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## 2013 Audit Report

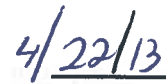
### SRCS D Sewer System Management Plan

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

**Approved By:**


**Ruben Robles**  
Director  
SRCS D Operations Department

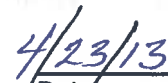
  
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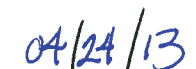
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**April 22, 2013**

## **Introduction**

In 2006 the State Water Resources Control Board issued Order No. 2006-0003, the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR). The purpose of the WDR is to help reduce and prevent sanitary sewer overflows (SSOs). As part of the WDR, all public agencies that own or operate more than one mile of sanitary sewer systems were required to enroll and as part of enrollment, prepare a Sanitary Sewer Management Plan (SSMP) to document and assist in the management, operation, and maintenance of their sewer system. As part of the SSMP, agencies are required to conduct an internal program audit of the SSMP appropriate to the size of the system at least every two years. This report describes Sacramento Regional County Sanitation District's (SRCSD) SSMP program audits and its associated tasks. This SSMP audit is being performed to:

- Evaluate the effectiveness of the current SSMP program
- Identify potential weaknesses of the current SSMP program
- Determine improvement opportunities for modifying the current SSMP program

## **WDR Requirements for SSMP Element 10: SSMP Program Audits**

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

## **SRCSD Compliance Approach – As Stated in the SSMP**

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

Prior to each wet weather season, SRCSD will review the SSOs from the previous year and provide details in the audit on the causes of the SSOs and what actions were taken to prevent similar SSOs from occurring in the future. As part of the audit SRCSD will compare its performance with similar collection systems. If any deficiencies are determined, the prioritized list of improvement opportunities will be updated accordingly.

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

## **SRCSD Interceptor System Description and Performance**

The SRCSD Interceptor System consists of approximately 115 miles of gravity interceptors ranging from 36 inches to 144 inches in diameter and 62 miles of force mains ranging from 16 inches to 66 inches in diameter for a total of 177 miles. The conveyance system also consists of eight pump stations, inverted siphons, flow meters, valve vaults, fall and gate structures, etc. In the last 5 years, from February 2008

through February 2013, the SRCSD Interceptor System has had 6 reportable SSOs in the California Integrated Water Quality System (CIWQS) as detailed in **Table 1**<sup>1</sup>.

**Table 1: CIWQS Summary of SRCSD's SSOs February 2008-2013**

No.	DATE	SSO CATEGORY	SSO DESCRIPTION	SSO VOLUME (GAL.)	VOLUME RECOVERED (GAL.)	VOLUME REACHED SURFACE WATER (GAL.)
1	12/02/2012	2	N13 (City Interceptor Air Intake Structure) Spill occurred out of a pick hole of a sealed manhole lid under surcharged condition on combined sewer line	365	0	0
2	12/02/2012	2	N33 (McClellan Interceptor) Spill occurred out of a manhole due to the size of the storm (50-years) exceeding the design storm of 10-years.	910	0	0
3	12/04/2011	1	S33 (Cordova Pump Station) loss of control and communication power. Wet well level raised and inlet pipe backed up until the level was higher than the rim elevation of three manhole lids upstream and overflowed to the ground	31,500	20	31,480
4	1/20/2011	2	N19 (Arden Force Main) failure occurred at the vacuum break mechanism.	7	0	0
5	1/4/2010	1	N51 (New Natomas FM) – Air release valve (ARV) failed in open position due to grease build up	20	0	1 <sup>(a)</sup>
6	4/1/2009	2	N50 (South River FM) – ARV failed in open position	10	10	0

(a) Approximately 19 gallons soaked into the ground, approximately 1 gallon reached a dry drainage ditch

Taking into account the relatively small number of miles of sewer pipes owned by SRCSD's Interceptor System and the low number of SSOs experienced over the past five years, the following audit program has been developed for the system.

**Audit Tasks**

To ensure that the audit is performed objectively, this task has been assigned to an individual that is fairly well removed from the day-to-day activities of the SRCSD's Interceptor operations and has enough authority to carry out the necessary data gathering to perform the audit. In addition to filling out the attached SSMP Audit Form, the following tasks are associated with the SSMP audits:

1. Compare SRCSD's performance record (i.e. SSOs) in CIWQS to the following similar collection systems: 1) Orange County Sanitation District, 2) Fairfield Suisun Sewer District.
2. Review operation and maintenance philosophy/strategy with field staff including preventative maintenance.

<sup>1</sup> The WDR requires that SSO records be kept for the previous 5 years as a minimum.

3. Conduct interviews of operational staff and staff that respond to SSOs to verify familiarity with the SSMP and SSO response procedures.
4. Review MAXIMO maintenance records to ensure that a match exists between operation and maintenance philosophy/strategy and everyday practice.
5. Review condition assessment/rehabilitation philosophy/strategy and discuss with the Asset Management section. Ensure that there is a condition assessment/rehabilitation schedule.
6. Review the 2011 Audit, and Improvement Opportunities Table to verify that previous audit findings have been addressed.
7. Review the past 5 years of SRCSD SSO data and verify if additional corrective action is needed.
8. Record all findings during the audit process on the attached SSMP Audit Form. This form will be the final audit report for SRCSD Interceptor System's performance and improvement opportunities. The report will be kept on file and made available to the public either as a reference or posting on SRCSD's website.
9. Conduct interviews of the following staff to assist in the audit tasks listed above:
  - Sanitation District Interceptor Superintendent
  - 1 Interceptor O&M Supervisor
  - 2 Interceptor O&M Standby Crew (randomly selected for SSO response procedures)
  - 2 PCC Supervisors (randomly selected for SSO response procedures)
  - 3 Asset Management Coordinators
  - Maintenance Management Support Manager

### **Conclusion**

Overall, the SSMP is working well and doesn't require any major changes before the update in 2014. SRCSD has set a performance indicator of no more than one major SSO in the Interceptor System per year, with a major SSO being defined as greater than 1,000 gallons. Based on historical SSO data, SRCSD is meeting its performance indicator and the SSOs remain low in number and volume compared to the total amount of sewage conveyed by SRCSD.

Compared to other collection systems of similar size (Orange County Sanitation District and Fairfield Suisun Sanitation District), SRCSD has a similar performance record with 6 SSOs in the past 5 years, versus 27 reported by Orange County Sanitation District, and 2 reported by Fairfield Suisun Sanitation District. SRCSD has a higher total volume than the comparable collection systems due to one large spill that occurred at the Cordova Pump Station. As a result of that spill, SRCSD corrected the control and power failure issues and revised the alarm response procedures. Revised alarm response procedures were communicated with Plant Control Center (PCC) staff to assist in reducing or preventing future SSOs that may have the potential to occur under similar circumstances.

Two SSOs occurred as a result of the 50-year storm on December 2, 2012. SRCSD had numerous staff monitoring the system because of the magnitude of the storm. Staff were able to respond quickly and mitigate the SSOs so that they did not result in major SSOs.

Remaining SSOs within the minimum 5 year record keeping timeframe were attributed to unexpected ARV and vacuum valve malfunctions which resulted in minor spills. Adjustments to operating

procedures, equipment monitoring, and maintenance activities have been made to prevent similar events from occurring in the future.

The following list summarizes improvements SRCSD has implemented in response to SSOs that occurred:

- SSOs related to the City of Sacramento’s combined system triggered improvement to flow and level monitoring at critical locations, additional Plant Control Center (PCC) alarms, and additional communication and coordination with City staff.
- An ARV maintenance program was developed after spills occurred due to ARV malfunctions.
- SRCSD corrected the control and power failure issues at the Cordova Pump Station and revised alarm response procedures for the Interceptor System. Revised response procedures were communicated with PCC staff.

In addition, in 2012, changes were made to the Interceptor O&M standby crew procedures in Administrative Operating Procedure (AOP) 46 to streamline the standby process and ensure a uniform procedure was understood among staff. AOP 26 Storm Condition Standby and Staffing still takes priority over AOP 46 during storm conditions and was also revised in 2012.

As a summary of the attached SSMP Audit Form, the following improvement opportunities were identified in **Table 2** below.

**Table 2: 2013 SSMP Audit Improvement Opportunities**

<b>SSMP SECTION</b>	<b>IMPROVEMENT OPPORTUNITY</b>	<b>TARGET COMPLETION DATE</b>
<b>II. Organization</b>	Incorporate July 2013 annual update of organizational chart into 2014 SSMP	<b>4/1/2014</b> (SSMP Update)
<b>IV. O&amp;M Program – Rehabilitation and Replacement Plan</b>	Add additional details on Replacement and Rehabilitation Plan as Asset Management procedures and philosophy has been refined since the 2009 SSMP.	<b>4/1/2014</b> (SSMP Update)
<b>IV. O&amp;M Program – Equipment and Replacement Part Inventory</b>	Update references to AOP 38 (Equipment Criticality). The contents of AOP 38 have been integrated into Section 4 of the Standard Maintenance Practices Manual (SMP).	<b>4/1/2014</b> (SSMP Update)
<b>VI. Overflow Emergency Response Plan</b>	Update references to Office of Emergency Services (OES) to California Emergency Management Agency (Cal EMA) as OES has changed its name to Cal EMA.	<b>4/1/2014</b> (SSMP Update)
<b>VII Fats, Oils, and Grease (FOG) Control Program</b>	The relevance of the FOG Section will be reviewed as part of the 2014 SSMP and will be updated as appropriate.	<b>4/1/2014</b> (SSMP Update)
<b>VIII. System Evaluation and Capacity Assurance Plan (SECAP)</b>	Update the Existing SECAP Section to include the Interceptor Sequencing Study.	<b>4/1/2014</b> (SSMP Update)
<b>VIII. System Evaluation and Capacity Assurance Plan (SECAP)</b>	Update the Existing SECAP Section to include the newly approved operating agreements with the contributing agencies	<b>4/1/2014</b> (SSMP Update)
<b>XI. Communications Program</b>	Review of frequency of satellite agency meetings for SSMP 2014 revision	<b>4/1/2014</b> (SSMP Update)

Because these improvement opportunities are minor and do not detract from the overall effectiveness of the SSMP, they will be incorporated into the 2014 SSMP update. The SSMP will be updated in 2013 and will have the final certification in early 2014. Given the size of the SRCSD Interceptor System and total volume of flow compared to the actual frequency and volume of SSOs, the SSMP is effective in reducing and preventing SSOs from occurring in the SRCSD Interceptor System.

## **ATTACHMENT 1**

### **▪ SSMP AUDIT FORM** *(ADAPTED FROM FORMAT DEVELOPED BY BACWA)*

<b>AGENCY &amp; SYSTEM</b>	<b>SRCSD Interceptor System</b>		
<b>NAME OF AUDITOR</b>	Christy Warhola		
<b>DATE OF AUDIT</b>	March 2013	<b>AUDIT PERIOD</b>	1/1/2011 – 12/31/2012
<b>SYSTEM OVERVIEW</b>			
<b>Miles of gravity sewer mains</b>	115		
<b>Miles of force mains</b>	62		
<b>Total Miles of all sewer lines</b>	177		
<b>Number of pump stations</b>	8		
<b>Population served</b>	~ 1.3 million		

Note: SRCSD does not own any lower laterals.

**I. GOALS**

- Are the goals stated in the SSMP still appropriate and accurate?

Audit Elements

- SRCSD’s SSMP Element 1

Audit Findings

Yes, the goals stated in the SSMP are still appropriate and accurate. The purpose of SRCSD’s SSMP are as follows:

- To provide SRCSD with a system-wide living plan to properly manage, operate, and maintain all parts of the Interceptor System.
- To help reduce and prevent SSOs and mitigate them if they do occur.
- To comply with the requirements set forth in Section D-13 of the WDR (Order No. 2006-0003).

**II. ORGANIZATION**

- Is the SSMP’s organization chart & phone list up-to-date?

Audit Elements

- SRCSD SSMP Organizational Charts
- SSO Response Plan
- SSO Reporting Chain of Communication Organizational Charts

Audit Findings

The SSMP references the SRWTP Intranet site for the most current version of the SRCSD Responsible Parties for Implementation of the SSMP Organizational Chart, Table of Parties Responsible for SSMP Implementation, and SSO Chain of Communications Organizational Chart. The organizational charts



on the SRWTP Intranet site are currently up-to-date. Currently, organizational charts are updated annually in June (to coincide with the Annual CIWQS Questionnaire update), with the most recent update being June of 2012. In addition the Sanitary Sewer Overflow Response Plan (SSORP) was updated in July of 2012 and contains updated SSO response organizational charts. The 2009 SSMP contains a printed version of the organizational chart in the appendix with a reference to SRWTP Intranet site for a current version, as the 2009 printed version does not reflect recent staff changes.<sup>2</sup> The 2014 SSMP will contain the updated version of the organizational charts and will follow the same format as the 2009 SSMP with the reference to the Intranet and current SSORP for the most current versions of organization charts and tables of responsible parties.

### **III. LEGAL AUTHORITY**

- Does the SSMP contain up-to-date information about your agency's legal authority?
- Does your agency have sufficient legal authority to control sewer use and maintenance?

#### Audit Elements

- SRCSD Sewer Use Ordinance
- Wastewater Source Control Section Enforcement Response Plan

#### Audit Findings

Yes, the SSMP contains up-to-date information about SRCSD's legal authority. SRCSD has sufficient legal authority to control sewer use and maintenance via the Sewer Use Ordinance which is enforced through the Wastewater Source Control Section (WSCS) according to the WSCS Enforcement Response Plan. The WSCS Enforcement Response Plan details the action that the WSCS can take to enforce the sewer use ordinance including investigate, inspect, sample, and conduct enforcement actions against users and contributors to the sanitary sewer system.

WSCS enforcement action records and their associated corrections for users during the 2011 to 2012 period indicate that the WSCS section has adequate authority to enforce and control sewer use. In addition, SRCSD has existing agreements with contributing agencies which is the mechanism used to delegate authority to SRCSD to carry out the pretreatment program in the respective jurisdictions. Operating agreements have recently been reviewed and approved to ensure that they meet the needs of SRCSD and contributing agencies and comply with the WDRs.

### **IV. OPERATIONS & MAINTENANCE PROGRAM**

#### **a. Interceptor System Mapping & Records**

- Does the SSMP contain up-to-date information about your agency's maps?
- Are your agency's collection system maps complete, up-to-date, and sufficiently detailed?

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<sup>2</sup> WDR requires organizational charts with names in the SSMP. The WDR also requires board approval for any updates to the SSMP; therefore, SRCSD uses the Intranet reference to streamline annual and as-needed organizational chart updates.

Audit Elements

- SRCSD mapping system
- Staff interviews of Interceptor O&M staff
- SRCSD Documentation Change Notification

Audit Findings

Yes, the SSMP contains up-to-date information about SRCSD's maps and SRCSD's maps are complete, up-to-date, and sufficiently detailed. SRCSD's Geographic Information Systems (GIS) shows SRCSD's pipes, manholes, junction structures, pump stations and inverted siphons as well as nearby waterways and County storm drain systems. SRCSD's Documentation Section continues to update the GIS system as new facilities are added, modifications are implemented, or discrepancies are found via the Document Change Notification (DCN) process or via direct discussion with Documentation, as discussed in the SSMP. In addition, Documentation also maintains the Interceptor schematics and flow meter location charts. Staff interviews indicated use of the GIS system, GIS system printouts, and system schematics at pump stations and standby crew workstations.

**b. Routine Operation & Maintenance Activities**

- Does the SSMP contain up-to-date information about your agency's preventive maintenance activities?
- Are your agency's preventive maintenance activities sufficient and effective in reducing and preventing SSOs?

Audit Elements

- Work orders in MAXIMO & job plans
- Interview Interceptor O&M Staff
- Operations and Maintenance Strategy Business Initiative

Audit Findings

Yes, the SSMP contains accurate information about SRCSD's preventative maintenance programs. Given the number of SSOs compared to the size and volume of SRCSD's facilities, the preventative maintenance programs are effective in preventing and reducing SSOs. The recent SSO data since the 2011 audit did not indicate any SSOs that additional preventative maintenance could have prevented. The previous equipment failures that contributed to SSOs have triggered additional preventative maintenance programs including routine ARV maintenance as a result of spills out of ARVs. SRCSD also corrected the control and power failure issues and revised alarm response procedures as a result of the Cordova Pump Station SSO. Revised alarm response procedures were communicated with PCC staff to assist in reducing or preventing future SSOs that may have the potential to occur under similar circumstances. Additional flow monitoring, installation of additional level indicators at key locations, additional PCC alarms, and additional communication and coordination with the City of Sacramento was also implemented to monitor and control flows in the City's combined sewer system. These actions were taken in response to SSOs that occurred in the SRCSD owned City Interceptor which conveys combined sewage flows from the City of Sacramento.

SRCSD has a business initiative for preparing operation and maintenance strategy plans for the Interceptor System. Operation strategies detail parameters for the normal operating ranges of each pump station while maintenance strategies identify procedure and control of the system asset in order to meet operation needs and regulatory compliance. Maintenance strategies identify how to maintain the system in order to comply with the operating ranges and strategies identified in the operation strategy plans.

**c. Rehabilitation & Replacement Plan**

- Does the SSMP contain up-to-date information about your agency’s inspections and condition assessment?
- Are your agency’s scheduled inspections and condition assessment system effective in locating, identifying, and addressing deficiencies?

Audit Elements

- Interview Asset Management Staff
- 2012 Business Initiative List
- Operations and Maintenance Strategy Business Initiative
- Draft Interceptor Condition Assessment Plan

Audit Findings

The SSMP contains up-to-date information about SRCSD’s rehabilitation and replacement strategy. Approximately 91% of the Interceptor System is less than 35 years old.<sup>3</sup> SRCSD’s Interceptors do not have any spills attributed to pipe blockages or pipe defects.

SRCSD has a business initiative to develop a Condition Assessment Program for the Interceptor System. Development of the Interceptor Condition Assessment Plan is currently in progress. The intent of the Interceptor Condition Assessment Plan is to have a plan in place to assess, inspect, prioritize, and rehabilitate or replace Interceptor assets so the system continues to provide reliable and sustainable service. The Condition Assessment Plan will give SRCSD a plan to address aging assets and supports other components (risk assessment, business case evaluations, etc.) used to ensure long-term operability of the Interceptor System. The 2014 SSMP will add more details to the Rehabilitation and Replacement Plan (R&R Plan) section based on the additional plans and procedures that are currently being developed to enhance the R&R process at SRCSD.

**d. Equipment & Replacement Part Inventory**

- Does the SSMP contain up-to-date information about equipment and replacement inventories?
- Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?

Audit Elements

- Availability of Critical Equipment (ACE) Table (from the Standard Maintenance Practice Manual)
- Interview Interceptor O&M Staff

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<sup>3</sup> Draft Interceptor Condition Assessment Plan by K. Frazier dated September 20, 2012, page 5.

Audit Findings

Yes, the SSMP contains up-to-date information about equipment and replacement inventories. SRCSD's AOP 38 (which has since been integrated into Section 4 of the Standard Maintenance Practices Manual) contains the Availability of Critical Equipment Table which lists the total number of critical equipment at each facility. From the total number of critical equipment at each facility, the table further breaks down how many pieces of equipment are required for full performance, functional redundancy, and maintenance redundancy during both the peak flow and normal flow conditions.

Discussions with Interceptor O&M staff indicate that contingency equipment and replacement parts are sufficient to respond to emergencies and conduct regular maintenance. As detailed in the Sanitary Sewer Overflow Response Plan, SRCSD has agreements or contracts in place with the Sacramento Area Sewer District (SASD) and outside contractors to obtain equipment needed for SSO response should SRCSD not have sufficient resources of its own. Examples include emergency bypass pumps, vacuum trucks, etc. for assistance during SSO events.

AOP 38 has been incorporated into the Standard Maintenance Practice Manual (SMP) in Section 4.1 – Equipment Criticality. The 2014 SSMP will be updated to reflect this name change.

**e. Training**

- Does the SSMP contain up-to-date information about your agency's training expectations and programs?
- Do supervisors believe that their staff is sufficiently trained?
- Are staff satisfied with the training opportunities and support offered?

Audit Elements

- Employee training records/programs
- Interview Interceptor O&M Staff

Audit Findings

Yes, the SSMP contains up-to-date information on the training programs. SRCSD continues to document employee training using the Meridian learning management software. The current SRCSD training program consists of both formal and informal elements: on-the-job training, craft skills, operational training, safety training, and training for contractors. Staff that respond to SSOs are given a refresher course on SSO response annually before the wet weather season begins. Interviews with Interceptor O&M staff did not indicate that there was a lack of training.

As stated in the 2011 Audit, SRCSD is in the process of developing operational training guides for the Interceptor System similar to the Operator Training Guides produced by SRCSD's Operations Procedure Training Program (OPTP). Training guides are currently being prepared for the eight pump stations as well as an Overview Manual and an Interceptor Reaches System Manual.

**V. DESIGN AND PERFORMANCE PROVISIONS**

- Does the SSMP contain up-to-date information about your agency’s design and construction standards?
- Are design and construction standards, as well as standards for inspection and testing of new and rehabilitated facilities sufficiently comprehensive and up-to-date?

Audit Elements

- Interceptor Design Manual
- Interceptor Standard Specifications
- SRCSD Pump Station Design Manual
- County Standard Construction Specifications
- CMID Construction Management and Inspection Procedures Manual

Audit Findings

The SSMP contains up-to-date information about SRCSD’s Design and Construction Standards. The Interceptor Standard Specifications (ISS), Interceptor Design Manual (IDM), SRCSD Pump Station Design Manual (PSDM), and County Standard Construction Specifications (CSCS) all provide a mechanism to ensure consistent and uniform design and construction of SRCSD facilities. The CSCS provide the standard for testing and inspection of projects under construction. The ISS provides more specific provisions for construction and testing of materials for interceptors which is intended to be used as a guideline for developing specific project specifications for interceptors. All of the design standards and standard specifications have been updated within the last 10 years.

**VI. OVERFLOW EMERGENCY RESPONSE PLAN**

**Table 3** shows annual SRCSD Interceptor SSO statistics for the previous 5 years to assist in the evaluation of the effectiveness of the Sanitary Sewer Overflow Response Plan.

**Table 3: Annual SSO Statistics**

	2008*	2009	2010	2011	2012
Number of dry weather SSOs <sup>(a)</sup>	0	0	0	0	0
Number of wet weather SSOs	0	1	1	2	2
<b>Total number of SSOs</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>
SSOs < 100 gallons	0	1	0	1	0
SSOs 100 to 999 gallons	0	0	0	0	2
SSOs 1,000 to 9,999 gallons	0	0	0	0	0
SSOs >10,000 gallons	0	0	1	1	0
<b>Total volume of SSOs (gallons)</b>	<b>0</b>	<b>10</b>	<b>20</b>	<b>31,507</b>	<b>1,275</b>
<b>Total volume recovered (gallons)</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>20</b>	<b>0</b>
<b>Net volume of SSOs (gallons, total minus recovered)</b>	<b>0</b>	<b>10</b>	<b>1<sup>(c)</sup></b>	<b>31,487</b>	<b>1,275</b>
<b>SSOs caused by:</b>					
Pipe failure	0	0	0	0	0
Pump station failure	0	0	0	1	0
Capacity-limited pipe segment (no debris)	0	0	0	0	0
Other	0	1	1	1	2 <sup>(b)</sup>
Number of locations with more than one SSO in the past year	0	0	0	0	0

\*Contains data from Feb 1, 2008 to Feb 1, 2013, per the WDR requirement to keep records for a minimum of 5 years.

Notes:

- (a) Per page F-8 of Order No. R5-2010-0114 (NPDES No. CA0077682), dry weather = May through October
- (b) Both SSOs occurred during the 50-year storm on December 2, 2012. The storm exceeded the system design storm of 10-years.
- (c) Approximately 19 gallons soaked into the ground.

- Does the SSMP contain an up-to-date version of your agency’s Overflow Emergency Response Plan?
- Considering the information in **Table 3**, is the Overflow Emergency Response Plan effective in handling SSOs?

Audit Elements

- Compare CIWQS data with SRCSD records
- SSO Response Plan for SRCSD Interceptor System
- SSO Response Plan Quick Reference

### Audit Findings

The SSMP references the current Sanitary Sewer Overflow Response Plan (SSORP) (a link is also provided on the public website where the SSORP is located) and provides a summary of emergency response procedures contained in the SSORP to satisfy the requirements of the SSMP. The SSO response procedures summary in the SSMP is up-to-date with the current SSORP and the SSORP Quick Response Reference. Minor revisions to the naming conventions and responder titles (e.g. Office of Emergency Services is now Cal EMA) will be updated with the 2014 SSMP update to provide consistency with the 2012 SSORP, as these changes have been made in the 2012 SSORP and SSORP Quick Response Reference. The SSORP Quick Reference is updated every year prior to the beginning of the rainy season. In addition, in 2012, changes were made to the Interceptor O&M standby crew procedures in AOP 46 to streamline the standby process and ensure a uniform procedure was understood among staff. AOP 26 Storm Condition Standby and Staffing still takes priority over AOP 46 during storm conditions, and was also revised in 2012.

Considering the volume of wastewater that SRCSD conveys in its system, the volume and number of spills in **Table 3** is relatively low and therefore the SSORP is effective in handling SSOs. After each SSO, SRCSD staff reviews the SSO data and response procedures and if needed, communicates to staff ways to refine the SSO response and prevention. An example of this is the implementation of the ARV maintenance program that was developed after spills occurred related to ARV malfunctions. In addition, SRCSD corrected the control and power failure issues at the Cordova Pump Station after the SSO that occurred, and revised alarm response procedures for the Interceptor System. Revised response procedures were communicated with PCC staff to assist in reducing or preventing future SSOs that may have the potential to occur under similar circumstances. Additional flow monitoring, installation of additional level indicators at key locations, additional PCC alarms, and additional communication and coordination with the City of Sacramento was also implemented to monitor and control flows in the City's combined sewer system in response to SSOs that occurred in relation to the City's combined sewage flows.

A review of CIWQS data with SRCSD records show that SRCSD records are consistent with data reported in CIWQS.

## **VII. FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM**

Although SRCSD has determined that a FOG control program is not warranted for the Interceptor System, the District's Sewer Ordinance provides legal authority to limit the discharge of FOG into the Interceptor System. Additionally, satellite agencies have FOG control programs to limit discharges of FOG to their systems and therefore limit FOG discharges to SRCSD's system. SRCSD discusses FOG program implementation at each annual meeting with satellite agencies.

SRCSD also recently installed a FOG receiving station at the SRWTP as part of a biogas enhancement project that collects FOG from collection trucks and feeds it directly into the digesters resulting in an increase in biogas production. Although SRCSD owned pipelines are large in diameter and grease has not impacted pipe capacity, the FOG receiving facility will assist in preventing FOG from entering the satellite agencies or SRCSD pipes.

SRCSD will review the FOG Control Program section for the 2014 SSMP update. Between the 2011 Audit and this audit, Interceptor O&M staff have noticed some FOG deposits at one of the recently built force main clean-outs in the system. The FOG deposit did not impact capacity as it was in the clean-out

portion of the pipe. Grit and debris that settled in the bottom of the pipe due to low flow conditions in the pipe triggered a high level alarm. SRCSD responded and proactively removed the FOG, debris, and grit deposits and has implemented a maintenance and monitoring plan for this location. As stated previously, FOG has not impacted SRCSD capacity.

### **VIII. SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN**

- Does the SSMP contain up-to-date information about your agency's capacity assessment?
- Has your agency completed a capacity assessment and identified and addressed any hydraulic deficiencies in the system?

#### Audit Elements

- Interceptor Master Plan
- 2003 Reconciliation Report Master Plan
- Master Interagency Agreement (MIA) and Operating Agreements
- SSO data
- Interceptor Sequencing Study

#### Audit Findings

In addition to the capacity assessments performed in the Interceptor Master Plan and 2003 Reconciliation Report (which are discussed in the SSMP), SRCSD recently completed and approved the Interceptor Sequencing Study which used the 2000 Master Plan as the basis of the report. The Interceptor Sequencing Study updated the existing hydraulic model, reviewed the most current land use planning and growth data, evaluated the expansion in the south and east county areas, evaluated a build-out scenario for the system, and evaluated the performance of the existing sanitary sewer system. The Interceptor Sequencing Study focuses on long term needs from the year 2020 to build out, as well as current mid-range planning needs until the year 2020. This planning document, which revised the conclusions of the previous Master Plans, allows SRCSD to plan for future growth, plan for needed funding, and prioritize future projects. The 2014 SSMP will be updated to incorporate the Interceptor Sequencing Study.

In the past 5 years, the interceptor system has not had any SSOs caused by capacity limitations. To predict and prevent future capacity limitations, The Interceptor Sequencing Study identifies near term capacity enhancement measures that may be necessary within the next 10 years based on updated projected growth rates in the Sacramento area.

SRCSD conducted a flood risk evaluation for all interceptor facilities and concluded that only the South River Pump Station warranted contingency planning for regional flooding. A project was initiated in 2010 to address this issue. The project will construct a levy around the South River Pump Station to provide 200 year flood protection for the site. Currently, the project is at the 90% design phase and is expected to proceed to construction in 2014 or 2015.

Because the City of Sacramento's combined storm drain and sewer system has led to hydraulic issues during large rain storms in the past, SRCSD also meets with the City of Sacramento on a quarterly basis to discuss operational strategies in order to operate the combined system effectively and mitigate hydraulic deficiencies during storm events.

The Master Interagency Agreement remains in place and operating agreements have recently been



reviewed and approved to ensure that they meet the needs of SRCSD and contributing agencies and comply with the WDRs. The 2014 SSMP will be updated to include the updated operating agreements.

## **IX. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS**

- Does the SSMP contain up-to-date information about your agency's data collection & organization?
- Is your agency's data collection & organization sufficient to evaluate the effectiveness of your SSMP?

### Audit Elements

- PM/CM/EM Work History
- Job Plans and Schedules
- List of Assets and Spare Parts
- SSO History and Details
- Staff Training Records
- Condition Assessment Data
- Hydraulic Modeling Results/Capacity Assurance
- Flow Monitoring Data

### Audit Findings

The SSMP contains up-to-date information about SRCSD's data collection and organization. Based on the number and frequency of SSOs within the past 5 years, the data collection and organization of data listed in Element 9 of the SSMP is effective in reducing and preventing SSOs and provides sufficient data to evaluate SSMP effectiveness. As discussed in Section IV Part b of this audit, job plans and schedules were adjusted in the past as a result of corrective measures implemented following an SSO. A list of improvement opportunities will be provided in the Conclusion section of the 2013 SSMP Audit Report.

## **X. SSMP PROGRAM AUDITS**

- Discuss the effectiveness of this audit format and provide any suggestions for changes

### Audit Elements

- Review 2011 Audit Improvement Opportunities Table and 2011 Audit

### Audit Findings

Based on a review of the 2011 Audit format, a similar audit approach was used for the 2013 Audit with some minor modifications. Based on the number of SSOs that occurred between the 2011 Audit and the 2013 Audit, this audit format is effective in identifying deficiencies in the SSMP. In addition, the 2011 Audit Improvement Opportunities Table was reviewed to verify that 2011 Audit findings were addressed. A technical memorandum (TM) to file dated June 29, 2012 was written as a follow up to the 2011 Audit and discussed how the items in the 2011 Audit Improvement Opportunities Table were addressed and the TM provided an explanation of how the items were completed, as well as justification for items in the table that required no further action.

## **XI. COMMUNICATION PROGRAM**

- Does the SSMP contain up-to-date information about your agency’s public outreach activities?
- Does the SSMP contain up-to-date information about your agency’s communications with satellite and tributary agencies?
- Has your agency effectively communicated with the public and other agencies about the SSMP, and addressed feedback?

### Audit Elements

- SRCSD website
- Evaluate frequency and effectiveness of WDR Coordination Meetings

### Audit Findings

Yes, the SSMP contains up-to-date information about SRCSD’s Public Outreach and WDR Coordination Meetings. SRCSD maintains the public websites and has posted the 2009 SSMP and the 2011 Audit for public review. The website also has an area where the public can submit comments on the SSMP which are received by SRCSD Regulatory Compliance staff and considered for SSMP updates as appropriate.

In addition, meetings with the City of Sacramento (which contributes combined sanitary sewer and storm drainage flows to the SRCSD system as a satellite agency) are currently held quarterly to discuss system operations, interactions, and communication between the two agencies to aid in effective operation of the combined sewer during high flow conditions.

SRCSD meets with all satellite agencies annually as a minimum, but has met more frequently in the past if it was deemed necessary. SRCSD and the satellite agencies met more frequently during the initial SSMP preparation. Upon the 2014 update, communications and meeting frequencies with the satellite agencies will be reviewed and updated if necessary for completion of the SSMP update and for agency coordination purposes.