.D.	H09167
CONTRACT NO.	15657
RECORD NO.	15657

DRAWING NO: D-1

26 OF 89

P:\PR51830\cadd\D-101.dwg 3/26/2014 1:04:35 PM DeRoche, Dakotah

APPENDIX D - Gate Position and Flow Diagram



APPENDIX E
Basin Dewatering Pump Test

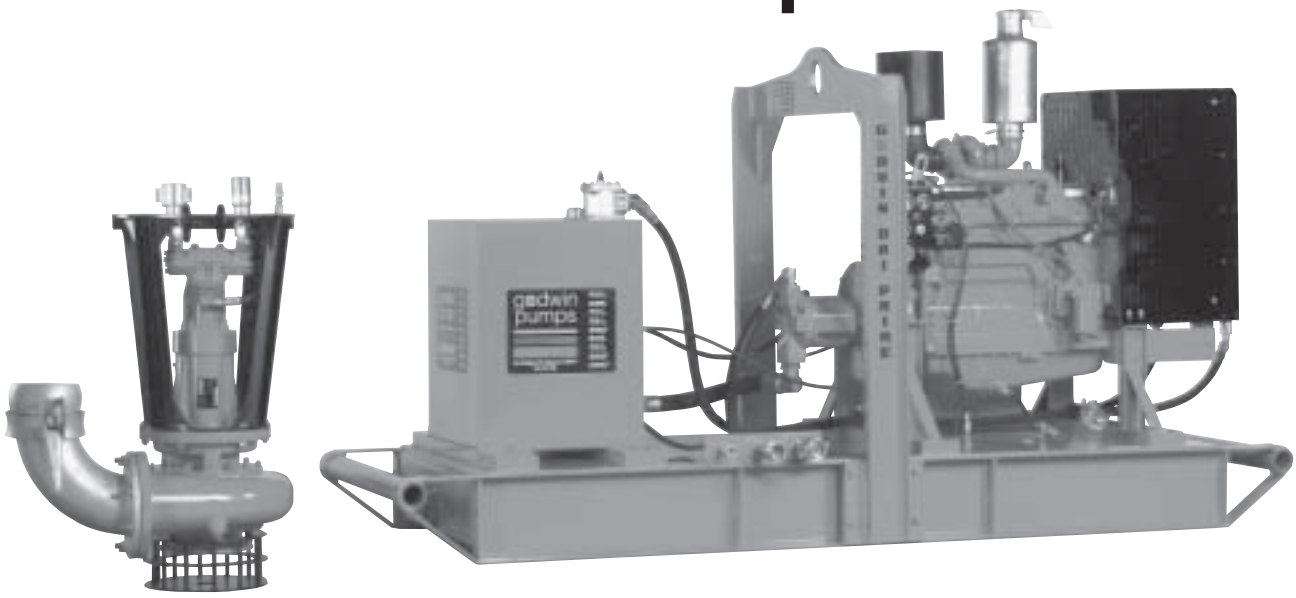
Prior to putting the basin into operation, a successful basin dewatering pump test must be completed. To perform a test on the pumps, the basin shall be filled with two feet of clean water and pumped down until dry. Groundwater shall be considered acceptable for use in the tests. The pump shall be able to run continuously and dewater the basin into manhole #116,106 without any leaks from the discharge line or the discharge manhole. The basin pump discharge line shall be fully supported on the interior basin wall using pipe supports. The discharge line shall also be anchored to the west exterior wall of the basin along its path to manhole #116,106. The Contractor shall submit proposed pumps and discharge line anchoring methods for approval by MSD.

This test was successfully completed on December 18, 2015.

APPENDIX F
Equipment Datasheets

Datasheets will be added to this document for the pumps and auto-dialers that will be rented for temporary use in the facility. Shop drawings for the equipment will be submitted to MSD for review and approval.

Heidra® 200 Hydraulic Submersible Pumps



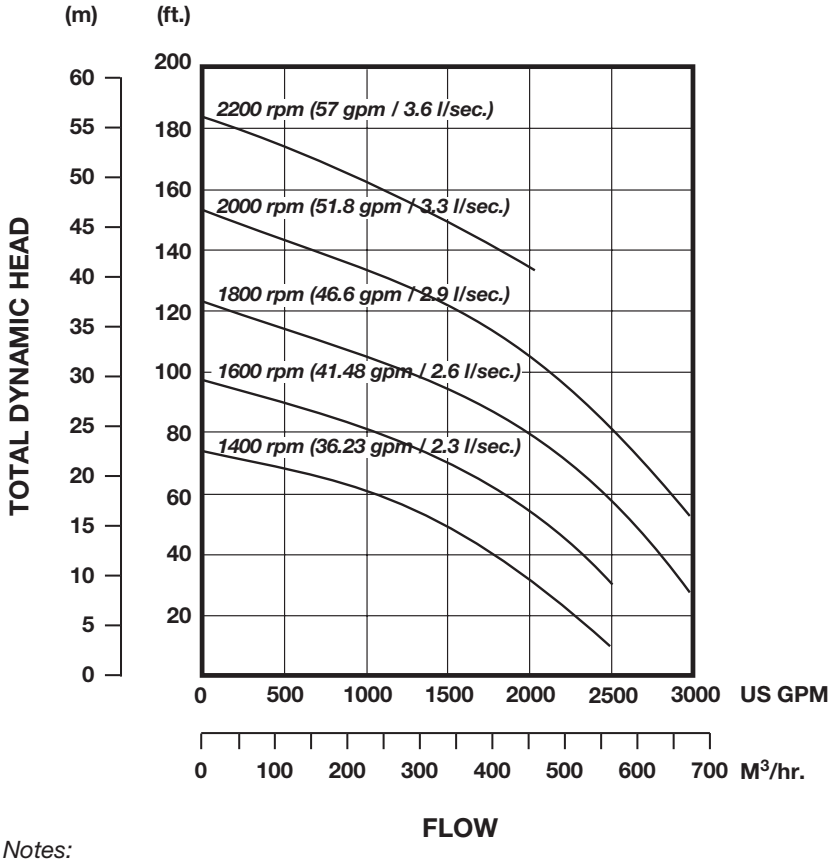
The Heidra 200 hydraulic submersible pump is a self-contained, diesel powered 8" (200mm) pump available for heavy duty municipal and industrial dewatering and solids handling pumping applications. The Heidra 200 offers flow rates up to 3100 gpm (703.7 M^3/hr.) with up to 180' (54.9M) of total dynamic head and solids handling capability of 3-1/8" (79mm) in diameter. The unit consists of a sturdy cast iron submersible pumpend and hydraulic power pack mounted on a rugged steel skid. A variable displacement hydraulic piston pump on the power pack delivers hydraulic fluid to a fixed displacement piston motor that drives the pumpend's shaft, bearings, and cast steel impeller. Simple engine throttle adjustments allow changes to pump flow and head performance.

Features

- Rugged construction of cast iron pumpend with cast chromium steel impeller.
- Flow rates to 3100 gpm (703.7 M^3/hr.) and heads to 180 feet (54.9M).
- Unique double mechanical seal immersed in isolated oil bath for unlimited dry running capability.
- Integral 175 gallon (662 liter) fuel tank capacity provides over 24 hours of continuous operation.
- Safety shutdown system incorporated into engine controls prevents equipment damage from engine fault or failure.
- Impeller designed for general pumping with solids up to 3-1/8" (79mm) in diameter.
- "Quick-Disconnect" hydraulic fittings simplify setup, installation, and shutdown.
- Standard John Deere 6068T or Caterpillar 3116TA engine. Also available with other diesel engines or electric drive motor.

godwin pumps

Heidra® 200 Performance Curve



Notes:

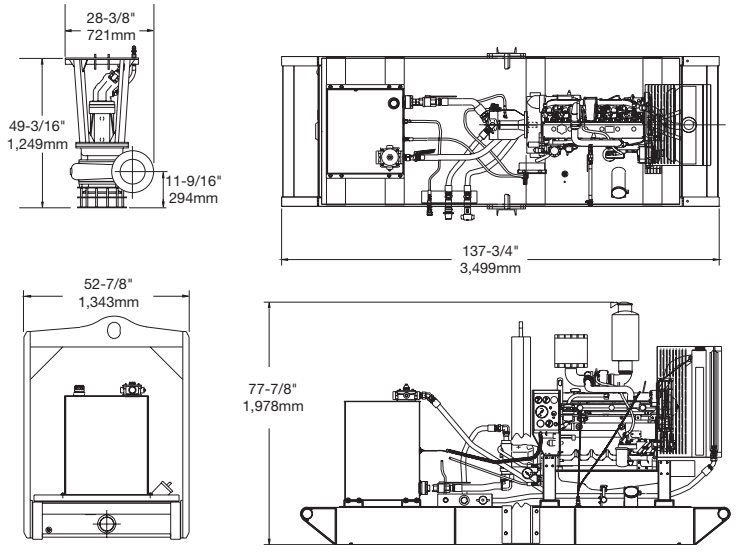
1. Impeller diameter: 11-3/8" (290 mm)
2. Performance curves based on diesel engine speed
3. Requires hydraulic system pressure to 4000 psi (276 BAR)

Performance data based on water testing at sea level and 68° F. Larger diameter pipes may be required for maximum flows.

Dimensions

Heidra 200 — shown with John Deere 6068T, Skid Base
Pump Weight: 780 lbs. (354 kg.)

Complete pumpset is supplied with one each of 1-1/4" X 50' (32mm x 15.25M) high pressure feed and return hoses and one 1/2" X 50' (13mm x 15.25M) low pressure case drain hose.



Specifications

Submersible Pump:

Hydraulic Motor: Fixed Piston
Drive Pressure: Up to 4000 psi (276 BAR)
Hydraulic Flow: Up to 57 gpm (3.6 l/sec.)
Hydraulic Line Length: 100 feet / 30.5M (longer runs with larger hose)
Solids Handling: Up to 3-1/8" (79mm) diameter
Pump Speed: Up to 2200 rpm
Impeller Diameter: 11-3/8" (290mm)
Discharge Flange: 8" (200mm) ASA 150
Hydraulic Connections: 1-1/4" (32mm) Quick Disconnect
Strainer: Nylon coated with 2-3/4" (70mm) apertures

Power Pack:

John Deere 6068T Engine
Horsepower: 147 hp (110 kw) @ 2200 rpm
Fuel Consumption: 7.2 gph (27 lph)
Caterpillar 3116TA Engine
Horsepower: 143 hp (107 kw) @ 2200 rpm
Fuel Consumption: 7.6 gph (29 lph)
Fuel Tank Capacity: 175 gallons (662 liters)
Output
Hydraulic Flow: 57 gpm (3.7 l/sec.)
Pressure: 4000 psi (276 BAR)
Control: From engine speed and pressure compensated
Hydraulic System: Two pipe, open circuit
Reservoir: 80 gallon (303 liters)
Control Valve: Pressure compensated on/off valve
Connections: 1-1/4" (32mm) Quick Disconnect feed and return
1/2" (13mm) Quick Disconnect case drain
Supply Line: 125 micron, pleated gauze
Return Line: 20 micron

godwin pumps

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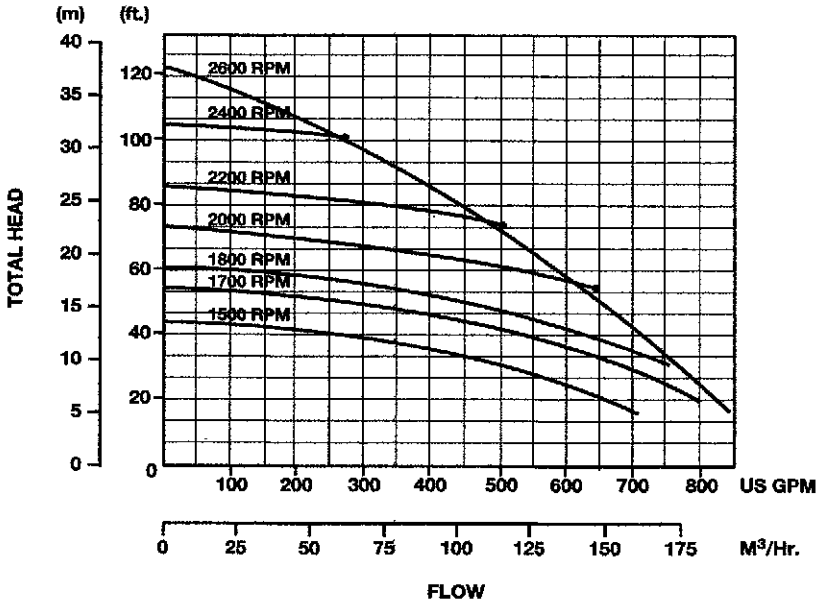
E-mail: sales@godwinpumps.com
www.godwinpumps.com

BRANCH LOCATIONS:
Norwich, CT • Buffalo, NY • Pittsburgh, PA • Chicago, IL
Washington, DC • Richmond, VA • Virginia Beach, VA
Charleston, WV • Raleigh, NC • Charlotte, NC
N. Charleston, SC • Atlanta, GA • Houston, TX
San Antonio, TX • Helena, MT • Los Angeles, CA

GPASL.050.903

Heidra 100 Performance Curve



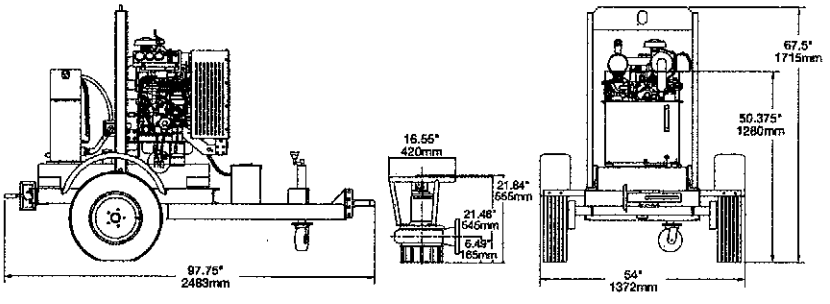
Performance data listed in table and curves based on water tests at sea level and 68° F (20° C). Larger diameter pipes may be required for maximum flows.

Dimensions

Weights (approx.)

Pump

Aluminum	90 lbs. (41 kg.)
Cast iron	141 lbs. (64 kg.)
Power Pack	1,230 lbs. (558 kg.)



Materials

Pump Casing and Suction Cover:
Aluminum or Cast Iron
Front & Rear Wearplates:
Cast Iron
Pump Shaft:
Mild Steel
Impeller:
Cast Steel
Bearing & Seal Housing:
Cast Iron
Mechanical Seal:
Double mechanical seal in oil bath
Inboard: Silicone Carbide
Outboard: Carbon on Ceramic
Lifting Bracket:
Fabricated Mild Steel tube & plate

Specifications

Submersible Pump:

Hydraulic Motor: Gear Type
Drive Pressures: 3350 psi (231 BAR)
Flow: 8.8 gpm (.56 l/sec.)
Pump Speed: Up to 2200 RPM
Impeller Diameter: 8.4" (213mm)
Solids Handling: 2" (50mm), max.
Discharge: Flanged 4" (100mm) ASA 150
Hydraulic Discharge Connections:
3/4" (19mm) Quick Disconnect
feed and return
1/2" (13mm) Quick Disconnect case drain
Strainer: M.S. Fabrication nylon coated with 1.75" (44mm) square apertures

Power Pack:

Engine: Yanmar 3TNV88, 23 hp (17kw) @ 2000 RPM
Hydraulic System: Two pipe open circuit
Hydraulic Reservoir: 10 gallon (37.8 liter) capacity
Control: Through variable engine speed
Hydraulic Pump: Gear type
Output Flow: 8.8 gpm (.56 l/sec.)
Output pressure: Up to 3350 psi (231 BAR)
Suction Filter: 125 micron pleated gauze
Return Line Filter: 20 micron
Hydraulic Pipe Connections: 3/4" (19mm) API

godwin pumps

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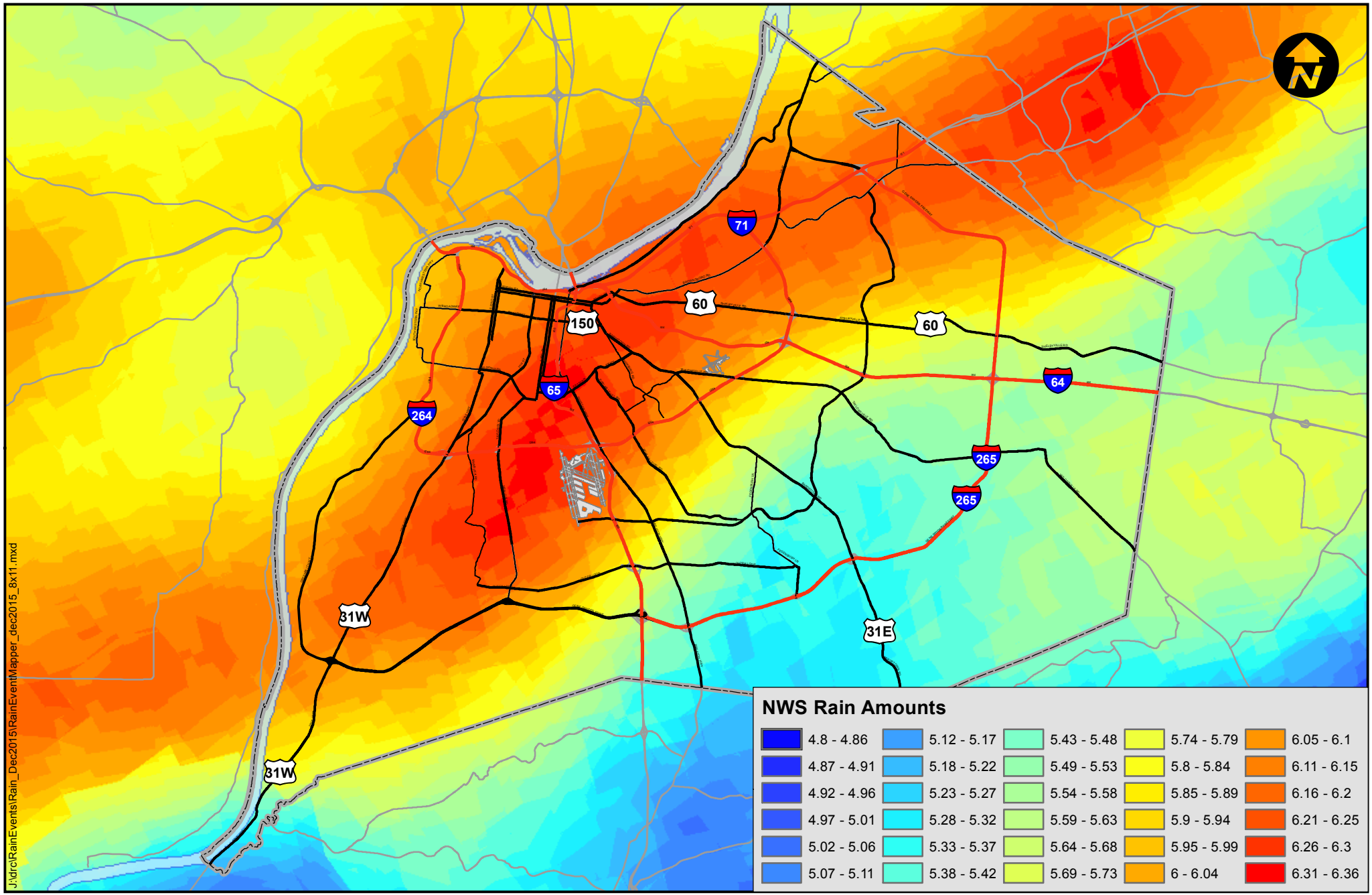
E-mail: sales@godwinpumps.com
www.godwinpumps.com

BRANCH LOCATIONS:
Connecticut • Pennsylvania • New York • Ohio
Illinois • Maryland • Virginia • West Virginia
North Carolina• South Carolina • Georgia
Florida • Texas • Montana • California • Washington

ATTACHMENT B – December 2015 Rainfall Distribution Map



ATTACHMENT B

Approximate Rainfall

Rain Event
12/01/2015 00:00 - 12/31/2015 23:59

NOTE:

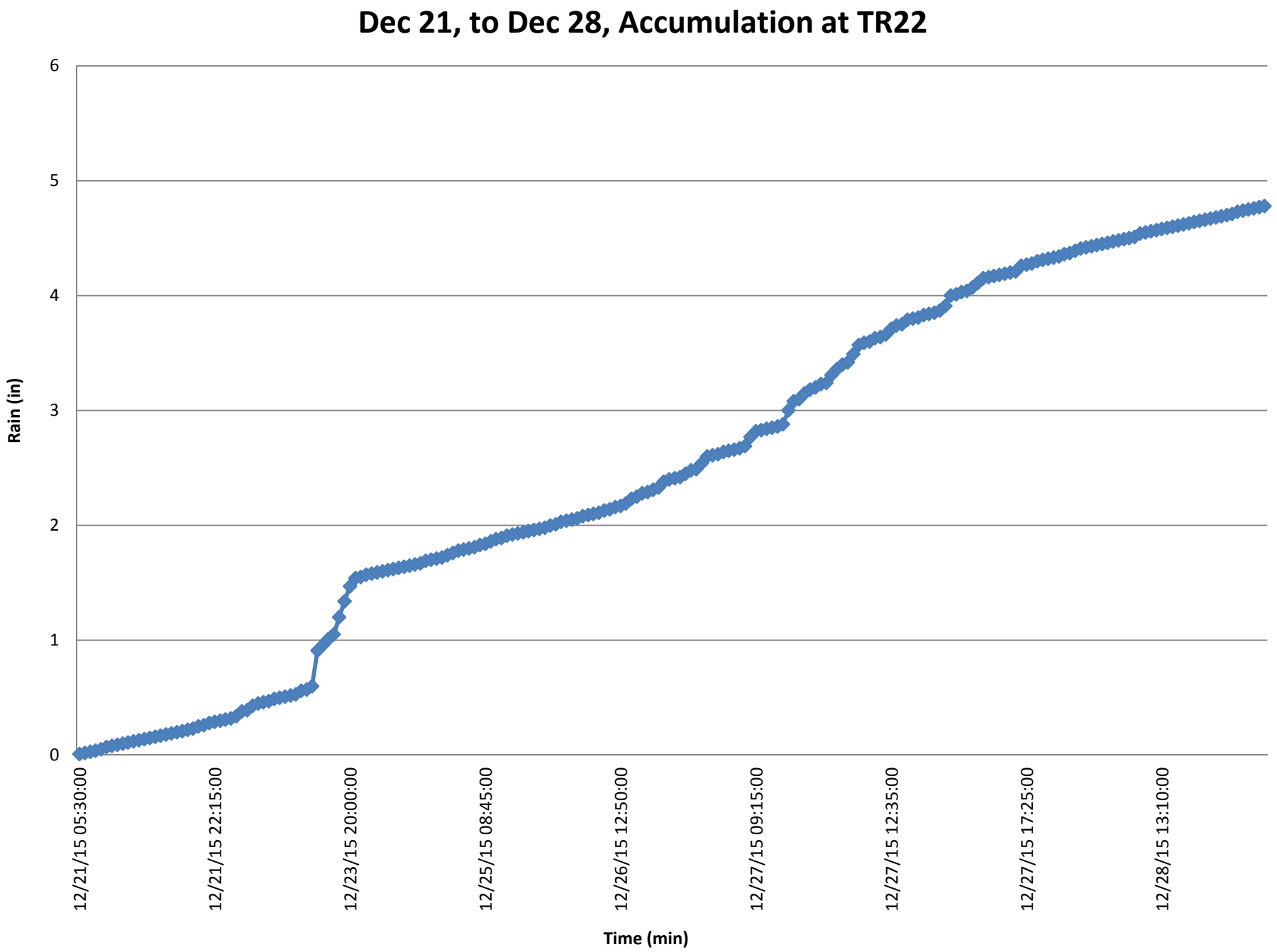
Rain event totals provided by the National Weather Service, Louisville Ky

msd Safe, clean waterways

LOJIC Louisville/Jefferson County Information Consortium

Map Printed: 25-Jan-2016

ATTACHMENT C – MSD TR22 Rainfall


Dec 21, to Dec 28, Accumulation at TR22
Rain (in)
0
1
2
3
4
5
6
12/21/15 05:30:00
12/21/15 22:15:00
12/23/15 20:00:00
12/25/15 08:45:00
12/26/15 12:50:00
12/27/15 09:15:00
12/27/15 12:35:00
12/27/15 17:25:00
12/28/15 13:10:00
Time (min)

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Safe, clean waterways

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LouisvilleMSD.org
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