



City of Chattanooga

Mayor Andy Berke

February 29, 2016

VIA CERTIFIED MAIL

Ms. Sara Janovitz
Environmental Engineer
Clean Water Enforcement Branch
US EPA-Region 4
61 Forsyth Street, SW
Atlanta, GA 30303

**Re: *United States of America et. al. v. City of Chattanooga, No. 1:12-cv-0024*
Annual Report No. 3 – January, 2015 to December, 2015**

Dear Ms. Janovitz:

On behalf of the City of Chattanooga, Tennessee ("City"), and in accordance with the Consent Decree entered by the United States District Court for the Eastern District of Tennessee (Southern Division), on April 24, 2013, in the case styled the United States of America et. al. v. City of Chattanooga, No. 1:12-cv-0024 ("Consent Decree"), we are submitting to both the Environmental Protection Agency ("EPA") and the Tennessee Department of Environment and Conservation ("TDEC") the third annual report required pursuant to paragraph 40 of the Consent Decree. This report is also being submitted in accordance with the letter from Denise Diaz, dated September 16, 2013, establishing the dates for reporting under the Consent Decree.

Additionally, please find attached the correct revised Table 2-1 to replace the original revised Table 2-1 in Quarterly Report 10 sent on February 8, 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.

Ms. Sara Janovitz
February 29, 2016
Page Two

Please let me know if you have any questions regarding our submittal.

Sincerely,



Michael C. Patrick, P.E.
Director, Waste Resources Division

Enclosure

cc: Karl Fingerhood, Esq., US DOJ
Chief, Environmental Enforcement Section, US DOJ
Chief, Clean Water Enforcement Branch, US EPA Region 4
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Stephanie Durman Matheny, Esq., TCWN
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Annual Report No. 3

January 1 - December 31, 2015

Prepared for

**Environmental Protection Agency and
Tennessee Department of Environment and
Conservation**

City of Chattanooga
Waste Resources Division
Consent Decree Program
Case No. 1:12-cv-00245

Prepared by

City of Chattanooga
Waste Resources Division

Submitted by

JACOBS

Jacobs Engineering Group Inc.
Consent Decree Program Manager

Chattanooga, Tennessee

February 29, 2016

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Acronyms and Abbreviations

CAP	Capacity Assurance Program
CD	Consent Decree
CMOM	Capacity, Management, Maintenance and Operations
CSOTF	Combined Sewer Overflow Treatment Facility
EPA	Environmental Protection Agency
FOG	Fats, Oils, and Grease
FSE	Food Service Establishment
MG	Million Gallons
MH	Manhole
N/A	Not Applicable
No.	Number
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
PM	Preventive Maintenance
SORP	Sewer Overflow Response Protocol
SSO	Sanitary Sewer Overflow
TDEC	Tennessee Department of Environment and Conservation
WCTS	Waste Collection and Transmission System

1.0 Introduction

1.1 Purpose

On April 24, 2013, the City of Chattanooga (“City”) entered into a Consent Decree with the United States and the State of Tennessee, in the case styled *United States of America et. al. v. City of Chattanooga, No. 1:12-cv-00245* (“CD”). Pursuant to Section IX of the CD, the City is required to submit annual reports on a yearly basis to the Environmental Protection Agency (“EPA”) and Tennessee Department of Environment and Conservation (“TDEC”). Chattanooga has prepared this report to satisfy the reporting requirements found in Paragraph 40 of the CD, which covers the period from January 1, 2015 through December 31, 2015 (“Reporting Period”).

1.2 Requirements

As detailed in Section IX of the CD, the City is required to report a summary of Capacity, Management, Operations and Management (“CMOM”) Program as implemented or modified pursuant to the CD, including a comparison of actual performance with any performance measures that have been established. Additionally, the 1st five annual reports are to include a trends analysis of the number, volume, duration, and cause of Chattanooga’s Sanitary Sewer Overflow (“SSO”) events for a 24-month rolling period, updated to reflect the SSO events that occurred during the previous 12-month period. Beginning with the 6th annual report, this trends analysis will cover SSO events spanning a 5-year rolling period.

2.0 CMOM Programs

The City is developing its CMOM program pursuant to Paragraph 20 of the CD. As of the end of the Reporting Period, seven (7) of the nine CMOM programs have been developed by Chattanooga, submitted to TDEC and EPA, and approved. The remaining two CMOM programs are in development. Table 2-1 on the following page summarizes the status of the CMOM Programs, including updates related to implementation of those that have received EPA approval.

**Table 2-1
CMOM Program Summary**

January 1, 2015 - December 31, 2015						
CMOM Program	CMOM Program Status	CMOM Program CD Component	CD Reference	CMOM Program Update	Established Performance Measure	Actual Measured Performance
Sewer Overflow Response Protocol ("SORP")	Approved by EPA and TDEC 5/29/2014	Maintain records of all SSO responses and response times	Section VI, Paragraph 20(a)(ii)	Chattanooga has established a standard SSO Report Form for recording all required SSO related information, maintained via 311 calls, Cityworks Work Orders, and daily work activity summaries	Limit SSO response time to be within one hour after notification of event	Average SSO response time for 2015 was ~12 minutes
Sewer Overflow Response Protocol ("SORP")	Approved by EPA and TDEC 5/29/2014	Provide notice to TDEC as required by National Pollutant Discharge Elimination (NPDES) Permit within 24 hours of being made aware of an SSO event	Section VI, Paragraph 20(a)(ii)	Chattanooga has identified ISS staff responsible for compiling SSO report and providing required notification	Notify TDEC of SSO events within 24 hours after being made aware of event	All 24-hour reports were made to TDEC within the 24-hour time period
Inter-Jurisdictional Agreement ("IJA") Program	Approved by EPA and TDEC 9/16/2014	Include provisions for renewal or entering of new agreements with municipal satellite sewer systems upon expiration or termination of any such agreements	Section VI, Paragraph 20(i)	Renewal of agreements is addressed in paragraph 2(a) of the agreement template	Total number of new agreements initiated in the past year	Chattanooga initiated renegotiation of 6 IJA agreements pursuant to the program in 2015

**Table 2-1
CMOM Program Summary**

January 1, 2015 - December 31, 2015						
CMOM Program	CMOM Program Status	CMOM Program CD Component	CD Reference	CMOM Program Update	Established Performance Measure	Actual Measured Performance
Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014	Develop a root control component which shall include protocols for implementing root control for gravity sewer lines.	Section VI, Paragraph 20(d)	Utilize inspections data, historical SSO locations, work order history, customer complaint history, FOG Program information and flow monitoring and hydraulic modeling results to identify priority areas for hydraulic cleaning	Beginning in 2016, achieve annual chemical root control for 50,000 linear feet of pipeline	Performance measurement to begin in 2016
Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014	Preventive Hydraulic Cleaning	Section VI, Paragraph 20(d)	Utilize inspections data, historical SSO locations, work order history, customer complaint history, FOG Program information and flow monitoring and hydraulic modeling results to identify priority areas for hydraulic cleaning	Hydraulic cleaning of 1,000,000 feet of pipeline	1,334,853 ft
Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014	Manhole Preventive Maintenance	Section VI, Paragraph 20(d)	This portion of the GLPM Program has been established to identify specific manholes where inspections and preventive maintenance activities will be concentrated in order to identify structural deficiencies and sources of I&I	Perform 1,000 Level 1 MACP inspections	1,997 inspections

**Table 2-1
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Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014	Manhole Preventive Maintenance	Section VI, Paragraph 20(d)	This portion of the GLPM Program has been established to identify specific manholes where inspections and preventive maintenance activities will be concentrated in order to identify structural deficiencies and sources of I&I	Perform 900 Level 2 MACP inspections	869 inspections
Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014	SSO Reduction	Section VI, Paragraph 20(d)	The goal of this portion of the GLPM Program is to establish protocols for identifying and addressing repeated SSOs in the WCTS where preventive maintenance activities can be undertaken to alleviate or eliminate SSOs	Preventive Hydraulic Line Cleaning Frequency per the following: 2 months – 25,000 ft 4 months – 50,000 ft 6 months – 50,000 ft 8 months – 50,000 ft 12 months-225,000 ft 18 months-250,000 ft 36 months-350,000 ft	Preventive Hydraulic Cleaning for 2015 (feet): Jan-110,845 Feb-62,833 Mar-143,201 April-137,970 May-119,082 June-151,721 July-116,510 Aug-78,960 Sept-145,311 Oct-99,036 Nov-88,141 Dec-81,243

**Table 2-1
CMOM Program Summary**

January 1, 2015 - December 31, 2015						
CMOM Program	CMOM Program Status	CMOM Program CD Component	CD Reference	CMOM Program Update	Established Performance Measure	Actual Measured Performance
Fats, Oils, and Grease ("FOG") Management Program	Approved by EPA and TDEC 7/21/2015	Establish methods to identify persistent sources of FOG causing problems in the WCTS and the best method or mechanism for addressing those sources	Section VI, Paragraph 20(c)	Measure FOG Program Success	Number of FOG-related SSO's – Yearly Reduction	There were 9 SSO's associated with grease blockages.
Fats, Oils, and Grease ("FOG") Management Program	Approved by EPA and TDEC 7/21/2015	Performance Measures	Section VI, Paragraph 20(c)	Measure FOG Program Workload	Number of annual inspections versus the total number of FSEs – 100%	85.4%
Fats, Oils, and Grease ("FOG") Management Program	Approved by EPA and TDEC 7/21/2015	Establish performance indicators to be used by Chattanooga to measure the effectiveness of the FOG Management Program	Section VI, Paragraph 20(c)	Evaluate the Effectiveness of Program Enforcement	Number of annual Noncompliance Notifications vs the total inspections - Below 15%	5.5%

**Table 2-1
CMOM Program Summary**

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Fats, Oils, and Grease ("FOG") Management Program	Approved by EPA and TDEC 7/21/2015	Performance Measures	Section VI, Paragraph 20(c)	Identify and Reduce the amount of sewer that is classified as a FOG hot spot area.	Reduce linear footage by 10%	24% reduction
Fats, Oils, and Grease ("FOG") Management Program	Approved by EPA and TDEC 7/21/2015	Performance Measures	Section VI, Paragraph 20(c)	Measure Program value	Cost of Regulatory Fines for SSOs due to FOG	\$0.00
Pump Station Operations Program	Approved by EPA and TDEC 10/22/2015	Ensure proper operation of pump stations; determine if condition issues are present	Section VI, Paragraph 20(e)	N/A	95%	968 monthly PM's completed (95%)
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015	Performance Measures	Section VI, Paragraph 20(f)	Assure all PMs are being completed as scheduled	95% adherence to PM schedule	93% were on time
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015	Performance Measures	Section VI, Paragraph 20(f)	Limit and track work orders that could have been preventable	Less than 5 preventable work orders per month	Developing mechanism to track this KPI in 2016.
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015	Performance Measures	Section VI, Paragraph 20(f)	Evaluate the success of the PM program	Less than 6 PM cycles per work order generated	36 days

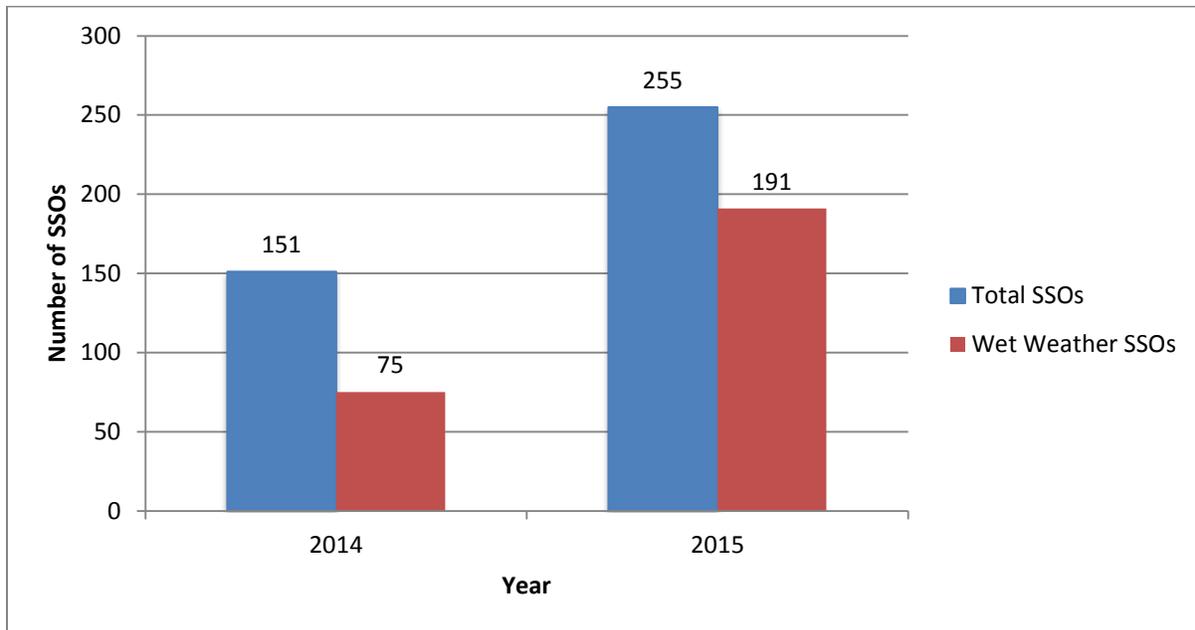
**Table 2-1
CMOM Program Summary**

January 1, 2015 - December 31, 2015						
CMOM Program	CMOM Program Status	CMOM Program CD Component	CD Reference	CMOM Program Update	Established Performance Measure	Actual Measured Performance
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015	Performance Measures	Section VI, Paragraph 20(f)	Not let the work orders get lost in the process	No work orders older than 6 months	The average time to complete work orders was 10 days.
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015	Performance Measures	Section VI, Paragraph 20(f)	Track the reliability of the City assets	Less than 10%	13.4%
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015	Performance Measures	Section VI, Paragraph 20(f)	Track the number of work orders incomplete due to materials and parts	No Work Orders Older than 30 days Awaiting Parts	There was 1 work order. It was 2 months old.
Capacity Assurance Program ("CAP")	On schedule to submit in May of 2016	Applicable CD components to be identified during program development	Capacity Assurance Program ("CAP")	N/A	N/A	N/A

3.0 SSO Trends Analysis

A trends analysis of the cause, duration, and volume of SSO events was conducted for the 24-month period spanning January 1, 2014 through December 31, 2015. Rainfall data collected during the same time period was included in the analysis to illustrate the effects of heavy, sustained rainfall on the occurrence, duration, and volume of the recorded SSO events. Figure 3-1 below provides a summary of SSO events by year for the reporting period:

Figure 3-1
SSO Events by Year



There was an upward trend in SSO events from 2014 to 2015 as illustrated in Figure 3-1. There was a similar upward trend in rainfall as described throughout this section and illustrated in Figure 3-2. The majority of SSO events during the reporting period were wet-weather related. Wet-weather related SSOs were 50% of the total SSOs in 2014 and 67% in 2015. As for SSOs that were not related to wet weather, there were 67 in 2014 and 48 in 2015.

The rainfall observed in 2015 was 32% higher than 2014 and 21% higher than normal rainfall according to rainfall data provided by NOAA. April, August, October, and December all had more than twice the normal rainfall in 2015.

There were two storm events in 2015 that had rainfall beyond the 2-year 24-hour design storm event of 3.67 inches as defined in the Consent Decree. These events occurred on 11/29/2015 and 12/25/2015 and had rainfall totals of 5.32 inches and 4.19 inches respectively. There were

7 SSOs associated with these events that were at locations where in the last 5 years there had not been SSOs previously reported. These SSOs are shown in the Table 3-1.

Table 3-1
Excess Rainfall Original SSOs

Start Date	Start Time	Location	Source	MH ID#	SSO Destination	Cause
11/30/2015	1:35:00 PM	3900 Birmingham Dr	Manhole	S118D128	Ditch	Wet Weather
12/1/2015	8:55:00 PM	4023 Forest Plaza Dr	Manhole	S109M601	Storm Drain	Wet Weather
12/1/2015	12:56:00 PM	3470 Van Buren St	Manhole	S118G114	Storm Drain	Wet Weather
12/1/2015	10:51:00 AM	3823 Atlanta Dr	Manhole	S118E052	Storm Drain	Wet Weather
12/2/2015	2:45:00 PM	4600 Ellis Ave	Manhole	S157C040	Storm Drain	Wet Weather
12/3/2015	9:00:00 AM	1051 W 19th St	Manhole	S145G007	Land	Wet Weather
12/3/2015	9:20:00 AM	4634 Adams Rd	Manhole	S110G002	North Chickamauga Creek	Wet Weather

Pursuant to Paragraph 1.3.5.2 of the City's NPDES Permit TN0024210, the City notified TDEC regarding unavoidable construction on the headworks of the MBWWTP. This construction provided reduced capacity at the headworks for a period of time late 2015. While a bypass was performed during this period, significantly higher than normal rainfall and flows increased the number and duration of SSOs during this construction. The construction has since been completed and the headworks has more capacity than was available prior to construction. Through an analysis of the rainfall events during this period, there were 8 SSOs that the data shows can be likely attributed to this construction effort. These SSOs are shown in Table 3-2.

Table 3-2
SSOs Attributed to Required Construction

Start Date	Start Time	Location	Source	Estimated Duration (hrs)	Estimated Volume (gal)	SSO Destination	Cause
10/10/2015	1:00:00 AM	122 Rowland Gap Rd	Main Line	31.15	24093000	Tennessee River	Wet Weather
10/26/2015	9:10:00 PM	122 Rowland Gap Rd	Main Line	6.92	1271000	Tennessee River	Wet Weather
10/27/2015	12:05:00 PM	122 Rowland Gap Rd	Main Line	8.21	4558000	Tennessee River	Wet Weather
10/28/2015	10:15:00 AM	122 Rowland Gap Rd	Main Line	7.25	1255000	Tennessee River	Wet Weather
11/2/2015	12:20:00 PM	122 Rowland Gap Rd	Main Line	9.67	3439000	Tennessee River	Wet Weather
11/9/2015	8:15:00 PM	122 Rowland Gap Rd	Main Line	29.25	3594000	Tennessee River	Wet Weather
11/9/2015	9:35:00 PM	122 Rowland Gap Rd	Main Line	3.97	439000	Tennessee River	Wet Weather
12/17/2015	9:47:00 AM	122 Rowland Gap Rd	Main Line	18.96	1708000	Tennessee River	Wet Weather

Figure 3-2 depicts SSO events by cause per month. Wet weather was the leading cause of SSOs during the reporting period, followed by blockages. This chart also depicts the increased monthly rainfall observed in 2015 versus 2014.

Figure 3-3 depicts total SSO events per month. The average number of SSOs per month for the reporting period was approximately 17. The above average number of SSOs reported for these months correlates to the heavy rain that was sustained during these months.

Figure 3-4 depicts cumulative SSO duration per month or the sum of the durations of each SSO event that was recorded per month during the reporting period. The average cumulative SSO duration per month was approximately 388 hours, which also correlates to the heavy rainfall experienced during the months.

Figure 3-5 depicts cumulative SSO volume per month or the sum of the volumes of each SSO event that was recorded per month during the reporting period. The average cumulative SSO volume per month for the reporting period was found to be approximately 36 million gallons.

Figure 3-2
SSO Events by Cause

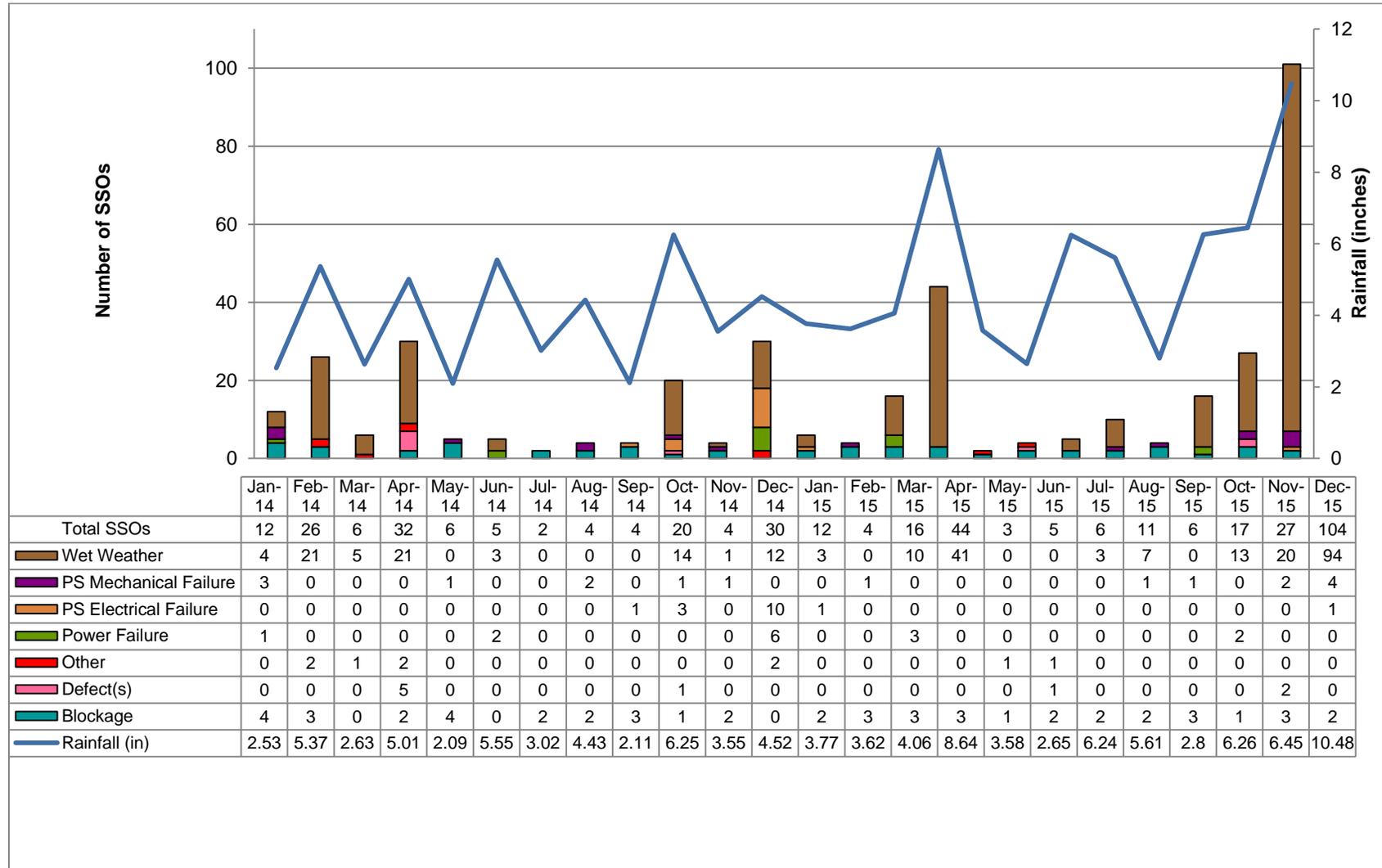


Figure 3-3
Monthly SSO Quantities

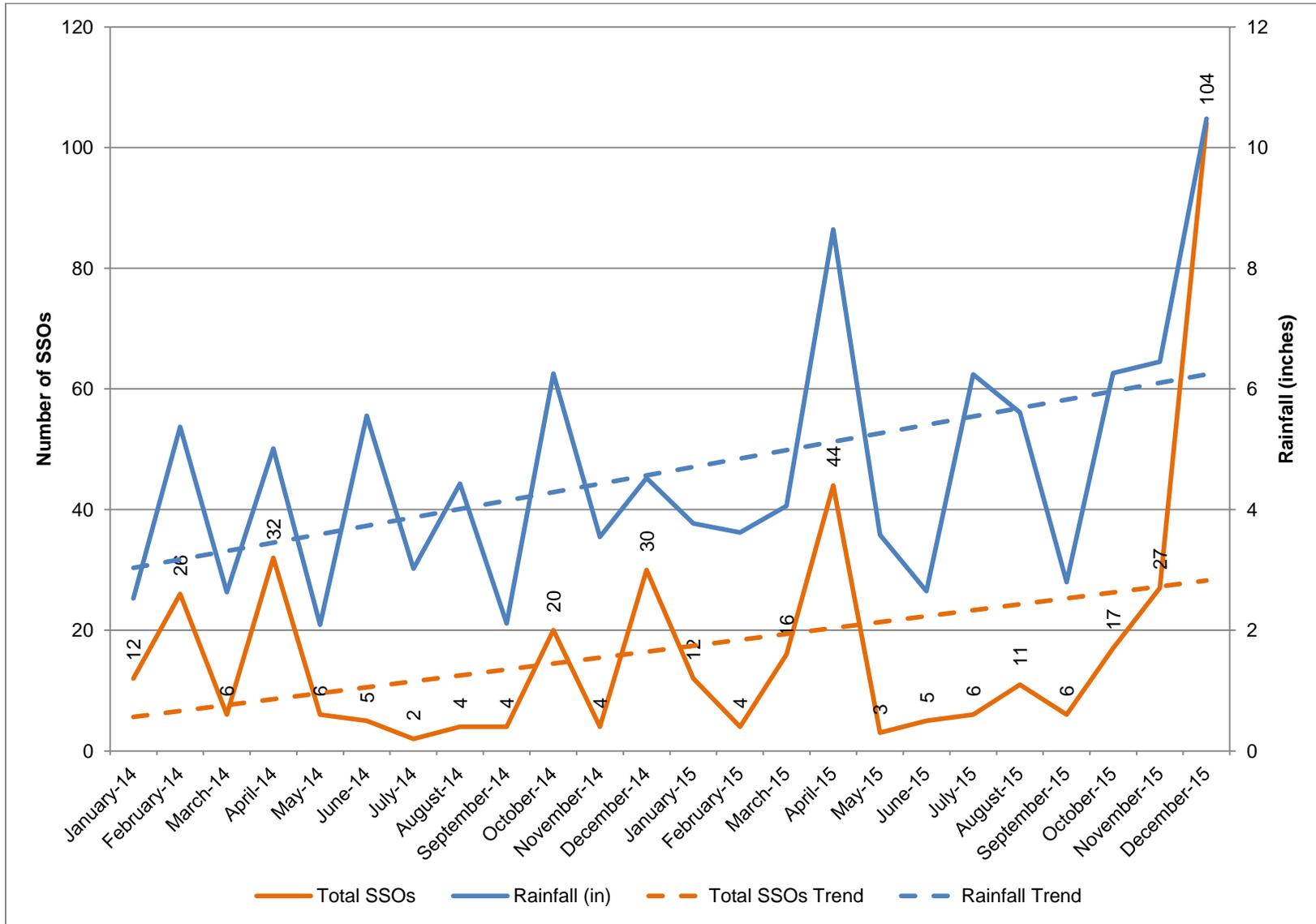


Figure 3-4
Monthly SSO Durations

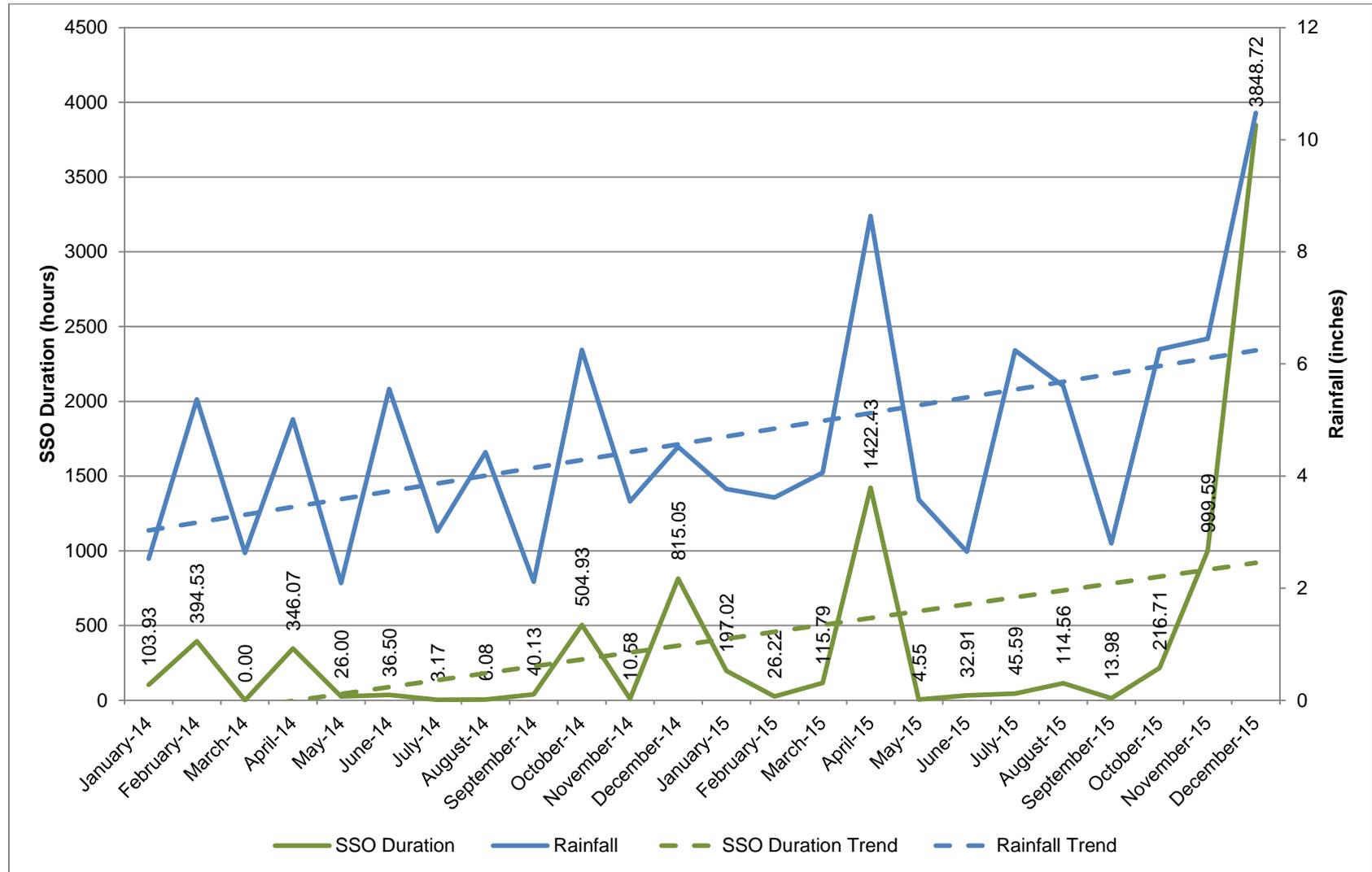


Figure 3-5
Monthly SSO Volumes

