



The City of
JACKSON

**QUARTERLY
REPORT NO. 19**

OCTOBER 2017 THROUGH DECEMBER 2017

Department of Public Works
Consent Decree Program

City of Jackson
Wastewater Infrastructure Redevelopment
Program

Quarterly Report No. 19
October 2017 through December 2017

January 31, 2017

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City of Jackson, Mississippi

Quarterly Report No. 19

October 2017 through December 2017

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Chokwe Antar Lumumba ^{1/31/18}

Chokwe Antar Lumumba
Mayor

Date

1/31/2018

Robert K. Miller

Robert K. Miller, Director
Department of Public Works

Date

January 29, 2018

Quarterly Report No. 19

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Contents

| | | |
|------------|---|------------|
| 1.0 | Introduction | 1-1 |
| 1.1 | Consent Decree Overview | 1-1 |
| 1.2 | Authority to Promulgate | 1-1 |
| 1.3 | Consent Decree Requirements for Quarterly Report..... | 1-1 |
| | | |
| 2.0 | Summary of SSOs and Prohibited Bypasses | 2-1 |
| 2.1 | Collection System SSOs..... | 2-1 |
| 2.2 | Pump Station SSOs | 2-9 |
| 2.3 | West Bank Interceptor SSO | 2-13 |
| 2.4 | Prohibited Bypasses | 2-13 |

1.0 Introduction

1.1 Consent Decree Overview

On March 1, 2013, the U.S. District Court for the Southern District of Mississippi entered a Consent Decree (CD) agreed to by the City of Jackson, Mississippi (City), U.S. Environmental Protection Agency (EPA), and the Mississippi Department of Environmental Quality (MDEQ,) regarding the City's wastewater collection and treatment system. Over a 17½ year timeline, the Consent Decree requires the City to:

- Develop, submit, finalize, and implement plans for the continued improvement of the Wastewater Collection and Transportation System (WCTS) and Wastewater Treatment Plants (WWTPs);
- Eliminate Sanitary Sewer Overflows (SSOs), effluent limit violations (including any violations of the new effluent limits for nutrients), and reporting violations, and
- Minimize Prohibited Bypasses.

One of the ongoing requirements of the EPA Consent Decree is to submit periodic reports to demonstrate continuing compliance. The specific reporting requirements of the CD are described below.

1.2 Authority to Promulgate

Burns & McDonnell Engineering Company, Inc. was retained to assist the City in addressing the requirements of the Consent Decree under a Program Management contract. Accordingly, the Program Management team compiled this Quarterly Report from information provided by the City and its contractors to fulfill the requirements of Section IX ¶ 57 (a) set forth in the CD.

1.3 Consent Decree Requirements for Quarterly Report

As stated in the Consent Decree Section IX ¶ 57 (a), the Quarterly Report shall be submitted beginning thirty (30) Days after the first full three (3)-month period following the Date of Entry of this Consent Decree, and thirty (30) Days after each subsequent three (3)-month period until termination of the Consent Decree and shall contain the following, at a minimum:

Quarterly Reports. Beginning thirty (30) Days after the first full three (3) month period following the Date of Entry of this Consent Decree, and thirty (30) Days after each subsequent three (3)-

month period thereafter until termination of the Consent Decree, the City shall submit to EPA for review and approval a Quarterly Report that shall include the following:

- (i) the date, time, location, source, estimated duration, estimated volume, receiving water (if any), and cause of all SSOs occurring in the applicable three (3)-month period in a tabulated electronic format; and
- (ii) (ii) the date, time, estimated duration, estimated volume, and cause of all Prohibited Bypasses occurring in the applicable three (3)-month period in a tabulated electronic format.

The listing and graphical summaries of the SSOs and prohibited bypasses for October 2017 – December 2017 are presented in Section 2 of this report.

2.0 Summary of SSOs and Prohibited Bypasses

SSOs are divided into three elements of the wastewater system: the collection system, pump stations, and West Bank Interceptor. Prohibited bypasses at the Savanna Street Wastewater Treatment Facility (SSWWTF), in periods when they occur, are listed separately.

2.1 Collection System SSOs

Table 1 lists SSOs in the collection system for October 2017 through December 2017. Each day of a multiple day event is considered as a separate SSO, in accordance with penalties in the CD.

Figure 1 shows SSO events by month as a result of the following reported causes:

- Grease
- Roots
- Solids
- Collapsed Pipe
- Other

Some SSO events had multiple causes. In these instances, each cause was assigned a fractional value, adding up to a total of one (1) cause for each event.

Figure 2 shows percentages of collection system SSOs for the quarter by cause. **Figure 3** shows total volume of SSOs for each month. Volumes are plotted on a logarithmic scale because of the large monthly variations. **Figure 4** shows total duration of SSOs for each month.

There were nine (9) events that occurred on private property reported this period. All events were caused by problems in the City's sewer system and are included in this report.

There were nine (9) events that the duration was not determined because stop time was missing from the assessment report. These events occurred on the public sewer system and there was no follow up inspection noted. These issues have improved since the November training session with the field crews.

There were ten (10) events that the cause were reported as "Other". Examples of these causes were: damage by contractor, evidence of previous overflow, leaking bypass pump hose, erosion control stone (Rip Rap) in manhole and undetermined.

Bypass pumping operations were completed on October 11, 2017 for the Cany Creek Interceptor repair. Total estimated duration and volume discharged are included in this report.

Table 1
City of Jackson, Mississippi
Quarterly Report No. 19 - October 2017 through December 2017
Collection System SSOs

| Date Began | Time Began | Location | Source | Estimated Duration, Hours | Estimated Volume, Gallons | Reached Waters of the State | Receiving Water | Rainfall, inches | Reported Cause |
|------------|------------|-------------------------|---|---------------------------|---------------------------|-----------------------------|-----------------|------------------|-----------------|
| 10/2/2017 | 7:10 PM | LAMAR ST | Manhole | ONGOING | 200 | YES | Town | 0.06 | Grease |
| 10/3/2017 | 12:51 PM | 3347 Robinson Street | Other | 0.78 | 400 | YES | Lynch | 0.00 | Grease |
| 9/22/2017 | 1:10 PM | 3665 SYKES PLACE ROAD | Other | 456.00 | 285,000 | YES | Cany | 0.00 | Collapsed Pipe |
| 10/4/2017 | 4:06 PM | 2982 MCDOWELL ROAD EX | Manhole | 0.32 | 180 | YES | Cany | 0.00 | Grease |
| 10/4/2017 | 2:53 PM | 140 CHERRY HILL DR | Other | ONGOING | 450 | YES | Hardy | 0.00 | Other |
| 10/5/2017 | 12:57 PM | 5551 SHAW ROAD | Manhole | ONGOING | 1,800 | YES | Bakers | 0.00 | Grease / Solids |
| 10/7/2017 | 10:26 AM | 4617 Hillisdale Drive | Manhole | 0.43 | 120 | YES | Hanging Moss | 0.13 | Grease |
| 10/7/2017 | 8:59 AM | 815 MONTEREY ST | Manhole | ONGOING | 600 | YES | Hardy | 0.13 | Roots |
| 10/13/2017 | 9:00 AM | LINDSEY DR / OAKMONT DR | Ground Surface (defective pipe underground) | 6.17 | 200 | YES | Lynch | 0.00 | Collapsed Pipe |
| 10/15/2017 | 11:45 AM | 864 REAVES ST | Manhole | 1.17 | 200 | YES | Hardy | 0.00 | Grease |
| 10/16/2017 | 6:15 PM | 1962 TEAKWOOD DR | Cleanout | 0.52 | 50 | NO | Eubanks | 0.20 | Other |
| 10/2/2017 | 5:00 PM | 1119 PRIMROSE ST | Cleanout | ONGOING | 50 | NO | Eubanks | 0.20 | Collapsed Pipe |
| 10/17/2017 | 6:06 PM | 5453 MIMOSA DR | Manhole | 0.90 | 60 | YES | Hanging Moss | 0.00 | Grease |
| 10/17/2017 | 2:39 PM | 1655 FIRST AVE | Ground Surface (defective pipe underground) | 1.27 | 80 | YES | Town | 0.00 | Collapsed Pipe |
| 10/17/2017 | 1:36 PM | 1224 FAIRMONT AVE | Ground Surface (defective pipe underground) | 0.70 | 200 | YES | Lynch | 0.00 | Grease |

Table 1 cont.
 City of Jackson, Mississippi
 Quarterly Report No. 19 - October 2017 through December 2017
 Collection System SSOs

| Date Began | Time Began | Location | Source | Estimated Duration, Hours | Estimated Volume, Gallons | Reached Waters of the State | Receiving Water | Rainfall, Inches | Reported Cause |
|------------|------------|-----------------------------|---|---------------------------|---------------------------|-----------------------------|-----------------|------------------|------------------------|
| 10/17/2017 | 10:17 AM | 1706 HAIR ST | Other | 0.70 | 320 | YES | Lynch | 0.00 | Collapsed Pipe |
| 10/18/2017 | 10:14 AM | 443 QUEEN CATHERINE LANE | Ground Surface (defective pipe underground) | 0.32 | 120 | YES | Lynch | 0.00 | Collapsed Pipe |
| 10/21/2017 | 2:26 PM | 4417 AZALEA DR | Other | 2.12 | 2 | NO | Hanging Moss | 0.24 | Other |
| 10/24/2017 | 9:49 AM | 2362 PRINCESS PINE DR | Manhole | 0.32 | 60 | YES | Big Creek | 0.00 | Grease |
| 10/25/2017 | 2:18 PM | 5000 RIDGEWOOD ROAD | Manhole | 0.70 | 420 | YES | Hanging Moss | 0.00 | Grease |
| 10/25/2017 | 1:41 PM | 503 WESLEY AVE | Manhole | 0.18 | 120 | YES | Town | 0.00 | Grease |
| 10/25/2017 | 9:21 AM | 262 QUEEN ANNE LANE | Manhole | 0.82 | 220 | YES | Town | 0.00 | Other |
| 10/25/2017 | 7:00 AM | 5551 SHAW ROAD | Manhole | 28.75 | | YES | Lynch | 0.00 | Grease / Solids |
| 10/26/2017 | 4:41 PM | 1110 JEFFERSON ST | Other | ONGOING | 380 | YES | Town | 0.00 | Collapsed Pipe / Other |
| 10/28/2017 | 2:39 PM | 4328 N. State Street | Ground Surface (defective pipe underground) | ONGOING | 40 | YES | Hanging Moss | 0.86 | Collapsed Pipe |
| 10/28/2017 | 1:14 PM | 941 VALENCIA ST | Manhole | 0.98 | 470 | YES | Hardy | 0.86 | Grease |
| 10/30/2017 | 10:11 AM | 3418 FOREST HILL ROAD | Manhole | 0.75 | 125 | NO | Cary | 0.00 | Solids |
| 11/1/2017 | 3:15 PM | ELRAINE BLVD / COLEMAN BLVD | Manhole | 1.42 | 126 | YES | Town | 0.21 | Other |
| 11/1/2017 | 9:46 AM | 4110 CRESTVIEW ST | Manhole | 3.48 | 21 | NO | | 0.21 | Grease |
| 11/3/2017 | 6:00 PM | 4125 CRANE BLVD | Ground Surface (defective pipe underground) | 4.00 | 500 | YES | Eastover | 0.04 | Solids / Other |
| 11/6/2017 | 9:45 PM | 2980 BELVEDERE DR | Manhole | 0.57 | 50 | YES | Lynch | 0.00 | Grease |

Table 1 cont.
City of Jackson, Mississippi
Quarterly Report No. 19 - October 2017 through December 2017
Collection System SSOs

| Date Began | Time Began | Location | Source | Estimated Duration, Hours | Estimated Volume, Gallons | Reached Waters of the State | Receiving Water | Rainfall, Inches | Reported Cause |
|------------|------------|----------------------|---|---------------------------|---------------------------|-----------------------------|-----------------|------------------|----------------|
| 11/7/2017 | 7:00 AM | COLEMAN AVE | Ground Surface (defective pipe underground) | 6.00 | 750 | YES | Town | 0.00 | Other |
| 11/8/2017 | 10:45 AM | 917 INGE ST | Cleanout | 0.63 | 90 | YES | Town | 0.07 | Grease |
| 11/10/2017 | 2:14 PM | 5055 OLD CANTON RD | Manhole | 0.13 | 30 | YES | Hanging Moss | 0.00 | Solids |
| 11/10/2017 | 12:43 PM | 2024 WILLOW WAY | Manhole | 1.02 | 250 | YES | Hardy | 0.00 | Grease |
| 11/10/2017 | 7:49 AM | 201 WESTHAVEN BLVD | Manhole | 1.47 | 720 | YES | Lynch | 0.00 | Grease |
| 11/11/2017 | 11:30 AM | 2821 GRETNA GREEN DR | Manhole | 0.37 | 80 | YES | Lynch | 0.00 | Grease |
| 11/14/2017 | 1:55 PM | 1214 MELWOOD PL | Ground Surface (defective pipe underground) | 0.60 | 120 | YES | Hanging Moss | 0.00 | Grease |
| 11/15/2017 | 11:07 AM | 2804 SUNCREST DR | Cleanout | 1.67 | 320 | YES | Cany | 0.00 | Grease |
| 11/15/2017 | 9:49 AM | 147 ADELLE CT | Other | 0.60 | 60 | NO | Town | 0.00 | Collapsed Pipe |
| 11/16/2017 | 10:05 AM | 2981 MCDOWELL ROAD | Manhole | 0.68 | 280 | YES | Cany | 0.00 | Grease |
| 11/17/2017 | 9:30 AM | 913 CARLISLE ST | Ground Surface (defective pipe underground) | 0.58 | | NO | Town | 0.00 | Grease / Other |
| 11/20/2017 | 5:00 PM | 237 KIMBROUGH DR | Manhole | 0.67 | 50 | YES | Lynch | 0.00 | Grease |
| 11/20/2017 | 3:20 PM | 1301 HAIR ST | Ground Surface (defective pipe underground) | NR | 200 | YES | Lynch | 0.00 | Solids / Other |
| 11/21/2017 | 11:28 AM | 831 RAYMOND ROAD | Cleanout | 0.73 | 170 | NO | Hardy | 0.00 | Grease |
| 11/22/2017 | 6:49 PM | 4879 RAYMOND ROAD | Ground Surface (defective pipe underground) | 0.32 | 180 | NO | Big Creek | 0.00 | Solids |
| 11/22/2017 | 8:37 AM | 309 MCDOWELL ROAD | Manhole | 4.63 | 150 | YES | Hardy | 0.00 | Roots |

Table 1 cont.
City of Jackson, Mississippi
Quarterly Report No. 19 - October 2017 through December 2017
Collection System SSOs

| Date Began | Time Began | Location | Source | Estimated Duration, Hours | Estimated Volume, Gallons | Reached Waters of the State | Receiving Water | Rainfall, Inches | Reported Cause |
|------------|------------|---------------------------|---|---------------------------|---------------------------|-----------------------------|-----------------|------------------|------------------------|
| 11/22/2017 | 12:26 PM | 1119 PRIMROSE ST | Other | 2.07 | 15 | NO | | 0.00 | Collapsed Pipe / Other |
| 11/22/2017 | 11:21 AM | 5192 SYCAMORE DR | Ground Surface (defective pipe underground) | 0.90 | 100 | NO | Cany | 0.00 | Collapsed Pipe |
| 11/27/2017 | 6:00 PM | North State | Ground Surface (defective pipe underground) | ONGOING | NR | NO | Hanging Moss | 0.00 | Collapsed Pipe / Other |
| 11/27/2017 | 4:15 PM | 346 AUDUBON PL | Manhole | 1.25 | | NO | Hanging Moss | 0.00 | Grease / Solids |
| 11/27/2017 | 12:20 PM | 347 MAGNOLIA ROAD | Manhole | 1.37 | 320 | YES | Town | 0.00 | Grease |
| 11/27/2017 | 11:46 AM | 1643 PEAR ORCHARD PL | Ground Surface (defective pipe underground) | 0.75 | 640 | YES | Purple | 0.00 | Collapsed Pipe |
| 11/27/2017 | 8:14 AM | 347 WILLIAM MCKINLEY CIR | Cleanout | 14.08 | 80 | YES | Bogue Chitto | 0.00 | Grease |
| 11/28/2017 | 12:44 PM | 629 FONDREN PL | Manhole | 0.63 | 2,992 | YES | Eubanks | 0.00 | Grease |
| 11/28/2017 | 10:16 AM | 1520 ELLIS AVE | Manhole | 0.82 | 1,220 | YES | Lynch | 0.00 | Grease |
| 11/30/2017 | 12:00 PM | 148 HOLLY HILL DR | Manhole | 1.18 | NR | YES | Trahan | 0.00 | Roots / Collapsed Pipe |
| 11/30/2017 | 11:00 AM | 1429 NORTHSIDE DR | Manhole | NR-previous SSO | NR | NO | Hanging Moss | 0.01 | Grease |
| 12/1/2017 | 11:28 AM | 316 QUEEN THERESA LANE | Manhole | 2.53 | 1,220 | YES | Lynch | 0.00 | Grease |
| 12/4/2017 | 12:45 PM | 5507 GEORGE WASHINGTON DR | Manhole | 0.50 | 75 | YES | Hanging Moss | 0.00 | Grease |
| 12/7/2017 | 10:57 AM | 5192 SYCAMORE DR | Ground Surface (defective pipe underground) | 0.05 | 100 | YES | Hardy | 0.02 | Collapsed Pipe |
| 12/11/2017 | 11:06 AM | 1253 EASTOVER DR | Manhole | 0.40 | 2,000 | NO | Eastover | 0.00 | Grease / Solids |
| 12/11/2017 | 10:26 AM | 3540 SUNSET DR | Manhole | 28.82 | 100 | YES | Town | 0.00 | Grease |

Table 1 cont.
City of Jackson, Mississippi
Quarterly Report No. 19 - October 2017 through December 2017
Collection System SSOs

| Date Began | Time Began | Location | Source | Estimated Duration, Hours | Estimated Volume, Gallons | Reached Waters of the State | Receiving Water | Rainfall, Inches | Reported Cause |
|------------|------------|-----------------------------|---|---------------------------|---------------------------|-----------------------------|-----------------|------------------|-----------------|
| 12/12/2017 | 9:30 AM | ARLINGTON ST / PEACHTREE ST | Manhole | 1.27 | 100 | NO | Belhaven | 0.00 | Solids |
| 12/12/2017 | 9:29 AM | 5702 Medgar Evers Blvd | Manhole | 6.47 | 100 | YES | Town | 0.00 | Grease |
| 12/13/2017 | 3:46 PM | 2545 PROSPERITY ST | Manhole | 145.95 | 17,280 | YES | Town | 0.00 | Grease / Solids |
| 12/14/2017 | 6:00 PM | Jefferson St /Carlisle St | Ground Surface (defective pipe underground) | 2.25 | 100 | YES | Belhaven | 0.00 | Grease / Solids |
| 12/15/2017 | 10:19 AM | 2573 Lake Circle | Manhole | 1.98 | 435 | YES | Hanging Moss | 0.00 | Other |
| 12/18/2017 | 9:55 AM | 4515 Ridgewood Rd | Manhole | 3.75 | 125 | NO | Eubanks | 0.01 | Grease |
| 12/20/2017 | 8:05 AM | 3144 WOODSIDE DR | Manhole | 0.92 | 600 | NO | Cary | 0.64 | Grease / Solids |
| 12/21/2017 | 2:32 PM | 3347 ROBINSON ROAD | Cleanout | 24.97 | 1,000 | NO | Lynch | 0.01 | Grease / Solids |
| 12/26/2017 | 10:03 AM | 4083 ROBIN DR | Ground Surface (defective pipe underground) | 2.28 | 80 | YES | Hanging Moss | 0.56 | Collapsed Pipe |
| 12/26/2017 | 9:30 AM | 2828 N. Downing St. | Other | ONGOING | 160 | YES | Town | 0.56 | Collapsed Pipe |
| 12/27/2017 | 11:15 AM | 428 SPRINGFIELD CIR | Manhole | NR-Previous SSO | NR-Previous SSO | NO | Town | 0.09 | Other |
| 12/27/2017 | 8:30 PM | 136 Glenstone Cir | Manhole | 2.00 | 500 | NO | Cary | 0.09 | Grease / Solids |
| 12/27/2017 | 1:35 PM | 4654 Casa Blanca | Cleanout | 0.98 | 300 | NO | Eubanks | 0.09 | Grease / Solids |
| 12/28/2017 | 7:30 PM | 4515 RIDGEWOOD | Manhole | 1.50 | | NO | Eubanks | 0.00 | Grease / Solids |
| 12/28/2017 | 11:15 AM | MEADOWBROOK ROAD | Cleanout | 0.67 | 100 | NO | Belhaven | 0.00 | Grease |
| 12/29/2017 | 1:00 PM | 641 CHELSEA DR | Manhole | 1.05 | 500 | NO | Big Creek | 0.00 | Grease |

Figure 1: Collection System SSOs by Cause

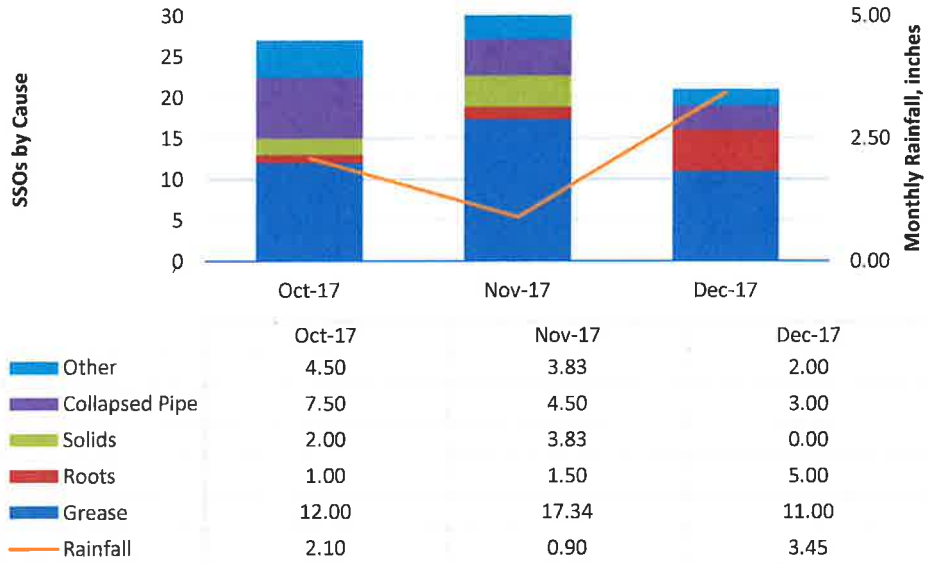


Figure 2: Percentage of Collection System SSOs by Cause

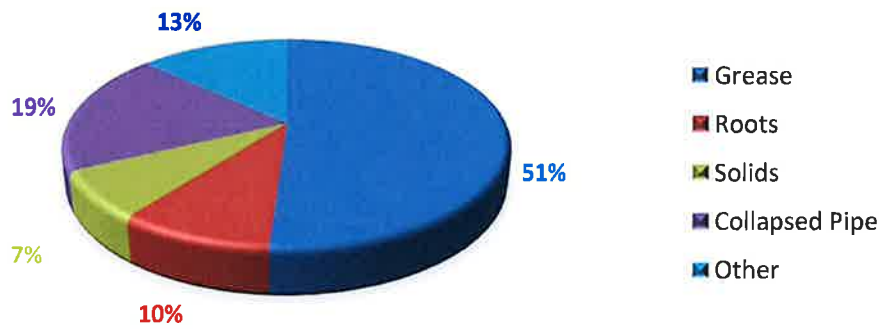


Figure 3: Collection System SSO Volume



Figure 4: Collection System SSO Duration



2.2 Pump Station SSOs

Table 2 lists pump station SSOs for October through December 2017

Figure 5 shows pump station SSO events by month by reported cause, as listed in Table 2, as well as monthly rainfall.

Figure 6 shows percentage of SSOs by cause for the quarter.

Figure 7 shows total volume of pump station SSOs for each month, as well as monthly rainfall.

Figure 8 shows total duration of pump station SSOs for each month, as well as rainfall.

There were 4 events that occurred at pump stations during the reporting period. The event at 2102 Thousand Oaks (LS-05) was caused by a float panel failure and was corrected. The event at 4919 Hwy 80 W (LS-87) was caused by a pump failure. There were two (2) events at 575 Hillandale Dr. (LS-28) this reporting period. The event on November 26, 2017 was caused by a control panel failure and was corrected. The event on December 11, 2017 was caused by suspected vandalism. The Pump Station Maintenance personnel found pumps in the off position and the high-level alarm disabled. These were corrected and pumps placed back into service. No further events have occurred at this site.

Table 2
City of Jackson, Mississippi
Quarterly Report No. 19 - October 2017 through December 2017
Pump Station SSOs

| Date Began | Time Began | Location | Source | Estimated Duration, Hours | Estimated Volume, Gallons | Reached Waterway | Receiving Water | Rainfall, Inches | Reported Cause |
|------------|------------|----------------------------|--------------|---------------------------|---------------------------|------------------|-----------------|------------------|---|
| 10/7/2017 | 2:30 PM | 2102 Thousand Oak (LS-05) | Pump Station | 0.25 | 500 | YES | Big Creek | 0.13 | Float Panel Failure |
| 10/13/2017 | 9:30 AM | 4919 Hwy 80 W (LS-87) | Pump Station | 0.33 | 1,000 | YES | Big Creek | 0.00 | Pump Station Failure |
| 11/26/2017 | 7:20 PM | 575 Hillandale Dr. (LS-28) | Pump Station | 0.83 | 2,000 | YES | Big Creek | 0.00 | Control Panel Failure |
| 12/11/2017 | 8:01 AM | 575 Hillandale Dr. (LS-28) | Pump Station | 0.40 | 1,000 | YES | Big Creek | 0.00 | Pumps turned off and alarm disconnected |

Figure 5: Pump Station SSOs by Cause

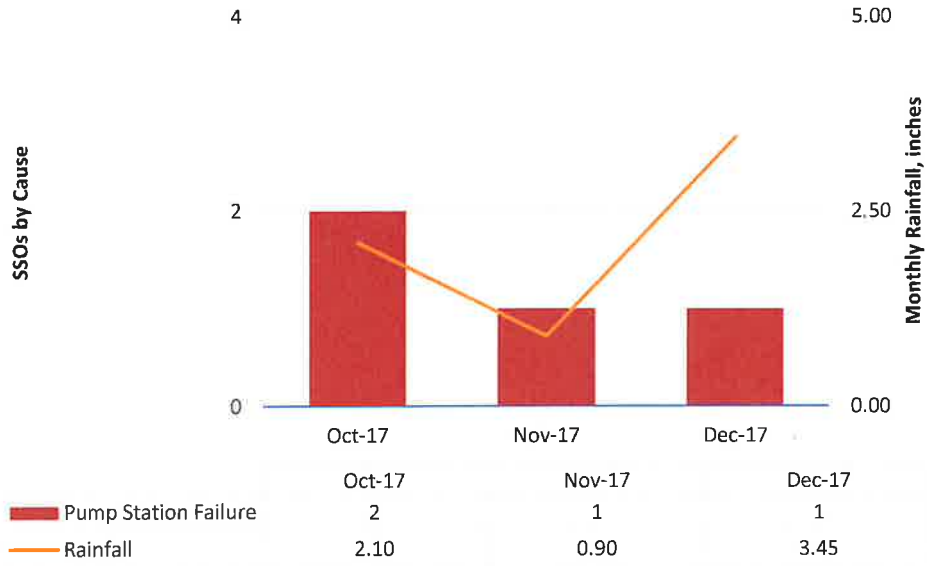


Figure 6: Percentage of Pump Station SSOs by Cause

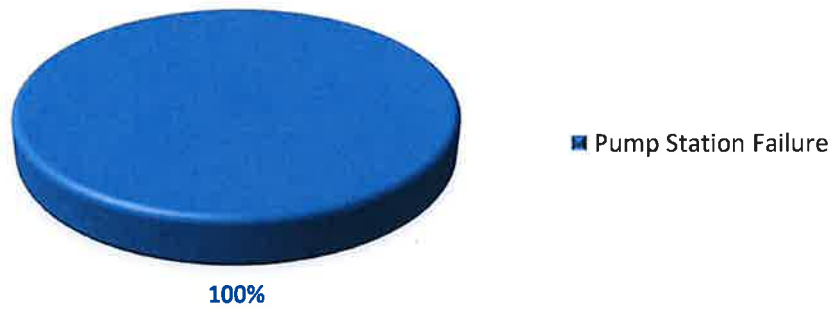


Figure 7: Pump Station SSO Volume



Figure 8: Pump Station SSO Duration



2.3 West Bank Interceptor SSOs

There were no SSOs reported on the West Bank Interceptor this Quarter

2.4 Prohibited Bypasses

Table 3 lists prohibited bypasses at the wastewater treatment plants for the year. Unlike SSOs, each event is considered as one bypass from the day it begins to the day it ends. Two (2) prohibited bypasses were reported this period.

One (1) bypass began on November 9, 2017 and ended on November 16, 2017. A total of 255.39 million gallons was diverted thru the Storm Cells, chlorinated, dechlorinated and blended with the plant effluent prior to being discharged to the Pearl River. The cause of the event was due to clarifiers being out of service during the RAS header replacement project and rainfall resulting in excessive flow due to I/I.

One (1) bypass event began on December 17, 2017 and ending on December 22, 2017. A total of 89.10 million gallons was diverted thru the Storm Cells, chlorinated, dechlorinated and blended with the plant effluent prior to being discharged to the Pearl River. The cause of the event was due to clarifiers being out of service and rainfall resulting in excessive flow due to I/I.

This quarterly report does not include a graphical representation of the number of bypasses for each cause, since all bypasses at the Savanna Street WWTP have been caused by excessive flow. Future reports will include this graphical representation when it will be helpful.

Figure 9 shows total volume of prohibited bypasses for each month plotted logarithmically, along with monthly rainfall.

Figure 10 shows volume and river stages.

Figures 11 and 12 plot total duration for the month, first compared to rainfall and then compared to river stages. River stages are shown as monthly average river stage and as the Maximum monthly river stage. These appear to indicate that the inflow into the system and subsequent excessive flows to the treatment facility is influenced by the river stage more so than the local rainfall events. Note that duration of prohibited bypasses is plotted in days.

Table 3
City of Jackson, Mississippi
Quarterly Report No. 19 - October 2017 through December 2017
Prohibited Bypasses

| Date Began | Time Began | Location | Source | Estimated Duration, Days | Estimated Volume, Million Gallons | Reached Waterway | Receiving Water | Rainfall, Inches | Reported Cause |
|------------|------------|-------------|--------|--------------------------|-----------------------------------|------------------|-----------------|------------------|---|
| 11/09/17 | 3:30AM | 3810 I 55 S | WWTP | 7 | 255.39 | YES | Pearl | 0.43 | RAS header pipe replacement project and rainfall event totaling 0.43" over the course of two days |
| 12/17/17 | 2:45 PM | 3810 I 55 S | WWTP | 5 | 89.10 | YES | Pearl | | Limited Capacity due to two Clarifiers out of service and rainfall event totaling 1.46" during the bypass event |

Figure 9: Prohibited Bypass Volume vs. Rainfall



Figure 10: Prohibited Bypass Volume vs. River Stage

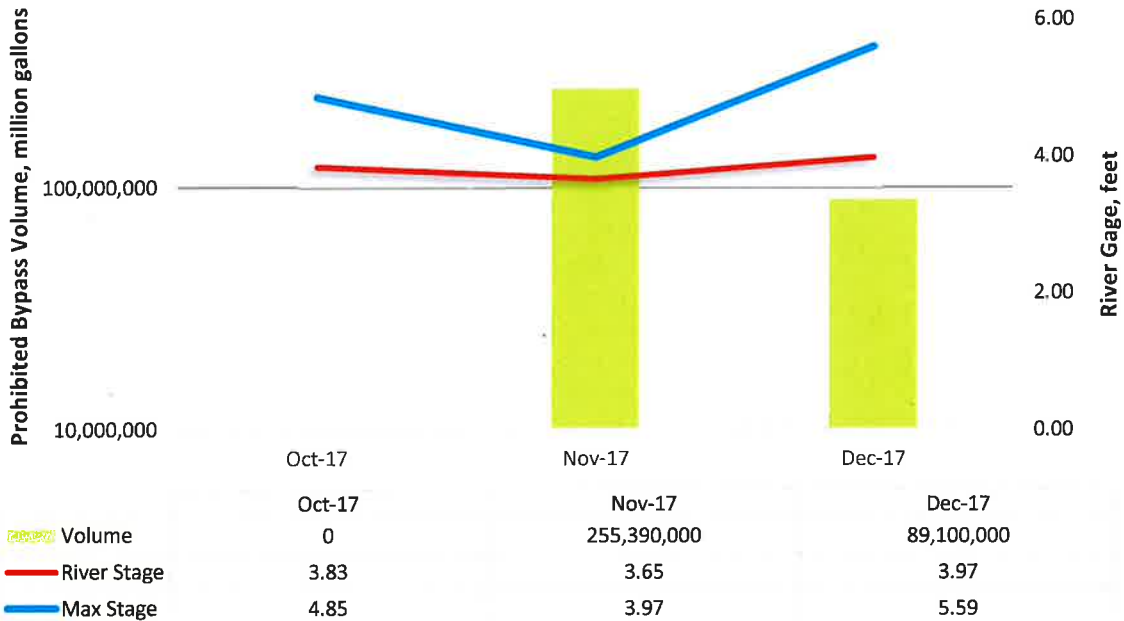
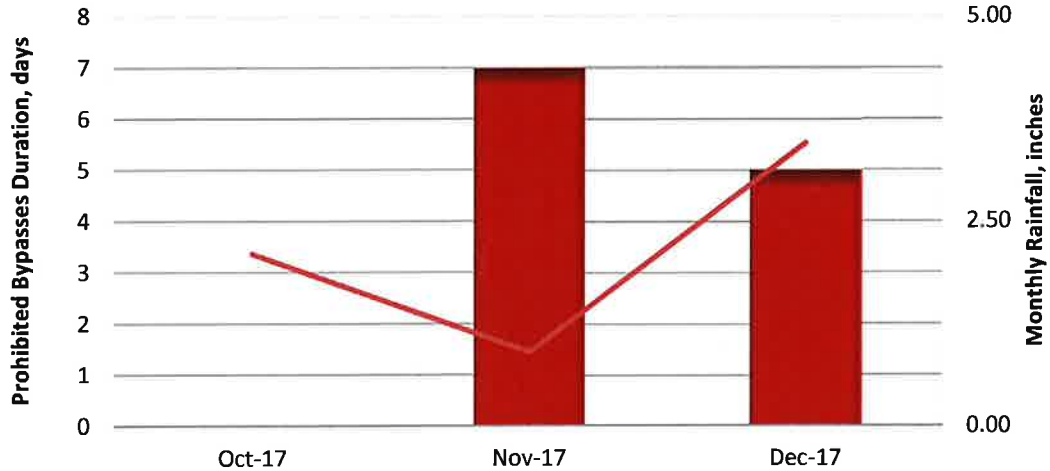
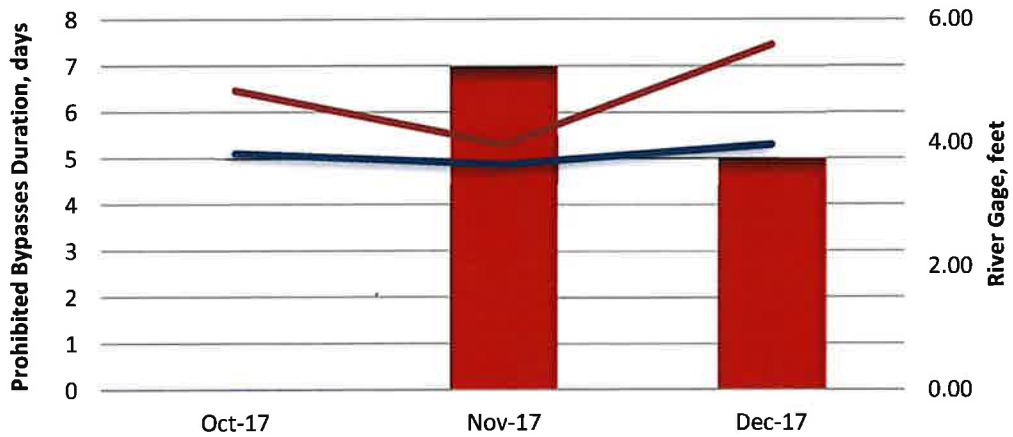


Figure 11: Prohibited Bypasses Duration vs. Rainfall



| | Oct-17 | Nov-17 | Dec-17 |
|----------|--------|--------|--------|
| Duration | 0 | 7 | 5 |
| Rainfall | 2.10 | 0.90 | 3.45 |

Figure 12: Prohibited Bypasses Duration vs. River Stage



| | Oct-17 | Nov-17 | Dec-17 |
|-------------|--------|--------|--------|
| Duration | 0 | 7 | 5 |
| River Stage | 3.83 | 3.65 | 3.97 |
| Max Stage | 4.85 | 3.97 | 5.59 |