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MAYOR



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January 27, 2022

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Re: DOJ Case No. 90-5-1-1-09000
Submittal of Quarterly Progress Report and Annual Report

Dear Colleagues,

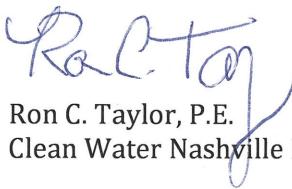
In accordance with the provisions of the Consent Decree, Section XIX (Reporting Requirements), Subsection A, herewith we are transmitting the Annual Report for 2021 and the Quarterly Progress Report which covers the period from October 1 through December 31, 2021.

A copy of each report is concurrently being placed in the Public Document Repository (PDR).

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

If you have any questions concerning this report, do not hesitate to contact me.

Sincerely,



Ron C. Taylor, P.E.
Clean Water Nashville Program Director

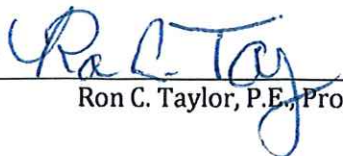
- cc: Mr. Scott A. Potter, P.E., Director, Metro Water Services
Mr. David Tucker, Deputy Director, Metro Water Services
Mr. Cyrus Q. Toosi, P.E., Assistant Director / Chief Engineer, Engineering
Mr. Thomas G. Cross, Deputy Director, Metropolitan Department of Law

Clean Water Nashville Overflow Abatement Program

Metropolitan Government of Nashville and Davidson County
Department of Water and Sewerage Services

CONSENT DECREE 2021 ANNUAL REPORT

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.



Ron C. Taylor, P.E., Program Director



Date

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Consent Decree 2021 Annual Report

On March 12, 2009, the Metropolitan Government of Nashville and Davidson County, Tennessee (Metro), entered into a Consent Decree with the United States and the State of Tennessee. As required by Section XIX.B. of the Consent Decree, Metro has prepared this *Annual Report* covering the period from January 1 through December 31, 2021, which includes the following information:

1. Summary of the Capacity, Management, Operation, and Maintenance (CMOM) programs implemented
2. List of projects required by the Consent Decree
3. Trend analysis of Sanitary Sewer Overflows (SSOs) for 2020 and 2021
4. Trend analysis of dry-weather Combined Sewer Overflows (CSOs) for 2020 and 2021

Each of these items is discussed in the following sections.

1. CMOM Programs

As described in the Consent Decree, in addition to items identified through Metro's CMOM Self-Assessment, the following programs are elements of Metro's CMOM program:

- *Spill and Overflow Response Plan* (Section VII.C.2) – MWS continues to operate under the current *Spill and Overflow Response Plan* (SORP). A review of the SORP is conducted annually with any proposed changes submitted to EPA prior to June 1 each year. No changes were requested in 2021; however, MWS is in the process of updating the SORP and anticipates proposing minor changes in 2022.
- *Inter-jurisdictional Agreement Program* (Section VII.C.3) – All required inter-jurisdictional agreements are in place, and Metro will continue to operate under these agreements, including monitoring peak flows received.
- *Capacity Assurance Plan* (Section VII.C.4) – The *Capacity Assurance Plan* will continue to be applied as a tracking/approval tool for new development/flow in the sanitary sewer system (SSS).
- *Pump Station Operation Plan for Power Outages* (Section VII.C.5) – All projects identified in the *Pump Station Operation Plan for Power Outages* were completed prior to 2021.

In addition to these programs, Metro's *CMOM Self-Assessment Report* established multiple recommendations and performance measures that Metro continues to track. In 2019, Metro conducted a review of their CMOM requirements to determine what aspects of their CMOM should be updated or augmented to better meet the goal of reducing overflows. That effort established the reporting items listed in **Table 1** which are used illustrate Metro's on-going CMOM implementation.

Table 1 – CMOM Reporting Items, Benchmarks, and 2021 Summary

Reporting Item	Annual Benchmark	2021 Results
Monthly summary of overflows, including cause, volume, and duration	Tracking only	Completed
Review SORP and update as needed	1/year	Completed ¹
Conduct Quarterly Compliance Meetings	4/year	4
Pump station capacity evaluations / drawdown testing	100%/year	97% ²
Review pump station procedures and update as needed	1/year	Completed
Inspection of ARVs	100%/year	100%
Number of force mains cleaned	Tracking only	0
Length of gravity sewer inspected	10%/year	112.1 miles
Length of gravity sewer cleaned	Tracking only	47.9 miles
Number of manholes inspected	Tracking only	7,973 ³
Length of stream walks completed	Tracking only	25.83 miles
Review gravity sewer procedures and update as needed	1/year	Completed
Inspection of permitted food service establishments with grease control equipment	75%/year	83%
Number of new permits for food service establishments	Tracking only	305
Volume of FOG removed from the system	Tracking only	8.29 million gallons
Number of FOG-related notifications mailed, distributed, or called out to customers	Tracking only	1,818
Review FOG control procedures and update as needed	1/year	Completed
Number of sewer point repairs completed	Tracking only	62
Length of pipe replaced or new pipe installed (excluding extension of service)	Tracking only	999 feet
Length of sewer rehabilitated such as via CIPP lining	Tracking only	1.72 miles
Number of manholes rehabilitated	Tracking only	118
Number of service connections replaced or rehabilitated	Tracking only	125
Review of <i>Capacity Assurance Plan</i> and update as needed	1/year	Completed

¹ Review was completed in 2021. MWS anticipates proposing minor changes in 2022.

² Drawdown tests could not be completed at three stations due to inadequate flow rates.

³ Manhole inspection count does not include incidental observations of manhole condition such as during sewer cleaning.

2. Project Updates

Approval of the *Corrective Action Plan / Engineering Report (CAP/ER)* was granted by the U.S. Environmental Protection Agency (EPA) on August 10, 2017, with the Tennessee Department of Environment and Conservation (TDEC) copied on the approval. Since submittal of the CAP/ER in 2011, information from additional flow monitoring data collection, constructability reviews, and hydraulic analyses has resulted in adjustments to several CAP/ER projects, as well as the identification of additional projects to remediate SSOs. A summary of those changes was presented to EPA and TDEC in the *Addendum to the CAP/ER*, dated September 27, 2017. Through ongoing efforts to maintain the system, Metro identified several overflow locations, outside of those identified in the CAP/ER, that warrant additional field investigations and/or improvements. As requested by TDEC in a letter dated July 15, 2019, Metro prepared *Addendum #2 to the CAP/ER*, which was submitted on August 30, 2019. That Addendum describes those overflow locations, summarizes actions taken, and presents Metro's plan for identifying and addressing conditions causing those overflows.

Metro submitted the *Long Term Control Plan* (LTCP) to EPA and TDEC on September 11, 2011. On June 18, 2018, Metro presented to EPA and TDEC an *Addendum to the LTCP* which summarizes the updates and modifications to projects described in the LTCP since its submittal. In a February 11, 2019, letter, EPA provided review comments to Metro on the LTCP and *Addendum to the LTCP*. On March 6, 2019, Metro provided a letter in response to those comments.

On February 18, 2020, Metro met with representatives from EPA, TDEC, the U.S. Department of Justice, and the Tennessee Attorney General's office to discuss compliance with the Consent Decree. A follow-up conference call with all parties was held on April 4, 2020, with informal clarifications between parties continuing over the following months. On July 24, 2020, Metro submitted the *Addendum #2 to the LTCP* clarifying and updating the proposed CSO abatement projects.

On December 7, 2020, Metro received a letter from EPA providing partial conditional approval to the LTCP and addenda. The letter approves the proposed control measures at the Benedict & Crutcher, Boscobel, Driftwood, and Schrader CSOs and approves the Central Wastewater Treatment Plant Capacity and CSO Reduction project. The letter requires that Metro, within four years, submit a revised LTCP that describes the control measures designed to bring the Kerrigan and Washington CSOs into compliance with Tennessee's water quality standards at the time of submittal. (TDEC is currently reviewing the existing water quality standards.) The letter was agreed to and countersigned by Metro on December 8, 2020.

The December 2020 letter also expands the Consent Decree's list of sanitary sewer overflows to be addressed (Appendix A of the Consent Decree). Additionally, Metro was required to submit an update to the CAP/ER by June 8, 2021, identifying corrective actions that have been or will be taken to address those overflows. On June 2, 2021, Metro submitted the *Update to the Corrective Action Plan / Engineering Report* (CAP/ER Update). On August 26, 2021, that document was approved by EPA in consultation with TDEC. Milestone dates for projects and activities associated with the CAP/ER and the LTCP achieved during 2021 and those anticipated to occur during 2022 are shown in **Table 2**.

Table 2 – Design/Construction Project Updates

Project Number	Project Name	Design Start Date	Design End Date ¹	Construction Start Date	Construction Substantial Completion
93-SC-34T	Whites Creek Pump Station Improvements	Nov-2009	Mar-2011	Feb-2012	Nov-2013
11-SG-0078	2011 Collection System Structural Defect Repair	Jun-2011	Sep-2012	Feb-2013	Aug-2013
10-SG-0083	Lakewood Rehabilitation - Area 1 - Sewer	Jul-2011	Aug-2013	Jan-2014	Mar-2016
11-SC-0067	Driftwood Equalization Facility	Aug-2011	Apr-2012	Jul-2012	Jun-2013
99-SC-009L	Dodson Chapel Equalization Facility	Sep-2011	Jan-2012	May-2012	Nov-2013
11-SC-0101	West Park Equalization Facility Phase II	May-2012	Dec-2014	Apr-2015	Aug-2018
11-SC-0102	Mill Creek / Opryland Equalization Facility - Phase II	Aug-2012	May-2013	Jan-2014	May-2015
11-SC-0106	Neely's Bend Rehabilitation	Sep-2012	Jun-2013	Dec-2013	Dec-2014
11-SC-105A	Shelby Park Rehabilitation - Area 1 - Virginia Avenue	Oct-2012	Jun-2013	Jan-2014	Apr-2015
11-SC-0104	Dodson Chapel Pipe Improvements	Oct-2012	Oct-2014	Jan-2015	Nov-2015
11-SC-0148	Joelton Rehabilitation	Jan-2013	Jun-2013	Oct-2013	Jun-2014
11-SC-103A	Cowan Riverside Rehabilitation - Area 1 - Jones Avenue	Feb-2013	Sep-2013	Jan-2014	Apr-2015
11-SC-0121	Apex Sewer Corrections	Mar-2013	Oct-2013	Feb-2014	Jul-2014
13-SC-0001	Annual Rehabilitation FY2013	Jun-2013	Jun-2014	Oct-2014	Jan-2016
11-SC-105B	Shelby Park Rehabilitation - Area 2 - Norvel Avenue	Jul-2013	Jan-2014	May-2014	Oct-2015
11-SC-103B	Cowan Riverside Rehabilitation - Area 2 - Dickerson Pike	Jul-2013	Mar-2014	Jul-2014	Sep-2015
11-SC-144C	Westchester Drive Rehabilitation	Jul-2013	Mar-2015	Jul-2015	Nov-2015
11-SC-144A	Brick Church Pike Pipe Improvements	Jul-2013	Apr-2016	Aug-2016	Feb-2018
11-SC-147A	Highway 100 / Tyne Boulevard - Trimble Rehabilitation	Sep-2013	Apr-2014	Aug-2014	Sep-2015
11-SC-105C	Shelby Park Rehabilitation - Area 3 - Greenland Avenue	Dec-2013	Aug-2014	Feb-2015	Apr-2016
11-SC-0143	Davidson and Brook Hollow Sewer Improvements	Apr-2014	Jun-2015	Oct-2015	Aug-2016
14-SC-0041	Annual Rehabilitation FY2014 - Whites Creek Trunk	Oct-2014	Aug-2015	Jan-2016	Nov-2017
11-SC-105D	Shelby Park Rehabilitation - Area 4 - Brush Hill Road	Oct-2014	Apr-2015	Jul-2015	Jun-2016
11-SC-103C	Cowan Riverside Rehabilitation - Area 3 - West Trinity Lane	Nov-2014	May-2015	Oct-2015	Sep-2016
11-SC-103D	Cowan Riverside Rehabilitation - Area 4 - Pages Branch	Jan-2015	Feb-2016	Aug-2016	Dec-2017
11-SC-120A	Smith Springs Rehabilitation - Area 1 - Priest Lake Meadows	Feb-2015	Oct-2015	Feb-2016	Jan-2017
11-SC-135A	28th Avenue Rehabilitation - Area 1 - Clifton Avenue	Feb-2015	Dec-2015	Apr-2016	Mar-2017
11-SC-0111	Davidson Branch Pump Station and Equalization Facility	May-2015	Dec-2017	Oct-2020	Dec-2022
11-SC-0140	Gibson Creek Rehabilitation - Area 1 - Dupont Avenue	Jul-2015	Apr-2016	Sep-2016	Oct-2017

Project Number	Project Name	Design Start Date	Design End Date ¹	Construction Start Date	Construction Substantial Completion
11-SC-0110	Ewing Creek – Brick Church Pike Equalization Facility	Aug-2015	Dec-2016	May-2017	Dec-2018
14-SC-153A	Central WWTP – Headworks ²	Sep-2015	Jun-2019	Jul-2020	Aug-2023
14-SC-153B	Central WWTP – Balance of Plant ²	Sep-2015	May-2020	Sep-2020	Oct-2023
11-SC-0117	Langford Farms - Madison Heights Rehabilitation	Feb-2016	Sep-2016	Feb-2017	Dec-2017
11-SC-120B	Smith Springs Rehabilitation - Area 2 - Castlegate	Feb-2016	Aug-2016	Jan-2017	Jun-2018
16-SC-0009	Annual Rehabilitation FY2016 - South Hurricane Creek	Mar-2016	Dec-2016	May-2017	Dec-2017
11-SC-105E	Shelby Park Rehabilitation - Area 5 - Cooper Lane	Jun-2016	Mar-2017	Aug-2017	Nov-2018
11-SC-0116	Hurricane Creek Pipe Improvements	Jul-2016	Sep-2021	Jun-2022	Jan-2024
11-SC-0139	Gibson Creek Equalization Facility	Sep-2016	Dec-2020	Aug-2021	Feb-2023
11-SC-108A	Loves Branch Rehabilitation	Oct-2016	Jun-2017	Dec-2017	Feb-2019
11-SC-141A	Hidden Acres Rehabilitation	Oct-2016	Aug-2017	Apr-2018	Nov-2018
11-SC-109A	Vandiver Rehabilitation	Dec-2016	Aug-2017	Mar-2018	Nov-2019
11-SC-105F	Shelby Park Rehabilitation - Area 6 - Shelby Trunk	Feb-2017	Oct-2017	Jul-2021	Oct-2022
17-SC-017A	Annual Rehabilitation FY2017 - Dry Creek	Mar-2017	Sep-2017	Sep-2021	Sep-2022
11-SC-120B	Smith Springs Rehabilitation - Area 3 - Harbour Town	Jun-2017	Nov-2017	Jan-2022	Jan-2023
11-SC-017B	Annual Rehabilitation FY2017 - Shepherd Hills	Aug-2017	Oct-2017	Oct-2021	Sep-2022
11-SC-118A	Sevenmile Creek Rehabilitation - Area 1	Jul-2018	Mar-2019	Apr-2022	Jun-2023
11-SC-135B	28th Avenue Rehabilitation - Area 2 - Batavia Street	May-2020	Feb-2021	Jun-2022	Jun-2023
11-SC-145A	Cleeces Ferry Rehabilitation - Area 1 - Summerly Drive	Aug-2020	Mar-2021	Aug-2022	Aug-2023
21-SC-0026	Annual Rehabilitation FY2020 - West Nashville	Jan-2021	Aug-2021	Oct-2022	Sep-2023
21-SG-0174	Joelton Pump Station Upgrades ³	Jan-2021	Jun-2022	Nov-2021	Apr-2023
11-SC-0151	Mill Creek Trunk Improvements and Equalization Facility	Feb-2021	Jan-2024	Jun-2025	Aug-2028
11-SC-0153	Lakewood Rehabilitation - Area 2 - Pitts Avenue	Mar-2021	Nov-2021	Feb-2022	Jul-2022
11-SC-0150	Bandywood - Green Hills Rehabilitation	Jun-2021	Feb-2022	May-2022	Jul-2023
21-SC-0002	Howse Avenue Force Main Replacement	Jul-2021	Feb-2022	Jul-2022	Dec-2022
11-SC-118B	Mill Creek - Collins Creek Rehabilitation	Nov-2021	Apr-2022	Nov-2022	Jan-2024
Not Established	Annual Rehabilitation FY2021	Apr-2022	Aug-2022	Dec-2022	Feb-2024
22-SC-0005	Rowan Cravath Rehabilitation	Apr-2022	Oct-2022	Feb-2023	Apr-2024
11-SC-0134	Schrader Sewer Separation	Jun-2022	Dec-2023	Apr-2025	Aug-2027
11-SC-0115	Foster Avenue Rehabilitation (GL01)	Jun-2022	Dec-2022	Apr-2023	Jun-2024

Project Number	Project Name	Design Start Date	Design End Date ¹	Construction Start Date	Construction Substantial Completion
Not Established	Wallace Lane Rehabilitation	Aug-2022	Jan-2023	May-2023	Jul-2024
11-SC-118C	Mill Creek Rehabilitation - Area 3	Sep-2022	Mar-2023	Jun-2023	Aug-2024
11-SC-0122	Benedict & Crutcher Sewer Separation	Sep-2022	Mar-2024	Jul-2025	Nov-2027
11-SC-0123	Boscobel Sewer Separation	Dec-2022	Jun-2024	Oct-2025	Feb-2028

Notes:

1. Design phase shown includes activities associated with permitting and easement acquisition and may differ from the 100% design milestone.
2. Metro is completing the Central WWTP Capacity Improvements and CSO Reduction project via a Construction Manager at Risk. Headworks and Balance of Plant are the two largest construction packages.
3. Pump station upgrades are currently under construction while the design of the force main improvements is on-going.

3. Sanitary Sewer Overflow Trends

The trend analysis for SSOs includes three graphs, each with the average rainfall from all the Metro rain gauges included. **Figure 1** shows monthly SSO events in the system as a result of the following causes:

- Excessive flow
- Blockage
- Repairs/Mechanical Problems
- Power Outage
- Rainfall Induced
- Other

The following months each experienced more than 40 SSO events: February 2020, March 2020, and March 2021. In each of the months experiencing more than 40 events, the majority of SSOs were the result of significant rainfall events. The majority of non-rainfall induced SSOs were caused by blockages from roots, grease, and debris.

Figure 2 shows monthly SSO volumes within the system from 2020 through 2021 reported in million gallons (MG), while **Figure 3** shows monthly SSO durations within the system from 2020 through 2021. The durations shown are a summation of the total amount of time overflows were occurring within the system at all overflow locations. This data is provided in the units of overflow equivalent hours, meaning that, for any month, the total number of hours for the duration of overflows could exceed the actual number of hours in a given month. For instance, if a rainfall event results in three overflows that occur concurrently for two hours each, the overflow duration for that day is six overflow equivalent hours.

The data in **Figures 2** and **3** indicates large overflow volumes and durations during months with significant rainfall events. The average rainfall, as measured within the Metro system, is included on each graph to show the relationship between rainfall and overflow events.

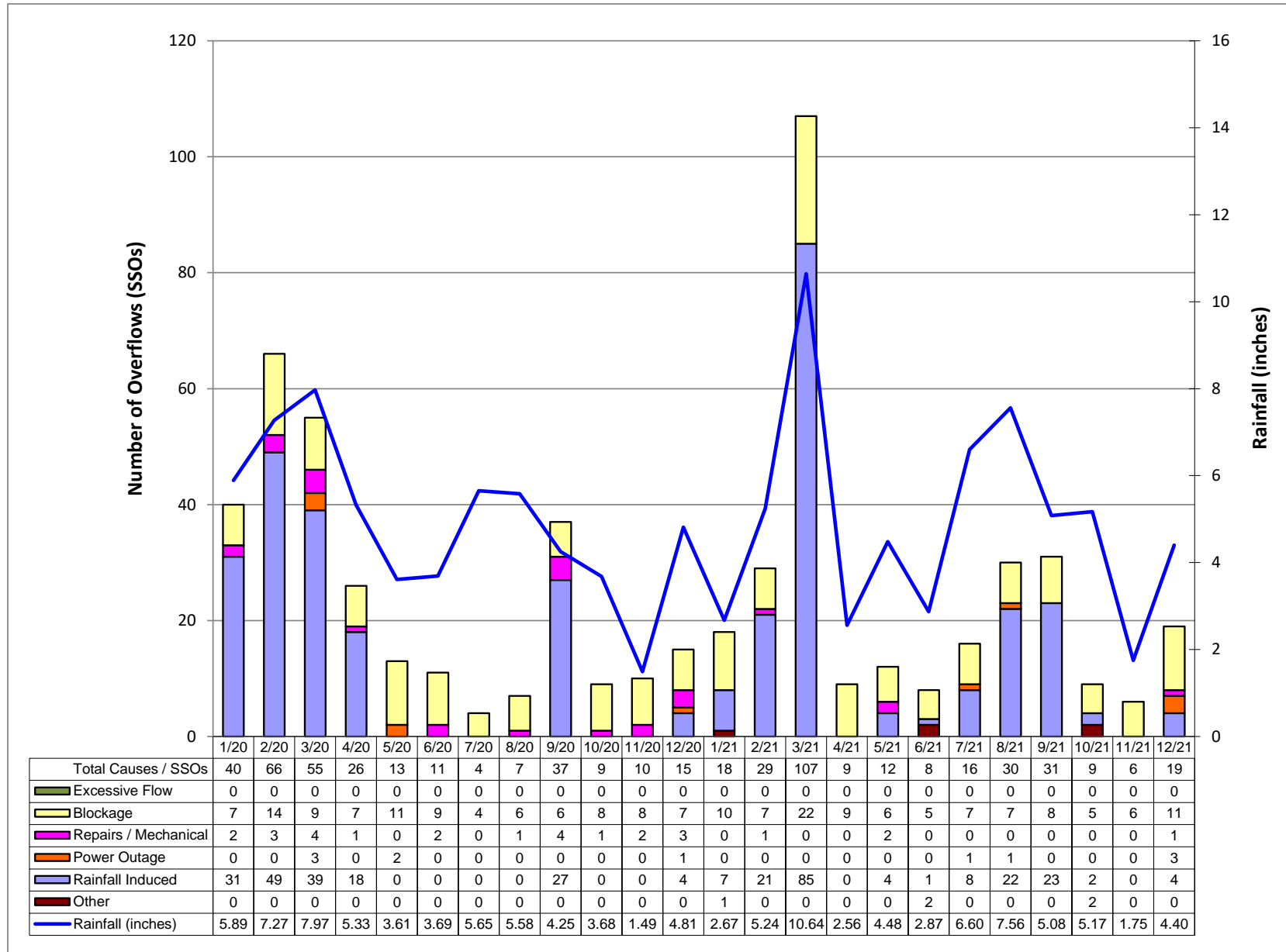


Figure 1 – SSO Events by Cause

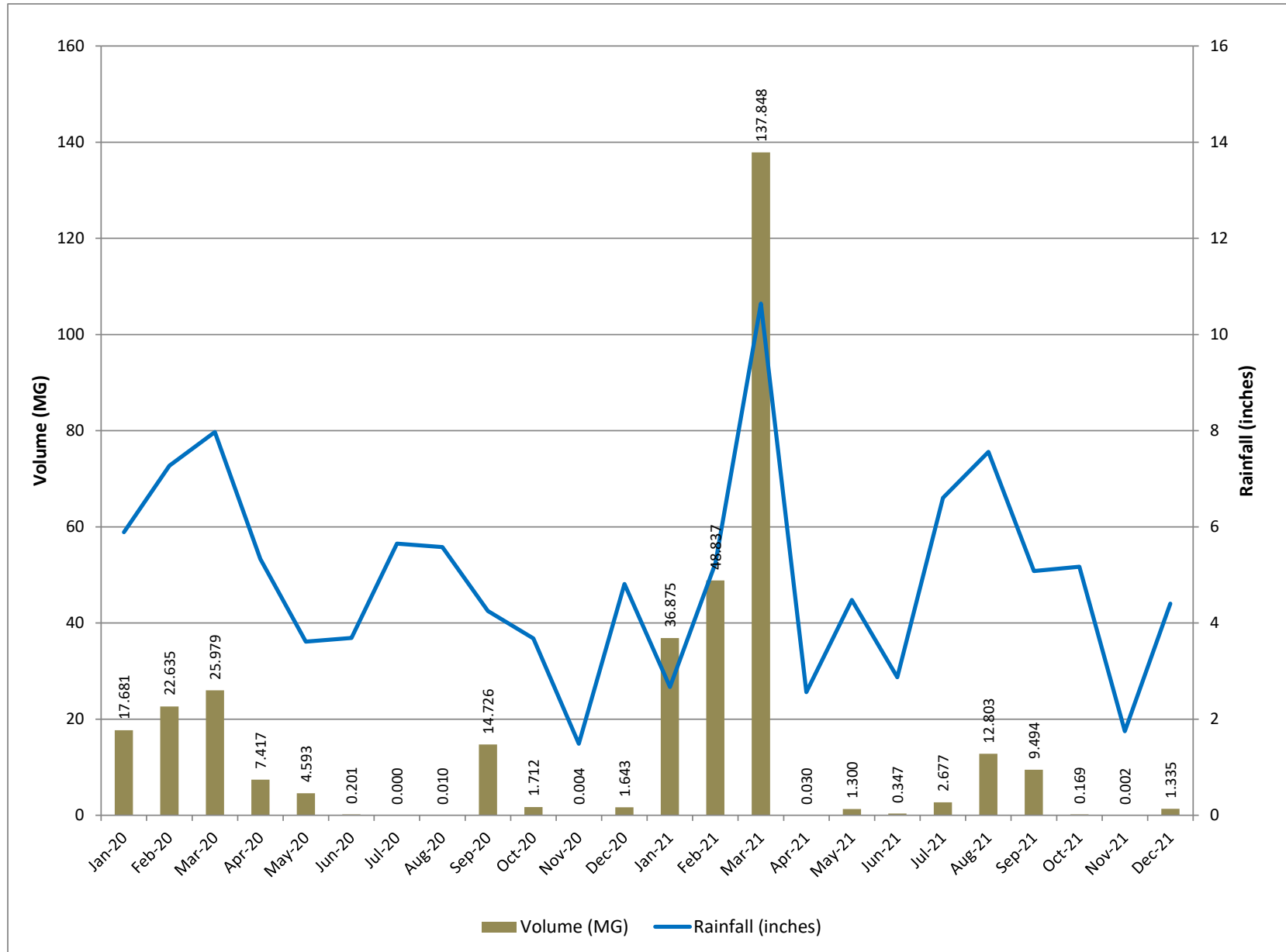


Figure 2 – Monthly SSO Volumes

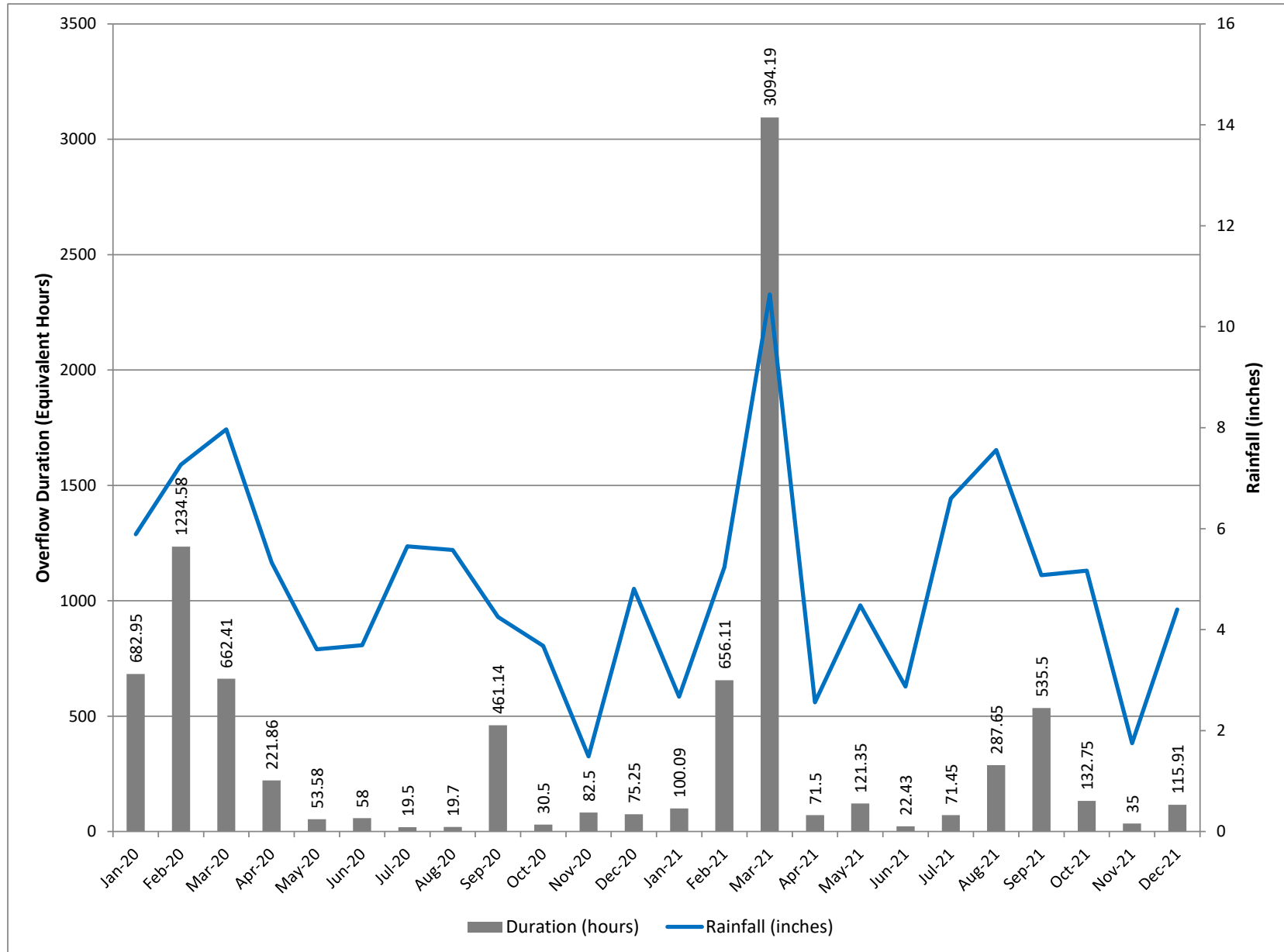


Figure 3 – Monthly SSO Durations

4. Combined Sewer Overflow Trends

There is not a trend analysis in this report for the dry-weather combined sewer overflows (CSOs). No dry-weather CSOs occurred in 2020 or 2021.