

SOUTH PLACER MUNICIPAL UTILITY DISTRICT

Sewer System Management Plan (SSMP)

Biennial Audit for FY 13/14 – FY 14/15

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SECTION 1 Audit Objectives

This report summarizes the results of the required Sewer System Management Plan (SSMP) internal audit process for the FY 13/14 and FY 14/15 evaluation period. The purpose of the SSMP is to provide a written framework for sanitary sewer collection system management, operation, and maintenance programs executed by the South Placer Municipal Utility District (District or SPMUD) with the ultimate goal of minimizing sanitary sewer overflows (SSOs) and achieving compliance with California State Water Resources Control Board (SWRCB) Order No. 2006-0003-DWQ, the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (SSS WDR). The SSMP audit is based on a review of performance measures established to evaluate the District's success in achieving compliance with various requirements of the SSS WDRs and implementing programs as stated in the SSMP. The SSMP audit process allows the SSMP document to evolve over time through the identification of potential enhancements in the management, operation and maintenance of the sanitary sewer collection system, and the implementation of changes to the SSMP to address any deficiencies.

South Placer Municipal Utility District is committed to complete biennial audits of the SSMP consistent with the procedure outlined in Section 10 and Appendix B (Apx B is blank???) of the SSMP. To ensure that the audits are performed effectively, the District normally assigns this task to District staff selected from the Field Services and Technical Services departments. These individuals have a working knowledge of the collection system and have the ability to gather the appropriate data to perform the audit. In 2013 the District employed a third party (i.e., Water Work Engineers) to perform the 2013 audit with the intent of obtaining an additional, objective review of the SSMP's compliance and effectiveness. This audit will follow the same format. The following tasks will be performed as part of this internal audit:

1. Review records from previous internal audits, to ensure noted deficiencies have been addressed. (**this Section**)
2. Compare the records from the computerized maintenance management system (CMMS) of record, to the data reported to the California Integrated Water Quality System (CIWQS). (see **Section 3.1**)
3. Review preventative maintenance schedules, responses to SSOs, and mitigation of SSO causes. (see **Section 3.1**)
4. Review Emergency Response Plan (ERP) for SSOs and identify improvements if needed. (see **Section 5.6**)
5. Record all findings during the audit process and keep the audit on file. (see **Section 5.10**)



SECTION 2 Agency Background / System Information

South Placer Municipal Utility District is located in Placer County and is situated approximately 20 miles northeast of the city of Sacramento. The District covers approximately 30 square miles at the base of the foothills of the Sierra Nevada Mountains and provides sanitary sewer service to customers in the communities of Rocklin, Loomis, Penryn, Newcastle, and portions of Granite Bay. The elevations in SPMUD range from approximately 115 feet to 1000 feet above sea level with an average slope of 1.3% from northeast to southwest. Several stream flow through the District (e.g., Pleasant Grove Creek, Antelope Creek, Clover Valley Creek, and Secret Ravine).

The District was established in 1956 under the State of California Municipal Utility District Act and is one of five municipal utility districts in the state. Under the Public Utilities Code of the State of California, Division 6, municipal utility districts are allowed to provide any number of utility services (e.g., sewer, water, light, power, heat, transportation, refuse, and communications). However, the District was formed and currently focuses solely on the collection and conveyance of wastewater from the customers it serves. The District is responsible for operation and maintenance of an extensive sewer collection system. The District has seen periods of tremendous growth in the recent past. The U.S. Census Bureau records show that portions of the District grew by over 1000% from 1970 to 2010. The District’s sewer collection system has grown in step with the rapid population growth. The District currently provides service to over 31,000 equivalent dwelling units (EDUs). **Table 1** provides additional information about the District collection system over the last two SSMP audit periods.

Table 1. Overview of System Indicators

Audit	FY 11/12 – 12/13	FY 13/14 – 14/15
Miles of Mainline	253	263
Miles of laterals (lower)	3.1	3.1
Pump stations	13	13
Population served	70,000	75,000
Dedicated Sewer Maintenance Staff	13 ¹	14 ²
Annual Budget (FY1 – FY2)	\$13,481,000 / \$13,701,700	14,518,016 / 14,239,424
Category 1 SSOs	1	1
Category 2 SSOs	3	1
Category 3 SSOs	~	4

¹ - Field Services Department employees (i.e., superintendent [x1], supervisor [x1], Lead Worker [x2], Maint Worker [x9])

² - Field Services Department employees (i.e., superintendent [x1], supervisor [x2], Lead Worker [x3] Maint Worker [x8])

The wastewater conveyed through the District collection system is discharged into the City of Roseville’s collection system and treated at two regional wastewater treatment plants (i.e., the Dry Creek and Pleasant Grove WWTPs).

2.1 Review of Prior SSMP Audits

The District reviewed the internal audits of the District SSMP for the 2011 audit (2009/2010 and 2010/2011 fiscal year) and the 2013 audit (2011/2012 and 2012/2013 fiscal years.) The identified Actions outlined in these audits are summarized in **Table 2**. The table also indicates if the identified deficiencies have been resolved.



Table 2. Summary of SSMP Compliance Deficiencies from Previous SSMP Internal Audits

Element	Action Item	Completed
4 – O&M (2011 Audit)	Develop a formal Five-Year CIP before the end of 2011.	In progress
	Develop written training procedures for high pressure hydro-vac units, CCTV units, and the power rodding and hand rodding units and train staff by October 2011 and annually for	In progress ⁽³⁾
	Develop a training schedule of all required training, a method for monitoring the training, and assign the Field Supervisor as the person responsible.	Yes
	Develop a documented method for tracking inventory and critical spare parts (i.e., asset labeling, logical sorting of parts, inventory audit forms, schedule of inventory bi-annual audits).	Yes
6 – OERP (2011 Audit)	Establish a Spill Response Audit Method that includes a progression of review from the field supervisors, to the Foreman, to the Superintendent/LRO, to TSD.	Yes
	Develop new methods to determine spill estimation and spill start time. Implement these new methods across all staff.	Yes
9 – MMM (2011 Audit)	Review and evaluate each SSMP element quarterly using the SSMP Monitor, Measure, Modify Audit Form.	Disregard ⁽¹⁾
4(a) – Collection System Maps (2013 Audit)	The District does not have mapping of all of the storm drain facilities within District boundaries.	Yes ⁽²⁾
4(C) – R&R Plan (2013 Audit)	The District R&R plan lacks long-term planning of CIPs, and associated funding requirements, to address identified	In Progress
9(b) – Measure Effectiveness of SSMP (2013 Audit)	The District currently does not maintain a set of clear measurable goals that can be used as performance indicators	Yes ⁽⁴⁾

⁽¹⁾ The District has changed its point of view on this item and has determined it is not necessary to evaluate in a formal manner on this short interval. This will be performed after the end of the first year or as needed when changes are made that affect the SSMP.

⁽²⁾ The City of Rocklin has provided what they have (in paper form); The Town of Loomis has provided a copy of their Storm Drain Master Plan, but no maps are included; The District is pursuing Placer County storm system maps. To date, the District has what is available.

⁽³⁾ The District began development of a comprehensive SOP for hydro-vac operations using consultants. It is expected to be completed prior to the end of the 2015/2016 fiscal year.

⁽⁴⁾ Goals were established beginning July 1, 2015.

All of these action items will be carried forward in this SSMP internal audit and included as recommendations to be completed. The unresolved action items may be modified to match the current needs of the District, but they are all recommended to be completed as a result of this audit.



2.2 Review of FY13/14 and FY14/15

Over the past two fiscal years the District has been cleaning the system at a rate to complete the entire system in four (4) years. Beginning on July 1, 2015 the District changed its approach and will begin using CCTV inspection results to drive the scheduling of cleaning.

SECTION 3 SSO Trends

3.1 Historical SSO Data

One of the District-defined tasks of the internal audit is to compare the information submitted to the state CIWQS database against the information kept in the District internal records regarding SSO events. **Table 3** organizes the data by source to show discrepancies, if any, between the data reported to CIWQS and the District’s records.

Table 3. CIWQS and District SSO Historic Data

SSO Historical Data since last SSMP Internal Audit	CIWQS Data FY 13/14 – 14/15	Internal Records FY 13/14 – 14/15
Total number of potential SSO service calls received	-	95 service calls
Total number of SSOs reported	6 SSOs	6 SSOs
Total volume of SSOs	7300 gallons	7,300 gallons
Total volume of SSOs that reached waters of the state	5,000 gallons	5,000 gallons
Percent volume of SSOs recovered	13.7%	** 13.6 %
Average SSO response time (SSO start time to arrival)	1.59 days	1.59 days
Average agency response time (notification to arrival)	29 minutes	29 minutes
Average SSO duration time	1.63 days	1.63 days

*** A four (40 gallon and six (6) gallon discrepancy between CIWQS and District records were found.*

Minor time discrepancies were found between CIWQS and District records that did not change the outcome in a significant way



Table 4. District SSO Data for 2013/2014 and FY 2014/2015

Date	Appearance Point	SSO Category	SSO Volume	Vol. Recovered	Time (Start-End)	Time (Notf.-Arrv.)	Cause
8/24/2013	C/O @ 451 Buena Vista	2	1,281 gal	75 gal	20 hr 28min	45min	Roots
<p><u>Corrective Action:</u> Excavated and installed a new access point into the mainline pipe; Excavated and repaired defects; Cleaned-up (mitigated effects of spill); Contained all or portion of spill; Inspected sewer using CCTV to determine cause; Restored flow; Returned all or portion of spill to sanitary sewer system. Used 150 gallons of fresh water to clean up SSO, Total recovered sewage and fresh water 225 gallons, returned to system.</p>							
9/30/2013	C/O @ 2720 Angeles Ct	3	350 gal	20 gal	5 Dy, 23 hr, 26 Min	28 min	Roots
<p><u>Notes:</u> Residents observed this spill for several days before contacting the District. <u>Corrective Action:</u> Cleaned-up (mitigated effects of spill); Contained all or portion of spill; Rodded the lateral and introduced chemical root treatment into the pipe. Informed residents to call the District immediately if water on ground is sewage or suspect.</p>							
12/20/2013	106-043	1	5,000 gal	237 gal	1 Dy, 22 hr, 9 min	8 min	Roots
<p><u>Notes:</u> Resident observed this spill over two days before contacting the District. <u>Corrective Action:</u> Removed root blockage with hydro-vac; performed CCTV inspection of pipe; Cleaned-up (mitigated effects of spill); Contained all or portion of spill; Returned all or portion of spill to sanitary sewer system. Contacted Placer County Environmental Health for direction regarding creek clean up. Instituted a change to SSO response procedures by training select employees to be On-Call Supervisors with the intent to provide better responses to SSO events.</p>							
11/9/2014	C/O @ 6500 Woodcrest Ct	3	92 gal	84 gal	4 hr 17 min	1 hr, 3 min	Roots
<p><u>Notes:</u> There was approximately a 4 hour delay between resident becoming aware of the SSO and contact with the District. <u>Corrective Action:</u> Removed the blockage using the hand rod; cleaned up and returned some of the sewage back to the system; CCTV inspected the lateral; excavated and repaired the defect.</p>							
11/23/2014	M04-037	3	569 gal	569 gal	4 hr, 31 min	23 min	Debris
<p><u>Notes:</u> This spill was caused by the construction activities of the home builder during buildout of a new subdivision. <u>Corrective Action:</u> Removed the blockage using a hydro-vac; cleaned up and returned the sewage back to the system; CCTV inspected the lateral; required the Home Builder to clean all affected pipes in the subdivision; back-charged Home Builder for District costs.</p>							
12/28/2014	C/O @ 4885 Topaz Av	3	8 gal	4 gal	1 hr 0 min	12 min	Roots
<p><u>Corrective Action:</u> Removed the blockage using the hand rod; introduced chemical root treatment; cleaned up and returned some of the sewage back to the system; CCTV inspected the lateral; excavated and repaired the defect.</p>							

The District employs a Spill Response Audit Method that includes a progression of review from the field supervisors, to the Field Services Manager, to the Superintendent, who develops the DRAFT report. The District Engineer reviews the Draft report for completeness, accuracy and to evaluate the conclusions drawn. The District Engineer returns the Draft report to the Superintendent and any discrepancies and/or differences of opinion are discussed/debated until consensus is achieved. The Final report is stored by the District for each SSO event to document the background, findings, calculations, corrective actions, and supporting information. This Spill Response Audit Method was established during the 2011 internal SSMP audit and has been modified from time to time.



The District strives to maintain quality data regarding historical SSOs so that trends in the occurrences and potential causes of SSOs can be identified and investigated. The following discussion investigates the District’s historical SSO data to identify potential SSO trends so that future efforts can be targeted to reduce SSOs.

Figure 1 shows that the number of SSOs per year from FY07/08 to FY14/15 remains relatively small compared to the average of other municipal agencies in the state and region per the Collection System Operational Performance Report posted by SWRCB CIWQS over that time period.

Figure 1: Number of SSOs per Fiscal Year

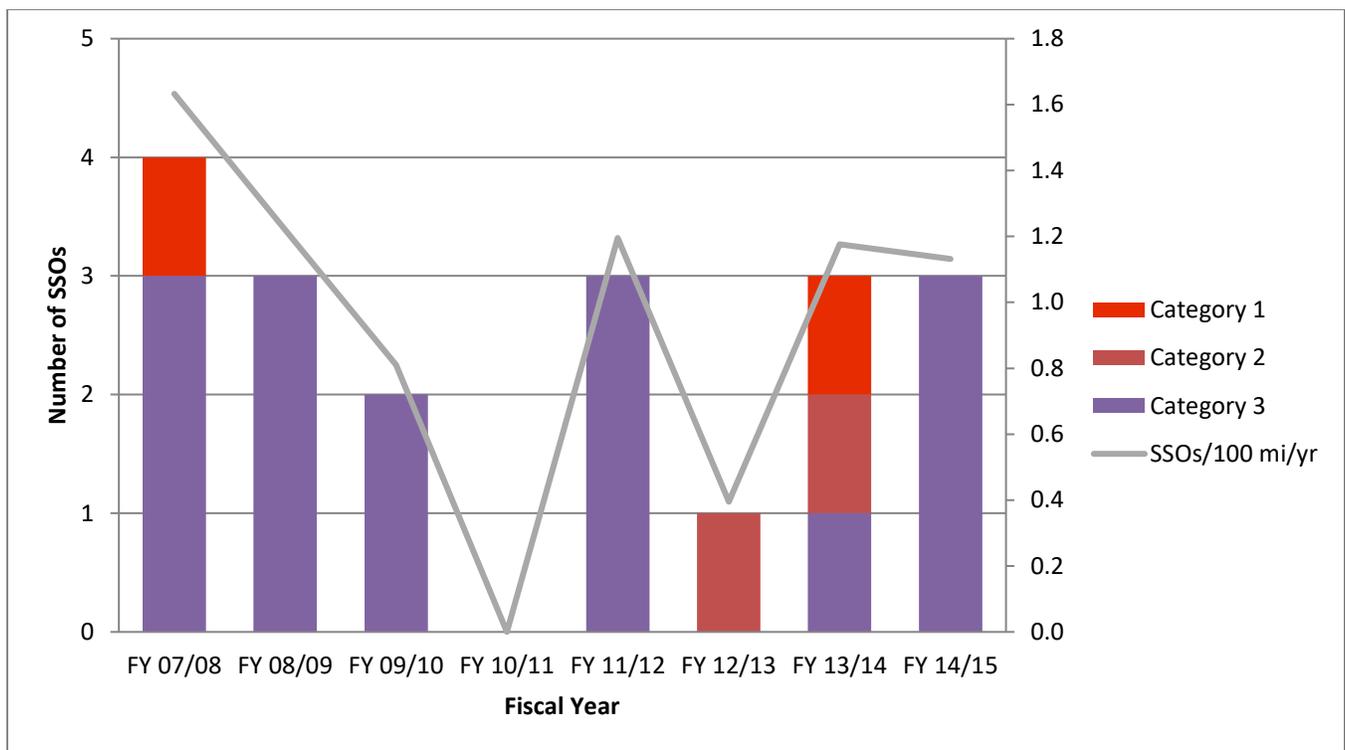
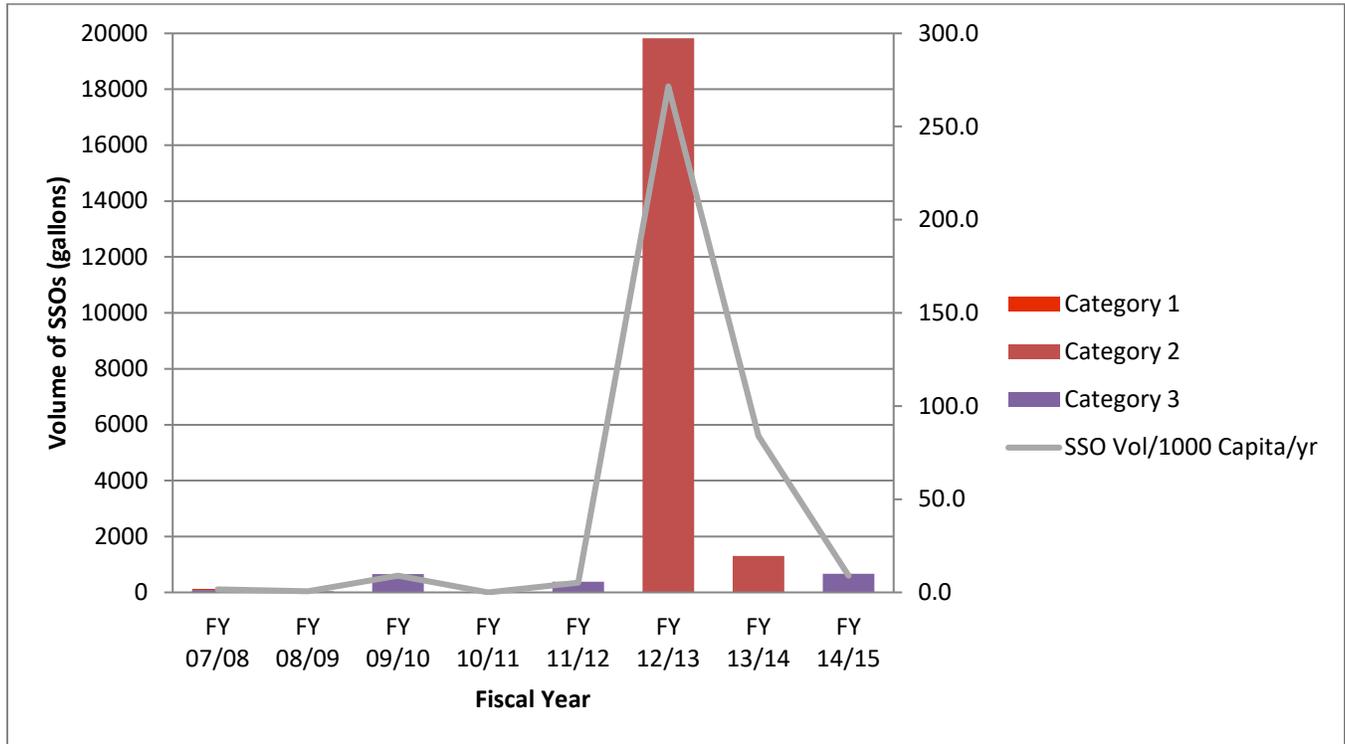


Figure 2 shows that the total volume of SSO per year has remained very small since fiscal year 2007/2008 with the exception of fiscal year 2012/2013, which was discussed in the previous audit. **Table 3** (above) indicates an SSO response time (from Start Time to Arrival Time) of 1.59 days. **Table 4** indicates three of the six SSOs during the audit period response times were 20 hours, almost two days and almost 6 days. This long period of time between discoveries to notification has contributed to the spill volume during the audit period. The District has signs on all field vehicles informing customers to “Call Us First” and every one-on-one contact with customers who have



reported a problem are informed to of the same. During the Audit period the District enhance its website to better convey this message and a newsletter was distributed to all customers, again with this message.

Figure 2: SSO Volume per Fiscal Year



The District’s SSO records were queried to identify the leading causes of SSOs. **Table 5** shows the leading causes of SSOs in the District by 1) the number of SSOs, and 2) the spill volume of SSOs.

Table 5. Leading Causes of SSOs in FY13/14 and FY14/15

SSOs by Number		SSOs by Volume		
Cause	Number	Cause	Gallons	Recovered
Contractor	0	Op. Error		
Roots	5	Roots	6731	428
Op. Error	0	Contractor	0	0
FOG	0	FOG	0	-
Capacity	0	Capacity	0	-
Debris	1	Debris	569	569
Pipe Failure	0	Pipe Failure	0	-



Table 5 shows that roots in pipelines is the leading cause of a SSO occurrence as well as leading to the majority of sewage spilled. The actions planned as a result of this SSMP audit will target the leading causes to most effectively reduce the number and spill volume of SSOs.

3.2 SSO Reduction Performance Goals

Currently, the District’s two goals related to SSO reduction measure the number of SSOs and the volume of SSOs. The SSO reduction goals for the number and volume of SSOs in a given year is determined by the average of the respective data over the previous five years. Over the past ten years the District has consistently had a small number of low-volume SSOs. SSO reduction goals based on five-year averages have served the District well in maintaining a small number and volume of SSOs and provide a realistic goal based on past performance. However, the District experienced one large SSO in FY12/13. This effectively increases the goal for volume of SSO in FY13/14 to over 4,000 gallons (or more than 35 times the goal from the previous year). Moving forward, the District has elected to establish a different goal to lessen the effect that anomalies have on the goals for subsequent years.

The District will strive for zero SSOs, but realizes any goal has to be realistic and achievable. A grading system has been established as follows:

FY 2015/2016 SSO Goals	
Number of SSO’s	Performance Score
0	Excellent
1	Good
2	Above Average
3	Acceptable
4+	Needs Improvement
Volume of SSO’s	Performance Score
0	Excellent
250	Good
500	Above Average
1000	Acceptable
1250	Needs Improvement

Table 6 compares the District SSO goals against the actual number of SSOs during the timeframe of the current SSMP internal audit. The District SSO goals are based on the average of the respective SSO-related data from the previous five years.



Table 6. SSO Reduction Goals

	FY13/14		FY14/15	
	Goal	Actual	Goal	Actual
Total SSOs	1.2 ¹	3	1.6 ¹	3
Gallons Spilled	4071 ¹	6631	5397 ¹	669
Category 1 SSOs	-	1	-	0
Category 2 or Category 3 ³ SSOs	-	2	-	3

¹ Goals are based on the average of SSO-related data from the previous five years.

3.2.1 Planned Efforts to Reach Identified SSO Reduction Goals

The following section describes specific changes to be implemented based on the identified SSO trends to meet the target reduction goals in **Table 6**. The discussion of planned efforts is broken down into a number of potential categories (i.e., cleaning, tools, maintenance schedules, BMPs, staffing, funding, and training). It is recommended that these categories for potential changes be revisited with each subsequent SSMP internal program audit to examine if they may apply to future conditions. Changes in each category may not be necessary in each audit, but addressing each category provides a holistic approach to SSO reduction.

Changes to be employed to sanitary sewer system cleaning

Beginning in July, 2015 the District made a significant change in its approach to cleaning mainline pipes. The High Priority Line cleaning program remains the same. These pipe segments have been identified as requiring more frequent cleaning than the typical line segment and have established cleaning intervals ranging from one month to 36 months. The change: In the past, lines were cleaned on a common interval – the goal being five (5) years. This is a somewhat arbitrary interval based on staff comfort levels and experience. The hydro-cleaning team did not have much information about the pipe condition and often didn’t know the proper nozzle type for a particular line segment. The District now uses observed conditions during pipeline inspections (i.e., CCTV inspect a pipeline before cleaning) to drive the frequency of cleaning for each pipeline. Two CCTV crews systematically inspect a maintenance zone, when completed the data is reviewed and line segments that need cleaning are cleaned. The goal is to have more targeted cleaning efforts throughout the system. All District mainline pipe will be CCTV inspected every four (4) years.

Changes to be employed to sanitary sewer system tools and/or technology

The District developed an in-house chemical root treatment program to control root intrusion into pipes. It was used for only a short period before the program was discontinued due to regulatory compliance issues – it became no longer cost-effective to continue the program. The District will return to contracted services for this application. The District’s method of determining which line segments need to be chemically treated and when they need to be treated will not change.

The new computerized maintenance management system (Lucity), which was introduced/discussed in the previous SSMP audit has not yet been implemented. The District continues to use its existing CMMS.



Changes to be employed to sanitary sewer system maintenance and repair schedules

No planned changes to current maintenance and repair schedules are anticipated to meet SSO reduction goals.

Changes to be employed to sanitary sewer system best management practices

The District contracted with a consultant to assist with the development of a Competency-Based SOP for Hydro-Vac line cleaning. Due to staffing issues, the SOP has not been finalized. It is anticipated the SOP will be completed by end of 2015. Upon completion of this SOP, the District will evaluate and then determine whether to continue this process of developing this type of SOP or try a different approach.

Changes to be employed to sanitary sewer system staffing levels and organization

No planned changes to staffing levels are anticipated to meet SSO reduction goals. The Field Services Department did reorganize however. The Field Services Manager position was eliminated and two Field Supervisor positions were created. The duties that were previously performed by the Superintendent and the Field Services Manager were redistributed between the Superintendent and the (x2) Field Supervisors. Generally, the Field Supervisors are responsible to carry out all field activities and the Superintendent's primary focus is on budget and regulatory compliance.

Changes to be employed to sanitary sewer system funding levels

No planned changes to funding levels are anticipated to meet SSO reduction goals.

Changes to be employed to sanitary sewer system training

As mentioned earlier, the District plans to formalize its standard operating procedures (SOPs). As part of this process the District will incorporate a formal training program in conjunction with the developed SOPs to improve training efforts and provide a level of assurance in the competencies of staff in regards to these procedures. This will be implemented and evaluated once the (new) SOP type/method is completed.

The District will also continue to provide training on the revised OERP, which reflects the changes to the MRP (see **Section 5.6**) to effectively meet the SSO reduction goals.

Measures to Assure No Repeat SSOs

The District employs various strategies to lessen the chance of repeat SSOs from the same location. The District completes a formal, written Spill Report for every SSO that occurs to identify any potential for a repeat blockage and the measures needed to lessen the chance of that occurring.

One of the objectives of the District R&R and CIP Programs is to correct deficiencies (i.e., condition or capacity related deficiencies) so that portions of the system that present a high risk of stoppages or SSOs are addressed. Addressing the high-risk assets in the collection system decreases the areas of the system that have an increased probability of a SSO. During 2015 the District identified and categorized its High Risk Facilities and is developing an approach to eliminate and/or mitigate SSO's. This is a carry-over from the previous SSMP audit.



SECTION 4 Audit Procedure

Per SSS WDR Section D.13.x, the objective of this audit is to focus on evaluating the effectiveness of the SSMP and the District's compliance with the SSMP requirements identified in the SSS WDR Order. This section describes the procedure used to accomplish this objective.

4.1 Review of SSMP Compliance

An assessment of South Placer Municipal Utility District's SSMP was conducted as part of the audit against the requirements outlined in the SSS WDR. The subsections of **SECTION 5** below are organized by SSMP element. Each subsection contains a table which lists the requirements of section D.13 of the SSS WDR and indicates the level of compliance of the SSMP against that requirement. The compliance status of the District's SSMP is indicated with one of the following ratings; **Yes** - *in compliance*, **No** - *not in compliance*, or **N/A** – *not applicable with a written justification in the SSMP*. If there are deficiencies with regards to compliance, an explanation of the deficiency is given. Each deficiency will have associated SSMP enhancements which may include action items, SSMP adjustments, and/or timelines of planned completion.

4.2 Review of SSMP Effectiveness

Subsequent to the indication of the level of compliance of the SSMP in relation to the requirements of the SSS WDR, an evaluation of the effectiveness of the SSMP elements will be conducted to comply with the requirements for SSMP audits per subsection D.13.x of the SSS WDR. The discussion reviews if the plan outlined for each section is being followed, and how effective the plan is at reaching the desired objectives. Where appropriate, recommendations will be made based on the results of this audit to identify tasks to improve the effectiveness of SSMP activities. Wherever possible, performance metrics will be used to measure the effectiveness of SSMP elements.

This section will not repeat the information and plans presented in each section of the SSMP. The focus of these sections is to evaluate the effectiveness of the stated plans for each SSMP element. The reader should reference the District SSMP to obtain the information reviewed by this audit.

A summary of the recommended modifications made throughout this SSMP internal program audit is included in **SECTION 6** – Audit Summary.



SECTION 5 Audit of SSMP Elements

This chapter evaluates all elements of the District’s SSMP. Each section of this chapter is associated with one of the eleven elements of the SSMP required by SSS WDR section D.13. Each element is evaluated for compliance and effectiveness using the procedure described above in **Sections 4.1** and **4.2**, respectively.

5.1 Goals

5.1.1 Compliance

Table 7. Compliance with SSS WDR D.13.i - Goals

SSMP Requirement	Compliance	Deficiencies
i Properly manage, operate, and maintain all portions of the District’s wastewater collection system.	Yes	

5.1.2 Effectiveness of SSMP Elements and Recommended Modifications

Goals (SSMP Section 1)

- Level of Effectiveness: The District currently has eight general goals identified in the SSMP. The SSMP references the District’s Strategic Plan as the source of the goals. The Strategic Plan was updated in 2013 and the goals (i.e., Key Areas of Focus) were updated and expanded. The goals that South Placer Municipal Utility District recorded in the SSMP and Strategic Plan have been effective in guiding the activities of the District to properly manage, operate, and maintain all parts of the sanitary sewer system.
- Key Performance Indicators:
 - Review of bi-annual Strategic Plan Report Card
- Recommendations:
 - No recommended modifications at this time.

5.2 Organization

5.2.1 Compliance

Table 8. Compliance with SSS WDR D.13.ii - Organization

SSMP Requirement	Compliance	Deficiencies
ii(a) Identify Legally Responsible Official (LRO)	Yes	-
ii(b) SSMP responsibility and organization chart	Yes	-
ii(c) Chain of communication for reporting SSOs	Yes	-



5.2.2 Effectiveness of SSMP Elements and Recommended Modifications

Identify Legally Responsible Official (LRO) (SSMP Section 2.A)

- Level of Effectiveness: The General Manager is the District's authorized representative in all wastewater collection system matters. The SSMP designates the Superintendent as the District's legally responsible official (LRO). The SSMP lists the Field Services Manager, as authorized representative in the Superintendent's absence. The current organization of LROs and Data Submitters has proven effective in appropriately reporting SSOs to meet the requirements of the Monitoring and Reporting Program.
- Recommendations:
 - No recommended modifications at this time.

SSMP Responsibility Organization Chart (SSMP Section 2.B)

- Level of Effectiveness: A chart in this section provides the title, name, phone number, and a short description of each individual's job responsibilities. Additionally Table 2.1 of the SSMP lists the elements of the SSMP and the responsible party. The SSMP also includes an organization chart to identify lines of authority. The combination of the two tables in the SSMP effectively outline individuals responsible for implementing the SSMP, their names and contact information, and the specific elements of the SSMP for which they are responsible.

Key Performance Indicators:

1. Are the names and telephone numbers for (authorized) management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program current?
 - a. Measured by:
 - i. Review of Tables 2.0 and 2.1 for accuracy and completeness
2. Is the organization chart current?
 - a. Measured by:
 - i. Updating the SSMP with the Organizational Chart that is included in the Annual Budget
3. Is the chain of communication for reporting SSOs adequate and adhered to during responses to SSO events?
 - a. Measured by:
 - i. Review of the SSO Response Debriefing Form for the monitoring period



- Recommendations:
 - No recommended modifications at this time.

Chain of Communication Reporting Chart (SSMP 2.C)

- Level of Effectiveness: The SSMP outlines the chain of communication for reporting SSOs from the receipt of complaint to CIWQS reporting. The District trains individuals in the positions of Lead Worker and Field Supervisor to act as On-Call Supervisors to assure that required reporting information is properly collected during the response to a SSO. All field personnel are trained as On-Call Responders. The District’s chain of communication for SSO reporting appears to be effective based on the completeness and thoroughness of the information documented in the District’s internal Spill Reports and on the CIWQS database.
- Recommendations:
 - No recommended modifications at this time.

5.3 Legal Authority

5.3.1 Compliance

Table 9. Compliance with SSS WDR D.13.iii – Legal Authority

SSMP Requirement	Compliance	Deficiencies
iii(a) Prevent illicit discharges	Yes	-
iii(b) Properly designed and constructed sewers	Yes	-
iii(c) Ensure access to laterals owned/maintained by District	Yes	-
iii(d) Limit the discharge of FOG and other debris	Yes	-
iii(e) Enforce any violation of District ordinances	Yes	-

5.3.2 Effectiveness of SSMP Elements and Recommended Modifications

Prevent Illicit Discharges Authority (SSMP 3.A)

- Level of Effectiveness: Ordinance 09-02 bans inflow from storm water sources (2.04.A) and prohibits illicit discharges from service connections (2.04.B).
- Recommendations:
 - It was recommended in the 2013 audit that the District establish a flow monitoring program to evaluate the impact private collection systems have on the District’s system. The FY 15/16 Budget contains a line item to purchase portable flow monitoring equipment with the capability of monitoring lower flows, which will allow for the monitoring private systems such as mobile home parks and apartment complexes. If deemed necessary, a campaign to educate the owners of the private system of District requirements and the consequences for non-compliance will be established.

Design and Construction Standards (SSMP 3.B)

- Level of Effectiveness: The MUD Act and District Ordinance 09-02 provide the legal authority to require the proper design and construction of sewers and connections. Ordinance 09-02 references the District Standard Specifications and Improvement Standards for Sanitary Sewers as the requirements for proper



design and construction. The legal authority for enforcing proper design and construction has been effective in ensuring that new construction and improvements are built according to District specifications.

- Recommendations: No recommended modifications at this time.

Sewer Access Authority (SSMP 3.C)

- Level of Effectiveness: Ordinance 09-02 provides the legal authority that ensures access for maintenance, inspection and repairs to publically owned portions of laterals and clearly defines District responsibility and policy. District Ordinance 09-01 provides the legal authority to enter and inspect Food Service Establishments and other FOG producing businesses. The legal authority for ensuring access as described above has been effective because, to date, the District has not been denied access nor has been inhibited in a way that has prevented staff from performing required duties.
- Recommendations: No recommended modifications at this time.

Limit FOG Discharges Authority (SSMP 3.D)

- Level of Effectiveness: Ordinance 09-01 provides the legal authority to limit the discharge of FOG. The District's legal authority has been effective in limiting the number of blockages caused by FOG as evidenced by the fact that zero SSOs caused by FOG occurred during the period of this audit and the last FOG-related SSO occurred in 2007. The District is currently re-evaluating the implementation goals of the FOG program with the intent of establishing new goals.
- Recommendations: No recommended modifications at this time.

Enforcement Authority (SSMP 3.E)

- Level of Effectiveness: The MUD Act provides the legal authority to enforce violations of the District's sewer ordinances. The legal authority to enforce any violation of the District sewer ordinances provided by the MUD Act has been sufficient to ensure that the District standards and specifications are implemented.
- Recommendations: No recommended modifications at this time.



5.4 Operation and Maintenance Program

5.4.1 Compliance

Table 10. Compliance with SSS WDR D.13.iv – O&M Program

SSMP Requirement	Compliance	Deficiencies
iv(a) Collection system maps	Yes	-
iv(b) Preventive O&M activities	Yes	-
iv(c) Rehabilitation and Replacement (R&R) plan	No	The District R&R plan lacks long-term planning of CIPs, and associated funding requirements, to address identified deficiencies. However the District’s High Risk Facilities program is underway – the risk assessment results are expected to be presented to the Board of Directors in November, 2015 and the plan/schedule completed by the end of FY 15/16.
iv(d) Training	Yes	The District provides regular training but additional improvements to the training program should be implemented (see below).
iv(e) Equipment and critical replacement parts	Yes	-

5.4.2 Effectiveness of SSMP Elements and Recommended Modifications

Collection System Maps (SSMP 4.A)

- Level of Effectiveness:** The District maintains electronic and hard copy maps of the sanitary sewer system. The District does not own or operate the storm drain systems within its boundary. The storm drain systems are owned and operated by the District stakeholders (i.e., the City of Rocklin, the Town of Loomis, and unincorporated Placer County). The District has requested and received what is available from each jurisdiction. The City of Rocklin has provided paper copies of their storm drain system; the Town of Loomis has provided a storm drain master plan document that does not provide maps, but generally describes where and how storm water is conveyed; Placer County does not have storm drain information available for the unincorporated areas this District serves.

Electronic mapping data (sewer collection system) is accessible in the District’s GIS, and hard copy maps are located at the District offices and field crew trucks. Maps are updated with assets from new development, after repairs to the system, or following rehabilitation/replacement of assets. New procedure has been established for updating the District GIS mapping. An SOP has been established.

The collection system maps are effective in communicating the location of District assets as well as providing a geospatial database to house important attributes about each asset. The District GIS (i.e., geospatial location and associated attribution) is available only to select staff. The District expects the GIS



to be available to all staff by end of 2015. The information stored in these databases would be more effective if it were available to all of the District staff.

- Recommendations:
 - Continue to inquire about the availability and updates to surrounding jurisdiction’s storm drain maps.

Preventive Operations & Maintenance Activities (SSMP 4.B)

- Level of Effectiveness: The audit identified and verified that the District engages in programs to complete the routine preventative maintenance activities listed in SSMP section 4.B. The District utilizes a computerized maintenance management system (CMMS) to schedule cleaning of known problem areas and to document completed work orders. During the audit period, continued the process of implementing a new CMMS and is in the process of migrating legacy data, implementing new user interfaces, and training.

The District tracks a number of metrics related to the O&M activities. A selection of O&M activities are listed in **Table 11** with the actual quantities accomplished in FY13/14 and FY14/15.

Table 11. Activities related to SSS WDR D.13.iv(b)

Performance Measure	FY13/14	FY14/15
Total miles cleaned per year	74	66
Mainline pipe repairs completed	6	47
Length of pipe chemically treated for roots	0 LF	8,759 LF
Cleanouts installed or repaired	41	19

The District accomplishes a significant amount of maintenance-related activities each year. However, clearly-defined goals were not set for these activities until July 1, 2015, so it is difficult to measure the effectiveness of planned activities against the desired outcomes.

The District has made strides towards developing formal, written SOPs for its preventative maintenance programs. To increase the effectiveness of the preventative maintenance programs, the District should develop SOPs for the related activities to increase the consistency of the work product.

- Recommendations:
 - Implement and launch the new CMMS (Lucity) to effectively manage the District maintenance programs by scheduling/assigning/completing/QC’ing works.
 - Develop SOPs for the regular preventative maintenance activities. The following is a list of suggested SOPs:
 - High Velocity Vacuum Cleaning (In progress as of August, 2015)
 - Corrective Maintenance (Pipe Repair)
 - Lift Station Maintenance and Troubleshooting



Rehabilitation and Replacement Plan (SSMP 4.C)

- **Level of Effectiveness:** Pipelines and manholes are regularly inspected by District crews. The District historically has employed a custom rating system to assign the severity of observed defects. In 2014 the District began to employ the PACP defect coding method and expects to continue with it for the foreseeable future. The length of pipeline and the number of manholes inspected each year are tracked in the District’s CMMS.

The District staff employ a standardized process for prioritizing rehabilitation and replacement activities and selecting the appropriate method of repair. This process involves compiling and reviewing the data the District has about each asset to assess the condition of the pipe using CCTV records, review past work order history (e.g., flushing history, root treatment, high frequency cleaning), evaluate the asset location, review pipeline attributes (e.g., age, material), review the hydraulic capacity, and gather institutional knowledge about the pipeline and previous work in the area. The highest priority assets are grouped into a project each year and repaired.

The District tracks a number of metrics related to inspection activities. A selection of inspection activities are listed in **Table 12** with the actual quantities accomplished in FY13/14 and FY14/15.

Table 12. Performance Measures related to SSS WDR D.13.iv(c)

Performance Measure	FY13/14	FY14/15
Independent manhole inspections per year	2,462	1,650
Total miles CCTV inspected/year (main) GOAL: 66 Mi	76	66

The District accomplishes a significant amount of inspection-related activities each year. However, clearly-defined goals were not set for these activities during the audit period so it is difficult to measure the effectiveness of planned activities against the desired outcomes. Clear goals were established for this task in July 2015. The District is committed to CCTV inspecting their entire system every four (4) years. The current long-term capital improvement projects are based on the projects identified in the 2009 Master Plan and the District’s System Evaluation and Capacity Assurance Program. Long-term planning of capital improvement projects does not currently account for the replacement of system assets based on the structural or maintenance condition, the work order history, the criticality of the asset location, etc.

- **Recommendations:**
 - Create a Five Year CIP plan to address the highest risk assets in the system by integrating the evaluation of all available data and projecting the schedule of proposed projects over multiple years. This is a work-in-progress and it is anticipated to be completed by the end of FY 2015/16.
 - Document the process/procedure for evaluating available data (i.e., CCTV, CMMS, GIS, capacity assessment, visual inspections), conducting a risk assessment to determine the assets to be renewed, and developing the R&R plan with its associated data. (It is expected this will be completed by November, 2015)
 - Develop SOPs for regular inspection activities. The following is a list of suggested SOPs based on the activities currently tracked with performance measures:



- CCTV Inspections
- Manhole Inspections
- Lift Station Inspections

Training (SSMP 4.D)

- Level of Effectiveness: The District requires all maintenance workers and technical service staff to receive training. The District adheres to the monthly Safety and Training Schedule located in Appendix D of the SSMP. In addition, the tailgate safety meetings are, for the most part, held every 10 days. The current training program has been effective in developing safe and effective staff.
Training on the topics listed in Appendix D of the SSMP occurs consistently. However, training on the operation of the various pieces of equipment that the District employs to complete the routine maintenance activities has not occurred regularly. To increase the likelihood that staff will safely and consistently operate the equipment needed to complete assigned O&M tasks, training on the equipment should be improved upon.
- Recommendations:
 - Develop a schedule for regular training on the specific equipment that the District owns. The schedule equipment training should identify the frequency of training, the proposed instructors, appropriate referencing of SOPs and manuals, and the individuals required to take the training.
 - Use the SOPs (recommended in this audit) as a training tool for District staff. The SOPs should be developed so that 1) they provide a framework for the consistent delivery of required information, skills, and familiarity with equipment, and 2) they can be used to demonstrate competence of an individual in the particular subject.

Equipment and Critical Replacement Parts (SSMP 4.E)

- Level of Effectiveness: In response to the last SSMP audit, a method for documenting the tracking of inventory and critical spare parts was started. A list of SPMUD Lift Station Critical Spare Parts is contained in the SSO ERP in Appendix A. The SSMP calls for bi-annual audits of the critical spare parts inventory. This method is still under development and the bi-annual audits are not currently being performed. The current process of ensuring the necessary parts has proven adequate. The District has not experienced a SSO due to the lack of equipment or critical spare parts (e.g., lift station pump failure, loss of power). However, the process that was started should be finished to solidify/improve the methods used to ensure that required equipment and parts are available when necessary.
- Recommendations:
 - Finalize the program for documenting the equipment inventory and critical spare parts and implement it through annual audits.



5.5 Design and Performance Provisions

5.5.1 Compliance

Table 13. Compliance with SSS WDR D.13.v – Design and Performance Provisions

SSMP Requirement	Compliance	Deficiencies
v(a) Sanitary sewer design and construction specifications	Yes	-
v(b) Procedures and standards for inspecting and testing new and R&R projects	Yes	-

5.5.2 Effectiveness of SSMP Elements and Recommended Modifications

Sanitary Sewer Design and Specifications (SSMP 5.A)

- Level of Effectiveness: The District Specifications and Improvement Standards for design and construction are effective in ensuring that new or rehabilitated infrastructure is designed and constructed in an acceptable manner.
 The District Specifications and Improvement Standards are easily accessible to interested parties through the District website so that they can be more effectively implemented.
 The District Specifications and Improvement Standards are updated as needed.
- Recommendations: No recommended modifications at this time.

Sanitary Sewer System Construction and Performance Provisions (SSMP 5.B)

- Level of Effectiveness: The procedures for testing of new/rehabilitated assets are clearly defined and these procedures have been effective in ensuring that recently constructed assets perform as expected.
- Recommendations: No recommended modifications at this time.



5.6 Overflow Emergency Response Plan

5.6.1 Compliance

Table 14. Compliance with SSS WDR D.13.vi - OERP

SSMP Requirement	Compliance	Deficiencies
vi(a) Proper notification procedures	Yes	-
vi(b) Program for appropriate SSO response	Yes	-
vi(c) Procedure for prompt notification to regulatory agencies	Yes	-
vi(d) Procedures for appropriate training of staff and contractors	Yes	-
vi(e) Procedures to address emergency operations (e.g., traffic, crowd control)	Yes	-
vi(f) Program to ensure containment of SSO to prevent discharge and minimize adverse impacts on the environment	Yes	-

The State Water Board amended the monitoring and reporting program (MRP) with revised requirements (Revised MRP WQ 2013-0058-EXEC) that took effect September 9, 2013. The revised requirements are available at the State Water Resources Control Board’s Sanitary Sewer Overflow Reduction Program website (http://www.waterboards.ca.gov/water_issues/programs/ssso/). The changes from these revised requirements include the type of data that must be collected in the event of an SSO and the follow up reporting that is required.

- Recommendations: No recommended modifications at this time.

The South Placer Municipal Utility District Sanitary Sewer Overflow Emergency Response Plan (SSO ERP) was first adopted in January 2001. The ERP will be revised in April 2014 to incorporate new requirements from the revised MRP and to reflect other modifications in the evolution of the District SSO ERP procedures.

5.6.2 Effectiveness of SSMP Elements and Recommended Modifications

Notification Procedures (SSMP 6.A)

- Level of Effectiveness: Historically the District’s average SSO response time (i.e., notification of SSO to operator arrival time) has met the District goal of 30 minutes during working hours and 60 minutes during non-working hours. However, during the monitoring period response times were not calculated, though they are regularly scrutinized as part of the SSO debriefing procedure. This indicates that the notification procedures employed by the District are effective in facilitating a rapid response from the District’s first responders.

Section 7 of the SSO ERP clearly outlines the notification procedures for the various situations that may be encountered and lists the contact information of all potentially applicable agencies. These resources have proven effective for notifying appropriate agencies in response to a SSO.



- **Recommendations:** Calculate SSO response times and document findings to be used as an analysis tool when evaluating responses to SSO's.

Response Program (SSMP 6.B)

- **Level of Effectiveness:** The District SSO ERP effectively outlines the program that the District uses to appropriately respond to a SSO event. The SSO ERP has gone through a number of iterations over the past 13 years and encapsulates the best practices of the District in responding to a SSO. The SSO ERP has been effective in responding to SSOs. The District has implemented procedures and methods to consistently estimate and document the SSO start time and SSO volume according to the best available information. The District also implements a Spill Response Debriefing Form after each SSO event to conduct a self-evaluation of the various aspects of a SSO response as defined in the SSO ERP. This is effective in documenting the level of effectiveness of the SSO ERP, the solutions to unique problems encountered during the response, and suggested improvements to the SSO ERP while the information from the event is still fresh in the responders' minds.
- **Recommendations:**
 - Consider adding the following information to Appendix D of the SSO ERP; the volume of the wet well, the available storage/downtime if the lift station goes down.
 - Consider posting the information contained in Appendix D of the SSO ERP at each lift station. This information is contained in the SSO-ERP, which are kept in all emergency response vehicles as well as On-Call Supervisor trucks.

Regulatory Notification Procedure (SSMP 6.C)

Level of Effectiveness: The current arrangement of the LRO with a group of individuals that are able to act in the absence of the LRO have met the needs of the District to effectively report to the CIWQS database in a timely manner. The On-Call Supervisor is responsible for reporting SSOs to Cal-OES, Placer Environmental Health Department, and other affected agencies as necessary.

The regulatory notification procedure has proven effective because to date, the District has not encountered a situation in which notification information for a required party was not available to District staff responding to a SSO.

- **Recommendations:** No recommended modifications at this time.

Staff and Contractors Training (SSMP 6.D)

- **Level of Effectiveness:** Each employee is required to complete SSO response procedure training. Various aspects of SSO training are included in the monthly training schedule each year. While training on the SSO ERP has occurred over multiple years, the response procedures (e.g., estimating the spill volume) have not always been applied in accordance with the SSO ERP training. The training has led to improvement in understanding and applying documented response procedures, but there still exists a need for further training. Enhanced SSO response training has been provided to select staff who serve as On-Call Supervisors and it is required that they be contacted and involved in every SSO occurrence.



Contractors are also required to implement the procedures identified in the SSO training prior to working within the collection system.

Recommendations: No recommended modifications at this time

Emergency Response Coordination (SSMP 6.E)

- Level of Effectiveness: Section 5 of the SSO ERP addresses emergency operations including hazardous spills, traffic control, and crowd control. The measures outlined in this section have proven effective for the situations that the District has encountered to date.
- Recommendations: No recommended modifications at this time.

Spill Mitigation and Containment Procedure (SSMP 6.F)

- Level of Effectiveness: An SSO ERP is available for staff training and for use during a SSO event. The SSO ERP is comprehensive and indicates proper roles and responsibilities as well as SOPs for multiple items including spill rate estimation (Appendix E of SSO ERP) and water quality sampling (Appendix F of SSO ERP). The SSO ERP has been effective in defining the steps to be taken to contain and prevent a SSO from discharging to waters of the United States and to minimize any adverse impact on the environment.
- Recommendations: No recommended modifications at this time.

5.7 FOG Control Program

5.7.1 Compliance

Table 15. Compliance with SSS WDR D.13.vii – FOG Control Program

SSMP Requirement	Compliance	Deficiencies
vii(a) Public education plan	Yes	-
vii(b) FOG disposal plan	Yes	-
vii(c) Legal authority to prohibit SSOs and blockages caused by FOG discharges	Yes	-
vii(d) BMPs, grease removal devices, recordkeeping, and reporting requirements	Yes	-
vii(e) Authority to inspect and enforce FOG ordinance	Yes	-
vii(f) FOG Characterization Assessment and Hot Spot Cleaning Schedule	Yes	-
vii(g) FOG Control Program Measures	Yes	-

The District historically has had very few problems with FOG-related blockages and SSOs. Despite that fact, the District began a FOG program in 2009 to be proactive in dealing with FOG sources. To date there has been little momentum behind the FOG program, however the District is currently re-evaluating the implementation goals of the FOG program with the intent of establishing new goals.



5.7.2 Effectiveness of SSMP Elements and Recommended Modifications

Public Education Plan (SSMP 7.A)

- Level of Effectiveness: The efforts the District has made to distribute information through the District website and community events appear to be effective in reaching the objective of educating the public on the proper disposal of FOG and other substances.
- Recommendations: No recommended modifications at this time.

FOG Disposal Plan (SSMP 7.B)

- Level of Effectiveness: The District offers free pick up of FOG from its residential customers. The FOG program also lists acceptable grease haulers and disposal facilities for FSEs to utilize to properly dispose of generated FOG. These programs appear effective because of the small number of FOG blockages in the system.
The District is a member of the South Placer Wastewater Authority (SPWA) and partners with the City of Roseville and Placer County for wastewater treatment. The SPWA is embarking on the development of a FOG receiving station and it is anticipated it will be operational sometime during the next SSMP audit period.
- Recommendations: No recommended modifications at this time.

Legal Authority to Prohibit SSOs and Blockages Caused by FOG Discharges (SSMP 7.C)

- Level of Effectiveness: District ordinance 09-01, which establishes requirements regarding FOG and the Standard Specifications provide the necessary legal authority for the District to prohibit FOG. These documents are effective in requiring the type of equipment to reduce FOG discharged from FSEs, as well as indicating the authority of the District to prohibit SSOs and blockages due to FOG.
- Recommendations: No recommended modifications at this time.

BMP, Grease Removal Devices, Recordkeeping, and Reporting Requirements (SSMP 7.D)

Level of Effectiveness: District Ordinance 09-01 section 2.04 requires that all FSEs have best management practices (BMPs). The District's efforts to disseminate information regarding BMPs, grease removal devices and the associated record keeping and reporting requirements have been effective. Also each FSE must have an appropriately sized grease removal device per the Uniform Plumbing Code. The District provides information about BMP requirements, BMP posters, and BMP information sheets on the following topics; proper grease disposal, requirements for new and remodeled FSEs, grease interceptor maintenance, grease trap maintenance, selecting a grease hauler, a list of licensed grease haulers, and equipment cleaning in booklet form as a resource for FSEs within the District. The District supplements the information provided about its program through onsite inspections/meetings with FSEs to reinforce the level of understanding of the FOG program and its requirements.

District Ordinance 09-01 section 4.10 includes a list of recordkeeping items that may be required to be kept for no less than three years and made available upon request of a FOG Inspector or District representative.

- Recommendations: No recommended modifications at this time.



Inspection and Enforcement Authority – FOG Producers (SSMP 7.E)

- **Level of Effectiveness:** Ordinance 09-01 provides District inspectors right of entry to access and inspect FSEs and take enforcement actions for non-compliance. As identified in **Section 3.1** above, FOG is not a significant contributor the number or volume of SSOs. If FOG were a significant contributor to SSOs, then it would be expected that the number of enforcement actions against FSEs contributing to the blockages might be higher. However, the low number of FOG-related SSOs correlates with the low number of FOG-related enforcement actions.
- **Recommendations:** No recommended modifications at this time.

FOG Characterization Assessment and Hot Spot Cleaning Schedule (SSMP 7.F)

- **Level of Effectiveness:** The District currently has 194 pipeline segments on the high frequency (hot spot) cleaning schedule. The cleaning schedule and records of cleaning are documented in the CMMS. The District’s aggressive hot spot cleaning schedule has proven effective in limiting the number of SSOs due to FOG blockages.
- **Recommendations:**
 - Develop a SOP describing the process of how pipelines are added to the high frequency (hot spot) cleaning schedule, how the cleaning frequency (i.e., number of months) for each hot spot is initially set, and how the cleaning frequency for an individual hot spot may be adjusted over time.

FOG Source Control Program (SSMP 7.G)

- **Level of Effectiveness:** Eventually, the District will use the FOG Wastewater Discharge Permit (WDP) program as a means for FOG source control by applying incremental and progressive discipline if permit holders are in violation of the FOG ordinance until performance measurements are met. This District has not yet implemented the FOG WDP program or developed additional source control measures related to the high frequency schedule referenced above because of the lack of FOG-related blockages/SSOs.
- **Recommendations:** No recommended modifications at this time

5.8 System Evaluation and Capacity Assurance Plan

5.8.1 Compliance

Table 16. Compliance with SSS WDR D.13.viii - SECAP

SSMP Requirement	Compliance	Deficiencies
viii(a) Evaluate hydraulic deficiencies	Yes	-
viii(b) Establish design criteria	Yes	-
viii(c) Establish short- and long-term CIP	Yes	-
viii(d) Develop schedule of completion dates for CIP	Yes	-



5.8.2 Effectiveness of SSMP Elements and Recommended Modifications

Evaluation of Hydraulic Deficiencies (SSMP 8.A)

- Level of Effectiveness: The District maintains its own hydraulic model and hydraulic modeling software. The evaluation of the hydraulic capacity of the sewer trunk system using this model identified potential deficiencies and recommended improvements at different trigger points. Having the hydraulic model maintained by the District allows for continuous use of the model results and periodic updates of the hydraulic model as needed. This is an effective method for evaluating potential deficiencies in the system and assuring capacity for customers under various scenarios. The District updated the hydraulic model in May, 2015.
- Recommendations: No recommended modifications at this time

Design Criteria (SSMP 8.B)

- Level of Effectiveness: The District established a 10-year 6-hour peak wet weather design storm for the evaluation of existing collection system components and sizing of new collection system components. A 10-year 6-hour peak wet weather design storm has been effective in accounting for the impact of wet weather events on the system and planning for system improvements.
- Recommendations:
 - No recommended modifications at this time

Short-term and Long-term Capital Improvement Plan (SSMP 8.C)

- Level of Effectiveness: The District hydraulic model includes the identification of short and long-term Capital Improvement Projects (CIP) to meet current and future build-out flow projections for trunk sewers larger than 10 inches. There has not been a capacity related SSO from the District system. The short-term and long-term CIPs identified in the model to address hydraulic deficiencies are effective in assuring that the system has sufficient capacity in-step with future growth.
- Recommendations:
 - Extend the hydraulic model to include all pipes within the collection system so that short-term and long-term CIPs account for hydraulic deficiencies in the collector lines of the system.

Capital Improvement Program Schedule (SSMP 8.D)

- Level of Effectiveness: The hydraulic model identified a number of sewer trunk segments that need additional capacity as new development continues to connect to the collection system. The schedule of capital improvement projects to address potential hydraulic deficiencies in the system has been effective in identifying the order and timing in which projects need to be accomplished. At the time of this audit, the preliminary work for two large-scale projects identified in the SECAP has begun.
- Recommendations: No recommended modifications at this time.



5.9 Monitoring, Measurement, and Program Modifications

5.9.1 Compliance

Table 17. Compliance with SSS WDR D.13.ix – MMM

SSMP Requirement	Compliance	Deficiencies
ix(a) Maintain metrics to prioritize SSMP activities	Yes	-
ix(b) Measure effectiveness of SSMP elements	Yes	The District currently does not maintain a set of clear measurable goals that can be used as performance indicators for specific elements of the SSMP.
ix(c) Assess preventative maintenance program	Yes	-
ix(d) Update elements based on evaluations	Yes	-
ix(e) Identify and illustrate SSO trends	Yes	-

5.9.2 Effectiveness of SSMP Elements and Recommended Modifications

Relevant Information to Prioritize SSMP Activities (SSMP 9.A)

- Level of Effectiveness: The District tracks a number of metrics to prioritize SSMP activities and assess the associated production and level of effort. The performance of the two departments in the District is summarized in annual reports. These reports are effective in presenting the level of performance and the efficiency of the work completed throughout the year. This information is used as a tool to prioritize future work.
- Recommendations: No recommended modifications at this time.

Metrics to Monitor Effectiveness of SSMP (SSMP 9.B)

- Level of Effectiveness: The District currently tracks performance using a number of metrics. However, none of these metrics are associated with specific SSMP elements. Very few of these metrics have identified targets or goals. These metrics can be used to measure the level of effort, but without associating metrics to specific SSMP elements and without setting goals for each metric it is difficult to monitor the effectiveness of the SSMP.
- Recommendations:
 - Identify metrics that correspond with specific elements of the SSMP and develop numerical goal ranges so the data currently collected and monitored by the District can be used as performance indicators (PIs) to quantitatively monitor SSMP effectiveness. The ultimate measure of SSMP effectiveness is the limiting of SSOs. However, setting goals for activities related to various SSMP elements and measuring performance against those goals, will help determine how success in those elements, relates to the overall effectiveness of limiting SSOs. Associating metrics with specific SSMP elements will allow for direct assessment of those elements and provide consistency in their evaluation in future audits. Assign the individuals responsible for the various elements of the SSMP to complete the Performance Indicator Assessment Forms that are developed for their SSMP elements. A sample Performance Indicator Assessment Form is



included in **Appendix 7.1** of this internal audit. Performance Indicator Assessment Forms can be developed for each metric and assessed periodically by the person responsible, according to the suggested audit frequency for that metric. At the time of the next internal SSMP audit, the completed Performance Indicator Assessment Forms can be used to evaluate the effectiveness of SSMP elements and included as attachments to the audit.

Metrics to Assess Preventative Maintenance Program (SSMP 9.C)

- Level of Effectiveness: The District tracks a number of metrics to quantitatively evaluate the performance of the activities of the preventative maintenance program. This is effective because it allows the District to monitor the performance of particular activities over time and against other metrics (e.g., staffing levels, SSO trends) to determine correlations between the data. However, not all of the metrics have an associated goal, which makes it difficult to assess whether or not that activity is meeting the intended result.
- Recommendations:
 - Develop goals for metrics that track preventative maintenance activities and identify the person/position responsible for tracking data against those goals.

SSMP Performance Monitoring and Update Process (SSMP 9.D)

- Level of Effectiveness: The District tracks revisions/updates to the SSMP using Track Changes in Microsoft Word and is maintained by the Technical Services Manager. The Track Changes to the SSMP is effective in documenting the changes to the SSMP over time. Track Changes allows for multiple individuals to suggest modifications to the SSMP. The Track Changes program documents who made the suggested changes and when and allows for the suggested changes to be accepted or rejected in the next SSMP revision.
- Recommendations: No recommended modifications at this time.

SSO Trends – Frequency, Location and Volume (SSMP 9.E)

- Level of Effectiveness: The District tracks a number of key pieces of information in order to attempt to identify trends in SSO data. Appendix C in the SSMP summarizes key pieces of information (e.g., pipe age, pipe material, pipe diameter, SSO cause) about each SSO event as well as the results of SSO trending to communicate the highest priorities for attempting to minimize the number and severity of SSOs.
- Recommendations: No recommended modifications at this time.



5.10 SSMP Program Audits

5.10.1 Compliance

Table 18. Compliance with SSS WDR D.13.x – SSMP Program Audits

SSMP Requirement	Compliance	Deficiencies
x Conduct periodic audits	Yes	-

5.10.2 Effectiveness of SSMP Elements and Recommended Modifications

Periodic SSMP Internal Audits (SSMP 10)

- Level of Effectiveness: The District conducts an internal audit biennially with a primary focus on the evaluation of system metrics towards the elimination of preventable SSO and the reduction of the impact of those SSOs that do occur. The internal audit is helpful in identifying areas of improvement. The past audit identified enhancements and plans were put in place to improve the SSMP. This audit has specified additional recommended enhancements. The regular review of the SSMP assures the usefulness of the planned activities.
- Recommendations:
 - Post this SSMP internal audit to the District website.
 - Schedule the next internal SSMP audit for July - August 2017.
 - Use the format of this audit for future internal audits.

5.11 Communication Program

5.11.1 Compliance

Table 19. Compliance with SSS WDR D.13.xi – Communications Program

SSMP Requirement	Compliance	Deficiencies
xi(a) Communicate on a regular basis with the public and tributary/satellite systems regarding SSMP	Yes	-

5.11.2 Effectiveness of SSMP Elements and Recommended Modifications

Internal Communication – Staff and Board of Directors (SSMP 11)

- Level of Effectiveness: The District communicates information about the SSMP and the related programs to the Board of Directors periodically through the General Manager. This communication is important to inform the Board of implementation and performance of the District against the SSMP.



The District communicates the implementation and performance of the SSMP to the public via the District website, quarterly billing statements, and the CIWQS database. It is difficult to assess the level of effectiveness of the communication of SSMP-related information because of the limited response.

The District does not have any satellite agencies that discharge into the District's collection system. However, the District discharges into the City of Roseville collection system and the Placer County SMD No.2 collection system. The City of Roseville and Placer County are regional partners with the District in the South Placer Wastewater Authority (SPWA). Quarterly meetings with the regional partners have proven effective to discuss the ongoing coordination between the tributary/satellite systems.

- Recommendations: No recommended modifications at this time.



SECTION 6 Audit Summary

This section summarizes the level of compliance of the SSMP with the SSMP requirements identified in subsection D.13 and the identified deficiencies as described in **Section 4.1**. **Table 20** is a summary of the results of that evaluation.

Table 20. Summary of SSMP Compliance Deficiencies

SSMP Requirement	Compliance	Deficiencies
iv(c) Rehabilitation and Replacement (R&R) plan	No	The District R&R plan lacks long-term planning of CIPs, and associated funding requirements, to address identified deficiencies.
ix(b) Measure effectiveness of SSMP elements	No	The District currently does not maintain a set of clear measurable goals that can be used as performance indicators for specific elements of the SSMP. There are established KPI's, however

This section also summarizes the recommended enhancements made during the process of evaluating each SSMP elements effectiveness as described in **Section 4.2**. **Table 21** is a summary of those recommendations.

Table 21. Summary of Audit Recommendations

SSMP Section	Recommendation	Timeline for Completion
3	Purchase Portable Flow Recording Equipment for monitoring private systems that discharge into District facilities.	June 2016
4.A	Collection System Maps – Continue to inquire with City of Rocklin and Placer County for updated or improved storm drain system maps.	
4.B	Implement (new) Lucity database to better manage maintenance programs	December 2015
4.B	Develop SOP's for regular preventive maintenance activities. HVVC, Corrective Maintenance Activities (pipe repair), Lift Station Maintenance	December 2016
4.C	Create a Five Year CIP plan to address the highest risk assets in the system by integrating the evaluation of all available data and projecting the schedule of proposed projects over multiple years. This is a work-in-progress and it is anticipated to be completed by the end of FY 2015/16.	June 2016
4.C	Document the process/procedure for evaluating available data (i.e., CCTV, CMMS, GIS, capacity assessment, visual inspections), conducting a risk assessment to determine the assets to be renewed, and developing the R&R plan with its associated data. (It is expected this will be completed by November, 2015)	December 2016



SSMP Section	Recommendation	Timeline for Completion
4.D	Develop a schedule for regular training on the specific equipment that the District owns. The schedule equipment training should identify the frequency of training, the proposed instructors, appropriate referencing of SOPs and manuals, and the individuals required to take the training.	March 2017
6.A	<u>Recommendations:</u> Calculate SSO response times and document findings to be used as an analysis tool when evaluating responses to SSO's.	August 2015
6.B	Consider adding the following information to Appendix D of the SSO ERP; the volume of the wet well, the available storage/downtime if the lift station goes down.	August 2015
6.B	Consider posting the information contained in Appendix D of the SSO ERP at each lift station. This information is contained in the SSO-ERP, which are kept in all emergency response vehicles as well as On-Call Supervisor trucks.	December 2016
7.F	Develop a SOP describing the process of how pipelines are added to the high frequency (hot spot) cleaning schedule, how the cleaning frequency (i.e., number of months) for each hot spot is initially set, and how the cleaning frequency for an individual hot spot may be adjusted over time.	December 2016
8.C	Extend the hydraulic model to include all pipes within the collection system so that short-term and long-term CIPs account for hydraulic deficiencies in the collector lines of the system.	June 2017



SSMP Section	Recommendation	Timeline for Completion
9.B	<p>Identify metrics that correspond with specific elements of the SSMP and develop numerical goal ranges so the data currently collected and monitored by the District can be used as performance indicators (PIs) to quantitatively monitor SSMP effectiveness. The ultimate measure of SSMP effectiveness is the limiting of SSOs. However, setting goals for activities related to various SSMP elements and measuring performance against those goals, will help determine how success in those elements, relates to the overall effectiveness of limiting SSOs. Associating metrics with specific SSMP elements will allow for direct assessment of those elements and provide consistency in their evaluation in future audits. Assign the individuals responsible for the various elements of the SSMP to complete the Performance Indicator Assessment Forms that are developed for their SSMP elements. A sample Performance Indicator Assessment Form is included in Appendix 7.1 of this internal audit. Performance Indicator Assessment Forms can be developed for each metric and assessed periodically by the person responsible, according to the suggested audit frequency for that metric. At the time of the next internal SSMP audit, the completed Performance Indicator Assessment Forms can be used to evaluate the effectiveness of SSMP elements and included as attachments to the audit.</p>	December 2016
9.C	<p>Develop goals for metrics that track preventative maintenance activities and identify the person/position responsible for tracking data against those goals.</p>	December 2016
9.D	<p>Use the SOPs (recommended in this audit) as a training tool for District staff. The SOPs should be developed so that 1) they provide a framework for the consistent delivery of required information, skills, and familiarity with equipment, and 2) they can be used to demonstrate competence of an individual in the particular subject.</p>	June 2016
10	<p>Post this SSMP internal audit to the District website.</p>	December 2016



SECTION 7 Appendices

7.1 Appendix – Sample Performance Indicator Assessment Form



7.1 Appendix – Sample Performance Indicator Assessment Form