

City of Merced



City of Merced Sewer System Management Plan

2017-18 & 2018-19 SSMP Audit

June 30, 2019

City of Merced 2018 - 2019 SSMP AUDIT

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Appendices

Appendix A: 2018-2019 SSMP Audit Checklist

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List of Abbreviations

COM	City of Merced
FY	Fiscal Year
GWDR	General Waste Discharge Requirement
RWQCB	Regional Water Quality Control Board
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board

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1. Introduction

The intent of the audit is to determine whether the SSMP complies with Region 5 and State GWDR requirements. The SSMP reflects current City practices, and is effective in reducing SSOs. The review fulfills the SSMP Audit requirements of the SWRCB GWDR for FY 2017-2018 & 2018-2019. The Annual audits will be kept on file at the City for five years.

2. Regulatory Requirements for SSMP Audits

The summarized requirements for SSMP Audits element of the SSMP are:

SWRCB Requirement:

As part of the SSMP, the City shall conduct periodic internal audits, appropriate to the size of its system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the City's compliance with the SSMP requirements, including identification of any deficiencies in the SSMP and steps to correct them.

3. 2018 - 2019 SSMP Audit

The City conducts a biennial audit of its SSMP. The goal of the audit is to determine whether the SSMP complies with current requirements of the GWDR, reflects current practices, and the SSMP's effectiveness in reducing SSOs.

Program effectiveness is evaluated by a review of performance indicators and discussion of SSMP and sewer system improvements.

Program compliance is evaluated by review of SSMP elements using the Audit Checklist. The Audit Checklist includes comments regarding recently completed program updates and recommendations for future actions.

4. SSMP Effectiveness

Performance

Performance indicators, collected as part of Element IX (Monitoring, Measurement, and Program Modifications) have been reviewed to identify patterns and trouble areas needing improvement. Performance indicators for 2018 and 2019 are summarized in Table 1.

Program and System Improvements

This report describes the City of Merced's SSMP program audits and its associated tasks. This SSMP audit is being performed to:

- Evaluate the effectiveness of the current SSMP program
- Identify potential weaknesses of the current SSMP program

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- Determine improvement opportunities for modifying the current SSMP program

WDR Requirements for SSMP Element 10: SSMP Program Audits

As part of the SSMP, the Enrollee shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the Enrollee's compliance with the SSMP requirements identified in this subsection (D.13), including identification of any deficiencies in the SSMP and steps to correct them.

The City of Merced's Compliance Approach – As Stated in the SSMP

The City will produce internal audits every two years to determine the effectiveness of the SSMP elements and programs. The program audit will include a review of relevant data and trends maintained as part of the SSMP Monitoring and Measurements Program to determine opportunities to improve compliance with the SSMP requirements. A prioritized list of improvement opportunities will be updated as part of the audit program. Improvement Opportunities will be used to prioritize and develop program modifications and will be initiated based on priority and available funding. An overview of SSMP related work completed between audits will be included in the program audit.

The program audit will include a final report reviewing the City of Merced's performance and identifying findings. The report will be posted on the City's website and will be kept on file.

The City of Merced Sewer Collection System Description and Performance

The City of Merced's Sewer Collection System, including trunk sewers consists of approximately 267 miles of gravity sewers ranging from 6 inches to 48 inches in diameter and approximately 12.7 miles of force mains ranging from 4 inches to 27 inches in diameter. The conveyance system also consists of 20 pump stations, flow meters, and valve vaults. From July 2017 through June 2019, the City of Merced's Sewer Collection System has had a total of one (1) SSO.

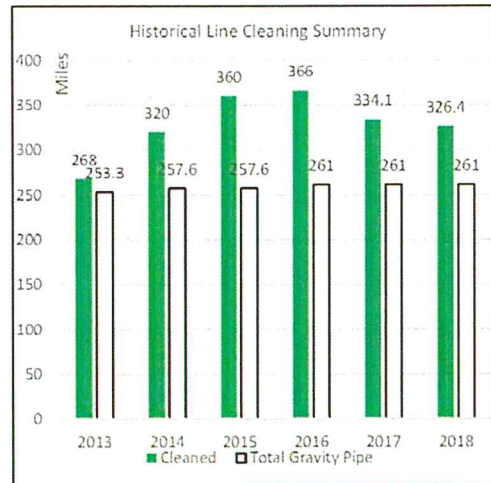
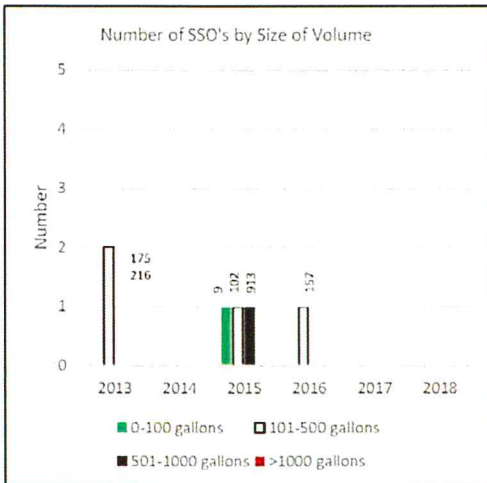
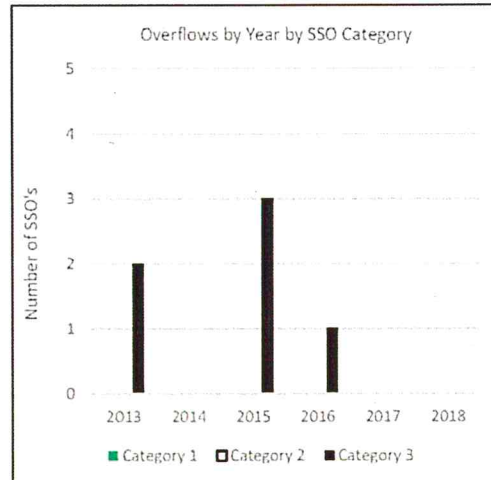
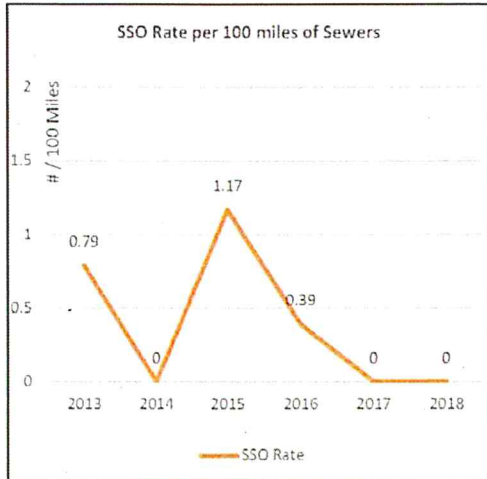
Reported to the California Integrated Water Quality System (CIWQS) as detailed in Table 1.

Table 1: CIWQS Summary of Merced's SSOs FY 2017-2018 & 2018-2019

SSO Cat	Start Date	SSO Address	SSO Volume	Volume Recovered	Volume Reached Surface Water	SSO Cause
3	01/21/19	822 Joyce Ave.	417	417	0	Baby Wipes

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Performance Reporting



Considering the relatively low number of SSO's compared to the miles of sewer mains in Merced's sewer collection system, the following audit program has been developed for the system.

Audit Tasks

1. Compare SSMP with current operation and maintenance activities and priorities, and update or amend accordingly.
2. Review operation and maintenance philosophy/strategy with Sewer Collection and Maintenance field staff.
3. Review maintenance records to ensure that a match exists between operation and maintenance philosophy/strategy and everyday practice.
4. Review condition assessment/rehabilitation philosophy/strategy with Utilities Engineering Section, and ensure that the condition assessment/rehabilitation schedule is current and relevant.
5. Record all findings during the audit process on the attached SSMP Audit Form. This form will be the final audit report for the City of Merced's Sewer Collection System's performance and improvement opportunities. The report will be kept on file and made available to the public either as a reference or posting on the City's website.

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Conclusion

The City of Merced's existing SSMP elements and programs, after being updated are effective for its type of collection system.

With one SSO event in 2018-2019 the City's performance is favorable when compared to other districts with similar size collection systems. The volume of Merced's SSOs, both average per event and total volume spilled is on par or better than other districts in Region 5.

Merced's SSO was attributed to baby wipes being disposed in a 8" main line from a nearby residential area. Collection personnel canvassed the neighborhood and spoke to residents about the negative effects that result from the flushing of wipes. To address aging infrastructure, offsets and root intrusion, the City has an ongoing program for replacement or repair of any deteriorating mains discovered during main inspection and televising. The City also aggressively monitors, cleans and chemically treats for roots in any mains located in easements as well as any mains with a history of root intrusion. This program has been in place since 2007, and will continue indefinitely.

The City has an ongoing main line replacement program, where damaged or deteriorated mains are replaced or repaired as they are discovered.

The SSMP and the City's operation and maintenance strategies are essential elements used to manage, operate, and maintain all parts of the sewer collection system, and are continually being evaluated and improved upon.

Improvement Opportunities

The following improvement opportunities have been identified based on this audit.

SSMP Section	Updates	Date Updated
Goals	No changes, chapter still relevant to organization's mission.	June 2015
Organization	Updated contact info, assignments and org chart due to Department recent staffing changes and hires.	May 2019
Legal Authority	No changes, chapter still relevant to organization's mission.	June 2015
Operation & Maintenance	Updated Staffing, Vehicles, Certification Info, High Frequency Main Cleaning schedule.	May 2019
Design & Performance Provisions	No changes, chapter still relevant to organization's mission.	June 2015
Overflow Emergency Response Plan	Updated our contact info.	October 2018
Fats, Oils, & Grease (FOG) Control Program	No changes, chapter still relevant to organization's mission.	June 2015
System Evaluation & Capacity Assurance Plan	No changes, chapter still relevant to organization's mission.	June 2015
Monitoring, Measurement & Program Modifications	SSO info, table, staffing and resources.	June 2015
SSMP Program Audits	Included Calendar Year June 2017 SSMP Bi-Annual Audit.	June 2017

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Communication Program	City of Merced's Website (http://www.cityofmerced.org) Sewer bills and City Council Meetings	June 2015
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5. SSMP Compliance

The Audit Checklist is used to demonstrate the City's compliance with Region 5 and State GWDR requirements for sanitary sewer systems. The audit checklist indicates whether each SSMP element is compliant, describes recent revisions or updates and recommends future actions to maintain effective SSMP elements that reflect current City practices. The Audit Checklist, completed for June 2018-2019, is included in **Appendix A**.

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Appendix A: 2018-2019 SSMP Audit Checklist

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Element	Title	Requirement	Compliant	Current	Comments
I	Goals	Reduce, prevent, and mitigate SSOs	Y	Y	No changes, chapter still relevant to organization mission.
II	Organization	Designate Legally Responsible Official (LRO)	Y	Y	No changes.
		Organization Chart	Y	Y	Updated to reflect 2018/2019 staff changes.
		Names and phone numbers for key personnel	Y	Y	Updated to reflect 2018/2019 staff changes.
		Chain of communication for reporting SSOs	Y	Y	Updated to reflect 2018/2019 staff changes
III	Legal Authority	Prevent illicit discharges to sanitary sewer system	Y	Y	No changes recommended.
		Require sewers and connection be properly designed and constructed	Y	Y	No changes recommended.
		Ensure access for inspection, maintenance, and repairs	Y	Y	No changes recommended.
		Limit discharge of FOG and debris that may cause blockages	Y	Y	No changes recommended.
		Ability to inspect FOG producing facilities	Y	Y	No changes recommended.
IV	O&M Program	Maintain critical spare part inventory	Y	Y	No changes recommended.
		Maintain up-to-date maps of the sanitary sewer system	Y	Y	Electronics Maps are continually updated.
		Adequate planning, resources and budget to support effective sewer system management and long term goals	Y	Y	No changes recommended.
		Describe routine preventive maintenance program	Y	Y	Updated with current PM schedules.
		Document completed preventive maintenance	Y	Y	No changes recommended.

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Element	Title	Requirement	Compliant	Current	Comments
IV	O&M Program (cont'd)	Adequate I/I monitoring	Y	Y	No changes recommended.
		Rehabilitation and replacement plan that identifies and prioritizes sanitary sewer system defects	Y	Y	Defects are repaired when discovered.
		Provide regular technical training for sewer system staff	Y	Y	Collections Crew attend CWEA and other training regularly.
		Maintain equipment inventory	Y	Y	No changes recommended.
V	Design and Performance Provisions	Design and construction standards for new sanitary sewer system facilities	Y	Y	Currently being updated.
		Design and construction standards for repair and rehabilitation of existing sanitary sewer system facilities	Y	Y	Currently being updated.
		Procedures for the inspection and acceptance of new sanitary sewer system facilities	Y	Y	Updated with current PW Standard Specs for Sewer Mains.
		Procedures for the inspection and acceptance of repaired and rehabilitated sanitary sewer system facilities	Y	Y	Updated with current PW Standard Specs for Sewer Mains.
VI	Overflow Emergency Response Plan (OERP)	Program to minimize or correct the impacts of any SSOs that occur.	Y	Y	No changes recommended.
		Program to prevent the discharge of sewage to surface waters			No changes recommended.

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Element	Title	Requirement	Compliant	Current	Comments
VI	O.E.R.P (Cont'd)	Procedures for the notification of primary responders	Y	Y	Updated with new City of Merced SSO SOP, SSO determination flow charts, notification information, & Reporting Procedures.
		Procedures for the notification of regulatory agencies	Y	Y	All call-out lists are updated and distributed to City departments.
		Program to ensure appropriate response to all SSOs	Y	Y	Updated with new City of Merced SSO SOP, SSO determination flow charts, notification information, & Reporting Procedures.
		Proper reporting of all SSOs	Y	Y	Updated with new City of Merced SSO SOP, SSO determination flow charts, notification information & Reporting Procedures.
		Procedure to ensure City collection staff are aware of and follow OERP	Y	Y	New SSO SOP distributed to all staff, reviewed periodically and updated as required.
		Procedure to ensure City collection staff are trained in the OERP procedures	Y	Y	New SSO SOP distributed to all staff, reviewed periodically and updated as required.
		Procedures to address emergency operations such as traffic and crowd control	Y	Y	All employees have been trained in Traffic Control / Flagger, new employees are trained when hired.
VII	FOG Control Program	Identification of Enhanced areas with FOG problems	Y	Y	No changes recommended.
		Public outreach program that promotes the proper disposal of FOG	Y	Y	No changes recommended.
		Plan for the disposal of FOG generated within the City's service area	Y	Y	No changes recommended.

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Element	Title	Requirement	Compliant	Current	Comments
VII	FOG Control Program (cont'd)	Program of preventive maintenance for sanitary sewer system facilities that have FOG-related problems	Y	Y	Updated 2018 Sewer Enhanced Area improvement list following CCTV inspections.
		Demonstrate that the City has allocated adequate resources for FOG control	Y	Y	No changes recommended.
VIII	System Evaluation and Capacity Assurance Program (SECAP)	Identification of elements of the sanitary sewer system that experience or contribute to SSOs caused by hydraulic deficiencies	Y	Y	No changes recommended.
		Established design criteria that provide adequate capacity	Y	Y	Master Plan ensures that sewer system capacity is adequate to serve future development.
		Short term CIP that addressed known hydraulic deficiencies	Y	Y	No changes recommended.
		Long term CIP that provides for future capacity needs	Y	Y	Currently being addressed in Sewer Master Plan.
		Procedures that provide for the analysis, evaluation, and prioritization of hydraulic deficiencies.	Y	Y	No changes recommended.
		The short and long term CIPs include schedules for the correction of each identified hydraulic deficiency.	Y	Y	No changes recommended.

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Element	Title	Requirement	Compliant	Current	Comments
IX	Monitoring, Measurement, and Program Modifications (MMPM)	Maintain relevant information to establish, evaluate, and prioritize SSMP activities	Y	Y	No changes recommended.
		Monitor implementation of the SSMP	Y	Y	No changes recommended.
		Measure, where appropriate, performance of the elements of the SSMP	Y	Y	No changes recommended.
		Assess success of the preventive maintenance program	Y	Y	No changes recommended.
		Update SSMP program elements based on monitoring or performance	Y	Y	No changes recommended.
		Identify and illustrate SSO trends	Y	Y	No changes recommended.
X	SSMP Program Audits	Conduct periodic audits	Y	Y	Audits are performed biennial.
		Record results of the audit in a report	Y	Y	Audits are performed biennial.
		Record changes made and/or corrective actions taken	Y	Y	Audits are performed biennial.
XI	Communications Program	Communicate with the public regarding the preparation of the SSMP	Y	Y	No changes recommended
		Communicate with the public regarding SSMP performance	Y	Y	No changes recommended

Signature Bill Osun
Date 7-29-19