Waste Discharge Requirements
Sewer System Management Plan Audit

April 16, 2024

Prepared for:

Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA

Prepared by:

EEC Environmental
1 City Blvd. West. STE 1800
Orange, California 92868
EEC W2489.02

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ES EXECUTIVE SUMMARY

The Orange County Sanitation District (OC San) retained EEC Environmental (EEC) to conduct an audit of OC San's sewer system management practices and effectiveness in implementing its Sewer System Management Plan (SSMP) pursuant to California Sanitary Sewer Systems, Water Quality Order No. 2022-0103-DWQ (WDR).

The audit, completed in March 2024, consisted of a desktop review of OC San's SSMP and supporting documentation, staff interviews, and development of recommendations for corrective actions and program enhancements. In general, OC San's sewer system management operations are consistent with the SSMP, statewide WDR, and are effective in limiting sanitary sewer spills (spills) in OC San's service area. However, some nonconformances and opportunities for program enhancements were identified.

The audit findings are described in terms of the level of conformance of OC San's SSMP to the State Water Resources Control Board's (SWRCB's) waste discharge regulations (Table ES-1, *Summary of 2023 Sewer System Management Plan Audit Results and Recommendations*). Findings and recommendations are categorized as follows:

- *Major Nonconformance* – A deficiency that could result in a notice of violation, fine, or other enforcement action by the regulatory agency.
- *Minor Nonconformance* – A deficiency that would not normally result in a notice of violation, a fine, or other enforcement action by the regulatory agency.
- *Recommended Corrective Actions* – Recommended modifications to OC San's current operations and practices to correct areas of nonconformance with the SSMP.
- *Recommended Enhancements* – Opportunities for enhancing the efficiency or overall operations of the SSMP.

The results of the March 2024 audit are summarized as follows:

- 0 major nonconformances
- 2 minor nonconformances
- 2 recommended corrective actions
- 10 recommended enhancements

It is anticipated that these minor nonconformances will be fully addressed with SSMP updates pursuant to the recommended corrective actions. Based on information gathered from interviews with OC San staff and a review of the current SSMP, as well as the consistently low number of spill events that have occurred within OC San's service area, the on-going implementation of SSMP policies and practices has been effective at reducing and preventing spills.

Table ES-1, Summary of the 2024 Sewer System Management Plan Audit Results and Recommendations

SSMP Performance Category	Target	Level of Conformance to SSMP	Corrective Action	Target Date for Correction	Recommended Enhancements
Goal	Create goals for system operations and spill reduction.	In Conformance	N/A	N/A	Consider referencing established performance metrics as part of the Goals section of the SSMP.
Organization	Identify lines of authority and responsibilities for implementing the SSMP.	In Conformance	N/A	N/A	None.
Legal Authority	Possess the legal authority to implement and enforce the elements of the SSMP and Sewer System.	In Conformance	N/A	N/A	None.
Operation and Maintenance Program	Maintain mapping of the sewer collection and storm drain conveyance systems. Provide a Capital Improvement Plan for rehabilitation and replacement projects.	In Conformance	N/A	N/A	Identify or provide additional training opportunities for OC San staff on key topics Include use of Cornerstone to track training in Section 5.4 Training Program of the SSMP
Design and Performance Provisions	Establish design and construction standards for all sewer assets.	In Conformance	N/A	N/A	None.
Overflow Emergency Response Plan	Establish a program to respond to, mitigate, and report SSOs.	Minor Nonconformance	Update all documents to replace SSO with spill. The updated section of the SSMP should be the Spill Emergency Response Plan.	July 2024	Conduct emergency bypass training at selected “high risk” pump stations. Standardize terminology amongst all documents (i.e., Spill and trouble spot).
		Minor Nonconformance	Complete the site-specific emergency response plans for all sewer lift stations.	December 2024	Conduct spill simulation and volume estimation training on an annual basis. Ensure Spill Emergency Response Plans are consistent amongst all member agencies. (The requirements for notification and reporting are consistent with OC San)
FOG Control Program	Create a FOG program to mitigate and limit the FOG discharge from Food Service Establishments (FSEs) into the sewer system.	In Conformance	N/A	N/A	Review and update FOG Ordinance to represent current terminology and requirements (i.e., hydromechanical grease interceptors). Review and update educational materials as needed related to FOG. Finalize revisions to Appendix F.
System Evaluation and Capacity Assurance Plan	Create a system evaluation and capacity assurance plan which includes; evaluation, design criteria, capacity enhancement measures, and Capital Improvement Plan (CIP) schedule.	In Conformance	N/A	N/A	None.
Monitoring, Measurement, and Program Modifications	Maintain relevant information to prioritize SSMP activities. Monitor the implementation and effectiveness of the SSMP. Assess the success of the preventative maintenance program. Update program elements as necessary. Identify and illustrate spill trends.	In Conformance	N/A	N/A	None.
SSMP Program Audit	Conduct biennial audits of the SSMP program, and implement corrective actions identified during the audits.	In Conformance	N/A	N/A	None.
Communication Program	Enrollees shall communicate with the public on the development, implementation, and performance of the SSMP.	In Conformance	N/A	N/A	None.

1.0 INTRODUCTION

The Orange County Sanitation District (OC San) is a public agency that provides wastewater collection, treatment, and disposal services to the central and northwest areas of Orange County. The OC San headquarters and one wastewater treatment facility (Plant No. 1) are located at 10844 Ellis Avenue in Fountain Valley, California. OC San has a second wastewater treatment facility (Plant No. 2) located at 22212 Brookhurst Street in Huntington Beach, California. OC San serves a population of approximately 2.6 million, as well as residential, commercial, and industrial sources. OC San's sewer system assets consist of 367 miles of mainline sewers, 21 miles of pressurized sewer lines (force mains), and 15 wastewater pumping stations.

In 2002, the Santa Ana Regional Water Quality Control Board (SARWQCB) adopted sewer regulations, termed Waste Discharge Requirements (WDR), aimed at reducing the occurrence of sanitary sewer spills (spills). In an effort to create uniformity in the way sewer systems are managed across the state, the SWRCB issued a Statewide General WDR, requiring any sewer agency with a sewer system of greater than one (1) mile to implement a sewer system management plan (SSMP). The SARWQCB rescinded its Waste Discharge Requirements in December 2006. To comply with the WDR, OC San developed an SSMP establishing policies and procedures to direct sewer system management in its service area and uphold California water quality standards.

The SSMP must be audited every three years to assess the effectiveness of the plan and identify improvements that could further increase the plan's effectiveness in limiting spills. OC San conducted an initial internal audit in 2021 that identified necessary revisions to the SSMP and subsequently updated the SSMP based on the findings of the 2021 audit (Appendix A, *Audit Closeout Memo 2021*).

EEC Environmental (EEC) was retained to support OC San in developing and performing a follow-up audit of the SSMP following the results of the initial audit. The SSMP audit focused on the OC San activities for calendar years 2021 to 2023. This report documents the results of the internal audit conducted in November 2023 through March 2024.

2.0 AUDIT METHODS

EEC's framework for the SSMP audit consists of five key elements:

1) Audit Kick-Off Meeting – A kick-off meeting with OC San staff was conducted to describe the audit process, define the purpose of the audit, and set expectations for the audit.

2) SSMP Assessment – OC San's SSMP was reviewed to evaluate the level of conformance of the SSMP to the requirements of the WDR.

3) Documentation/Data Gathering and Review – All available data and previously prepared documents relevant to the SSMP were gathered and reviewed (Appendix B, *List of SSMP Documents and Data Reviewed*). Information from this review was used to plan staff interviews regarding OC San practices, policies, and procedures related to the SSMP.

4) Staff Interviews – Multiple interviews were conducted with OC San staff to assess the level of conformance of OC San practices with the policies and procedures identified in the SSMP (Table 2-1, *Orange County Sanitation District Personnel Interviewed*). Personnel were asked to provide

their opinion on the performance of, and recommend improvements to, the sewer system management program.

Table 2-1, Orange County Sanitation District Personnel Interviewed

Name	Title	Responsibility
Dindo Carrillo	Regulatory Specialist	Spill Reporting & Outside Agency Notifications
Lan Wiborg	Director of Environmental Services	Environmental Compliance / Regulatory Affairs / Source Control Operations / Environmental Laboratory and Ocean Monitoring
Don Stokes	Maintenance Manager (Collections)	Collections O&M / Spill Response / LRO
Kevin Schuler	Maintenance Manager	Collections O&M Support
James Cabral	Maintenance Supervisor	Collections Gravity O&M / Spill Response / LRO
James Spears	Operations Manager	Collections O&M / Spill Response
Ponciano Navarro	Maintenance Supervisor	Collections Pump Station and Facility Maintenance/Spill Response
Jon Bradley	Plant 2 Chief Plant Operator	Plant No. 2 SCADA Monitoring, Spill Notifications.
April Frost	Plant 1 Chief Plant Operator	Plant No. 1 SCADA Monitoring, Spill Notifications.
Sam Choi	Environmental Protection Manager	Environmental Laboratory and Ocean Monitoring
Yiping Cao	Environmental Supervisor	Collections O&M / Spill Response
Steve Grande	Lead Mechanic	Collections O&M / Spill Response
Peter Cheffs	Lead Mechanic	Collections O&M / Spill Response
Jaime Aurelio	Senior Mechanic	Collections O&M / Spill Response
Shannon Fuchs	Senior Mechanic	Collections O&M / Spill Response
Lori McKinley	Principal Environmental Specialist	FOG Program Management
Justin Fenton	Engineering Manager	Planning
Brian Waite	Engineering Supervisor	Asset Management
Marianne Klein	Engineering Supervisor	Design & Performance Provisions
Adam Nazaroff	Engineering Supervisor	Collections O&M / Spill Response
Mark Kawamoto	Environmental Protection Manager	FOG Program Management
Mike Zedek	Engineering Supervisor	FOG Program Management
Brad Moore	Engineering Supervisor	Collections Construction
Troy Edwards	Engineer	System Evaluation & Capacity Assurance/ Pump Station Asset Management/ Planning and Implementation
Stephanie Ruiz	Administrative Assistant (Collections)	Collections Documentation
Cortney Light	Staff Analyst	SOP Updates
Michael Hino	IT Supervisor	EMS, GIS, Smart Covers, and Spill Volume Estimates
Tom Meregillano	Environmental Protection Manager	Manager of Environmental Compliance
Jenny Gomez	Sr. Environmental Specialist	Spill Reporting & Outside Agency Notifications
Rebecca Long	Sr. Public Affairs Specialist	Communication Program
Daisy Covarrubias	Public Affairs Supervisor	Communication Program

5) Report Preparation – A report was prepared documenting the audit findings and recommendations. The report was provided to OC San staff for review. The findings of the report were also presented to OC San's governing Board of Directors.

2.1 Performance Measures

EEC evaluated OC San's sewer system management operations against the established SSMP policies and procedures:

1. Goal
2. Organization
3. Legal Authority
4. Operation and Maintenance Program
5. Design and Performance Provisions
6. Overflow Emergency Response Plan
7. FOG Control Program
8. System Evaluation and Capacity Assurance Plan
9. Monitoring, Measurement, and Program Modifications
10. SSMP Program Audits
11. Communications Program

2.2 Results Reporting

To enable OC San to focus on improving its sewer system management program, EEC's findings for each performance area are described in terms of the degree of nonconformance with the SSMP:

- A *minor nonconformance* is a minor deficiency in OC San's sewer management program that would not normally warrant issuance of a notice of violation, fine, or other enforcement action by the regulatory oversight agency. This type of nonconformance usually occurs when an SSMP requirement is not being met and can occur when repeated deficiencies become a trend.

- A *major nonconformance* is a serious deficiency in OC San's sewer management program that may warrant a notice of violation, fine, or other enforcement action by the regulatory oversight agency. This type of nonconformance is normally the result of noncompliance with an applicable State regulation or permit.

For each identified nonconformance, EEC recommends specific actions to correct the nonconformance to the extent practicable. In some cases, EEC recommends enhancements to certain elements of OC San's sewer system management program.

- A *recommended corrective action* is a recommended change to OC San sewer system management operations where existing practices do not conform to the SSMP. Implementation of these actions is expected to improve the efficiency and effectiveness of the SSMP and should be implemented as soon as practicable.

- A *recommended enhancement* is a recommended action that would enhance the overall operations of OC San's sewer system management program. This action does not need to be implemented immediately, but once implemented, can improve the efficiency of operations and help prevent future nonconformances.

3.0 RESULTS

The following sections describe each SSMP performance category, outline performance criteria, and document OC San's conformance to each SSMP category. Corrective actions are recommended where OC San's practices do not conform to the policies of the SSMP.

3.1 Goals

Finding: OC San is fully conformant to the SSMP in this area; one enhancement is recommended.

OC San measures the effectiveness of its SSMP by preventing and mitigating spills. OC San utilizes internal metrics such as spill rates, volumes of spills, and historical data to evaluate the effectiveness of its programs.

3.1.1 Protect Public Health and the Environment

Based on the historically low number of spills that have occurred within OC San's service area, as demonstrated in Section 3.1.3, OC San is meeting its goal to protect public health and the environment. Additionally, OC San has implemented emergency response procedures and resources to be able to respond to any issues or system related failures that could occur. Based on interviews with staff, OC San is transparent with issues and documents that could affect public health or the environment by posting all SSMP-related documents on their website. OC San also encourages the public to provide insight or feedback on OC San practices.

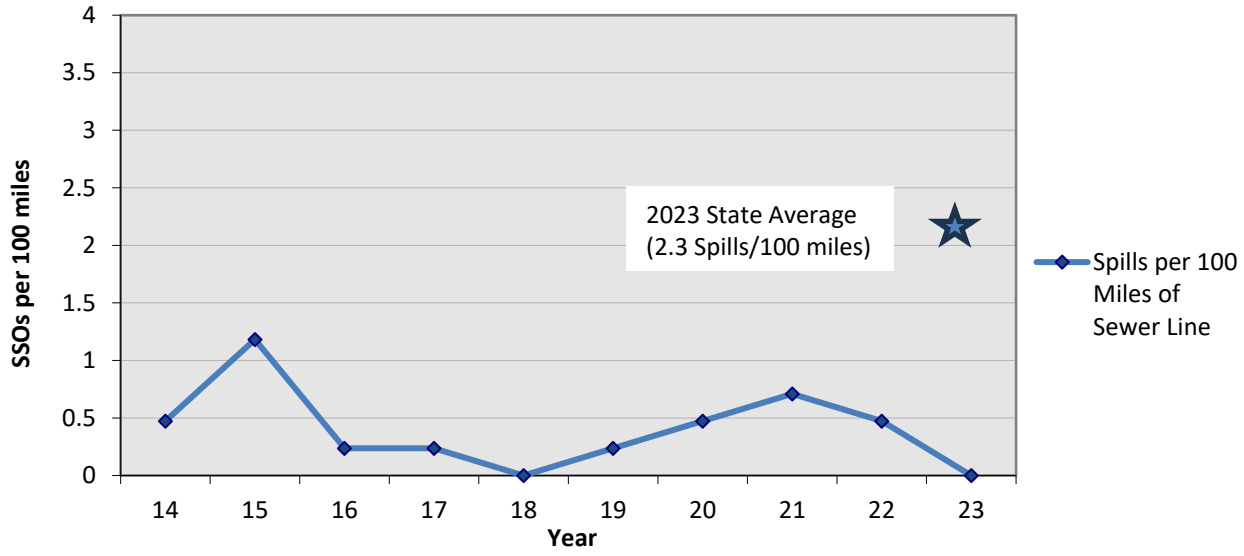
3.1.2 Plan and Schedule for Management, Operation, and Maintenance of Sewer System

OC San has established maintenance schedules for sewer lines, pump stations, force mains, siphons, and hot spots or areas of the sewer shed that are prone to spills and require more frequent cleaning. OC San monitors the status of these maintenance activities to ensure that designated schedules are being met. In addition, OC San has established and implemented a condition assessment plan, Capital Improvement Plan (CIP), Inflow and Infiltration (I/I) Reduction Program, and Hot Spot Abatement Program. The combination of these plans and programs with the established maintenance efforts allows OC San to keep spill incidents consistently low. These plans and programs are discussed in detail in later sections of this audit.

3.1.3 Reduction and Prevention of Sewer System Overflows

In 2023, OC San had 0 public spills while there were 3 public spills in 2022. Since 2014, OC San has not averaged more than 1.18 spills per 100 miles of sewer. The spill rate over this period remained below the State average of 2.3 spills for every 100 miles of sewer for similarly sized sewer systems between 300 and 500 miles, and only averaged 0.4 spills per 100 miles over the 10 year period (Figure 3-1, *Public Sanitary Sewer Overflows per 100 Miles of Sewer Line in OC San Service Area, 2014–2023*).

Figure 3-1, Public Sanitary Sewer Overflows per 100 Miles of Sewer Line in OC San Service Area, 2014–2023



OC San uses closed-circuit television (CCTV) to inspect locations where spills previously occurred to determine causes of the spills. OC San determines the need for repairs, enhances maintenance and source-control efforts, or implements other applicable corrective actions for spill-prone locations to preclude repeated spills.

3.1.4 Areas of Nonconformance to the Sewer System Management Plan

No nonconformances related to SSMP goals were identified.

No corrective actions are recommended at this time.

3.1.4.1 Recommended Enhancements

EEC recommends one enhancement to the goals of the SSMP:

1. Consider referencing established performance metrics as part of the Goals section of the SSMP.

3.2 Organization

Finding: OC San is fully conformant to the SSMP in this area.

The WDR requires sewer agencies to appoint Legally Responsible Officials (LROs) to oversee the implementation of the SSMP. The SSMP must include the names and telephone numbers of staff responsible for implementing the elements of the SSMP program along with outlining the chain of communication for reporting spills.

OC San has adequately defined an organizational structure for sewer system management:

- Responsible officials
- Lines of authority and responsibilities for OC San SSMP program
- Chain of Communication for Reporting Spills

OC San updated Appendix C of the SSMP in 2023 to reflect the current organizational structure, including the names and telephone numbers of persons responsible for managing the sewer system. The organization structure of positions responsible for implementing the SSMP includes:

Table 3-1, Orange County Sanitation District Responsibilities

Title	Role
General Manager	California Integrated Water Quality System (CIWQS) Legally Responsible Official (LRO)
Administration Manager, Communication	Ensures OC San's SSMP is available to the public and the public has input.
Maintenance Manager, Collection Facilities Division	Legally Responsible Official (LRO) Designee, certify spills.
Maintenance Supervisors (2), Collection Facilities Division	Collection Facilities Operations and Maintenance, Emergency Response, CIWQS LRO Designee to certify spills.
Operations Manager, Operations Division	Designate resources for Plant No. 1 & 2 operations.
Control Center Clerks, Operations Division	SCADA Response, Public interface.
Maintenance Manager, Maintenance Division	Designate resources for maintenance, and repairs of electrical systems throughout the OC San's Collection System.
Maintenance Supervisor, Maintenance Division	Designate resources for maintenance reliability and PM optimization activities
Maintenance Supervisor, Maintenance Division	Electrical/Instrumentation
Maintenance Specialist, Maintenance Division	Designate resources for maintenance planning activities
Director of Environmental Services	Overall responsibility for the SSMP; SSMP budgeting and staffing to comply with the Order, Audit Closure.
Environmental Protection Manager, Resource Protection Division (RPD)	Overall responsibility for the FOG Program
Engineering Supervisor, Non-Industrial Source Control (NISC)	FOG Program
Pr. Environmental Specialist, Resource Protection Division	FOG Program
Environmental Protection Manager, Environmental Compliance	SSS WDR Order and audits, Lead OC San stakeholder meetings.

Regulatory Specialist	Environmental Compliance Division Responsible for updating the status of the SSMP audit in ECAP, Approves third-party invoices for audits.
Senior Environmental Specialist, Environmental Compliance Division	Program support, Update SSMP documents and implement document control, SSMP web posting.
Director of Administrative Services	Sewer Fees and Finance
I.T. Manager	I.T. Systems & Operations
I.T. Supervisor	OC San Mapping Tools to support the SSMP; Maximo.
Finance and Procurement Manager	Financial Management
Principal Staff Analyst	Finance Liability Claims
Engineering Manager, Engineering Department, Planning Division	Overall responsibility for Planning
Engineering Supervisor, Engineering Department, Planning Div.	CIP Planning
Engineering Supervisor, Engineering Department, Planning Div.	Asset Management
Engineer, Engineering Department, Planning Division	System Evaluation & Capacity Assessment / Collections System Asset Management, Planning, Implementation
Engineer, Engineering Department, Planning Division	System Evaluation & Capacity Assessment / Pump Stations Asset Management, Planning, Implementation
Engineering Manager	Engineering Department., Design Division Overall responsibility for Design & Perf; Construction Oversight; and Construction QA
Engineering Supervisor, Engineering Department	Design Division Design & Perf Provisions
Engineering Supervisor, Engineering Department, Construction Mgmt. Division	Overall responsibility for Construction Management
Engineering Supervisor, Engineering Department, Construction Mgmt. Division	Design Division Construction Oversight (Pump Stations)
Engineering Supervisor – Engineering Department, Construction Mgmt. Division	Design Division – Construction Oversight (Pipelines)
Construction Inspection Supervisor, Engineering. Department, Construction Mgmt.	Construction Quality Assurance (Pump Stations)
Construction Inspection Supervisor, Engineering Department, Construction Mgmt.	Construction Quality Assurance (Pipelines)

OC San has also created the chain of communication for reporting a spill. The chain of communication is part of Appendix P1 and Q1 of the SSMP. Based on the update history and interviews with OC San staff, both the Organization Chart and the chain of communication for reporting spills is updated regularly to remain accurate.

3.2.1 Areas of Nonconformance to the Sewer System Management Plan

No nonconformances related to the organization were identified.

No corrective actions are recommended at this time.

3.2.1.1 Recommended Enhancements

No program enhancements are recommended at this time.

3.3 Legal Authority

Finding: No instances of nonconformance identified.

OC San is in conformance with the Legal Authority section of the SSMP. The WDR requires that sewer agencies have appropriate legal authority to implement and enforce certain elements of the SSMP. On July 1, 2019, OC San adopted Ordinance No. OCSD-53, which replaced the previous 2016 ordinance to include the following:

- Prevent illicit discharges into the sanitary sewer (OCSD-53, Article 2, Section 201)
- Require that sewers and connections be properly designed and constructed (OCSD-53, Article 4)
- Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by OC San; not applicable, as OC San does not own or maintain laterals (California Civil Code 831)
- Limit the discharge of fats, oils, and grease (FOG) and other debris that may cause spills (OCSD-25)
- Enforce any violation of its sewer ordinances (OCSD-53, Article 6)

OC San reviews plumbing plans, inspects sewer system repairs and new construction, and enforces established policies. OC San has applied the necessary enforcement actions to promptly mitigate illicit discharges. While enforcement actions are rarely required, OC San has been able to effectively mitigate fats, oils, and grease discharge issues by requiring installation of grease interceptors for several existing facilities that are considered significant contributors to spills.

In addition to OC San's adopted ordinances, OC San utilizes the Engineering Design Guidelines and Sewer Connection Application and Permit for Construction as legal authority.

3.3.1 Areas of Nonconformance to the Sewer System Management Plan

No nonconformances related to the legal authority were identified.

No corrective actions are recommended at this time.

3.3.1.1 Recommended Enhancements

No program enhancements are recommended at this time.

3.4 Operation and Maintenance Program

Finding: No instances of nonconformance identified. One program enhancement is recommended.

The SSMP outlines five key elements of OC San's sewer system operation and maintenance program:

- OC San sanitary sewer system mapping
- Preventative maintenance program
- Rehabilitation and replacement plan
- Training program
- Equipment and replacement parts inventory (not described in the SSMP)

3.4.1 OC San Sanitary Sewer System Map

OC San utilizes a geographic information system (GIS) based sewer atlas. The GIS-based atlas shows the location of gravity sewer lines and manholes, pumping facilities, and force main pipelines. A separate map showing the location of all stormwater conveyance facilities is also available to field staff. OC San has also deployed field tablets to wastewater staff to allow access to the GIS in the field. The tablets allow field staff to have access to historical notes and sewer system structural issues and limits the amount of paperwork and field binders needed for staff. If field staff identify a discrepancy with the maps, the field staff takes a picture of the asset they are seeing to compare with the discrepancy in the map. Field staff then flags the map and then the discrepancy is sent to the Engineering Department for correction. The mapping system does not currently have a layer with the stormwater conveyance system. Staff currently work with the OC San member agencies to determine the stormwater conveyance when needed.

Field staff can also use the maps to compare traffic patterns with assets on the street to plan work and traffic control. Staff also use the maps to plan diversions that facilitate siphon cleaning.

3.4.2 Preventative Maintenance Plan

3.4.2.1 System-Wide Cleaning

OC San has created and established a Preventative Maintenance Program (PPP) which is included as Appendix L1 of the SSMP. The PPP discusses the cleaning frequencies of the different sizes of lines. The 6" to 12" lines are cleaned more frequently than larger diameter trunk sewer lines as they are more prone to blockages. Additionally, areas identified as being a higher risk area are cleaned more frequently. Table 3-2, OC San Gravity Sewer Cleaning Frequencies, summarizes the cleaning frequency for each size of sewer lines.

Table 3-2, OC San Gravity Sewer Cleaning Frequencies

Method	Pipe Size	Type	Frequency
Flushing	6" – 42"	Routine Line Cleaning	2-5 Years
Mechanical - Tire	8" – 42"	Routine Line Cleaning	2-5 Years
Flushing	6" – 42"	Trouble Spots	8-78 Weeks
Flushing	15" – 22"	Siphons	4-34 Weeks
Mechanical - Tire	15" – 48"	Siphons	4-34 Weeks

Work orders are created using OC San's enterprise computerized maintenance management system (CMMS), Maximo. All work is pre-planned and scheduled for recurrence by calendar year. Prior to

cleaning, supervisors and field staff will review previous cleaning reports and notes to determine if there are any potential obstacles or issues they may encounter. OC San currently utilizes three crews to conduct the cleaning. One crew focuses on large diameter lines, one crew for siphons, and the third crew cleans the small diameter sewer lines. Based on the Collections Department's work order reports reviewed and interviews with staff, OC San does not have any issues with meeting the established cleaning frequencies, but occasionally has a backlog list of locations due to the need to clean those location at night.

When the work orders are created, Maximo provides the set number of days that are needed to clean the line segments. These days are compared to what is happening in the field by the supervisors. This review also allows the supervisors to communicate with field staff about the risk associated with each line (high flow, etc.). According to interviews with the supervisors, if the cleaning is on-schedule they are considered "in compliance" with the maintenance schedule. This internal compliance analysis is used to better estimate the cleaning schedules. The cleaning crews complete the work orders in the field and update accordingly in Maximo. The crews include their observations and provide descriptions of the condition of the line and any issues identified while cleaning.

3.4.2.2 Trouble Spot Locations and Lift Station Maintenance

OC San identifies the "trouble spots" within their collections system that require more frequent cleaning than other sewer segments. Trouble spots are cleaned periodically throughout the year depending on the amount of accumulation at the time of cleaning. OC San evaluates the trouble spot locations to determine the proper cleaning frequency. The lines are evaluated with CCTV, crew observations, and OC San recently purchased a cleaning nozzle with a camera to be able to evaluate the level of accumulation at the time of cleaning. OC San currently has 29 trouble spots on the cleaning list. Table 3-3, 2023 – 2024 Trouble Spot Cleaning Frequencies, shows the number of trouble spots cleaned at each frequency.

Table 3-3, 2023 – 2024 Trouble Spot Cleaning Frequencies

Frequency	Number of Locations
8 Weeks	3
10 Weeks	1
12 Weeks	1
13 Weeks	9
15 Weeks	1
17 Weeks	3
20 Weeks	1
23 Weeks	1
26 Weeks	4
78 Weeks	1

In addition to the trouble spot locations, OC San also has 66 siphon locations and two additional locations that were added to the preventative maintenance list. As a follow-up to a spill or observed blockage, the crews can add a location to the preventative maintenance list until it can be shown that the segment is no longer required to be on the list.

OC San's 15 lift stations are inspected and maintained on a monthly basis. The inspections and maintenance activities include visual inspections, exercising of lift station equipment, vibration measurements, thermal imaging of electrical systems, and pressure readings. OC San installed single-vane impellers that have helped reduce ragging issues in the lift stations, but OC San still has some ragging

issues associated with the check valves. Collection staff monitor performance of the check valve and when function starts to degrade a work order is scheduled for staff to manually de-rag the valve. The inspections and maintenance activities are tracked in the work order created in Maximo. If an issue with the lift stations is identified, the corrective action is documented in Maximo and then Maximo prioritizes the repairs based on the severity of the issue. Based on staff interviews, the older lift stations tend to have more issues than newer ones. The OC San Asset Management plan focuses on rehabilitation and replacement. If an issue is more urgent, it is addressed with a small repair project. For new lift station construction, OC San is incorporating online vibration systems, onsite generators, and dual force mains.

3.4.3 Rehabilitation and Replacement Plan

3.4.3.1 Asset Management

OC San has a proactive rehabilitation and replacement program that includes regular CCTV inspections of manholes and sewer lines and short-term and long-term repair and replacement projects. The majority of the CCTV work is being completed by a contractor, Houston Harris. OC San is also using Performance Pipeline to conduct the PACP ratings. In addition, OC San uses Pro-Pipe for determining the manhole MACP ratings. OC San is currently using the PACP and MACP standards to rank the manholes and sewer lines for repairs. Based on staff interviews, OC San is currently developing a system to prioritize CCTV based on historic conditions. This will allow for sewer lines with a high PACP structural rating to be re-inspected more frequently than those with a lower rating.

OC San has established an Asset Management Plan, which was most recently updated in September of 2023. The plan identifies the short-term and long-term projects that OC San plans to complete. Short-term projects typically include repairing damaged manholes, Cured In Place Pipe (CIPP) lining smaller diameter sewers, and smaller replacement projects. Long-term projects typically include the rehabilitation or replacement of the larger trunk-sewer lines. Since the larger trunk-sewers are typically located on busy streets, planning, design, and construction for these large trunklines can take multiple years to complete.

OC San has reviewed and established CIP expenditures over a 20-year period. The CIP identified the initially proposed projects and budgets for each year and also allows for a budget for projects not yet identified. The CIP is also reviewed annually to determine if there are any projects or budgets that need to be added to the CIP. The CIP is addressed as part of the OC San annual budget plans and reports.

3.4.4 Staff Training

In accordance with SSMP requirements, OC San staff responsible for operation and maintenance of the sewer system actively participate in education and training activities. OC San staff receive the necessary technical certifications to perform their tasks, and OC San conducts regular safety training for employees as well. Examples of training that staff undergo include:

Safety Training:

- Confined space and rescue
- Traffic control
- Dig alert
- General tailgate safety meetings

Technical Training

- Lift station maintenance
- Spill response
- Operations equipment use
- CWEA certifications
- Equipment cross-training

Based on discussions with staff, OC San also provides internal employee training related to spill response and SSMP elements. Training activities are documented in OC San's internal training database, Cornerstone.

3.4.5 Equipment and Replacement Parts Inventory

Appendix I2 of the OC San SSMP lists the vehicles and additional equipment necessary for OC San to perform day-to-day functions and respond to spills. Additionally, if needed staff can order small parts and equipment to replace aging ones. Based on interviews with OC San staff, there are no issues with having or acquiring spare parts or equipment.

3.4.6 Areas of Nonconformance to the Sewer System Management Plan

No nonconformances related to the sewer system operations and maintenance program were identified.

No corrective actions are recommended at this time.

3.4.6.1 Recommended Enhancements

EEC recommends one enhancement for the Sewer System Operation and Maintenance Program:

1. Identify or provide additional training opportunities for OC San staff on key SSMP related topics:
   - Cleaning procedures, including vactor truck operations and use of CMMS
   - Lift station emergency response
   - SSMP program elements
   - Spill volume estimation
2. Include use of Cornerstone to track training in Section 5.4 Training Program of the SSMP.

3.5 Design and Performance Provisions

Finding: OC San is fully conformant to the SSMP in this area; one program enhancement recommended.

OC San has established design and performance provisions for the installation, rehabilitation, and repair of sewer system assets; the provisions are established in five documents:

- OC San Master Specifications, Design Guidelines, and other OC San Design Standards;
- Standard Specifications for Public Works Construction (Greenbook);
- Codes and Standards of trade organizations (NFPA, ASTM, IEEE, etc.);
- Applicable federal, state and local laws and regulations, e.g.: CA Code of Regulations, Title 8 (Cal/OSHA), Title 24 (California Building Codes);
- Inspection reports, test reports, and contractor certifications

All new construction and rehabilitation activities must adhere to the established design standards adopted by OC San. OC San tracks each project and logs the construction plans that have been created for each project. OC San's written standards are made readily available and accessible to staff members, who refer to these standards when performing repairs or inspections. OC San has established a process for updating each chapter of the design guidelines by assigning an engineer who is responsible for each portion of the guidelines. The recommended edits to the guidelines are submitted to the Engineering Department Advisory Council (EDAC) which is a committee that meets monthly to review any proposed edits. Once EDAC approves the proposed edits, the new design guidelines are published.

3.5.1 Areas of Nonconformance to the Sewer System Management Plan

No nonconformance with SSMP design and performance provisions were identified.

No corrective actions are recommended at this time.

3.5.1.1 Recommended Enhancements

No program enhancements are recommended at this time.

3.6 Overflow Emergency Response Plan

Finding: Two minor nonconformances identified; two corrective actions and four program enhancements are recommended.

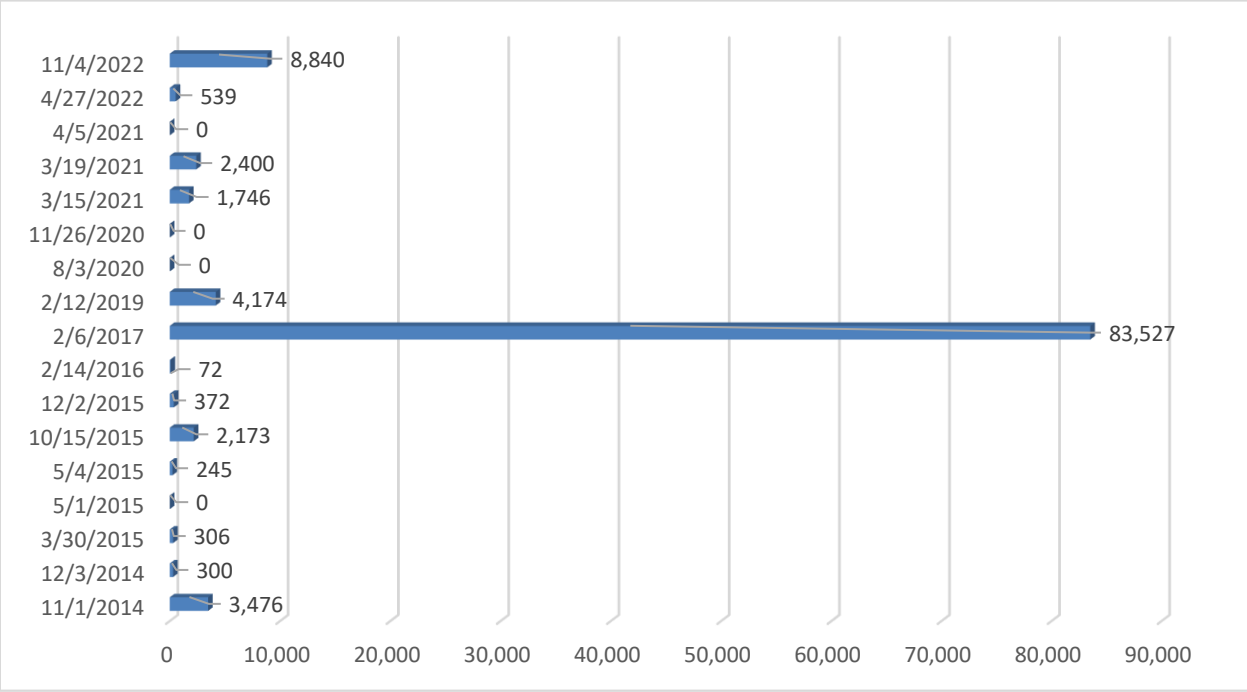
The SSMP requires six key elements for the OC San Overflow Emergency Response Plan:

- Spill notification procedures
- Appropriate response to all overflows
- Regulatory notification procedures
  - Oral notification
  - Written notification
- Training procedures
- Emergency response operations
- Program to contain and prevent sewage discharges to surface waters

OC San's criteria for determining the category (level of severity) of spills, as well as procedures for response and reporting of each spill, are consistent with the SSMP. OC San is in the process of developing site-specific emergency response procedures for each of the 15 lift stations. Based on staff interviews, the site-specific emergency response plans for the lift stations are still in the process of being completed.

Based on the documentation review, OC San's internal spill records are consistent with the California Integrated Water Quality Control Board's data. For each spill occurrence, OC San notified the proper authorities and submitted all reports pursuant to the documented procedure. With the exception of a single spill event in 2017, OC San has been increasingly effective at mitigating the volume of spills that have reached surface waters (Figure 3-2, *Volume in Gallons of Sanitary Sewer Overflow That Reached Surface Waters in OC San Service Area, 2014–2020*).

Figure 3-2, Volume in Gallons of Sanitary Sewer Overflow That Reached Surface Waters in OC San Service Area, 2014–2023



Based on interviews with OC San staff, staff members keep a copy of the SSO Emergency Response Plan in each service vehicle and receive annual training on the plan.

3.6.1 Areas of Nonconformance to the Sewer System Management Plan

Two minor nonconformances related to the OC San Overflow Emergency Response Plan were identified:

a. Per the 2022 WDR Order, SSO is no longer a term to reference sewer spills. The new term for all documents should be "spill".
b. OC San has not completed all site-specific emergency response plans for the sewer lift stations.

Two corrective actions are recommended to remedy the identified nonconformance:

a. Update all documents to replace SSO with spill. The updated section of the SSMP should be the Spill Emergency Response Plan.
b. Complete the site-specific emergency response plans for all sewer lift stations.

3.6.1.1 Recommended Enhancements

EEC recommends four enhancements to OC San's overflow emergency response plan:

1. Conduct emergency bypass training at select "high risk" lift stations
2. Standardize terminology amongst all documents (i.e., spill, trouble spot, etc.)
3. Conduct spill simulation and volume estimation training on an annual basis
4. Ensure Spill Emergency Response Plans are consistent amongst all member agencies (i.e., verify requirements for notification and reporting are consistent with OC San)

3.7 FOG Control Program

Finding: OC San is fully conformant to the SSMP in this area; three program enhancements recommended.

The SSMP requires seven key elements for the OC San FOG Control Program:

- Public education outreach program
- FOG disposal plan
- Legal authority to prohibit discharges to the system
- Grease removal device requirements
- Inspection of grease-producing facilities
- Cleaning schedule for sewer system sections subject to FOG blockages
- Source control measures for enhanced maintenance areas

Based on the historically low number of FOG-related spills in the OC San service area, OC San's FOG Control Program is effective at preventing FOG accumulation in the sewer system and FOG-related spills. OC San currently manages an area in the City of Orange and currently only manages 37 FOG permits. Fifteen of the Food Service Establishments (FSEs) have grease interceptors and the remaining FSEs have been issued conditional waivers. In 2020, OC San did not conduct any inspections of the FSEs due to COVID-19 restrictions, but OC San utilizes the Orange County Health Care Agency (OCHCA) to conduct best management practices inspections. OC San receives quarterly reports for the results of the OCHCA inspections.

3.7.1 Public Education and Outreach Program

At the beginning of the FOG Control Program in 2004, OC San began providing all identified food service establishments (FSEs) in its service area with educational and outreach materials, including the FOG Program Rules and Regulations, regarding the proper disposal of FOG generated in their facilities. These materials are still provided to each FSE as needed during routine FOG inspections. The educational materials are also available on OC San's website (http://www.ocsan.gov).

In addition to the FSE educational materials, OC San Public Affairs Office has developed public outreach programs. One program that was developed is called "What to Flush". The program aims to educate the public on what can and cannot be flushed down a toilet. OC San also creates a General Manager board letter to board members and Educational Took Kits. These are messages that member agencies can utilize in their local communications with their residents.

3.7.2 Legal Authority to Prohibit Discharges to the System

Where additional enforcement of the FOG Control Program is required, Ordinance No. OCSD-25 provides OC San with the legal authority to enforce the FOG Program Rules and Regulations. Additionally, OCSD-53 provides additional legal authority for OC San.

3.7.3 Grease-Removal Device Requirements

OC San requires all new FSEs to install a grease interceptor, which must first be approved by OC San. In addition, existing FSEs that have been identified as the cause or a contributor to sewer system blockages are required to install a grease interceptor. OC San is receptive to alternative grease-control technologies, particularly for facilities with physical constraints (i.e., space, slope) that make installation of traditional interceptors impracticable.

3.7.4 Cleaning Schedule for Sewer System Sections Subject to FOG Blockages and Source-Control Measures for Enhanced Maintenance Areas

OC San has not experienced a grease related spill in the previous 14 years and currently has not identified any areas of its sewer system to be prone to FOG blockages. According to interviews with staff, FOG Control Program Staff communicate regularly with collections system staff and investigate sources of FOG if collections identify excessive FOG accumulation.

3.7.5 FOG Disposal Plan

Once a grease interceptor is pumped, pumping companies can take grease waste to OC San's FOG waste receiving facility. In addition, some of the larger pumping companies have their own treatment facilities on-site that receive FOG waste.

3.7.6 Areas of Nonconformance to the Sewer System Management Plan

No nonconformance related to the FOG Control Program were identified.

No corrective actions are recommended at this time.

3.7.6.1 Recommended Enhancements

EEC recommends three program enhancements for the FOG Control Program:

1. Review and update the FOG Ordinance to represent current terminology and requirements (i.e., hydromechanical grease interceptors)
2. Review and update educational materials as needed related to FOG
3. Finalize revisions to Appendix F

3.8 System Evaluation and Capacity Assurance Plan

Finding: OC San is fully conformant to the SSMP in this area.

SSMP outlines four key elements of OC San's System Evaluation and Capacity Assurance Plan:

- Evaluation
- Design criteria
- Capacity enhancement measures
- Capital Improvement Program schedule

3.8.1 Evaluation

OC San's Sewer Master Plan was last updated in 2019. OC San reviewed the previous model and updated flow characteristics (gathered a year and half of flow monitoring). Next, OC San performed a diversion analysis to determine how the diversions in the collection system should be set to minimize capacity deficiencies. Then OC San identified future projects to address any capacity deficiencies. In addition, OC San routinely analyzes pump station data to identify trends in sewer flow changes that have the potential to become hydraulic capacity issues, including indicators of I/I.

3.8.2 Design Criteria

OC San's design criteria is based on a depth of flow to pipe diameter (d/D) factor for sewer pipes where "D" is the diameter of the pipe and "d" is the depth of the flow in the pipe. OC San uses a maximum allowable d/D = 0.5 for pipes with a diameter 8" to 18" and d/D = 0.75 for pipes with a diameter greater than 21"; pipes with d/D ratios greater than these values are identified as needing improvement. For the most recent Master Plan update, OC San considered a pipe to be deficient if the surcharge was more than 2 feet for sewers larger than 12 inches.

3.8.3 Capacity Enhancement Measures

OC San has identified a list of 11 capacity enhancement projects that will be completed over a 20-year period. The projects are constantly evaluated and prioritized based on the greatest capacity needs. OC San monitors the flow in these high-risk capacity areas during storm events to determine if inflow and infiltration is causing a capacity deficiency. If a significant deficiency is identified, then the priority for capacity enhancement is increased.

3.8.4 Capital Improvement Plan Schedule

The 2019 Master Plan identified CIP projects to be completed over 20 years. Based on discussions with OC San Engineers, OC San does not plan to replace existing pipes based on age of the pipe alone. Structural defects and capacity issues will drive the schedule for repair or replacement in the new Sewer System Master Plan.

3.8.5 Areas of Nonconformance to the Sewer System Management Plan

No nonconformances related to system evaluation and capacity assurance were identified.

No corrective actions are recommended at this time.

3.8.5.1 Recommended Enhancements

No program enhancements are recommended at this time.

3.9 Monitoring, Measurement, and Program Modifications

Finding: OC San is fully conformant to the SSMP in this area.

OC San regularly reviews performance metrics for each element of the SSMP. The primary metrics OC San uses to measure the effectiveness of their program includes:

- Have less than 2.1 spills per 100 miles per year
- Respond to all spills within 1 hour of notification

Each of the performance metrics tracked is communicated to the OC San managers and OC San Directors on a monthly basis.

Environmental Compliance staff utilize the Environmental Compliance Awareness Program (ECAP) to notify each owner assigned to review and maintain of the various elements of the SSMP. ECAP provides a dashboard with start dates and deadlines dates for completion. The Director of Environmental Services is then assigned to the "living" SSMP document and ensuring all sections are updated in a timely manner.

3.9.1 Areas of Nonconformance to the Sewer System Management Plan

No nonconformances related to the program monitoring, measurement, and modifications were identified.

No corrective actions are recommended at this time.

3.9.1.1 Recommended Enhancements

No program enhancements are recommended at this time.

3.10 SSMP Program Audit

Finding: OC San is fully conformant to the SSMP in this area.

OC San has conducted the required SSMP audits. The previous audit was conducted in 2021 and covered all sections of the SSMP. The audit identified zero major nonconformances and 3 minor nonconformances. Each audit finding is tracked in a spreadsheet and an Audit Closeout Memorandum is published once all items have been addressed. OC San adequately addressed all nonconformances identified in the 2021 SSMP Audit.

3.10.1 Areas of Nonconformance to the Sewer System Management Plan

No nonconformances related to the SSMP program audit were identified.

No corrective actions are recommended at this time.

3.11 Communications Program

Finding: OC San is fully conformant to the SSMP in this area.

OC San posted the updated SSMP on its website (http://ocsan.gov) and has certified the SSMP on the State's CIWQS website. The SSMP is always available to any interested party; OC San will consider any comments or recommendations made by outside organizations.

OC San also participates in quarterly WDR meetings and conducts regular meetings with outside stakeholders. In addition to these meetings, OC San staff provides monthly reports to the OC San Board members. Based on interviews with staff, OC San plans to grow online communication with the public through social media outlets and quarterly outreach that is called "plug and play".

3.11.1 Areas of Nonconformance to the Sewer System Management Plan

No nonconformances related to OC San's communications program were identified.

No corrective actions are recommended at this time.

3.11.1.1 Recommended Enhancements

No program enhancements are recommended at this time.

4.0 SUMMARY

OC San developed a comprehensive SSMP in compliance with the State WDR. Based on personnel interviews, documentation review, and consistently low number of spill events, OC San continues to effectively implement the SSMP to reduce and prevent spills within OC San's service area. OC San continually evaluates the condition of its sewer system assets and conducts routine preventive maintenance to ensure the system is functioning efficiently. Table 4-1, *Summary of Strengths and Accomplishments*, summarizes the strength and accomplishments of OC San that has allowed them to implement a successful SSMP program.

Table 4-1, Summary of Strengths and Accomplishments

No.	Strength / Accomplishment
1	The public spill rate for OC San over the previous 3 years has been 0.47 spills per 100 miles or less.
2	Given the high flow volumes and number of lift stations in the OC San collection system, the potential for a large volume spill is high compared to other sewer agencies. However, OC San has experienced only one large volume spill since 2014 (spills exceeding 10,000 gallons).
2	OC San is conducting necessary training for staff and documenting the training in Cornerstone.
3	OC San keeps all elements of the SSMP up-to-date using ECAP to track the progress of each section.
4	OC San is conducting pro-active CCTV of the entire sewer system and is identifying structural deficiencies using the PACP and MACP scoring criteria.
5	OC San is updating all SOPs within the program so existing and new employees can have documents for reference.
6	OC San consistently meets all cleaning and maintenance frequencies for the collections system.
7	OC San has installed smart manhole covers at selected high-risk locations and trouble spot locations.
8	OC San has already begun evaluating lift station wet wells for capacity issues that may be associated with climate change and sea water rise.
9	In 2019 OC San completed the Sewer Master Plan and has conducted in-depth hydraulic capacity studies of the collection system to identify capacity deficiencies and has a CIP in place to address identified deficiencies.
10	OC San has not experienced a recent FOG related spill and does not have issues with FOG in the collection system. In addition, OC San works with the member agencies to help reduce their FOG-related issues especially in areas contributing to OC San lift stations.
11	OC San communicates well with its member agencies and works with them to reduce and respond quickly to spills.

This audit identified areas in which OC San's sewer system management practices are not fully consistent with the SSMP (Table 4-2, *Summary of Sewer System Management Plan Audit Results*).

Table 4-2, Summary of Sewer System Management Plan Audit Results

Sewer System Management Plan Section	Finding	Enhancements Recommended
Section 1, Goals	In Conformance	Yes
Section II, Organization	In Conformance	No
Section III, Legal Authority	In Conformance	No
Section IV, Operations and Maintenance	In Conformance	Yes
Section V, Design and Performance Provisions	In Conformance	Yes
Section VI, Overflow Emergency Response Plan	Minor Nonconformances	Yes
Section VII, FOG Control Program	In Conformance	Yes
Section VIII, System Evaluation and Capacity Assurance Plan	In Conformance	No
Section IX, Monitoring, Measurement, and Program Modifications	In Conformance	No
Section X, SSMP Program Audits	In Conformance	No
Section XI, Communications Program	In Conformance	No

No major nonconformances were identified; however, 2 minor nonconformances, with 2 recommended corrective actions, were identified (Table 4-3, *Identified Nonconformances*).

Table 4-3, Identified Nonconformances

Section	Nonconformance
Section VI, Overflow Emergency Response Plan	Per the 2022 WDR Order, SSO is no longer a term to reference sewer spills. The new term for all documents should be “spill”.
Section VI, Overflow Emergency Response Plan	OC San has not completed all site-specific emergency response plans for the sewer lift stations.

EEC has recommended corrective actions to address nonconformance areas and anticipates that OC San’s sewer system management operations will satisfy the WDR once the recommended corrective actions are fully implemented (Appendix C, *Summary of Findings and Recommended Enhancements*). EEC has also identified recommended program enhancements which are optional for OC San to implement in its programs (Table 4-4, *Recommended Program Enhancements*).

Table 4-4, Recommended Program Enhancements

Section	Nonconformance
Section 1, Goals	Consider referencing established performance metrics as part of the Goals section of the SSMP.
Section IV, Operations and Maintenance	Identify or provide additional training opportunities for OC San staff on key topics
Section IV, Operations and Maintenance	Include use of Cornerstone to track training in Section 5.4 Training Program of the SSMP
Section VI, Overflow Emergency Response Plan	Conduct emergency bypass training at selected “high risk” pump stations.
Section VI, Overflow Emergency Response Plan	Standardize terminology amongst all documents (i.e., Spill and trouble spot).
Section VI, Overflow Emergency Response Plan	Conduct spill simulation and volume estimation training on an annual basis.

Section VI, Overflow Emergency Response Plan	Ensure Spill Emergency Response Plans are consistent amongst all member agencies. (The requirements for notification and reporting are consistent with OC San)
Section VII, FOG Control Program	Review and update FOG Ordinance to represent current terminology and requirements (i.e., hydromechanical grease interceptors).
Section VII, FOG Control Program	Review and update educational materials as needed related to FOG.
Section VII, FOG Control Program	Finalize revisions to Appendix F.

APPENDIX A
AUDIT CLOSEOUT MEMO 2021

Audit Closeout Memo

Revision History			
Revision	**Date**	**Approval**	**Reason**
0	12/19/11		Original
1	05/19/16	M. Esquer	• Addressed 2013 Audit Findings
2	06/30/16	M. Esquer	• Addressed 2015 Audit Findings
3	08/23/21	T. Meregillano	• Addressed 2021 Audit Findings
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ORANGE COUNTY SANITATION DISTRICT | MEMORANDUM

DATE: **August 19, 2021**

SUBJECT: **2021 SSMP Audit Closeout Memo**

On April 13, 2021, the Orange County Sanitation District (OC San) received the audit findings from an independent auditing firm, EEC Environmental, of the Sewer System Management Plan (SSMP). The audit reviewed the period between January 1, 2019 and December 31, 2020 and found OC San to generally be in compliance with all Provisions of the SSS WDR Order. The table below summarizes the findings:

Major Non-Conformances	0
Minor Non-Conformances	3
Recommended Corrective Actions	3
Recommended Enhancements	12

All minor non-conformances findings have been corrected or adopted. Several recommended corrective actions and recommended enhancements were suggested. Staff have reviewed these items at the receipt of the Audit report. The following section summarizes OC San's response and action for each finding. For additional information on the referenced regulatory section and corrective action completion date, a more detailed spreadsheet is available.

Minor Non-Conformances

1. The Capital Improvement Plan is not referenced in the OC San SSMP Vol 1.

   OC San has added a reference to the Capital Improvement Plan in Section 5.3 of the SSMP on August 12, 2021.

2. Staff do not have mapping access to storm drain conveyance systems in the service area.

   OC San has included the storm drain GIS into the OC San mapping system on May 1, 2021.

3. All nonconformances identified in the 2019 SSMP Audit were not addressed.

   OC San Environmental Services continues to track progress for all nonconformances in the 2019 SSMP audit. Completion date for this is contingent upon the 2019 audit findings completion.

Recommended Corrective Actions

1. Add a reference to the Capital Improvement Plan in Section 5.3 of the OC San SSMP Vol 1.

OC San has added a reference to the Capital Improvement Plan in Section 5.3 of the SSMP on August 12, 2021.

2. Add a storm drain systems layer to the GIS mapping system.

   OC San has included the storm drain GIS into the OC San mapping system on May 1, 2021.

3. Address all nonconformances identified in the 2019 SSMP Audit.

   OC San Environmental Services continues to track progress for all nonconformances in the 2019 SSMP audit. Completion date for this is contingent upon the 2019 audit findings completion.

Recommended Enhancements

1. OC San should consider using measurable goals to quantify the effectiveness of the SSMP. The following are examples of measurable goals:
   - Maintain an SSO rate below the state average for similarly sized sewer systems (2.3 per 100 miles of sewer line).
   - Maintain an SSO recovery rate above the state average.
   - Maintain an SSO response time of less than 30 minutes.
   - Reduce the number of hot spot locations from year to year.
   - Reduce the inflow/infiltration within the sewer system.
   - Complete a specific number of classroom and training hours for staff.

   The SSMP should be updated to include any identified program goals.

   Since goals are not enforceable per the SSS WDR Order but are only aspirational, OC San will not include this recommendation.

2. Utilize cleaning results/observation and CCTV data to further evaluate and optimize line cleaning frequencies.

   OC San Collections Division has a draft guidance in process. This task will continue to be reviewed as needed.

3. Conduct pro-active assessments of trouble spot locations to determine cause of the location and potential mitigation measures.

   OC San will modify the existing inspection program to include higher frequency inspections for trouble spots and significant deficiencies. This will be completed by June 30, 2022.

4. Update the SSMP to reference Appendix H for the list of short and long-term projects.

   OC San will add a reference to Appendix H in Section 5.3 of the SSMP. This task was completed on August 12, 2021.

5. Section 5.3 and 5.3.1 are duplicated. One of the 5.3 and 5.3.1 sections should be removed from the SSMP.

   OC San will remove duplicate 5.3 and 5.3.1 sections from the SSMP. This task was completed on August 12, 2021.

6. Identify or provide additional training opportunities for District staff on key SSMP related topics:
   - Cleaning procedures, including vactor truck operations and use of CMMS
   - Lift station emergency response
   - SSMP program elements
   - SSO volume estimation

   OC San Collections division will perform a field response exercise for Collections field staff. This task will have a completion date of December 30, 2021.

7. Create and implement standard operating procedures for key processes (Based on interviews, this task is scheduled for completion at end of fiscal year):
   - Sewer line cleaning
   - Lift station maintenance
   - Force main maintenance/condition assessment
   - Vacuum/jetting truck maintenance

   OC San Collections division is currently performing an SOP development. This task will have a completed date of December 30, 2021.

8. Establish an official "Lessons Learned" procedure after projects to determine if the design guidelines need to be updated or modified to account for new technologies.

   OC San Engineering has found that Lessons Learned is a topic of every project Gate Meeting. Lessons Learned are not only conducted at the completion of each project, but at every major stage of the project (Gate 4 - PDR Completion, Gate 5 – Bid and Award, Gate 6 - Commissioning, Gate 7 – Beneficial Occupancy, Gate 8 - Final Completion), such that the need for reviewing Lesson Learned is already met. Gate meeting attendees largely include EDAC committee members as well as the staff who guide the projects and can submit spec tickets with suggestions for changes to the EDGs as well as master specifications. No further improvement is required.

9. Conduct emergency bypass training at selected "high risk" lift stations.

   OC San Collections will perform a field response exercise for Collections field staff. This task will be completed by December 30, 2021.

10. Conduct training for field staff with a focus on sampling and lab support for the event of an SSO exceeding 50,000 gallons. According to Lab Staff, an SOP exists for the sampling protocol, and sample bottles and equipment can be provided to collections staff.

OC San Collections and Laboratory will coordinate training efforts for Collections field staff and Lab staff. OC San Laboratory is providing a sampling protocol, including a sampling kit. In person training can be provided if desired. This task will be completed by December 30, 2021.

11. When possible, re-inspect each FSE to determine if any changes have occurred and to re-educate them on the FOG Control Program Requirements.

    FSEs are currently scheduled to be inspected during the month of October 2021. This task will be completed by October 2021.

12. Incorporate self-monitoring reports such as training and pumping records for FSEs to monitor compliance when inspections can't be conducted.

    Issuing and tracking biannual self-monitoring reports resumed as previously scheduled. The reports for the monitoring period from January-June 2021 were sent to all FSEs on February 24, 2021 and are required to be returned by July 15, 2021. This task was completed on February 24, 2021.

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APPENDIX B
LIST OF SSMP DOCUMENTS AND DATA REVIEWED

SSMP AUDIT PROGRAM DOCUMENTS REVIEWED

- OC San Website
- CIWQS SSO Reports and History
- SSMP Final WDR Audit Report 20210413
- SSMP Updated Final 09-23-22
- OC San SSMP Organization
- OC San Ordinance No. OCSD-25
- OC San Ordinance No. OCSD-53
- OC San Ordinance No. OCSD-05-04
- FOG Source Control Program Enforcement Management System
- FOG Control Program – Basis for Program Development, Program Components, and Policies
- FOG Agreement
- OC FOG Program Survey & Contract List
- 2021 Asset Management Plan
- Preventative Maintenance Program
- Updated Trouble Spot List
- 820 Training Report
- Collections Work Orders
- Collections Vehicle & Equipment Master List Sep 2021
- Rehabilitation and Replacement Plan
- Facility Model Maintenance Management Plan 2022
- Volume III Sewer Atlas Maintenance
- Field Discrepancy Form & Data Collection Sheet
- System Evaluation and Capacity Assurance Plan
- SSO Response Flow Chart
- SSO Emergency Response Plan
- SSO Notification Procedures
- SSO Response SOP
- Sewer Spill Estimation Guide and Simulation Training
- Risk Management Program
- CIP Budget Process Information
- SOP Procedure for Environmental Audit Program

APPENDIX C
SUMMARY OF FINDINGS

Summary of Corrective Actions

Orange County Sanitation District Sewer System Management Plan 2024 Audit

Report Section	Section Title	Waste Discharge Requirement	SSMP Section	Minor Nonconformance	Follow-Up Action	Target Date for Correction	Date Corrected
3.1	Goal	Create goals specific to system operations and SSO reduction.	I	N/A	N/A	N/A	N/A
3.2	Organization	Identify LROs, management personnel, and chain of communication for reporting SSOs.	II	N/A	N/A	N/A	N/A
3.3	Legal Authority	Legal Authority to prevent illicit discharges to the sewer system. Sewer connections are properly designed and constructed. Ensure access to laterals/mains. Limit the discharge of FOG. Enforce violations of its sewer ordinances.	III	N/A	N/A	N/A	N/A
3.4	Operation and Maintenance Program	Maintain an up-to-date map, develop a preventative maintenance plan, develop a rehabilitation and replacement plan. Provide education and training. Provide equipment and spare parts inventory.	IV	N/A	N/A	N/A	N/A
3.5	Design and Performance Provisions	Create standards for installation, rehabilitation and repair; and for the inspection and testing of new and rehabilitated facilities.	V	N/A	N/A	N/A	N/A
3.6	Overflow Emergency Response Plan	Provide SSO notification procedures, appropriate response to all overflows, regulatory notification procedures, training procedures, emergency response operations, program to contain and prevent sewage discharge to surface waters.	VI	Minor Nonconformance	Update all documents to replace SSO with spill. The updated section of the SSMP should be the Spill Emergency Response Plan.	July, 2024	N/A
				Minor Nonconformance	Complete the site-specific emergency response plans for all sewer lift stations.	December, 2024	N/A
3.7	FOG Control Program	Enrollees must implement a FOG source control program in order to reduce the accumulation of FOG in the sewer system and FOG related SSOs.	VII	N/A	N/A	N/A	N/A
3.8	System Evaluation and Capacity Assurance Plan	Create a system evaluation and capacity assurance plan which includes; evaluation, design criteria, capacity enhancement measures, and CIP schedule	VIII	N/A	N/A	N/A	N/A
3.9	Monitoring, Measurement, and Program Modifications	Maintain relevant information to prioritize SSMP activities. Monitor the implementation and effectiveness of the SSMP. Assess the success of the preventative maintenance program. Update program elements as necessary. Identify and illustrate SSO trends.	IX	N/A	N/A	N/A	N/A
3.10	SSMP Program Audit	Conduct periodic audits at a minimum of once every two years.	X	N/A	N/A	N/A	N/A
3.11	Communication Program	Enrollees shall communicate with the public on the development, implementation, and performance of the SSMP.	XI	N/A	N/A	N/A	N/A

Summary of Recommended Enhancements

Orange County Sanitation District Sewer System Management Plan 2024 Audit

Report Section	Section Title	Recommended Enhancements
3.1	Goal	Consider referencing established performance metrics as part of the Goals section of the SSMP.
3.2	Organization	None.
3.3	Legal Authority	None.
3.4	Operation and Maintenance Program	Identify or provide additional training opportunities for District staff on key topics
		Include use of Cornerstone to track training in Section 5.4 Training Program of the SSMP
3.5	Design and Performance Provisions	None.
3.6	Overflow Emergency Response Plan	Conduct emergency bypass trainign at selected "high risk" lift stations
		Standardize terminology amongst all documents (i.e., Spill and trouble spot).
		Conduct spill simulation and volume estimation training on an annual basis.
		Ensure Spill Emergency Response Plans are consistent amongst all member agencies. (The requirements for notification and reporting are consistent with OC San)
3.7	FOG Control Program	Review and update FOG Ordinance to represent current terminology and requirements (i.e., hydromechanical grease interceptors).
		Review and update educational materials as needed related to FOG.
		Finalize revisions to Appendix F.
3.8	System Evaluation and Capacity Assurance Plan	None.
3.9	Monitoring, Measurement, and Program Modifications	None.
3.10	SSMP Program Audits	None.
3.11	Communication Program	None.