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# 2021 Audit Report

## Regional San Sewer System Management Plan

Developed in compliance with Waste Discharge Requirement Water Quality Order No. 2006-003

**Approved By:**

**Glenn Bielefelt**  
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**September 7, 2021**

## 1. Purpose

The purpose of this document is to report the results of the Sewer System Management Plan (SSMP) Audit conducted for Sacramento Regional County Sanitation District’s (Regional San) interceptor system covering Calendar Years (CY) 2019 and 2020. This report was prepared and is being submitted pursuant to the requirements included in the State Water Resources Control Board (SWRCB) Order No. 2006-0003 – Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR). The audit requirements are stated as follows:

“As part of the Sewer System Management Plan (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 objective of this audit is to evaluate the effectiveness of the SSMP’s programs, identify potential weaknesses, and determine improvement opportunities for use in future SSMP modifications.

## 2. Interceptor System Description

Since 1974, Regional San has worked with other local agencies to collect, convey (via an Interceptor System), and treat wastewater (via the Sacramento Regional Wastewater Treatment Plant - SRWTP) for the urbanized parts of Sacramento County, an area covering more than 250 square miles. Today, Regional San owns two main facilities: the Interceptor System and the SRWTP. The Interceptor System conveys wastewater collected by four contributing agencies directly to the SRWTP in Elk Grove: 1) the City of Folsom, 2) the City of Sacramento, 3) the City of West Sacramento, and 4) the Sacramento Area Sewer District (SASD, formerly known as CSD-1).

Regional San owns 165<sup>1</sup> total miles of pipeline. This pipeline is broken up into approximately 111 miles of gravity interceptors with diameters generally ranging from 36 inches to 144 inches and 54 miles of force mains with diameters generally ranging from 16 inches to 66 inches<sup>2</sup>. Included in the interceptor system are eight pump stations, inverted siphons, flow meters, valve vaults, and fall and gate structures. Regional San also owns and incurs the cost of maintaining 3 pumping stations that are operated by the City of Sacramento. The table below provides a breakdown of the interceptor pipelines by decade of construction.

**Table 2-1: Interceptor System Miles**

Age	Gravity Mainlines & Force Mains (%)
2000 – Present	54
1980 – 1999	39
1960 – 1979	7
Unknown Age	0
Total	100

<sup>1</sup> Regional San owns 169 total miles of pipeline; however the City of Sacramento maintains approximately 5 miles of it and reports these miles as part of the miles they maintain in their CIWQS Questionnaire.

<sup>2</sup> For the purposes of delineating Regional San’s Interceptor System from contributing agencies, Regional San’s system is generally defined as pipes 36 inches and larger. There are some exceptions as Regional San owns and maintains some pipes that are smaller than 36 inches.

### 3. Audit Approach

This audit, covering from January 1, 2019 through December 31, 2020, is the sixth SSMP Audit performed to meet WDR requirements for completion of an audit a minimum of once every two years. Using sanitary sewer overflows (SSO) as the primary metric, the focus of this audit is to evaluate the effectiveness of the SSMP, identify any deficiencies, and suggest opportunities for improvement for modifying the current SSMP program. Regional San experienced five SSOs during the 2019-2020 period. Therefore, evaluation of each SSMP element herein will consider those incidents, if applicable.

Additionally, in February 2019, Regional San and SASD mutually agreed to transfer the maintenance and operation of Regional San interceptors to SASD for operational efficiency and effectiveness. In addition to maintenance and operations, the integration to SASD includes contracting services for SSO response and notification, and asset management planning. The integration is anticipated to take several years, with the first period of the transition occurring between July 2020 and June 2021. This audit will evaluate how the transition has affected the implementation of each SSMP element, if applicable. Regional San will update the SSMP as a result of the transition and incorporate the findings of this audit.

Regional San intends to use this audit to improve performance, eliminate SSOs, and ensure proper operation and maintenance of its interceptor system.

Regional San staff conducted the audit by reviewing and incorporating the improvements made due to the Regional San/SASD interceptor integration, as well as conducting a series of interviews with staff involved with implementation of activities required by Provision D.13 of the WDR. The Audit Team and Regional San staff supporting the audit interviews and audit process are identified in **Table 3-1** and **Table 3-2** organized in alphabetical order by last name.

**Table 3-1: Audit Team Members**

Team Member	Department	Role
Jared Wagoner	Operations Support	Lead Auditor, Associate Civil Engineer
Anna Johnson	Operations Support	Audit Reviewer, Senior Civil Engineer
Jennifer Tigie	Operations Support	Audit Reviewer, Principal Civil Engineer

**Table 3-2: WDR Audit Interviewees**

Name	Title
Gabe Apgar	Associate Civil Engineer
Carolyn Balazs	Environmental Specialist
Kyle Frazier	Senior Civil Engineer
Donald Keene	Sanitation District Planner/Scheduler Manager
Anna Johnson	Senior Civil Engineer
My Huynh	Senior Civil Engineer
Jack Naves	Geographic Systems Analyst
Xuyen Phung	Associate Civil Engineer

SSMP audit interviews were performed over multiple weeks in June through July 2021. The WDR provision audited and Regional San staff interviewed is documented in **Table 3-3**:

**Table 3-3: Audit Participants**

<b>WDR Provision Section</b>	<b>Topics</b>	<b>Participants</b>
D.13 (i)	SSMP Goal	Anna Johnson
D.13 (ii)	SSMP Organization	Anna Johnson
D.13 (iii)	Legal Authority	Carolyn Balazs
D.13 (iv)	O&M Program Mapping Maximo PM Activities Rehab & Replacement Inspection/Condition Assessment Training Spare Parts & Inventory CIP	Jack Naves Don Keene Don Keene Don Keene, Kyle Frazier Kyle Frazier Gabe Apgar, My Huynh Don Keene, Gabe Apgar Kyle Frazier, Gabe Apgar
D.13 (v)	Design and Performance Provisions	Kyle Frazier
D.13 (vi)	Overflow Emergency Response Plan	Anna Johnson
D.13 (vii)	FOG Control Program	Anna Johnson
D.13 (viii)	System Evaluation and Capacity Assurance Plan	Kyle Frazier Xuyen Phung
D.13 (ix)	Monitoring, Measurement, and Program Modifications	Anna Johnson
D.13 (x)	SSMP Program Audits	None Interviewed
D.13 (xi)	Communication Program	Anna Johnson

## 4. SSMP Effectiveness

Based on analysis of the SSO trends over the past two (2) years and the results of the SSMP audit, the interceptor system program implementation has generally kept SSOs to a minimum. In the last 2 years, from January 2019 through December 2020, the Regional San interceptor system has had five reportable SSOs in the California Integrated Water Quality System (CIWQS)—three Category 1 SSOs and two Category 3 SSOs, as detailed in **Table 4-1**<sup>3</sup>. A breakdown of the SSO causes can be seen in **Table 4-2**.

**Table 4-1: CIWQS Summary of Regional San SSOs January 2019-December 2020**

<b>No.</b>	<b>DATE</b>	<b>SSO CATEGORY</b>	<b>SSO DESCRIPTION</b>	<b>SSO VOLUME (GAL.)</b>	<b>VOLUME RECOVERED (GAL.)</b>	<b>VOLUME REACHED SURFACE WATER (GAL.)</b>
1	10/30/2019	3	N50 (South River Pump Station Force Main Manhole N50-MH0020A). SSO occurred out of manhole that contains air relief valve. SSO caused by air	5	5	0

<sup>3</sup> The WDR requires that SSO records be kept for the previous 5 years as a minimum.

No.	DATE	SSO CATEGORY	SSO DESCRIPTION	SSO VOLUME (GAL.)	VOLUME RECOVERED (GAL.)	VOLUME REACHED SURFACE WATER (GAL.)
			relief valve failure, discharged to unpaved surface.			
2	11/13/2019	3	N53 (Van Maren Pumping Station Force Main Air Release Valve Vault N53-CAV0007A). SSO occurred from a failed air relief valve during routine maintenance due to operator error and discharged to paved surface.	30	30	0
3	5/7/2020	1	S33 (Cordova Force Main). SSO caused by damage by others not related to collection system construction or maintenance. SSO discharged to nearby pavement, separate storm drain, and drainage channel.	850	0	50
4	7/24/2020	1	S33 (Cordova Force Main). SSO caused by damage by others not related to collection system construction or maintenance. SSO discharged to separate storm drain and surface water.	604	126	499
5	10/6/2020	1	N19 (Arden Pumping Station). SSO caused by contractor's portable vacuum excavation equipment failure after wet well sewage removal. SSO discharged to nearby paved surface, unpaved surface, and surface water.	400	398	368

**Table 4-2: Regional San SSOs Causes January 2019-December 2020**

SSO CAUSE	SSO COUNT	TOTAL VOLUME
Asset Failure	1	5
Operator Error	1	30
Damage by Others Not Related to Collection System Construction/Maintenance	2	1,454
Other (Contractor Asset Failure)	1	400

In comparison with other systems of similar size, Fairfield Suisun Sanitation District (FSSD) and Orange County Sanitation District (OCSD), the Regional San interceptor system has performed comparably well. **Table 4-3** provides a comparison of SSO count, total SSO volume, and Category 1 SSO count with FSSD and OCSD. Compared to its counterparts, Regional San has a comparable amount of SSOs over the last two years and ranks in the middle with respect to both total number of SSOs and total volume of wastewater spilled during that time.

**Table 4-3: SSOs by Agency January 2019-December 2020**

<b>AGENCY</b>	<b>SSO COUNT</b>	<b>TOTAL SSO VOLUME</b>	<b>CATEGORY 1 SSO COUNT</b>
Regional San	5	1,889	3
FSSD	15	48	0
OCSD	1	4,274	1

## 5. Review of Effectiveness of SSMP Elements

The following sections focus on evaluating the effectiveness of each element of the SSMP.

### 5.1. Introduction

**WDR Requirement:** *The WDR does not require this section to be part of the SSMP.*

**Audit Finding:** The introduction gives an accurate description of the interceptor system, including details about its historical background, contributing agencies, asset age, as well as background on the WDR and SSMP. Due to the integration of the Regional San interceptor O&M with SASD in July 2020, in the next SSMP update, Regional San may consider revising the language in this section to reflect the current operational configuration.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with Reviewer response.

### 5.2. Element 1 - Goal

**WDR Requirement:** *The goal of the Sewer System Management Plan (SSMP) is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.*

**Audit Finding:** Regional San has the goals accurately stated in the SSMP and therefore meets this WDR requirement.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.

### 5.3. Element 2 - Organization

**WDR Requirement:** The Sewer System Management Plan (SSMP) must identify:

- a. *The name of the responsible or authorized representative as described in Section J of this Order.*
- b. *The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and*
- c. *The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).*

**Audit Finding:**

The SSMP identifies all authorized representatives and responsible parties as listed in Table B-1: Parties Responsible for SSMP Implementation, and Figure B-1: Regional San Responsible Parties for Implementation of the SSMP – Org Chart, located in Appendix B of the SSMP. This meets the requirements listed in Section J of the WDR Order No. 2006-2003.

The names of management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program, and the telephone number for SRWTP are listed in Appendix B of the SSMP. The SSMP clearly identifies lines of authority through the Org Chart represented in Figure B-1. A more detailed explanation of individual responsibilities within the major SSMP components is also provided in Table B-1.

In July 2020, the SSMP was amended to reflect changes associated with the integration of Regional San's Interceptor System with SASD. This amendment documented changes to the lines of authority for individuals who manage the Interceptor System and are responsible for the various SSMP sections. These changes are shown in SSMP Figures B-1 and B-2, as well as Table B-1.

The 2019 audit identified that individual phone numbers were not listed in Appendix B, as it was Regional San's intent not to include individual phone numbers. However, in the next SSMP update, both SASD and Regional San's reception phone numbers will be included.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.

### 5.4. Element 3 – Legal Authority

**WDR Requirement:** *Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:*

- a. *Prevent illicit discharges into its sanitary sewer system (examples may include I/I, stormwater, chemical dumping, unauthorized debris and cut roots, etc.);*
- b. *Require that sewers and connections be properly designed and constructed;*
- c. *Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;*
- d. *Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and*
- e. *Enforce any violation of its sewer ordinances.*

**Audit Finding:** Regional San possesses sufficient legal authority to control sewer use and illicit discharges via the Regional San Consolidated Ordinance, which sets forth requirements for the use of Regional San’s collection system, provides for the enforcement of those requirements, establishes penalties for violations, and establishes the rates and fees for users of the system. The consolidated Ordinance identifies prohibited substances and characteristics and prohibited discharge locations. The Wastewater Source Control Section (WSCS) enforces the Regional San Consolidated Ordinance using the WSCS Enforcement Response Plan as the guiding document for enforcement actions.

In 2020, Regional San updated the Sewer Use portion of the Consolidated Ordinance with language that gives Regional San the authority to:

- Require and receive electronic reporting
- Regulate dental dischargers
- Allow and regulate liquid waste haulers outside of Regional San’s service area to discharge to the collection system

These updates to the Consolidated Ordinance were adopted on December 9, 2020 and became effective January 8, 2021.

Regional San interceptors and connections are designed and constructed in accordance with appropriate standards and specifications, which is further discussed in Element 5 – Design and Performance Provisions.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.

## 5.5. Element 4 – Operation and Maintenance Program

**WDR Requirement:** *The Sewer System Management Plan (SSMP) must include those elements listed below that are appropriate and applicable to the Enrollee’s system:*

- a. *Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities;*
- b. *Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system*



- with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;*
- c. Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan;*
  - d. Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and*
  - e. Provide equipment and replacement part inventories, including identification of critical replacement parts.*

**Audit Finding:** The following sections describe the audit findings as they pertain to the specific components of the operation and maintenance program.

### System Mapping

Regional San maintains an up-to-date Geographic Information System (GIS) that shows locations and attributes of gravity lines, pressure pipes, pumping facilities, valves, flow monitors, service area boundaries, and stormwater conveyance facilities. Asset information included in GIS provides links to scanned record drawings, which are maintained by the Regional San Documentation section through an Electronic Document Management (EDM) system. Operator training manual drawings of the interceptor system are also included in PowerPoint presentations for all Regional San interceptor pipelines, pump stations, and major structures. Within these drawings, low elevation manhole locations are identified so that O&M staff know where to monitor and prevent potential SSOs. Regional San's Documentation Section uses GIS policies that specify the process for adding new entries and making updates or revisions. These updates or revisions are reported to the Documentation Section using an automated Document Change Notification (DCN) process available on the Regional San Intranet and Maximo, a computerized maintenance management system (CMMS).

As part of the interceptor transition to SASD, beginning in early 2019, Regional San and SASD began planning and preparing a phased approach to migrate portions of GIS, Maximo, and all maps and documents related to the collection system from Regional San's mapping and document management systems into SASD's respective systems. During the transition period, all maps, GIS, Maximo, and documents related to the collection system were available to Regional San personnel. Regional San will continue to have access, but SASD is now responsible for maintaining these systems and documents. The first phase of the data migration was successfully completed in July 2020. Additionally, in October 2019 SASD began providing USA (Underground Service Alert) locating services for Regional San's subsurface installations including sewers, non-sewer pipes, abandoned pipes, cathodic protection, and electrical systems. SASD will continue to provide USA services for Regional San until further notice.

SSO No. 3 listed in **Table 4-1** occurred when a contractor for the City of Rancho Cordova was saw-cutting into the sidewalk and punctured the top of Regional San's force main, causing the SSO. Regional San conducted an incident investigation to determine corrective actions. As a result of the incident investigation, it was noted that this section of pipe is located at a particularly shallow depth below grade

surface. Regional San updated GIS so that the section of pipe is its own Location ID, which includes a note about its depth. Additionally, SASD added a flag to the USA system so that when USA is requested, a field meet and record drawings will be required to make contractors aware of the depth of the force main at this location to prevent future SSOs.

SSO No. 4 listed in **Table 4-1** occurred when a contractor for the City of Rancho Cordova was removing a storm drain inlet box and punctured Regional San's force main. This incident occurred a few hundred feet downstream of SSO No. 3 described above. During the incident investigation that followed, Regional San reviewed the corrective actions of SSO No. 3 and confirmed that a field meet was conducted and the contractor was aware of the depth of the force main at this location. However, due to contractor oversight, they inadvertently punctured the pipe during the removal of the inlet box. Regional San did not identify further corrective actions related to system mapping as a result of this incident. Overall, Regional San adequately meets the WDR requirement for system mapping.

#### Reviewer Response

No Exceptions to the audit findings.

#### Management Response

Agree with reviewer response.

### **Preventative Maintenance**

Regional San interceptor pipelines require minimal cleaning as a result of the design standards for self-cleaning velocities. This is supported by the low number of SSOs related to cleaning activities. Regional San performs routine flushing during the dry season for force mains that are known to experience solids accumulation based on institutional knowledge, incident investigations, and data review. Regional San also utilizes contractors for cleaning activities on an as-needed basis.

Regional San uses Maximo to schedule, generate, and track preventative, predictive, and corrective maintenance work orders. Regional San routinely reviews maintenance records for quality control and uses these records along with incident investigations, institutional knowledge, flow monitoring, and wet weather event monitoring in order to set the frequency of PM work. The majority of maintenance is preventative, which is scheduled on a recurring basis.

SSO No. 1 in **Table 4-1** occurred from a failed air relief valve (ARV) during an annually scheduled PM activity. An incident investigation revealed that the ARV was on an inactive line that runs parallel to an adjacent, active line, the two of which comprise the South River Force Main. In November 2015, Regional San decided to keep only one line active as part of a Business Decision Rationale. During the incident investigation, staff identified two open valves between the Nitrifying Sidestream Treatment (NST) Side Stream Effluent (SSE) pipeline and the South River Force Main at tie-ins located within two separate manholes. The SSE valves for both tie-ins were open during NST startup, but the valves feeding the inactive force main were never closed, resulting in inflow to the inactive line and thus leading to the SSO. As a corrective action, the valves at the tie-ins were closed and the incident was reviewed with responsible O&M personnel. Staff determined that an adjustment to PM frequency was not a necessary corrective action for this incident.

In 2019, Regional San and SASD began initiating the transition of Maximo, including asset and location data for the interceptor system and its associated facilities, from Regional San to SASD. The goal was to

mirror the Regional San CMMS data within the SASD CMMS system, providing continuity of processes from the first day the SASD Interceptor M&O Group reports to SASD, which was successfully completed in July 2020. After the transition, review of the PM program in Maximo identified some instances where PMs on interceptor appurtenances were not being completed in a timely manner. SASD began undertaking an evaluation of PM schedules and associated job plans to identify where it may be necessary to adjust PM frequencies and either modify or remove existing job plans, or create new ones. This evaluation is estimated to last approximately through the middle of 2022.

In an amendment to the SSMP dated October 5, 2020, Regional San described changes to SSMP Element 4 to reflect the interceptor transition to SASD. SASD will be responsible for maintenance and operation of all of Regional San's Interceptor System and associated pump stations, with the exception of those facilities operated and maintained by the City of Sacramento under a separate wastewater operating agreement, and the recycled water systems.

Regional San's interceptor integration to SASD and resulting implementation of preventative maintenance through Maximo adequately meets the requirement of the WDR to document scheduled and conducted maintenance activities.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.

**Rehab and Replacement Plan**

Regional San's rehabilitation and replacement (R&R) strategy includes components to identify and prioritize system deficiencies and implement both short-term and long-term rehabilitation actions to address each deficiency. The short-term component relies on the prioritization of day-to day O&M activities to preserve the functional requirements the interceptor system. The SMP Manual Section 4 and ACE table establish the criteria for prioritizing work orders.

The long-term R&R component consists of condition assessments, risk evaluations, and Business Case Evaluations (BCE) to prioritize rehabilitation work. The need for inspection and R&R is determined based on field staff knowledge, field investigation, and review of corrective and emergency maintenance records. Regional San utilizes a Capital Funding Projection (CFP) to determine 50-year funding needs. The CFP is used to help prioritize projects, which are developed through a Project Development Plan (PDP). The PDP includes considerations for cost, performance, and risk, and provides recommendations for cost effective alternatives to implement the project.

Regional San has also developed the Condition Assessment, Repair, and Rehabilitation Report, which is used to assess the condition and remaining useful life of Regional San's assets and rehab, repair, and replace when appropriate. The report's most recent update identified potential areas for investigation in the Central Interceptor system, which was chosen from a screening based on asset age and propensity for corrosion. In 2020, Regional San initiated a project to perform additional supplemental inspections and physical testing on this system, which included sixty-five man-entry assessments across the entire interceptor system, including twenty-eight on the Central Interceptor, nineteen of which were on the Lower Central Interceptor. Regional San hired a consultant to perform a post-inspection condition

assessment of the Lower Central interceptor based on the results of the field condition assessment investigations, which resulted in a recommendation for a large diameter pipeline rehabilitation lining system. Additionally, Regional San hired a consultant to perform approximately 17,500 ft of CCTV inspection on the City and Central Interceptors with the intention to “fill in the data gaps” of the 2016 CCTV inspection of the Lower Central Interceptor. Currently, regular CCTV inspections are not performed. In the future, Regional San may consider performing additional CCTV inspections to address potential areas of concern within the Interceptor system as they are identified.

As part of the interceptor transition to SASD, the SASD Engineering Design and Operations Support group plans to develop a condition assessment plan considering the current condition assessments that Regional San is completing.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.

**Training**

Regional San provides both formal and informal on-the-job training on a regular basis for staff and contractors, as well as vendor training on an as-needed basis. O&M staff are trained to monitor, maintain, and operate the Regional San interceptor system during normal and large-scale flow events to manage flows and avoid SSOs. O&M staff conduct bi-weekly tailgate meetings that cover various safety and training topics. The majority of craft or skill-related training occurs when new employees work closely with more experienced staff to familiarize themselves with Regional San mechanical, electrical, and control systems during a 6-month probationary period. SSMP and SSO response training is held annually for all Interceptor O&M, PCC supervisors, Regulatory Compliance, SRWTP O&M and support staff that have the potential to perform duties on interceptor system facilities, the Public Affairs Office, and all Regional San Legally Responsible Officials. All training events are documented and tracked by an online Learning Management Systems (LMS).

Upon transitioning to SASD, O&M staff that work on the Regional San interceptor system have integrated into SASD’s Competency-Based Training (CBT) Program model, which consists of over 100 topics that are each comprised of multiple learning modules. Each learning module is designed to provide training using a variety of instructional formats, including Classroom, Field/On-The-Job, and e-learning. The CBT program places the operational requirements of system maintenance and field operations as top priority, with particular emphasis on integrating “Occupational Safety Standards” within each CBT training module. SASD also conducts SSO Emergency Response Procedures Manual (SSOERPM) training whenever new updates occur to the SSOERPM as well as refresher training on existing sections. Moving forward, all O&M and contractor training as it relates to the Regional San interceptor system will be conducted through SASD.

Contractors that perform work on the collection system are informed of SSO potential, prevention, and response during Regional San’s Access Request (AR) process. The AR process ensures that contractors are informed of unanticipated hazards, have reviewed all safety-related exposures, schedule special shutdowns to allow Regional San staff to perform correct lockout/tagout activities, and that they are appropriately certified prior to starting the job. Through this process, contractors must receive approval

from Regional San Operations, Engineering, and Safety Office prior to accessing and performing work on Regional San assets.

SSO No. 2 in **Table 4-1** occurred due to operator error while Regional San O&M staff were replacing a failed ARV during routine maintenance. Staff believed that the force main was purged of air and drained. As they proceeded to remove the ARV, wastewater discharged from the line and into the valve vault. Staff quickly worked to open a valve upstream and drain the line as the vault filled with wastewater. Approximately 30 gallons had spilled out of the vault and onto the surrounding paved surface when staff stopped the discharge from the line. A post-incident investigation revealed that while the SSO was caused by operator error, regular training of O&M staff helped mitigate the SSO in a timely manner, preventing a greater volume of sewage from being discharged.

SSO No. 5 in **Table 4-1** occurred after a contractor had finished vacuuming sewage and debris from a pump station wet well. The portable vacuum excavation equipment's gate valve failed, causing an overflow onto the nearby paved surface and grass before entering a nearby drainage channel. As part of Regional San's Access Request process, the contractor set up drainage diversion to mitigate potential overflows. The setup included containing the drainage water by closing the downstream gate of the drainage channel, which prevents contents of the drainage channel from going into the river. Additionally, the contractor set up pumps that run continuously to remove flows from the channel and discharge into a sewer manhole at the pump station. SSO responders tested the drainage channel and found no presence of sewage. Regular training of O&M and contractor staff helped mitigate this SSO in a timely fashion, allowing staff to recover all overflow that did not soak into the ground and return it to the sewer system.

#### Reviewer Response

No Exceptions to the audit findings.

#### Management Response

Agree with reviewer response.

### **Equipment and Replacement Parts**

All equipment and replacement part inventory are managed through the Maximo CMMS. Each asset has a unique identification number and asset criticality to reflect its function per Section 4 of Regional San's SMP Manual and the Availability of Critical Equipment (ACE) Table. The most important assets listed in the ACE table have a higher stocking priority and inventory. Prior to the integration of the interceptors from Regional San to SASD, the Regional San store completed the majority of replacement and spare parts purchasing as well as discrete item tracking. As critical items are used and the inventory is reduced to a predefined level, an automatic reorder of parts is triggered and parts are ordered.

As part of the integration of the interceptors with SASD in July 2020, all Regional San interceptor spare parts were transferred to SASD warehouses to be inventoried and entered into Maximo for spare part tracking. Assets are tracked and ordered through the COMPASS Purchasing System and maintained in SASDs warehouses. The staff responsible for the warehouse track inventories, use rates, and reordering needs through the COMPASS system, which uses minimum quantities and reorder points based on a history of use and expected delivery times, ensuring that critical items are available when required. SASD will periodically evaluate spare part inventories and adjust quantities as needed.

Overall, Regional San adequately meets the WDR requirements for System Mapping, Preventative Maintenance, Rehab and Replacement Plan, Training, and Equipment and Replacement Parts. In the next SSMP update, Regional San may consider updating Element 4 to reflect the changes associated with the integration of the interceptor system into SASD.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.

## 5.6. Element 5 – Design and Performance Provisions

**WDR Requirement:**

- a. *Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and*
- b. *Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.*

**Audit Finding:** Regional San has design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing systems as described in multiple documents:

- Interceptor Design manual (IDM),
- Interceptor Standard Specifications,
- County of Sacramento Standard Construction Specifications (CSSCS),
- SRCSD Pump Station Design Manual (PSDM), and
- Sacramento Area Sewer District Standards and Specifications

These guidelines and standards are used to develop project specifications for each project, which become part of the contract documents and are unique to each project. Due to the large diameter pipelines that make up the Regional San interceptor system, standards for rehabilitation and repair projects are developed on an as-needed, case-by-case basis if there are not existing standards within the abovementioned documents.

The IDM provides guidance for all interceptor design, including gravity pipes, force-mains, manholes, metering facilities, valves, gate structures, etc. The document is used as a guideline for both Regional San staff and consultants who perform design services for the interceptor system. The IDM is used in conjunction with the SASD Standards and Specifications to provide minimum standards for both contractors and the District during the planning, design, construction, and rehabilitation of the collection system. The PSDM is similar to the IDM, except it is used specifically for the design and construction of pump stations rather than interceptor facilities.

The Interceptor Standard Specifications contain specifications for the preparation of thorough and complete construction documents for interceptor projects. Historically, the Interceptor Standard Specifications were updated every five years. They are currently in draft form and will need to be updated again prior to any new interceptor construction projects scheduled to occur within the 10-year CFP planning horizon.

Regional San adopted the CSSCS as general standards used during project construction. The CSSCS provides general directions, provisions, and other requirements for materials testing and testing documentation, which are incorporated into all Regional San projects by reference. The Construction Management and Inspection Department (CMID) update the CSSCS every two to three years, as warranted. CMID compiles changes and updates specific technical standards within the CSSCS based on input and outreach to other Sacramento County Agencies.

The SASD Standards and Specifications provide minimum requirements for planning, design, and construction of sewer facilities ultimately owned and operated by SASD. The intent of the design and construction standards and specifications is to ensure that SASD's sewer facilities are engineered appropriately to protect the public and the environment. The SASD Standards and Specifications are reviewed and updated each spring, and were last updated in June 2020.

As part of the interceptor integration to SASD, future interceptor design and rehabilitation projects are being transferred to the SASD Engineering Design Group. In the next SSMP update, Regional San will reflect the current configuration with SASD.

#### Reviewer Response

No Exceptions to the audit findings.

#### Management Response

Agree with reviewer response.

## 5.7. Element 6 – Overflow Emergency Response Plan

**WDR Requirement:** *Each Enrollee shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:*

- a. *Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;*
- b. *A program to ensure an appropriate response to all overflows;*
- c. *Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, Regional Water Boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the MRP. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The Sewer System Management Plan (SSMP) should identify the officials who will receive immediate notification;*
- d. *Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;*

- e. *Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and*
- f. *A program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.*

**Audit Finding:** Regional San maintains an SSO Response Plan (SSORP) that defines proper notification procedures when the District experiences an interceptor overflow so that primary responders and regulatory agencies are informed in a timely manner. The SSORP is reviewed during annual pre-storm season SSO response refresher training for PCC supervisors, O&M, Regulatory Compliance, and other staff as needed. The SSORP contains protocols to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities as defined in the WDR. The SSORP and SSMP identify officials who will receive immediate notification in the event of an SSO, as well as a flow chart and contact list that dictate who may need to be notified depending on the category of SSO. The SSORP contains appropriate procedures to address emergency operations, such as traffic and crowd control and other necessary activities, as well as contact information if additional resources are required.

As of July 6, 2020, Regional San transferred SSO response and notification duties to SASD Operations. SASD is now responsible for the majority of SSO response duties within the Regional San interceptor system, including initial spill response, internal and external agency notification, clean-up, and SSO response training. As part of this transition, Regional San Operations Support staff received SSO Emergency Response Training from SASD in order to familiarize staff with SASD SSO response practices. In an amendment to the SSORP dated October 5, 2020, Regional San documented changes to SSO response practices and procedures for construction site SSOs, internal and external notification, and submittal and certification of SSO reports, but the Regional San SSORP will require a significant update to reflect the current configuration with SASD. SASD is responsible for entering SSO information into CIWQS, with select SASD staff having been approved for addition as Regional San Data Submitters. Regional San LROs (The Sanitation District Engineer, Director of Regional San Operations, O&M Manager 2, Operations Support Section Manager, and Operations Support Regulatory Compliance Senior Civil Engineer) will continue to certify reports in CIWQS.

Regional San is currently updating the SSORP to reflect these changes and will continue to update the document as additional modifications are identified and response coordination is streamlined. In all other aspects, the Regional San SSORP shall remain in effect.

For the portion of audit period leading up to the interceptor transition to SASD in July 2020, Regional San maintained an SSO Response Plan Quick Reference (SSORPQR) document that contains response procedures, notification and reporting requirements, water quality monitoring procedures, roles and responsibilities, and important contact information. The SSORPQR is a reference used by staff during SSO response to ensure prompt SSO mitigation efforts and emergency operations when needed. The document will no longer be updated after the interceptor transition to SASD, but relevant portions of it may be incorporated into SASD's Sanitary Sewer Overflow Emergency Response Procedures Manual (SSOERPM), as needed.

Regional San has conducted annual wet weather preparation meetings to ensure that the interceptor facilities are prepared for rain events. As part of the transition and going forward, SASD will conduct this annual meeting and invite one or more representatives from Regional San. Each pump station has backup



generators available for use in the event of power failure. O&M staff conducts regular generator maintenance and testing on all of its pumping station backup generators.

Contractors that perform work on the interceptor system are trained in SSO awareness, prevention, and response as part of the Access Request (AR) submittal and approval process. The AR is used to approve, restrict, and/or condition all contractor work. In addition, Regional San provides all contractors with an informational document that details appropriate response procedures in the event of an SSO. SASD also provides contract language in its construction contract documents to ensure that contractors working on the collection system are aware of and follow SSO emergency response procedures. These procedures are also discussed and emphasized in preconstruction meetings with the project team and contractor.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.

## 5.8. Element 7 – FOG Control Program

**WDR Requirement:** *Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan shall include the following as appropriate:*

- a. *An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;*
- b. *A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;*
- c. *The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;*
- d. *Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;*
- e. *Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;*
- f. *An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section; and*
- g. *Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified in (f) above.*

**Audit Finding:**

Interviews with various parties responsible for implementation of Regional San’s SSMP suggest that a FOG program is not warranted at this time. Regional San has not experienced a stoppage or SSO caused by FOG in its 27 plus years of recorded maintenance history and 37 years of institutional knowledge for the

interceptor system. Regional San’s satellite agencies have FOG control programs that limit and regulate FOG discharges to their systems, which in turn protects the interceptor system.

Regional San’s interceptor system consists of gravity sewers primarily ranging from 36 to 144 inches in diameter, which are designed to make them self-cleaning by having minimum velocities and slopes to ensure that the majority of debris will be flushed through the collection system. Additionally, studies have shown that approximately 99 percent of the stoppages or SSOs caused by grease are found in 15-inch or smaller diameter sewers. Nevertheless, Regional San has the legal authority in its Consolidated Ordinance to limit the discharge of FOG, and require that pre-treatment devices be implemented for FOG when deemed necessary.

Regional San has also constructed a FOG receiving station at the SRWTP that accepts FOG waste from collection trucks and provides a site to properly dispose of FOG generated within Regional San’s service area. The FOG receiving station has been inoperable since April 2020 and will remain closed until the completion of Regional San’s Gas Management System Rehabilitation and Improvements project. However, Regional San meets the WDR requirement and provides adequate justification for why a FOG program is not necessary at this time.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.

## 5.9. Element 8 – System Evaluation and Capacity Assurance Plan

**WDR Requirement:** *The Enrollee shall prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. At a minimum, the plan must include:*

- a. *Evaluation: Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events;*
- b. *Design Criteria: Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria; and*
- c. *Capacity Enhancement Measures: The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.*
- d. *Schedule: The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and*

*updated consistent with the Sewer System Management Plan (SSMP) review and update requirements as described in Section D. 14.*

**Audit Finding:** The following sections describe the audit findings as they pertain to the specific components of the system evaluation and capacity assurance plan.

## **Evaluation**

Regional San owns and maintains several flow meters for flow assessment, studies, master planning, and project development plans. Regional San developed the 2013 Interceptor Sequencing Study (ISS) in part to anticipate capacity needs and interceptor pipe sizes. The ISS updated the Interceptor Master Plan 2000 (MP 2000) with a system capacity evaluation and growth projections and patterns in the Sacramento Area to reflect the region's economic downturn and water conservation efforts to better predict the current and future capacity needs of the system. Additionally, the ISS developed realistic and conservative flow scenarios to evaluate the performance and capacity of the interceptor system. Regional San has a dynamic interceptor model as described in the ISS. The interceptor model estimates peak flows that result from design storm event flows, estimates of the capacity of all system components, predicted hydraulic deficiencies, and major sources that contribute to the peak flows. The model is updated on a regular basis to reflect new development and any modifications to the interceptor system or systems of contributing agencies.

Updates to the interceptor model are used to assist the Project Development Plan (PDP) process, during which Regional San evaluates the need for implementation of ISS planned projects and the associated construction schedules. The PDP process is also driven by Regional San's long-term Capital Funding Projections (CFP)/50-year funding needs. Information from the long-term funding projections is used as an input to prioritize projects to be considered for further development through a structured PDP. The PDP process determines which capital improvement projects have sufficient justification for inclusion in the Regional San Capital Improvement Plan (CIP).

SSO's in the interceptor system are very infrequent, and currently there are no identifiable portions of the system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The hydraulic model did not predict any capacity-related SSOs in the existing interceptor system using an approximate 10-year frequency peak flow event.

## **Design Criteria**

Regional San uses a continuous simulation hydraulic model to develop estimates of long-term flow response in the interceptor system using an approximate 70-year historical rainfall record. The New Year's Storm is representative of an approximate 10-year peak flow event and is used to represent the design storm for the interceptor system. The design storm is used to evaluate the interceptor system performance and to design relief projects and new interceptors. The ISS flow models allow for design based on conservative density distributions for recent and existing developments, as well as growth estimates for planned development. Design flow criteria from the conservative hydraulic model are used to size future interceptors, though the design of new interceptor facilities relies on the MP 2000 higher flow factor for conservatism during design.

## **Capacity Enhancement Measures**

In 2019 and 2020 there were no identifiable portions of the interceptor system that experienced or contributed to SSOs caused by hydraulic deficiency. Recently, the N17 Dry Creek Interceptor has been

identified as potentially capacity deficient with model-predicted SSOs. The SASD Design group is evaluating a relief project for this system. Regional San relies on the ISS, Project Prioritization process, and PDP process to consider the needs of contributing agencies and interceptor system capacity and operational needs.

The MP 2000 Capital Improvement Program recommended 52 projects to convey wastewater flows from existing and planned development to the SRWTP, with the project schedule extending through the year 2035. The ISS evaluated the proposed interceptors in the MP 2000 to consider the optimum use of capacity in the existing interceptor system. The ISS produced a readily usable hydraulic sewer model to evaluate the performance of the proposed interceptor system in the MP 2000. The ISS also considered satellite wastewater treatment facilities to reduce the number and length of interceptors while increasing recycled water opportunities in the East County and South areas, but it did not recommend them. The ISS concluded that the conveyance-only option is the most cost-effective alternative that provides the most flexibility for development. Due to slowed development in the region at the time, the ISS identified nine MP 2000 projects to be planned for a later date and re-evaluated as development picks up in the region.

With the interceptor integration into SASD, Regional San and SASD will continue coordinating their capacity-planning efforts to provide sewer service to the existing and future SASD service areas. The SASD Business Planning Group will continue performing system capacity evaluations for the Regional San Interceptor Capacity Plan (previously referred to as the ISS). Results from Capacity Plan updates should be incorporated into the next SSMP update.

### **Schedule**

As mentioned above, Regional San has identified future projects that may be needed in the long term within the ISS. These projects were placed in the capital funding projections list to ensure that funding is available when the projects are required for capacity. Regional San maintains a 5-year CIP list that is reviewed annually to determine the need for additional projects, or projects recommended for further prioritization or project development plans. After the transition to SASD, Regional San will complete active capital improvement projects currently underway. In 2020, the SASD Engineering Design Group, under the Engineering Section, coordinated with Regional San to identify future projects and the anticipated schedule. Several projects, including Lower Central Interceptor Rehabilitation, were transferred to the SASD Engineering Design Group to be managed starting in FY 20-21. The SASD Design Group will manage any future projects. In the next SSMP update, this section should be revised to reflect the new practice.

#### Reviewer Response

No Exceptions to the audit findings.

#### Management Response

Agree with reviewer response.

## **5.10. Element 9 – Monitoring, Measurement, and Program Modifications**

**WDR Requirement:** *The Enrollee shall:*

- a. *Maintain relevant information that can be used to establish and prioritize appropriate Sewer System Management Plan (SSMP) activities;*
- b. *Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;*
- c. *Assess the success of the preventative maintenance program;*
- d. *Update program elements, as appropriate, based on monitoring or performance evaluations; and*
- e. *Identify and illustrate SSO trends, including: frequency, location, and volume.*

**Audit Finding:** The following sections describe the audit findings as they pertain to the specific components of the monitoring, measurement, and program modifications requirement.

### **Relevant Information**

Regional San maintains relevant information to analyze the implementation and success of each section of the SSMP. At a minimum, Regional San maintains the following information:

1. Preventative Maintenance / Corrective Maintenance / Emergency Maintenance Work History
2. Job Plans and Schedules
3. Assets and Spare Parts lists
4. SSO History and Details
5. Staff Training Records
6. Condition Assessment Data
7. Hydraulic Modeling Results/Capacity Assurance
8. Flow Monitoring Data

Maximo is used to document all maintenance work history associated with the interceptor system, including job plans, schedules, assets and spare parts.

Regional San's Regulatory Compliance section enters all SSO information into CIWQS and maintains local files containing SSO event information, response documentation, incident investigations, and regulatory correspondence. Additionally, the improvement opportunity noted in the previous SSMP audit related to incident documentation has been successfully met. As of July 2020, SASD has taken over SSO response duties as further described in Section 5.7 of this report.

Staff training records are tracked in Sacramento County's online Learning Management System (LMS).

Regional San uses the Plant Computer Control System (PCCS) to track pertinent system data points such as pumping station flows, wet well elevations, and valve positions. Historical trends can be run at any time to track a number of points within the SRWTP and interceptor system. Interceptor staff can receive specific alarms (such as high water elevation alarms) within PCCS in order to monitor the collection system.

Regional San retains historical flow monitoring data captured from flow studies and during strong wet-weather events in order to support interceptor capacity needs. The SASD Engineering Business Planning Group provides services related to flow monitoring and measuring rainfall within the interceptor system and develops and calibrates hydraulic models.

### **Monitor and Measure**

Regional San monitors and measures the effectiveness of the SSMP by conducting a biennial SSMP Audit with the goals of reviewing each SSMP Element, related documents, and conducting discussions with Regional San staff to determine the overall effectiveness of the SSMP. As part of the audit, Regional San maintains a prioritized list of Improvement Opportunities that is updated during each audit period, or as the agency becomes aware of possible improvements or deficiencies. Regional San also analyzes monitoring data and trends to measure the effectiveness of each element, where applicable.

### **Assess Preventative Maintenance Program**

Regional San assesses the success of its preventative maintenance program by monitoring the implementation of that program through O&M records, asset inventories, and equipment failures in Maximo. The PM program is designed to minimize corrective and emergency maintenance, as well as equipment failures. If it is determined that an SSO may have been prevented through preventative maintenance, job plans and schedules are adjusted accordingly, and an incident investigation will prompt appropriate corrective actions as necessary.

As part of the transition of the interceptors to SASD, the effectiveness of the PM program will continue to be measured through, at minimum, Maximo records, collection system flow data, SSO response activities and documentation, and service level results.

### **Update Elements**

SSMP elements are updated or modified based on review of monitoring and reporting data, and improvement opportunities identified through the biennial self-audit process. Improvement opportunities identified in the 2019 self-audit have been successfully implemented.

### **Identify and Illustrate SSO Trends**

Regional San tracks and analyzes the frequency, causes, volumes, locations, and other SSO details and trends. All Regional San SSO events are recorded and maintained in the CIWQS database, and **Table 4-1** of this document identifies every SSO event, date, location, and volume since the last SSMP audit. SSOs are also illustrated in a GIS layer within the SewerViewer application, which is available to all Regional San staff. All SSO events are investigated and corrective actions are suggested to prevent similar SSO events from occurring. Review of the SSO occurrences during this audit period supports that the SSMP is successful in maintaining minimal SSOs.

#### Reviewer Response

No Exceptions to the audit findings.

#### Management Response

Agree with reviewer response.

## **5.11. Element 10 – SSMP Program Audits**

**WDR Requirement:** *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.*

**Audit Finding:** Regional San conducts periodic internal audits appropriate to the size of the interceptor system and number of SSOs as required by the WDRs. Regional San has conducted internal audits in 2011, 2013, 2015, 2017, and 2019, which are kept on file and available on Regional San's public website. The 2019 audit identified areas of deficiency and provided an improvement opportunity based on review of the internal documentation process of SSOs. This improvement opportunity has been implemented.

This audit serves as the 2021 audit and falls within the WDR requirement of conducting an SSMP audit every two (2) years. This audit contains steps to correct deficiencies and identifies SSMP updates for Regional San's consideration that reflect current programs and management of the interceptor system.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.

## 5.12. Element 11 – Communications Program

**WDR Requirement:** *The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the Enrollee as the program is developed and implemented.*

*The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.*

**Audit Finding:** Regional San maintains a social media presence and a regularly updated public website that provides ratepayers the opportunity to review critical SSMP supporting documents and bi-annual audit reports. Ratepayers may also submit their comments on the SSMP at any time, which are emailed and responded to by a Regional San representative. Regional San staff will also review ratepayer-submitted comments before periodical SSMP updates. Additionally, Regional San communicates with its four contributing satellite agencies at minimum on an annual basis in order to remain current on the development, implementation and performance of each agency's SSMP.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.

## 6. Strengths and Implementation Accomplishments

Documenting the strengths and implementation accomplishments of the SSMP is an important component of the audit findings. Regional San should both recognize the areas of strength in interceptor system management as well as continue building upon success in these areas. **Table 6-1** includes the current strengths and implementation accomplishments that were identified during this and past audits.

**Table 6-1: Strengths and Implementation Accomplishments**

No.	WDR PROVISION	STRENGTH AND IMPLEMENTATION ACCOMPLISHMENTS
1	D.13(ii) - Organization	Regional San has assigned roles and responsibilities for development and implementation of the SSMP.
2	D.13(iii) – Legal Authority	Regional San has ordinances and design guidelines providing the authority to: <ul style="list-style-type: none"> <li>• Prevent illicit discharges;</li> <li>• Require interceptors to be properly designed and constructed;</li> <li>• Limit discharge of fats, oils, and grease, and;</li> <li>• Enforce violations of sewer ordinances via the WSCS Enforcement Response Plan.</li> </ul>



No.	WDR PROVISION	STRENGTH AND IMPLEMENTATION ACCOMPLISHMENTS
3	D.13(iv) – Operations and Maintenance Program	<p>Regional San is currently implementing the following O&amp;M elements:</p> <ul style="list-style-type: none"> <li>• Maintains an up-to-date map of the interceptor system in GIS and properly updates it as needed via the DCN process.</li> <li>• Provides access to digital files and schematics via EDM.</li> <li>• Utilizes EDS to monitor and remotely operate the interceptor facilities as-needed.</li> <li>• Documents, tracks, and schedules all maintenance activities in Maximo.</li> <li>• Uses the ACE table to identify critical parts and maintains spare parts inventory.</li> <li>• Documents all training events and classes in LMS.</li> <li>• Developed the ICAIP for interceptor gravity pipe condition assessment.</li> <li>• Conducts capital funding projections on a 10 year window and prioritizes projects on an annual basis.</li> <li>• Initiated a project in 2020 to perform additional inspection and testing on the City and Central Interceptor systems, including sixty-five manned entries and 17,500 ft of CCTV inspection.</li> <li>• Successfully completed a multi-phased approach to migrate portions of GIS, Maximo, and all documents and maps of the collections system from Regional San to SASD document management systems, ensuring process continuity.</li> </ul>
4	D.13(v) – Design and Performance Provisions	Regional San utilizes appropriate design and construction standards and specifications.
5	D.13(vi) – Overflow Emergency Response Plan	<p>Regional San maintains the SSORP that identifies all roles, responsibilities, procedures and points of contact needed during an SSO event.</p> <p>Regional San and SASD conduct annual wet weather preparation meetings to plan and prepare for the wet season.</p> <p>Staff is knowledgeable of the SSO response procedures.</p>
6	D.13(vii) – FOG Control Program	Regional San provides historical trends justifying that a FOG Control Program is not warranted for the interceptor system at this time.
7	D.13(viii) – System Evaluation and Capacity Assurance Plan	<p>Regional San maintains a dynamic flow model that identifies capacity needs for the interceptor system.</p> <p>Regional San has not experience a capacity related SSO in the last eight (8) years.</p>

No.	WDR PROVISION	STRENGTH AND IMPLEMENTATION ACCOMPLISHMENTS
8	D.13(ix) – Monitoring, Measurement, and Program Modifications	Regional San has developed multiple reports that utilizes Maximo data. The reports monitor and track maintenance activities and identify backlog work for each O&M craft. Regional San enters all SSO events into CIWQS and illustrates each SSO in GIS and other pertinent reports. For Category 1 SSOs or significant incidents, Regional San creates incident investigation reports to document the incident and identify corrective actions to prevent similar SSOs from occurring.
9	D.13(x) – SSMP Program Audits	Regional San has conducted SSMP audits every two (2) years since 2011 and maintains a list of SSMP Improvement Opportunities that is reviewed annually. Each audit document is available on-line.
10	D.13(xi) – Communication Program	Regional San utilizes its website and Facebook page to deliver notifications and announcements to the public. Regional San meets with its satellite agencies annually.

## Summary of Audit Findings and Improvement Opportunities

This section a summary of audit findings and opportunities for improvement. These are ideas which resulted from the audit and are presented for Regional San’s consideration.

**Table 7-1: Other Findings and Improvement Opportunities**

No.	WDR PROVISION	FINDING	OPPORTUNITY
1	D.13(ii) - Organization	The lines of authority for individuals who manage the interceptor system and are responsible for various SSMP sections have changed. The SSMP has been amended to clarify this.	Revise language in SSMP Element 2 to reflect the current configuration.
2	D.13(iv) – Operations and Maintenance Program	As a result of the interceptor integration with SASD, the majority of SSMP Element 4 has been contracted to SASD and some of the SSMP language is now obsolete. The SSMP has been amended to clarify this.	Revise language in SSMP Element 4 to reflect the current configuration.
3	D.13(vi) – Overflow Emergency Response Plan	The Regional San SSORP requires significant updates as a result of the interceptor O&M integration with SASD. The majority of SSMP Element 6 has been contracted to SASD and some of the SSMP language is now obsolete. Both the SSORP and SSMP have been amended to reflect the changes.	Update the Regional San SSORP (ongoing in 2021) and language in Element 6 of the SSMP to reflect the current configuration with SASD.

No.	WDR PROVISION	FINDING	OPPORTUNITY
4	D.13(viii) – System Evaluation and Capacity Assurance Plan	As a result of the interceptor integration with SASD, SSMP Element 8 has been contracted to SASD and some of the SSMP language is now obsolete. The SSMP has been amended to clarify this.	Revise language in SSMP Element 8 to reflect the current configuration.
5	D.13(ix) – Monitoring, Measurement, and Program Modifications	As a result of the interceptor integration with SASD, the majority of SSMP Element 9 has been contracted to SASD and some of the SSMP language is now obsolete. The SSMP has been amended to clarify this.	Revise language in SSMP Element 9 to reflect the current configuration.

In the next SSMP audit, Regional San will report on the status of each improvement opportunity identified above.

Reviewer Response

No Exceptions to the audit findings.

Management Response

Agree with reviewer response.