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March 1, 2017

U.S. Environmental Protection Agency
Water Enforcement
OES4-SMR
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: CSOs Monitoring & Overflow Report
2016 Calendar Year Reporting Period
Consent Decree, VII. REMEDIAL MEASURES, Paragraphs 32 & 33

Dear Sir or Madam:

In accordance with Section VII, Paragraphs 32 and 33 of the Consent Decree (Decree) signed by Fitchburg's Mayor on June 1, 2012, this submission provides an Annual Summary of CSOs Monitoring, Overflows Reporting, and Inspection Certification of CSO Outfalls Report on the City's compliance with requirements of the Decree, as described by Paragraphs 32 and 33. In addition, weir wall adjustments at CSO locations and dry weather CSO's will be discussed. The report covers the period from February 1, 2016 to January 31, 2017.

Monitoring Sites

The City of Fitchburg has maintained a total of 12 CSO Regulator Sites, all of which are metered. During the past year, the City had to re-open Regulator 064, which is located on the main interceptor sewer.

The Collections Team of the City's Wastewater Division continued to monitor meters throughout the city during the reporting period, and also monitored the City's 234 remaining combination manholes with tell-tale blocks for US EPA and Massachusetts Department of Environmental Protection (MADEP) reporting purposes. During the reporting period, the City monitored regulators with a combination of ADS Environmental, Inc. Triton+ (Triton) flow meters, and ADS Flow Alert meters. At the end of April, the City executed a change order with ADS to trade-in all the outdated and problematic Flow Alert Meters, and install Triton meters at all CSO sites. In August 2016, the City also traded-in its two outdated Flow Shark rain gauges, and installed a new RainAlert III rain gauge on the DPW roof.

During the reporting period, the City had flow meters located at all of its remaining open overflow regulators. This report discusses the overflows recorded at each site, issues that occurred during the reporting period, and proposed future metering changes.

As previously stated, 7 CSOs regulators were monitored using Flow Alert meters until April 21, 2016, which measure only depth of flow using pressure gauges. These 7 sites were then monitored using Triton meters. The remaining 5 CSO Regulators were monitored using Triton

March 1, 2017

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meters during the entire year. Triton meters are the most-current meter manufactured by ADS, and have a much longer battery life and reliability record.

The Triton meters use a combination pressure sensor, ultrasonic depth sensor, and velocity sensor to gather data. The benefit of the Triton meters is the ability to directly measure flow volume, which assists in more accurate reporting.

Until August 2016, there were two rain gauges located in the City. Rain Gauge 2 (RG 2), located on the roof of a fire station at the intersection of Oak Hill Road and Fairmont Street, and Rain Gauge 1 (RG 1), located on another fire station at the intersection of Summer Street and John Fitch Highway. During the reporting period, the City experienced numerous issues with these rain gauges, and had to supplement rain gauge data from Fitchburg Municipal Airport. In August 2016, the City replaced these rain gauges with a new RainAlert III rain gauge from ADS. The rain gauges logged a total of 36.44-inches of rainfall during the reporting period.

During the reporting period, the City held numerous Web-Ex Trainings with ADS' in-house hydraulic experts to more accurately and easily quantify CSO volumes. During the trainings, ADS examined each CSO and worked with the City to decide the best method for calculating CSO volume.

Some of the sites were calculated using a "silt-method". With this method, if the incoming pipe is large, and the crown of the pipe is above the weir wall elevation, a "silt-level" is set on the flow meter to match the weir wall elevation. Any flow that is recorded over this elevation is a CSO. Other sites were calculated using a velocity vs. depth relationship. Plotting the data on a scattergraph, and using ADS' "Iso-Q" lines, the maximum amount of flow that pass through the regulator prior to an overflow. This flow rate is then subtracted from the total flow rate, revealing CSO volume.

At other sites, a more traditional method of using a weir wall equation or manning's equation in excel were used. Manning's Equation for open channel flow was used when a depth of water was known at an overflow pipe. The broad-crested rectangular weir equation was utilized when known depths overtopped weir walls. Care was taken to assure that flow over weir walls did not exceed the capacity of the downstream pipe. When the capacity of the downstream pipe was exceeded, the overflow calculation methodology was changed to Manning's Equation for pressurized pipe.

During the next reporting period, the City will be executing an on-call services agreement with ADS. This on-call agreement will ensure that the City has professional help in maintaining the flow meter network, in the event that troubleshooting or meter repair is required that is beyond the City's capabilities.

Summary of Results

Table 1 includes the summary of overflows. The flow meters logged 111 overflow events totaling 8,429,956 gallons. Additional data shown in Table 1 includes notes regarding the operational

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status of the meter as many of the meters experienced issues prior to transitioning all the meters to Triton meters.

Table 2 contains annual rainfall data. Daily total, average intensity, peak hour intensity and duration of storm are provided.

Table 3 contains the meters' overflow detail. Overflow event dates, calculated gallons of overflow and duration of overflow are all provided. Daily rainfall is also provided for the reviewer's convenience.

Discussion of CSO Sites

CSO 004 - Cleghorn Street at Oak Hill Road

Five (5) overflow events were logged at CSO-004, totaling 65,000 gallons. The regulator manhole includes a 55" x 36" combined brick influent pipe, a 12" sanitary effluent pipe, and a 55" x 36" brick overflow pipe. A brick weir wall directs all flow to the 12" sanitary pipe. When this regulator does overflow, the 12" sanitary becomes inundated and a weir wall overtops. Overflows discharge to the Nashua River. Further sewer separation upstream is required to close this regulator. During the reporting period, the weir wall was raised 10.5-inches to help maximize storage in the collection system upstream.

CSO 004 Highlights

5 Overflow Events
65,000 gal. Overflow
1.5 hr. Duration
82% Meter Coverage

CSO 007 - Cushing Street at Riverfront Park

One (1) overflow event was logged by the flow meter at Regulator CSO-007, on October 21, 2016, the largest storm of the reporting period. This regulator manhole includes two influent pipes (a 16" from Laurel Street and a 12" from South Street), two 8" effluent pipes to a 45" interceptor, and an 18" overflow core in the side of the chamber.

CSO 007 Highlights

1 Overflow Events
77,079 gal. Overflow
0.92 Hour Duration
77% Meter Coverage

There may be a possibility of closing this CSO after the completion of the Hazel Street Sewer Separation Project at the end of 2017. After the remaining catch basins are removed from upstream of the Regulator 036, the combined system will be eliminated upstream of 007. The City will plan on monitoring the 007 site for one calendar year following closure of the 036 regulator. If no overflows occur at 007 following a large rain event, the City may decide to close the regulator.

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CSO 010 – Main Street at River Street

Nine (9) overflow events were logged by the flow meter at Regulator CSO-010 totaling 177,275 gallons. The regulator manhole consists of a 15" influent pipe, 12" effluent pipe and a 15" overflow. A significant amount of combined sewer upstream overwhelms the 12" effluent pipe during intense rainfall causing weir wall overtopping.

CSO 010 Highlights

9 Overflow Events
177,275 gal. Overflow
4.34 hr. Duration
72% Meter Coverage

CSO 032 – 543 Main Street at Post Office

During the reporting period, CSO-032 experienced fifteen (15) overflows at this site for a total of 297,000 gallons. The CSO regulator contains an 18" combined influent pipe, an 8" sanitary throttle discharge pipe, and an 18" overflow to the drainage system. Due to a number of combined pipes upstream of this regulator, the 8" throttle pipe becomes overwhelmed during heavy rainfall events and overflows to the drainage system. In addition the combined pipes carry sand from catch basins that can clog the throttle pipe. The City experienced battery and connectivity issues at this site during the first half of the reporting year, but has since corrected this issues. During the reporting period, the city modified the regulator to reduce dry-weather CSOs and maximize capacity in the upstream collection system. As a result, no SSOs have occurred at this location since the modification in April 2016.

CSO 032 Highlights

15 Overflow Events
297,000 gal Overflow
10.33 hr. min. Duration
57% Meter Coverage

CSO 036 – 98 Laurel Street

Nine (9) overflow events were logged by the flow meter at CSO-036 totaling 323,600 gallons. This regulator was supposed to be closed in 2013, however soon after the overflow was plugged, a high-intensity rainstorm inundated the manhole and the result was an SSO. Subsequently it was learned there are additional catch basins tied into the upstream system and closing the regulator would be premature. Therefore, the contractor left a small opening to the drain system and the city installed a meter to document overflows.

CSO 036 Highlights

9 Overflow Events
323,000 gal. Overflow
5.25 hr. Duration
100% Meter Coverage

The manhole includes a 39" x 29" combined brick interceptor influent with a 12" VCP effluent. The contractor installed a 24" DI drain pipe that skirts across the manhole and ties into the downstream 36" drain pipe. The regulator weir wall was bricked all around this 24" drain pipe except for a small relief opening that the city continues to monitor.

The City is taking steps to separate the remaining upstream catch basins with the *Hazel Street Area Sewer Separation Project*, which is scheduled for completion at the end of 2017, and is currently under construction.

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CSO 039 - Water Street at Walnut Street

Fourteen (14) overflow events were observed at CSO-039, with an estimated overflow of 1,950,807 gallons. The meter was active for the majority of the reporting year. Two SSOs occurred at this site, which can be attributed to sand, grit, and bottles plugging the regulator base flow pipe. The regulator manhole consists of a 20" influent, an 8" effluent and an 18" overflow.

On April 22, 2016 the weir wall for this regulator was raised 6-inches, in an effort to maximize upstream collection system capacity, but also to provide additional pressure head to help prevent clogging of the regulator. The flow channel itself was also modified to allow better pass-through of grit. MassDOT is planning to replace the bridge where this regulator is located in calendar year 2021, which will affect this regulator. Therefore, the City is targeting CSO-039 as the next combined sewer area to be separated. While the bridge is being replaced, the City plans on replacing the sewer main that is suspended from the bridge deck.

CSO 039 Highlights

14 Overflow Events
1,950,807 gal. Overflow
205.33 hr. Duration
94% Meter Coverage
System Typed: Combined

CSO 041 - Benson Road at Falulah Street

Four (4) overflow events were logged at CSO-041. This regulator manhole consists of a 12" influent, a 10" effluent, and an 18" overflow. In past reporting periods, the City has experienced periodic overflows at this location. The contributing area to the regulator is fully separated, which correlates to high inflow in the contributing collection system. During the metering period, the data analysis by the City's engineering consultant revealed that high inflow is an issue in this portion of the City's system. As a result, the contributing collection area will be fully investigated under a Sewer System Evaluation Survey in 2017. It is also likely that the base flow pipe is undersized, and will need to be upsized in order to close the overflow.

CSO 041 Highlights

4 Overflow Events
268,208 gal. Overflow
2.17 Hr. Duration
90% Meter Coverage
System Type: Separated

CSO 045 - Main Street at Oliver/Putnam Street

During the reporting period, CSO-045 experienced 27 overflows at this site for a total of 2,452,052 gallons. This regulator consists of a chamber, with numerous inlets and outlets, and adjacent catch basins tied into the chamber. The basic construction of the chamber consists of a 30" diameter drain on one edge of the chamber, a sewer line on the adjacent edge (12" dia. inlet, 15" dia. outlet), with a weir wall between the drain and sewer. In addition, there is a 26" x 39" inlet sewer that bridges the drain and discharges to the sewer side of the chamber. Overflows consist of flow topping the weir wall, and also a 26" x 39" overflow outlet line. With a large number of combined sewer areas upstream that contribute to this regulator, the City is in a waiting period in order to use the recently finished hydraulic model to determine a method for eventual closure.

CSO 045 Highlights

27 Overflow Events
2,452,052 gal. Overflow
46 Hr. Duration
95% Meter Coverage
System Type: Combined



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CSO 048 – 85 Water Street at Market Basket

Three (3) overflow events were logged at CSO-048. The manhole consists of an 18" influent pipe, an 8" throttle and an 18" overflow. During the reporting year, the weir wall in this regulator was raised 20" in an effort to maximize upstream collection system capacity.

CSO 048 Highlights

3 Overflow Events
29,710 gal. Overflow
0.5 Hr. Duration
100% Meter Coverage
System Type: Separated

During the next reporting period, the City will discuss internally the possibility of closing this regulator. There are very few, if any, upstream areas of combined sewer that lead to this regulator. In addition, few overflow events have occurred at this location during the three years the regulator has been monitored. The events that have occurred are of a relatively low volume, and a low height over the weir wall, therefore closing of the regulator would should add minimal additional flow to the main interceptor sewer.

CSO 064 – Water Street Easement Grit Chamber

During the reporting period, CSO-064 experienced 14 overflows at this site for a total of 2,404,663 gallons. This regulator is located within a former grit chamber on the 48" trunk sewer. The overflow is a 15" diameter pipe, which overflows directly to the Nashua River. During the reporting period, the City had to re-open this regulator, due to surcharging out of the grit chamber. The opening of the overflow is currently a partially plugged outlet pipe, which essentially creates a weir wall, with approximately an 8" diameter opening. In order to fully close this regulator, additional sewer separation work and inflow removal will be required upstream. Approximately 60% of the collection system is located upstream of this location.

CSO 064 Highlights

14 Overflow Events
2,404,663 gal. Overflow
13.12 Hr. Duration
100% Meter Coverage
Re-opened: 3/9/2016
System Type: Combined/Separated

During the next reporting period, the City will look at modifying this regulator to maximize the collection system capacity upstream, and possibly installing locking covers on the trunk sewer in this location. With the locking covers, the City may be able to close the regulator and put the trunk sewer under a pressure head condition.

CSO 076 – Birch Street at Heywood Street

Five (5) overflow events were logged at CSO-076 totaling 180,882 gallons. The regulator manhole consists of a 10" influent, 10" effluent, and a 12" overflow.

CSO 076 Highlights

5 Overflow Events
180,882 gal. Overflow
19.42 Hr. Duration
100% Meter Coverage
System Type: Separated

The contributing collection system area to CSO-076 contains areas of high infiltration, and sewers of poor construction, which leads to large quantity of suspected infiltration. In addition, the pipe is undersized. It is likely that inflow and infiltration

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removal upstream may limit the amount of overflows at this location. There is no known combined sewer upstream of this regulator.

CSO 083 - Main Street at Prichard Street

Seven (7) overflow events were logged at CSO-083 totaling 204,280 gallons. The regulator manhole consists of a 12" x 18" brick combined sewer for an inlet, a 15" VC effluent pipe, and a 12" overflow.

CSO 083 Highlights

7 Overflow Events
204,280 gal. Overflow
2.17 Hr. Duration
100% Meter Coverage
System Type: Combined

About half of the area upstream contribution area is combined sewer constructed in the late 1800s or early 1900s. Minimal separation work would need to occur upstream of this location in order to close this regulator.

Weir Wall Elevation Adjustments and Regulator Closures

The following weir wall adjustments were made during the reporting year:

Regulator	Date Modified	Location	Modifications
004	4-22-16	Cleghorn Street at Oak Hill Road	Raised weir wall 10.5-inches
032	4-22-16	Main Street at Post Office	Built 6-inch weir wall
039	4-22-16	Water Street at Walnut Street	Raised weir wall 6-inches
048	4-22-16	85 Water Street	Raised weir wall 20-inches
064	3-9-16	Chamber behind 672 Water Street	Re-opened regulator

Dry Weather Overflows

Dry weather overflows are associated with blockages that occur in the sanitary system and cause an overflow either over a weir wall or through a relief pipe in a combination manhole or a regulator manhole. The city experienced one location of dry weather overflows, with events at the site. They are the following:

CSO 039 - Water St at Walnut St - On March 28, 2016 and June 21, 2016 the City observed the regulator overflowing during routine checks; the blockage was then cleared the same day. A blockage of sand and grit was cleared within the hour. As a result of frequent SSOs at this location, the City now checks this regulator after every rain event, and every other Friday. In

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addition, the regulator has been modified with a higher weir wall and an improved flow channel to prevent clogging.

If you have any questions regarding this report, please contact the Fitchburg Sewer System Manager, Anthony W. Maressa, P.E., at 978-829-1916, or the undersigned.

Very Truly Yours,

Jeffrey A. Murawski, P.E.
Fitchburg DPW Deputy Commissioner of Wastewater

Electronic & Hard Copy: Neil Handler, USEPA, Region 1 Office
David Boyer, P.E., MassDEP, Central Region Office

Electronic copy: Chief, Environmental Enforcement Section, DOJ
(Transmittal letter only) Susan M. Poswistilo, Assistant U.S. Attorney
Michael Wagner, USEPA
Louis Dundin, Assistant Attorney General, Massachusetts AG
Vincent Pusateri, II, Fitchburg City Solicitor

Electronic copy: Lenny R. Laakso, P.E., Fitchburg Commissioner of Public
Works
Anthony Maressa, P.E., Sewer System Manager

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"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 the 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."

Jeffrey A. Murawski, P.E.

Fitchburg DPW Deputy Commissioner of Wastewater

Table 1: Summary of Overflows

CSO SUMMARY FEBRUARY 1, 2016 TO JANUARY 31, 2017

Meter	Location	Events	Volume (Gallons)	Notes
CSO-004	Cleghorn St at Oak Hill Road	5	65,000	82% coverage, battery issues until April 21, 2016
CSO-007	Cushing St at Waterfront Park	1	77,079	77% coverage, switched from Alert to Triton Meter on April 21, 2016
CSO-010	Main St. at River St.	7	177,275	87% coverage, switched from Alert to Triton Meter on April 21, 2016
CSO-032	543 Main St at Post Office	15	297,000	57% coverage, battery issues until April 21, 2016 and in July 2016
CSO-036	98 Laurel St.	9	323,000	100% coverage. Will be closed after Hazel Street Project
CSO-039	Water St at Walnut St.	14	1,950,807	94% coverage, three dry weather CSO Events
CSO-041	Benson Rd. near Falulah St.	4	268,208	90% coverage, battery issues in beginning of year
CSO-045	Main St. at Oliver/Putnam St.	27	2,452,052	95% coverage
CSO-048	85 Water St at Market Basket	3	29,710	100% coverage, switched from Alert to Triton on April 21, 2016
CSO-064	Water St. Easement at Chamber	14	2,404,663	100% coverage, had to reopen on March 9, 2016 due to surcharging
CSO-076	Birch St. at Heywood Street	5	180,882	100% coverage, flow meter in overflow pipe
CSO-083	Main St. at Prichard St.	7	204,280	100% coverage, switched from Alert to Triton on April 21, 2016
Totals		111	8,429,956	

Table 2: Rainfall

Date	Daily Total	Avg. Intensity	Peak Hour	Duration
	(inches)	(inches/hour)	(inches)	(hours)
2/3/2016	0.62	0.06	0.14	10.30
2/6/2016	0.34	0.16	0.21	2.08
2/10/2016	0.02	0.12	0.02	0.17
2/16/2016	0.73	0.11	0.24	6.75
2/20/2016	0.03	0.02	0.02	1.25
2/24/2016	1.19	0.07	0.20	17.50
2/25/2016	2.02	0.09	0.31	22.83
3/2/2016	0.64	0.07	0.20	9.08
3/11/2016	0.06	0.01	0.03	4.42
3/14/2016	0.10	0.01	0.09	11.92
3/15/2016	0.58	0.04	0.21	16.17
3/16/2016	0.13	0.01	0.11	16.17
3/17/2016	0.07	0.21	0.07	0.33
3/21/2016	0.25	0.20	0.21	1.25
3/25/2016	0.29	0.23	0.14	1.25
3/28/2016	0.73	0.09	0.14	8.50
4/2/2016	0.04	0.12	0.04	0.33
4/3/2016	0.05	0.15	0.08	0.33
4/5/2016	0.10	0.30	0.16	0.33
4/7/2016	0.57	0.04	0.13	13.33
4/12/2016	0.19	0.06	0.09	3.17
4/22/2016	0.17	0.07	0.12	2.42
4/26/2016	0.32	0.09	0.18	3.50
5/2/2016	0.32	0.09	0.02	3.50
5/3/2016	0.11	0.03	0.04	3.5
5/4/2016	0.04	0.10	0.04	0.42
5/5/2016	0.18	0.04	0.10	4.92
5/6/2016	0.17	0.09	0.16	1.92
5/13/2016	0.24	0.04	0.20	6.00
5/19/2016	0.35	0.42	0.42	0.50
5/24/2016	0.42	0.14	0.15	2.92
5/30/2016	0.28	0.10	0.03	2.92
6/5/2016	0.90	0.07	0.41	12.75
6/11/2016	0.04	0.05	0.04	0.83
6/22/2016	0.07	0.14	0.07	0.03
7/5/2016	0.07	0.12	0.07	0.03
7/7/2016	0.18	0.19	0.18	0.36
7/9/2016	0.58	0.04	0.49	16.32
7/14/2016	0.50	1.00	0.50	0.50
7/29/2016	0.38	0.02	0.26	15.27
7/31/2016	0.37	0.02	0.16	20.12
8/2/2016	0.64	0.14	0.22	4.72
8/7/2016	0.08	0.02	0.16	4.72
8/10/2016	1.06	0.31	0.56	3.38
8/12/2016	0.25	0.06	0.25	4.42
8/13/2016	1.50	0.99	1.06	1.52
8/16/2016	0.21	0.10	0.21	2.02
8/21/2016	0.11	0.09	0.09	1.27
8/22/2016	0.97	0.33	0.66	2.97
9/1/2016	0.07	0.10	0.07	0.68
9/8/2016	0.17	0.21	0.17	0.80
9/11/2016	0.19	0.14	0.12	1.35

Table 2: Rainfall

Date	Daily Total	Avg. Intensity	Peak Hour	Duration
	(inches)	(inches/hour)	(inches)	(hours)
9/19/2016	0.60	0.10	0.34	5.82
9/23/2016	0.56	0.17	0.39	3.25
9/27/2016	0.23	0.12	0.14	2.00
9/28/2016	0.05	0.20	0.05	0.25
9/30/2016	0.03	0.01	0.02	2.50
10/1/2016	0.39	0.02	0.09	17.75
10/9/2016	0.68	0.06	0.13	11.75
10/18/2016	0.29	0.09	0.19	3.25
10/21/2016	3.17	0.15	1.93	21.25
10/22/2016	0.45	0.26	0.29	1.75
10/23/2016	0.07	0.06	0.05	1.25
10/28/2016	1.24	0.07	0.19	18.50
10/30/2016	0.05	0.01	0.02	3.75
11/15/2016	1.14	0.12	0.24	9.50
11/16/2016	0.04	0.01	0.02	5.50
11/20/2016	0.35	0.04	0.20	8.50
11/25/2016	0.27	0.02	0.07	18.00
11/29/2016	0.72	0.05	0.16	13.25
11/30/2016	0.93	0.04	0.24	22.00
12/1/2016	0.65	0.11	0.23	6.00
12/5/2016	0.12	0.05	0.08	2.25
12/7/2016	0.16	0.16	0.13	1.00
12/12/2016	0.42	0.11	0.23	3.75
12/18/2016	0.65	0.06	0.18	11.00
12/22/2016	0.05	0.03	0.04	2.00
12/24/2016	0.56	0.13	0.20	4.25
12/30/2016	0.63	0.14	0.16	4.50
12/31/2016	0.18	0.07	0.07	2.75
1/1/2017	0.06	0.01	0.04	4.50
1/4/2017	1.05	0.05	0.18	20.75
1/11/2017	0.31	0.07	0.10	4.50
1/12/2017	0.24	0.01	0.05	19.25
1/18/2017	0.41	0.04	0.07	11.00
Total	36.44			

TABLE 3: METER OVERFLOW DATA SUMMARY

Highlighting = SSO Event

CSO SUMMARY				
CSO-004 - Cleghorn St. at Oak Hill Rd.				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
0.9	1	1,000	0.25	6/5/16
0.5	1	10,000	0.5	7/14/16
0.07	1	1,000	0.25	9/1/16
0.6	1	1,000	0.25	9/19/16
3.17	1	52,000	0.25	10/21/16
Totals	5	65,000	1.5	
CSO-007 - Cushing Street at Riverfront Park				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
3.17	1	77,079	0.92	10/21/16
Totals	1	77,079	0.92	
CSO-010 - Main Street at River Street				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
0.73	1	22,275	0.25	02/16/16
0.9	1	26,000	0.5	06/05/16
0.5	1	16,000	0.25	07/14/16
1.06	1	38,000	1	08/10/16
1.5	1	16,000	1	08/13/16
0.97	1	22,000	0.5	08/22/16
0.07	1	4,000	0.17	09/01/16
0.6	1	5,000	0.17	09/19/16
3.17	1	28,000	0.5	10/21/16
Totals	9	177,275	4.34	
CSO-032 - Main St. at Post Office (542 Main St.)				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
0.32	1	1,000	0.25	05/02/16
0.24	1	14,000	0.75	05/13/16
0.35	1	7,000	0.5	05/19/16
0.42	1	6,000	0.75	05/24/16
0.9	1	2,000	0.75	06/05/16
0.5	1	19,000	0.25	07/14/16
0.07	1	30,000	0.33	09/01/16
0.6	1	49,000	1.75	09/19/16
0.56	1	7,000	1.25	09/23/16
0.29	1	2,000	0.67	10/18/16
3.17	1	144,000	2.25	10/21/16
0.45	1	3,000	0.25	10/22/16
1.14	1	2,000	0.25	11/15/16
0.65	1	7,000	0.25	12/01/16
1.05	1	4,000	0.08	01/04/17
Totals	15	297,000	10.33	
CSO-036 - 98 Laurel Street				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
0.9	1	11,000	0.50	06/05/16
0.50	1	15,000	0.50	07/14/16
1.06	1	10,000	0.50	08/10/16
1.50	1	41,000	0.75	08/13/16
0.97	1	17,000	0.50	08/22/16
0.07	1	23,000	0.25	09/01/16
0.60	1	42,000	0.25	09/19/16
3.17	1	153,000	1.75	10/21/16
0.45	1	11,000	0.25	10/22/16
Totals	9	323,000	5.25	
CSO-039 - Water St at Walnut St				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
1.19	1	109,120	25.25	02/24/16
0.73	1	394,687	100	03/28/16
0.42	1	57,000	23.25	05/24/16
1	1	577,000	45.25	06/21/16
1.06	1	59,000	1.50	08/10/16
0.25	1	1,000	0.08	08/12/16
1.5	1	61,000	1.50	08/13/16
0.97	1	176,000	2.75	08/22/16
0.6	1	11,000	0.50	09/19/16
0.56	1	5,000	0.08	09/23/16
3.17	1	434,000	3.00	10/21/16
0.45	1	44,000	1.00	10/22/16
1.14	1	17,000	1.00	11/15/16
1.05	1	5,000	0.17	01/04/17
Totals	14	1,950,807	205.33	
*Event on 3/28 is combination CSO & SSO				
CSO-041 - Benson Road near Falullah St				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
0.73	1	1,263	0.50	03/28/16
0.58	1	6,482	0.25	07/09/16
0.07	1	35,660	0.42	09/01/16
3.17	1	224,804	1.00	10/21/16
Totals	4	268,208	2.17	

TABLE 3: METER OVERFLOW DATA SUMMARY

CSO-045 - Main St. at Oliver/Putnam St.				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
0.73	1	273,052	5.5	02/16/16
0.32	1	34,000	1.5	05/02/16
0.18	1	4,000	0.75	05/05/16
0.17	1	29,000	0.75	05/06/16
0.24	1	60,000	1	05/13/16
0.35	1	105,000	2.25	05/19/16
0.42	1	114,000	1.5	05/24/16
0.9	1	5,000	0.5	06/05/16
0.38	1	12,000	0.5	07/29/16
1.06	1	6,000	1	08/10/16
1.5	1	284,000	1.5	08/13/16
0.97	1	155,000	2.25	08/22/16
0.17	1	2,000	0.5	09/08/16
0.6	1	20,000	1.75	09/19/16
0.56	1	58,000	1.5	09/23/16
0.68	1	8,000	1.5	10/09/16
0.29	1	14,000	0.5	10/18/16
3.17	1	720,000	3.5	10/21/16
0.45	1	69,000	1.5	10/22/16
1.14	1	144,000	4	11/15/16
0.35	1	12,000	0.75	11/20/16
0.72	1	7,000	1	11/29/16
0.93	1	61,000	1.25	11/30/16
0.65	1	103,000	3.75	12/01/16
0.65	1	1,000	0.5	12/18/16
0.56	1	58,000	2	12/24/16
1.05	1	94,000	3	01/04/17
Totals	27	2,452,052	46	

CSO-048 - 85 Water St at Market Basket				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
0.5	1	740	0.08	7/14/16
0.07	1	2,154	0.08	09/01/16
3.17	1	26,816	0.33	10/21/16
Totals	0	29,710	0.50	

CSO-064 - Water Street Easement at Chamber				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
0.73	1	231,565	1.27	02/16/16
1.19	1	12,953	0.33	02/24/16
2.02	1	471,492	2.55	02/25/16
0.9	1	72,177	0.50	06/05/16
0.5	1	72,099	0.47	07/14/16
1.06	1	68,309	0.42	08/10/16
1.5	1	315,445	1.50	08/13/16
0.97	1	181,807	0.75	08/22/16
0.07	1	104,271	0.50	09/01/16
0.6	1	106,068	0.58	09/19/16
0.56	1	73,186	0.58	09/23/16
3.17	1	617,796	2.83	10/21/16
1.14	1	32,837	0.42	11/15/16
1.05	1	44,659	0.42	01/04/17
Totals	14	2,404,663	13.12	

CSO-076 - Birch St at Heywood St				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
2.02	1	65,535	8.5	2/25/16
0.5	1	347	6	7/14/16
0.07	1	3,000	0.17	9/1/2016
3.17	1	100,000	3	10/21/16
1.14	1	12,000	1.75	11/15/16
Totals	5	180,882	19.42	

CSO-083R - Main St. at Prichard St.				
Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
0.9	1	22,570	0.17	6/5/16
0.5	1	33,855	0.25	7/14/16
1.5	1	1,180	0.08	8/13/16
0.97	1	23,150	0.25	8/22/16
0.07	1	16,000	0.17	9/1/16
0.6	1	8,000	0.08	9/19/16
3.17	1	99,525	1.17	10/21/16
Totals	7	204,280	2.17	