



City of Chattanooga

Mayor Tim Kelly

February 28, 2024

J.C. Goodwin
Water Enforcement Branch
Enforcement and Compliance Assurance Division
US EPA-Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-8960

**Re: *United States of America et. al. v. City of Chattanooga, No. 1:12-cv-0024*
Annual Report No. 11 – January 2023 to December 2023**

Dear Mr. Goodwin:

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 eleventh 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.

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.

Mr. John Goodwin
February 28, 2024
Page Two

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

Sincerely,


Mark Heinzer (February 28, 2024 13:52 EST)

Mark Heinzer, P.E.
Administrator, Wastewater Department

Enclosure

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Chattanooga



Annual Report No. 11

January 1 - December 31, 2023

Prepared for

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

City of Chattanooga
Wastewater Department
Consent Decree Program
Case No. 1:12-cv-00245

Prepared by

City of Chattanooga
Wastewater Department

Submitted by

Jacobs

Jacobs Engineering Group Inc.
Consent Decree Program Manager

Chattanooga, Tennessee
February 28, 2024

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Acronyms and Abbreviations

AOP	Additional Operational Plan
BOD	Biochemical Oxygen Demand
CAP	Capacity Assurance Program
CD	Consent Decree
CMOM	Capacity, Management, Operations, and Maintenance
CSOTF	Combined Sewer Overflow Treatment Facility
DO	Dissolved Oxygen
EPA	Environmental Protection Agency
FOG	Fats, Oils, and Grease
FSE	Food Service Establishment
IJA	Inter-Jurisdictional Agreement
ISS	Interceptor Sewer System
KPI	Key Performance Indicator
MBWWTP	Moccasin Bend Wastewater Treatment Plant
MBEC	Moccasin Bend Environmental Campus
MG	Million Gallons
MH	Manhole
N/A	Not Applicable
No.	Number
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
PCCMP	Post Construction Compliance Monitoring Program
PM	Preventive Maintenance
PS	Pump Station
SORP	Sewer Overflow Response Protocol
SSO	Sanitary Sewer Overflow
TDEC	Tennessee Department of Environment and Conservation
TSS	Total Suspended Solids

WQS Water Quality Standards

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, 2023 through December 31, 2023 (“Reporting Period”). This report is also being submitted in accordance with the letter from Denise Diaz, dated September 16, 2013, establishing the dates for the reporting under the CD.

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 included 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. Since the 6th annual report, this trends analysis covers SSO events spanning a 5-year rolling period.

2.0 CMOM Programs

The City has completed the development of its CMOM program pursuant to Paragraph 20 of the CD. As of the end of the last Reporting Period, all nine (9) of the nine CMOM programs have been developed by Chattanooga, submitted to TDEC and EPA, and approved. Table 2-1 on the following page summarizes the status of the CMOM Programs, including updates and key performance indicators (“KPIs”) related to implementation of those that have received EPA approval.

**Table 2-1
CMOM Program Summary**

January 1, 2023 - December 31, 2023						
CMOM Program	CMOM Program Status	CD Reference	CMOM Program KPI	CMOM KPI Purpose	Established Performance Measure	Actual Measured Performance
Sewer Overflow Response Protocol ("SORP")	Approved by EPA and TDEC 5/29/2014	Section VI, Paragraph 20(a)(ii)	Maintain records of all sanitary sewer overflow ("SSO") responses and response times	Reduce response times to respond to SSOs to reduce SSO impacts	Reduce SSO response time to within one hour after notification of event	Average SSO response time for 2023 was ~19.3 minutes
Sewer Overflow Response Protocol ("SORP")	Approved by EPA and TDEC 5/29/2014	Section VI, Paragraph 20(a)(ii)	Provide notice to TDEC as required by National Pollutant Discharge Elimination ("NPDES") Permit within 24 hours of being made aware of an SSO event	Improve timeliness of SSO reporting to TDEC	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
Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014 Updated and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(d)	Annual Chemical Root Control Footage	Reduce the impacts of roots on system performance	Treat 50,000 feet/year	52,161 feet were treated in 2023
Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(d)	Footage of Pipeline Hydraulically Cleaned During the Calendar Year	Improve the gravity system performance	Clean 1,000,000 feet/year	Cleaned 1,457,159 feet in 2023

**Table 2-1
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January 1, 2023 - December 31, 2023						
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Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(d)	Number of MACP Level 1 Manhole Inspections During the Calendar Year	Complete Level 1 inspections to improve system performance	1,000/year until 2017 and then 2,000/year	2,928 Level 1 inspections completed in 2023
Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(d)	Number of MACP Level 2 Manhole Inspections During the Calendar Year	Complete Level 2 inspections to improve system performance	900/year until 2017 and then 500/year	501 Level 2 inspections completed in 2023
Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(d)	The Number of SSOs caused by the build-up of debris, sediment, roots, and grease in the collection system	Measure effectiveness of gravity maintenance program	A reduction in maintenance-related SSOs	There were 30 SSOs associated with blockages in 2023 as compared to 35 in 2022 (a slight reduction)

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Gravity Line Preventive Maintenance Program	Approved by EPA and TDEC 12/3/2014 Revised and Revised by EPA 9/25/2017	Section VI, Paragraph 20(d)	Footage of pipelines and frequency that preventive maintenance hydraulic cleaning is performed	Complete gravity line maintenance to improve system performance	Preventive Hydraulic Line Cleaning Frequency Maximum ft. 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 Line Cleaning Frequency Actual ft. 2 months- 0 ft. 4 months- 0 ft. 6 months- 64,777 ft. 8 months- 54,506 ft. 12 months- 1,315,969 ft. 18 months- 1,664,029 ft. 36 months- 2,780,717 ft.
Fats, Oils, and Grease (“FOG”) Management Program	Approved by EPA and TDEC 7/21/2015	Section VI, Paragraph 20(c)	Number of FOG-related SSOs	Measure FOG program effectiveness	Yearly Reduction in FOG-related SSOs	There were 5 SSOs associated with grease blockages; this is a reduction of 4 grease related SSOs from the previous year

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Fats, Oils, and Grease (“FOG”) Management Program	Approved by EPA and TDEC 7/21/2015	Section VI, Paragraph 20(c)	Number of annual inspections vs the total number of Food Service Establishments (“FSEs”)	Measure FOG Program Workload	100%	49.0% ¹
Fats, Oils, and Grease (“FOG”) Management Program	Approved by EPA and TDEC 7/21/2015	Section VI, Paragraph 20(c)	Number of annual Noncompliance Notifications vs the total inspections	Evaluate the FOG Program effectiveness	Below 15%	5.7% of total inspections yielded a non-compliance notification
Fats, Oils, and Grease (“FOG”) Management Program	Approved by EPA and TDEC 7/21/2015	Section VI, Paragraph 20(c)	FOG Hot Spots	Reduce the number of FOG hot spot areas	Reduce linear footage by 10%	0.00% reduction ²
Fats, Oils, and Grease (“FOG”) Management Program	Approved by EPA and TDEC 7/21/2015	Section VI, Paragraph 20(c)	Number of FSEs Added Annually	Measure FOG program effectiveness	Have every existing FSE included in Program so only new ones are added	24 FSEs were added during the reporting period

¹ Measured performance was not met due to staffing shortages throughout 2023. Now fully staffed, it is anticipated the performance percentage will increase for the next reporting period.

² The City has identified the Hamilton Place area as a large contributor of FOG. There are studies being performed that involve injecting chemical bacteria solution in an effort to eliminate FOG in the “food court” section of the mall. Monthly progress checks and meetings are being conducted to monitor the situation in hope for success.

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Fats, Oils, and Grease ("FOG") Management Program	Approved by EPA and TDEC 7/21/2015	Section VI, Paragraph 20(c)	Annual FOG Management Program Update Completed on Time	Improve FOG program effectiveness	Complete Annually	100%
Fats, Oils, and Grease ("FOG") Management Program	Approved by EPA and TDEC 7/21/2015	Section VI, Paragraph 20(c)	Number of Pretreatment Program Employees Trained on FOG Management Program	Improve employee program knowledge through training	100%	100%
Pump Station Operations Program	Approved by EPA and TDEC 10/22/2015 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(e)	Pump Station ("PS") Operational Checks	Improve pump station performance	95% adherence to PS/CSOTF visit schedule	100% completed on time
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(f)	Preventive Maintenance ("PM") Completion Schedule	Measure PM program effectiveness	95% adherence to PM schedule	90.8% completed on time
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(f)	Number of Preventable Work Orders	Measure work order program effectiveness	Less than 5 preventable work orders per month	Total of 44 and average of 2.75 preventable work orders per month in 2023

**Table 2-1
CMOM Program Summary**

January 1, 2023 - December 31, 2023						
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Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(f)	Track Work Orders Found Via PM Activities	Evaluate effectiveness of the PM program	Track the number of CMs generated as a result of a PM	11.7% for 2023 overall (132 CMs and 1130 PMs)
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(f)	Track the Age of Work Orders	Improve work order process	No work orders older than 6 months	Average of 29 work orders older than 6 months in 2023 (28.8% of total work orders)
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(f)	Percentage of Emergency Work Orders	Track the reliability of the City assets	Less than 10% of the work orders are emergencies	Emergency work orders were 0.66% of total work orders written
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(f)	Work Orders Awaiting Parts	Improve work order program	No Work Orders Older than 30 days Awaiting Parts	Average of 22 work orders older than 30 days awaiting parts (21% of total work orders) ¹
Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(f)	Work Backlog	Measure work order program effectiveness	Not more than 6 weeks of work	78% of work orders written were closed within the allotted time period to complete

¹ Measured performance was not met due to parts being on backorder or having longer lead times than anticipated.

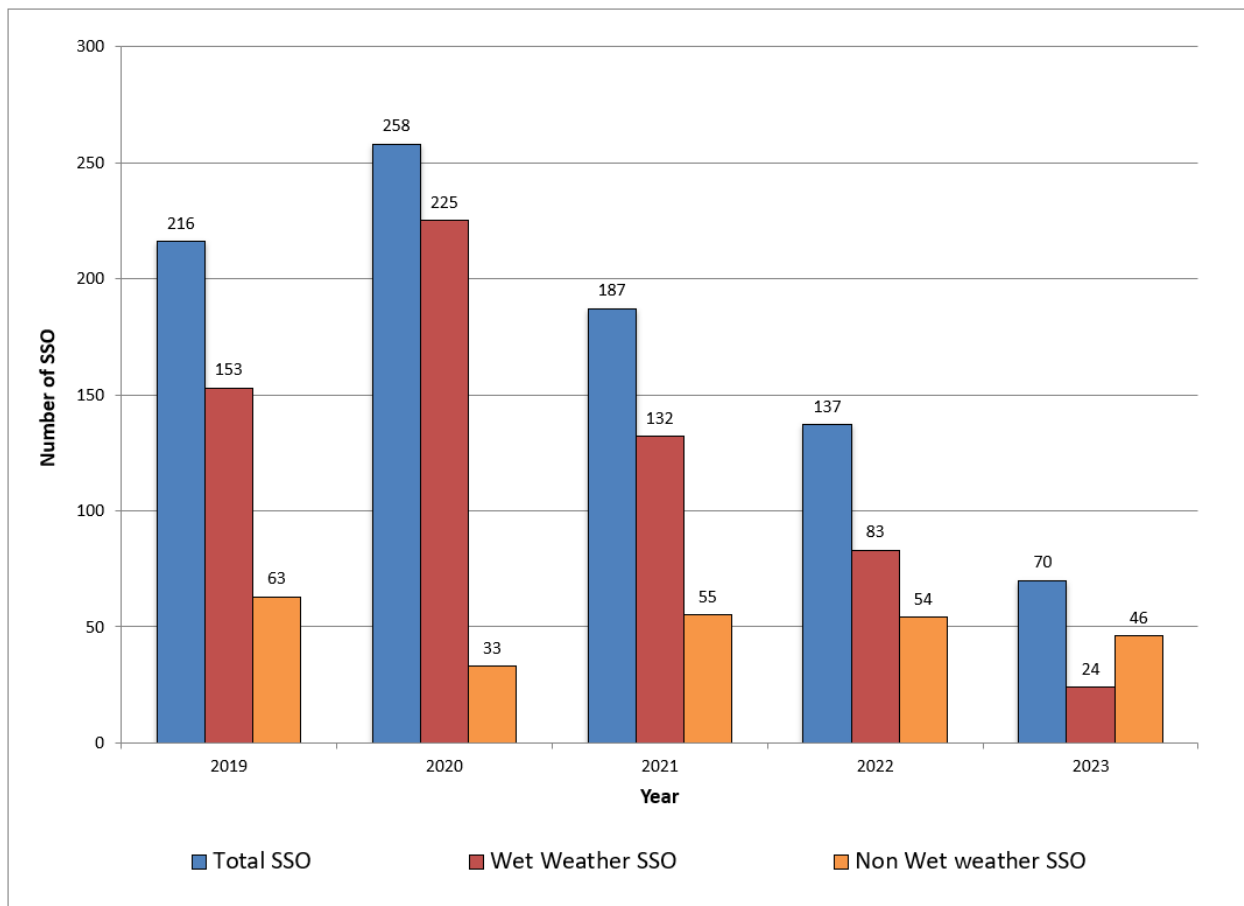
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January 1, 2023 - December 31, 2023						
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Pump Station Preventive Maintenance Program	Approved by EPA and TDEC 3/17/2015 Revised and reapproved by EPA 9/25/2017	Section VI, Paragraph 20(f)	Overtime as a Percent of Total Hours Worked	Improve pump station program by measuring overall overtime usage	Less than 5%	7.5% OT
Capacity Assurance Program ("CAP")	Approved by EPA and TDEC 10/13/2016	Section VI, Paragraph 20(h)	Applicable CD components to be identified during program implementation	N/A	N/A	N/A

3.0 SSO Trends Analysis

The City conducted a trends analysis of the cause, duration, and volume of SSO events for the 60-month period spanning January 1, 2019 through December 31, 2023. 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



As illustrated in Figure 3-1, there was a downward trend in total SSO events (-64%), including both wet weather (-79%) and non-wet weather (-8%), over the five-year period. During the same period, there was a downward trend in rainfall (-29%). The majority of SSO events during the reporting period were due to blockages (39%), followed by wet weather (34%), as illustrated in Figure 3-2, which depicts SSO events by cause per quarter for the reporting period. The downward trend in wet weather SSO events shows a clear impact of the I/I reduction and capacity

upgrade projects implemented under the Consent Decree Program. The non-wet weather SSO trend also continues to be downward showing the efficacy of the City's CMOM Program.

Based on averaged data from the 13 rain gauges installed throughout Chattanooga, the observed rainfall in 2023 was 14% lower than normal.

Figure 3-3 depicts total SSO events and rainfall accumulation per quarter. Looking at the overall, five-year, quarterly trends, there has been an 83% reduction in the number of SSO since 2019.

Figure 3-4 depicts cumulative SSO duration and rainfall accumulation per quarter or the sum of the durations of each SSO event that was recorded per quarter for the reporting period. There is a very significant decreasing trend in cumulative SSO duration in the 5-year span (-91%), showing significant reduction of I/I in the system.

Figure 3-5 depicts cumulative SSO volume and rainfall accumulation per quarter or the sum of the volumes of each SSO event that was recorded per quarter for the reporting period. Looking at the overall, five-year, quarterly trends, there has been a significant reduction in total SSO volume by -84%; this decrease in volume is mostly due to the reduction in Eastbank/Westbank overflow occurrences and volume. With the start of operation of the Wet Weather Storage Phases 1-3 at Hamm Rd, and completion of the MBWWTP EQ Blower Replacement project in the second half of 2024, the Eastbank/Westbank overflow is anticipated to be eliminated for wet weather events up to the 2-year 24-hour design storm. There were no Eastbank/Westbank overflows recorded in 2023. The reduction in SSO volume shows the significant impact of I/I reduction and capacity upgrade projects completed under the Program.

Figure 3-2
SSO Events by Cause

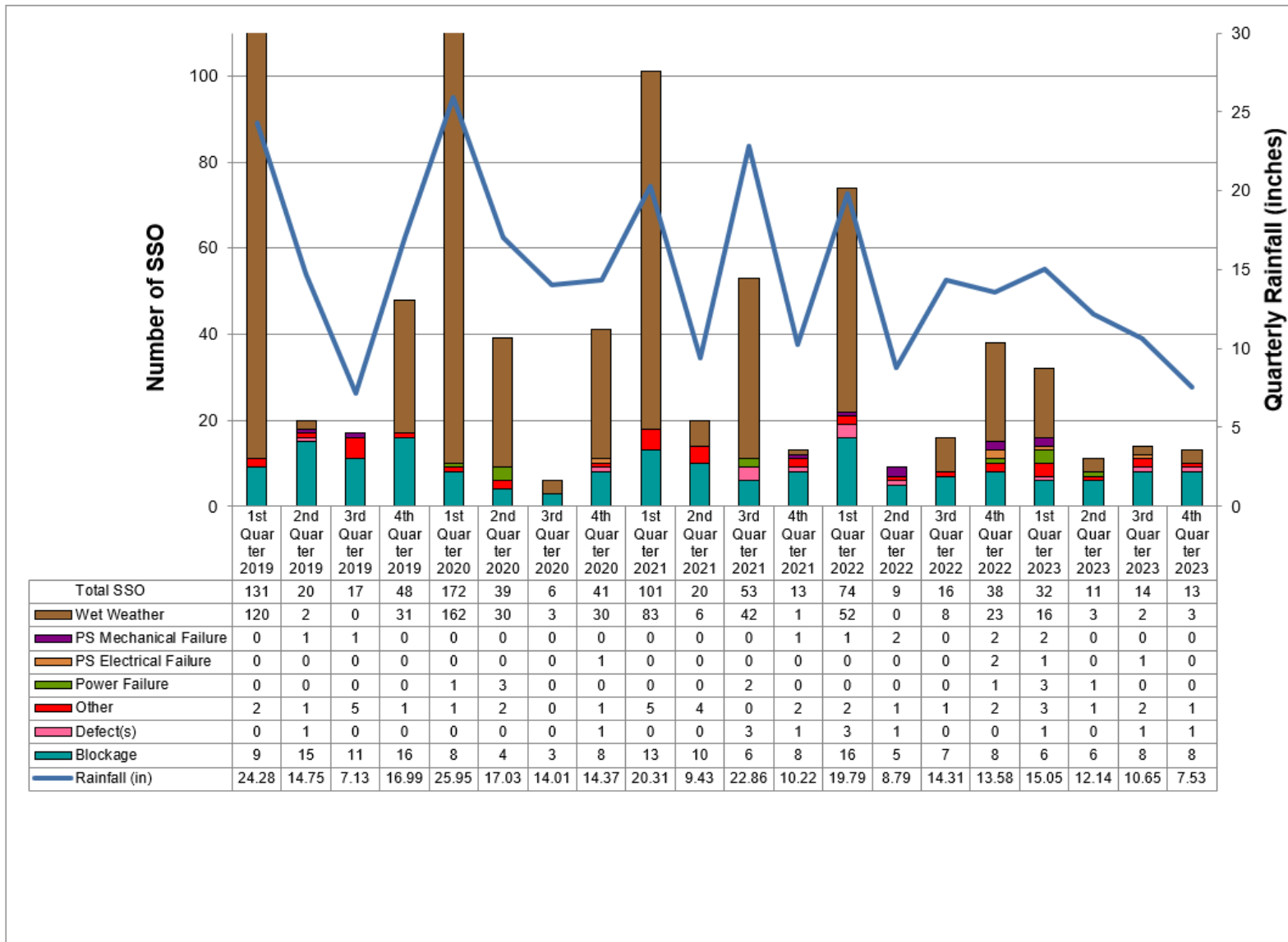


Figure 3-3
Quarterly SSO Quantities

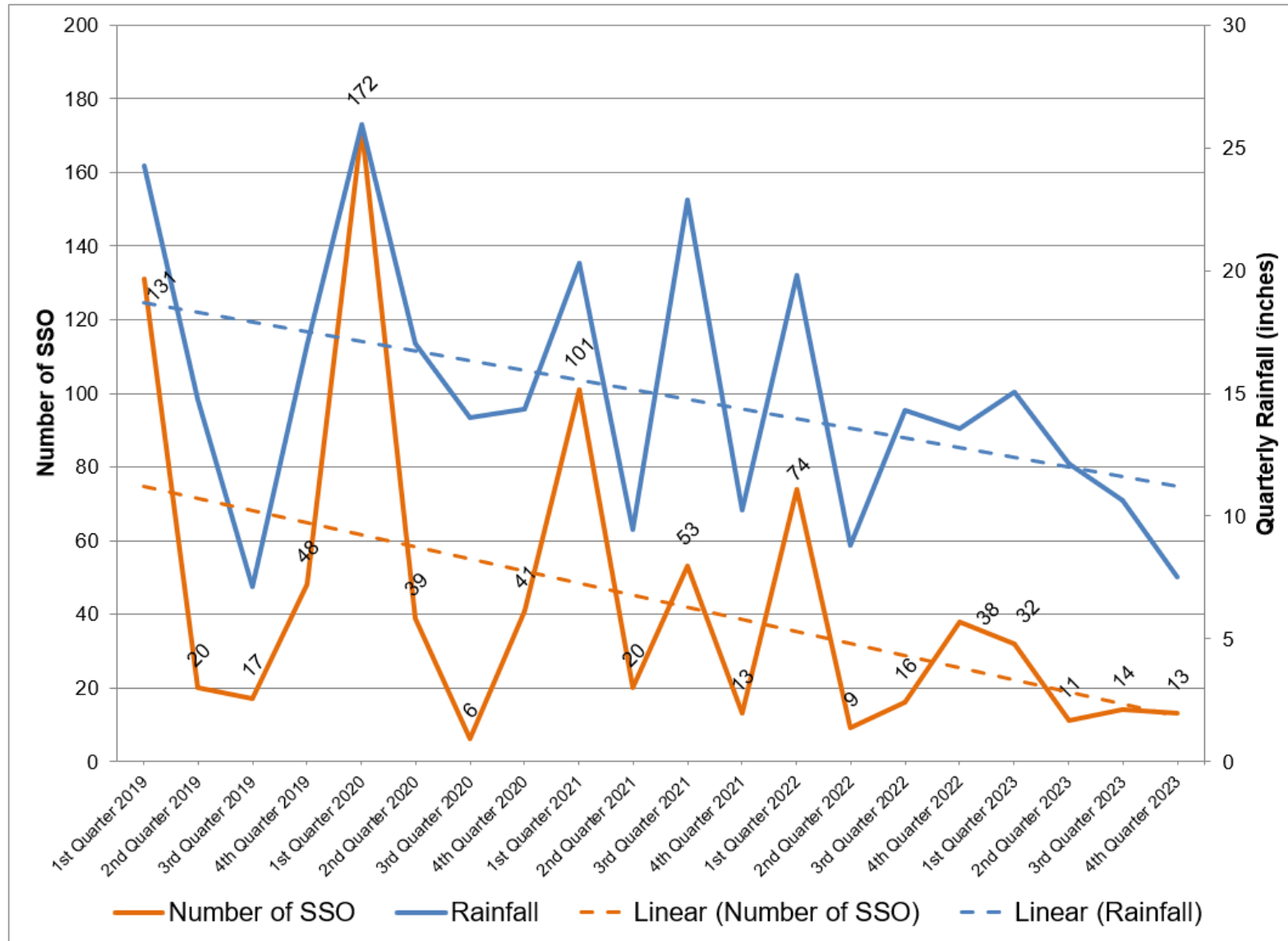


Figure 3-4
Quarterly SSO Durations

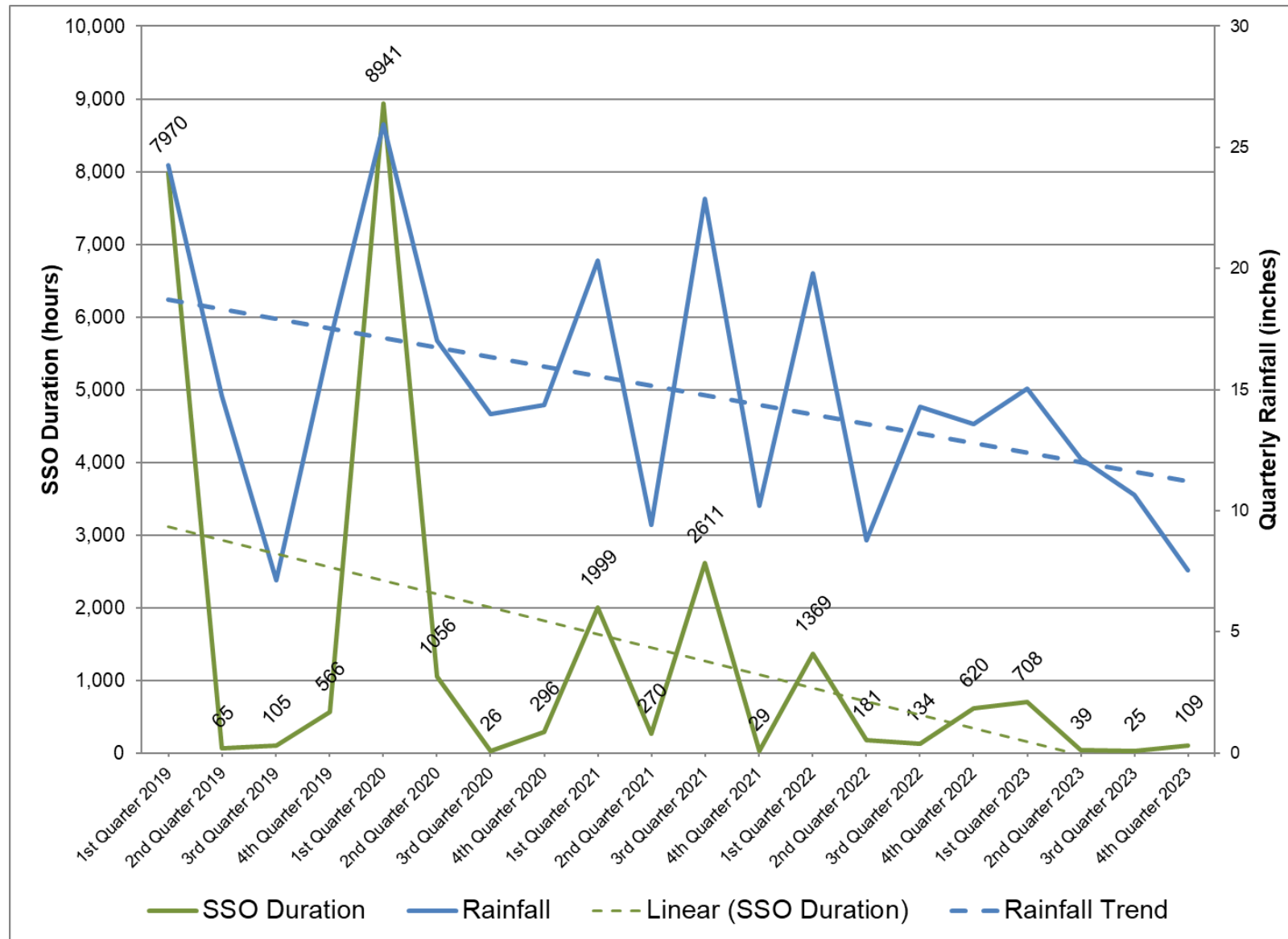


Figure 3-5
Quarterly SSO Volume

