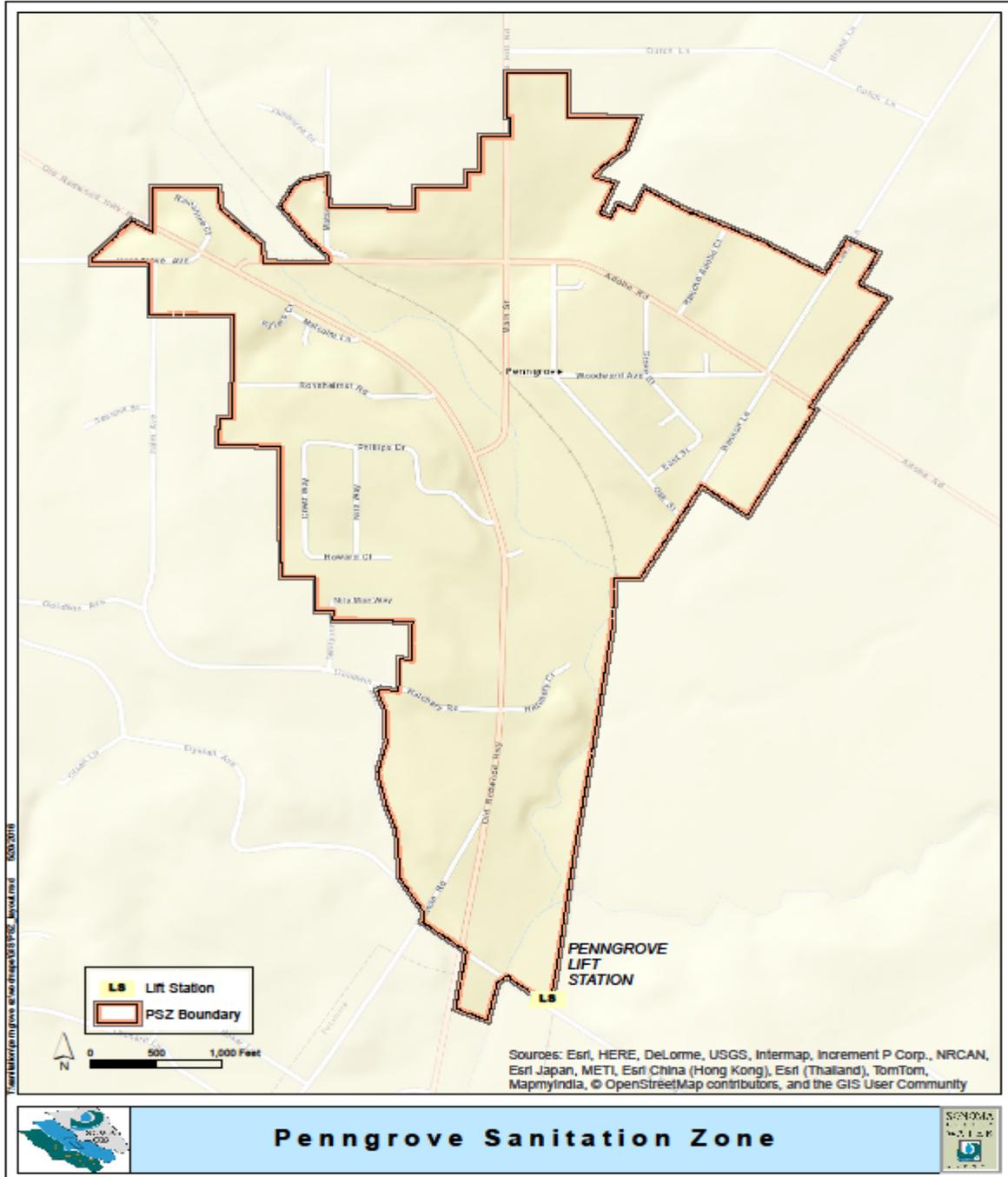


# Penngrove Sanitation Zone

## Sewer System Management Plan (SSMP)



Last Updated: September 2016

## **Introduction**

The introductory section provides background information on the purpose and organization of this Sewer System Management Plan (SSMP) and provides a brief overview of the Penngrove Sanitation Zone's (Zone)'s service area and sewer system.

## **SSMP Requirement Background**

This SSMP has been prepared in compliance with requirements of the California State Water Resources Control Board ("SWRCB") promulgated waste discharge requirement ("WDR") permit on May 2, 2006 to regulate sanitary sewer systems. This permit is known as SWRCB Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems. On July 30, 2013, Attachment A to the Order was promulgated and became effective on September 9, 2013 and is known as Attachment A, SWRCB Order No. WQO 2013-0058-EXEC, amending the Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

## **Documentation Organization**

This SSMP is intended to meet the requirements of the Statewide WDR. The organization of this document is consistent with the SWRCB guidelines. The SSMP includes eleven elements, as listed below. Each of these elements forms a section of this document.

1. Goals
2. Organization
3. Legal Authority
4. Operations and Maintenance program
5. Design and Performance Provisions
6. Overflow Emergency Response Plan ("OERP")
7. Fats, Oils, and Grease (FOG) Control Program
8. System Evaluation and Capacity Assurance Plan ("SECAP")
9. Monitoring, Measurement and Program Modifications
10. SSMP Program Audits
11. Communications Program

Each element section is organized into sub-sections, as follows:

1. Description of the SWRCB requirement for that element.
2. Identification of associated appendix and list of supporting information included in the appendix.
3. Discussion of element. The discussion may be split into multiple sub-sections depending on length and complexity.

Supporting information for each element is included in an appendix associated with that section, as applicable. In general, information expected to require relatively frequent updates (such as names and phone numbers of staff) are included in appendices, as well as other supporting information, such as forms or schedules. Information that is not updated frequently, are included as a link to the Sonoma County Water Agency's website.

## **Penngrove Sanitation Zone Service Area and Sewer System**

The Sonoma County Water Agency's (Water Agency) operations of the Penngrove Sanitation Zone (Zone) are limited to administrative services and operation/maintenance of the collection system and pumping station. The wastewater collected by the Zone collection system flows through the City of Petaluma's collection system to the City of Petaluma's wastewater treatment facility. Wastewater generated by the Zone and Petaluma is treated to meet secondary standards at the City of Petaluma's treatment facility. Penngrove service area covers approximately 475 acres and provides service to approximately 231 parcels utilizing a gravity collection system.

# SECTION 1

## GOALS

The goals of the Penngrove Sanitation Zone are to:

- 1) Properly manage, operate and maintain all parts of the wastewater collection system;
  - a. Provide adequate capacity to convey peak flows;
    - i. implemented a capital replacement program with the long-term intent of replacing aging sewer mains
  - b. Minimize the frequency of SSOs;
    - i. Maintain the health of the collection system by implementing a step-by-step process to insure that pipelines that cannot carry flow will be fixed as quickly as possible.
    - ii. Eliminate or minimize preventable SSOs
  - c. Mitigate the impact of SSOs;
    - i. Respond to SSOs in a quick and timely fashion, thereby reducing the amount of flow reaching non-collection system facilities.
  - d. Protect the health and safety of the residents of the Penngrove Community;
    - i. Maintain equipment in order to guarantee that in the event of a failure, there will be minimal service interruptions.
  - e. Be responsive to customers;

## SECTION 2

### ORGANIZATION

Following is the organizational chart and job descriptions for the Penngrove Sanitation Zone (Zone) employees who are involved in either preparing the Sanitary Sewer Management Plan or responding to sanitary sewer overflows. Please note that some of the job descriptions refer to “Water Agency”. The Zone is owned and managed by the Sonoma County Water Agency. Therefore, the Zone’s organizational chart, below is the same as the Sonoma County Water Agency’s organizational chart (see below).

#### **Job Descriptions:**

**Board of Directors:** Establishes policy and authorizes outside contractors to perform services for the Zone.

**General Manager:** The General Manager is the principal administrative person in overall charge of the Sonoma County Water Agency.

**Chief Engineer:** The Chief Engineer is professionally responsible for the engineering activities of the Zone, and reviews and approves all plans and specifications for engineered works and all reports requiring professional engineering judgment.

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**Assistant General Manager- Water / Wastewater Operations:** Plans, organizes, directs, and coordinates the Operations and Operations Engineering section.

Directs the operation of systems and facilities, for the collection, treatment, storage, and disposal of wastewater and the reuse of reclaimed water; reviews plans for the operation of new wastewater facilities. Directs the compliance with federal, state and local water quality related regulations and prepares action plans to ensure full compliance with those regulations. Directs negotiations of regulatory permits that relate to the operation of wastewater facilities. Prepares wastewater collection system planning documents, coordinates development and implementation of SSMP.

**Operations Engineering (Water Agency Engineer):** Works as needed on applicable permits, laws, and regulations. Provides support to all parts of operations. Responsible for preparing SSMP.

**Chemist:** Collects and prepares samples of sanitary sewer overflows, when needed. Assists in setting up a county-wide effluent sampling program and industrial waste program, and ensures programs are carried out.

**Operations Coordinator:** The Operations Water Agency Coordinator is expected to possess an understanding of the full spectrum of operations involved in wastewater systems. Provides relevant information to agency management, prepares and implements contingency plans, leads emergency response, investigates and reports SSOs.

**Plant Operator:** Manages field operations and maintenance activities, provides relevant information to management, Prepares and implements contingency plans, leads emergency response, investigates and reports SSOs, collects and prepares samples.

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**Assistant General Manager – Maintenance:** Plans, organizes, directs, and coordinates the maintenance oriented sections within the Sonoma County Water Agency.

Directs the maintenance of systems and facilities for the collection, treatment, storage, and disposal of wastewater and the reuse of reclaimed water; directs the reviews plans for maintenance of wastewater facilities.

**Maintenance Coordinator:** The Maintenance Coordinator investigates and reviews SSOs reports, and trains field crews.

**Environmental Compliance Inspector:** Collects and prepares samples of sanitary sewer overflows, when needed. Assists in setting up a county-wide effluent sampling program and industrial waste program, and ensures programs are carried out.

**Lead Maintenance Worker:** The Lead Maintenance Worker is responsible for directly leading a crew of employees engaged in the overall technical maintenance and repair of the wastewater treatment and collection systems. Leads emergency response, investigates and reports SSOs to Water Agency Coordinator, and trains field crews.

**Maintenance Workers (II & III):** Maintenance Workers participate in the installation, maintenance and repair of wastewater treatments systems. Determine appropriate action of day to day operations and in emergency situations in the field. Mobilize and respond to notification of stoppages and SSOs (mobilize sewer cleaning equipment, by-pass pumping equipment, and portable generators, etc.).

The communication plan, which identifies who is responsible for managing SSO responses, investigating the cause, and reporting the SSO to the appropriate parties is provided under Section 6, Overflow Emergency Response Plan.

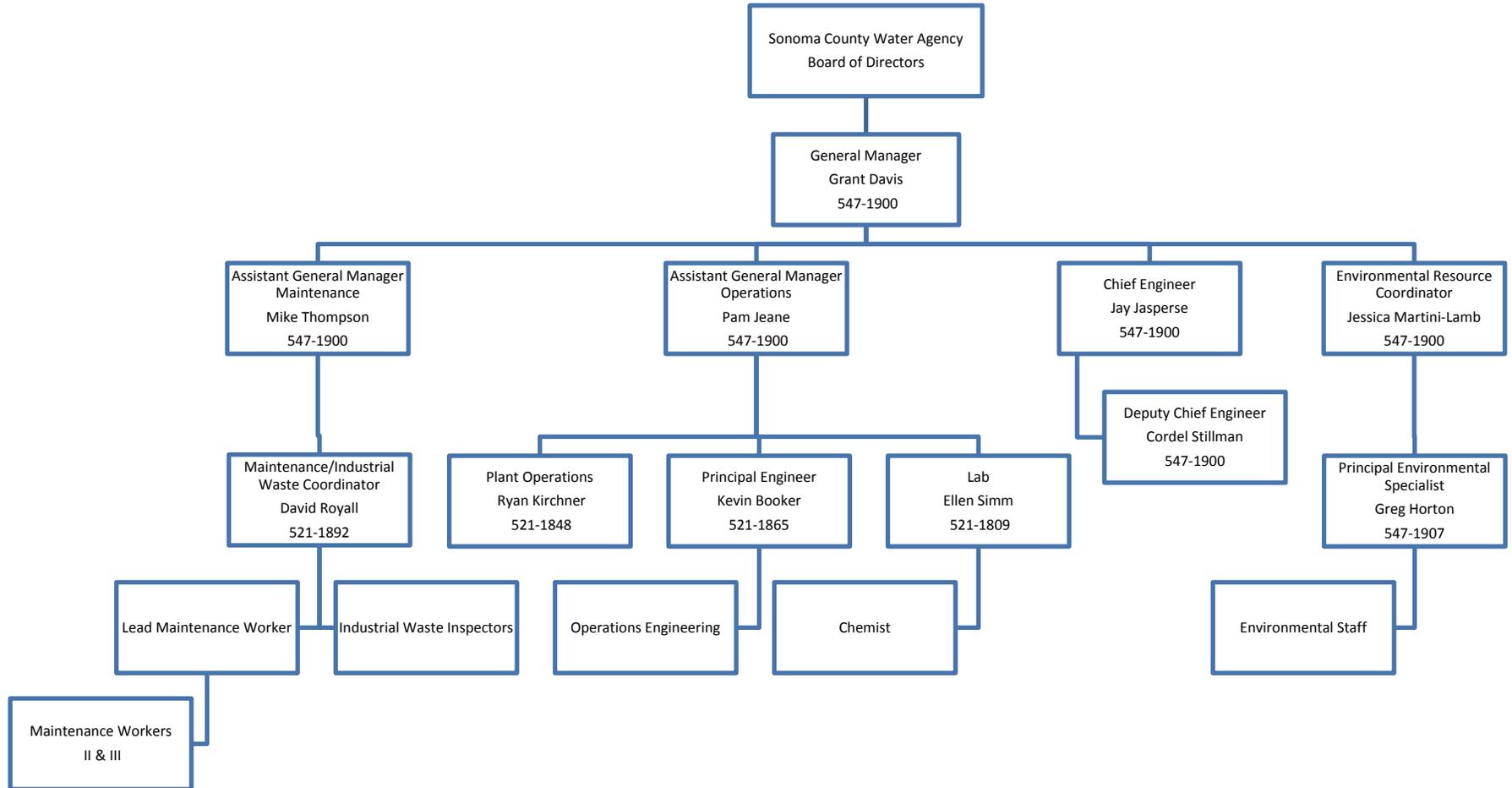
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**Water Agency Environmental Resources Coordinator:** The Water Agency Environmental Resources Coordinator plans, directs, manages, coordinates, and supervises the work of the Environmental Resources and Public Affairs Division of the Sonoma County Water Agency;

coordinates and participates in Federal and State legislative efforts; recommends, develops, implements and evaluates policies and procedures; and performs related duties as required.

**Principal Environmental Specialist:** Plans, organizes, and supervises the activities of a single section in the Environmental Resources and Public Affairs Division in the Sonoma County Water Agency engaged in environmental related planning or other services such as fish and wildlife; botanical, wetland resource, and soil morphology; arboriculture/revegetation; and environmental document analysis; recommends and implements changes, policies, and procedures; prepares and/or oversees the preparation of related environmental reports; and performs related duties as required.

SSMP Element	Responsible Party (Position)	Responsible Party (Name)	Phone Number	Email Address
Introduction, if included	Water Agency Principal Engineer	Kevin Booker	521-1865	Kevin.booker@scwa.ca.gov
1 – Goals	Water Agency Principal Engineer	Kevin Booker	521-1865	Kevin.booker@scwa.ca.gov
2 – Organization	Water Agency Principal Engineer	Kevin Booker	521-1865	Kevin.booker@scwa.ca.gov
3 – Legal Authority	Water Agency Principal Engineer	Kevin Booker	521-1865	Kevin.booker@scwa.ca.gov
4 – O&M Program				
5 – Design & Performance Provisions	Water Agency Principal Engineer	Kevin Booker	521-1865	Kevin.booker@scwa.ca.gov
6 – Overflow Emergency Response Program	Maintenance Coordinator	David Royall	521-1892	David.Royall@scwa.ca.gov
7 – FOG Control Program	Maintenance Coordinator	David Royall	521-1892	David.Royall@scwa.ca.gov
8 – SECAP	Maintenance Coordinator	David Royall	521-1892	David.Royall@scwa.ca.gov
9 – Monitoring, Measurement, and Program Modifications	Maintenance Coordinator	David Royall	521-1892	David.Royall@scwa.ca.gov
10 – SSMP Program Audits	Water Agency Principal Engineer	Kevin Booker	521-1865	Kevin.booker@scwa.ca.gov
11 – Communication	Water Agency Principal Engineer	Kevin Booker	521-1865	Kevin.booker@scwa.ca.gov
Change Log	Water Agency Principal Engineer	Kevin Booker	521-1865	Kevin.booker@scwa.ca.gov
Appendices	Water Agency Principal Engineer	Kevin Booker	521-1865	Kevin.booker@scwa.ca.gov

## Airport/Larkfield/Wikiup Sanitation Zone Organizational Chart (For SSMP)



## SECTION 3

# LEGAL AUTHORITY

### **Legal Authority Penngrove Sanitation Zone (Sanitation Code Ordinance)**

The Sanitation Code Ordinance sets forth uniform requirements for contributors to the wastewater collection and treatment system, and enables the Penngrove Sanitation Zone to comply with all applicable State and Federal laws required by the Clean Water Act of 1977, as amended, and the General Pretreatment Regulations (40 CFR Part 403) which are on file at the Water Agency office.

The Sonoma County Water Agency Sanitation Code Ordinance can be found at the following:  
<http://www.scwa.ca.gov/sanitation-codes/>

<b>Requirement</b>	<b>Enrollee Code Reference*</b>
<b>Public Sewers</b>	
Ability to prevent illicit discharges into the wastewater collection system	Article I – General Provisions
Ability to require that sewers and connections be properly designed and constructed	Article IV – Terms and Conditions for Construction of Sanitation Facilities
<b>Laterals</b>	
Ensure access for maintenance, inspection, or repairs for portions of the service lateral owned or maintained by the Enrollee	Article VI – Source Control Program
<b>FOG Source Control</b>	
Ability to limit the discharge of FOG and other debris that may cause blockages	Article X – Grease, Oil, and Sand Interceptor Program
<b>Enforcement</b>	
Ability to enforce any violation of the Enrollee’s sewer ordinances	Article VII - Enforcement
<b>Other Possible Code Sections (Referenced but not required by the SSS WDR)</b>	
<b>Public Sewers</b>	
Ability to require proper installation, testing, and inspection of new and rehabilitated sewers	Article III – General Conditions for Sewer Service
<b>Laterals</b>	
Provide clear delineation of Enrollee responsibility (e.g., mains and lower laterals) and policies (e.g., courtesy cleaning, repair, cleanout installation)	Article III – General Conditions for Sewer Service
Define lateral ownership and maintenance responsibility	Article III – General Conditions for Sewer Service
<b>FOG Source Control</b>	
Requirements for the installation of GRDs	Article X – Grease, Oil, and Sand Interceptor Program
Ability to set design standards for GRDs	Article X – Grease, Oil, and Sand Interceptor Program
Authority to inspect grease producing facilities	Article X – Grease, Oil, and Sand Interceptor Program
<b>Enforcement</b>	
Prescribe prohibited actions (e.g., illicit connections, discharges)	Article VII - Enforcement
Provide notice of alleged violations to sewer user	Article VII - Enforcement

\*All codes references can be found in the Sonoma County Water Agency’s Sanitation Code Ordinance

## SECTION 4

### OPERATIONS AND MAINTENANCE

#### **MAPPING**

The Sonoma County Water Agency (Water Agency) maintains an up-to-date GIS map of the collection system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable facilities.

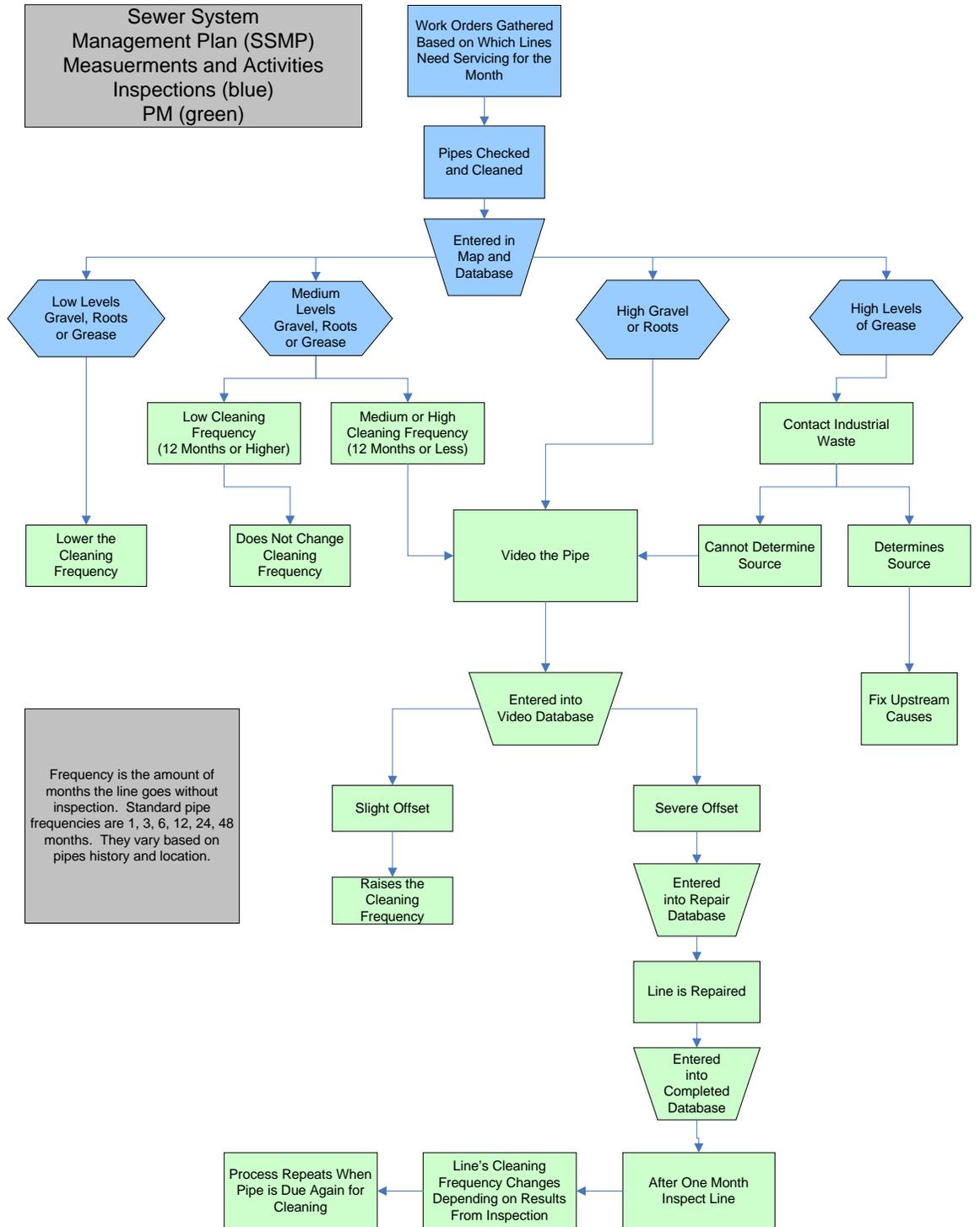
#### **PREVENTATIVE OPERATIONS MAINTENANCE**

In order to maintain the health of the sewer lines a step-by-step process is being implemented to insure that not only will damage facilities will be fixed quickly but they will be prevented in the future. Although the management of the sewer lines is systematic, subjectivity and maintenance expertise is needed for the evaluation of the lines. All lines are put on an evaluation/cleaning schedule when they are first cleaned. Evaluation/cleaning frequencies start at every month and increase to intervals of 3, 6, 12, 24 and 48 months. The Water Agency use the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) rating criteria when evaluating its pipelines.

At the beginning of the month sewer lines that are due to be evaluated according to the schedule are placed on a list which is given to the Water Agency's maintenance crew. These sewer lines are then evaluated and cleaned and depending on the level of intrusion evaluation/cleaning frequencies are updated. Sewer lines are evaluated based on low medium or high amounts of gravel, roots and grease intrusion. Sewer lines with low amounts of intrusions are less prone to SSOs, so the frequency of evaluation/cleaning is reduced. Depending on the area and history of the pipe an evaluation revealing medium intrusion will either result in the same evaluation/cleaning frequency or an increase in the evaluation/cleaning frequency. Any high intrusion result requires further attention.

For high levels of grease, the Water Agency's Industrial Waste staff is contacted in order to inspect upstream discharges. High levels of gravel, roots or grease also requires the sewer lines to be videoed to check for needed maintenance. All of the cleaned sewer lines that have no maintenance or video orders issued are entered into the computer database. Any lines that require video inspection are then entered into the video list database. If a video shows any slight offsets then no repair order is issued but the evaluation/cleaning frequency of the sewer line is increased. If there is a severe obstruction or offset then the sewer line needs repairing and entered into the repair database. These separate databases offer easy access and history to each of the sewer lines in the system. When the sewer line is repaired a summary, the date and the crew are entered into the database and it then goes on the completed construction list. After repair the sewer line is checked within one month. At that time, the evaluation/cleaning frequency will either be changed or remain the same (See flow chart below).

## Prioritize Preventative Maintenance (PM) and Scheduled Inspections



## **RESOURCES AND BUDGET**

Each year the Water Agency evaluates potential projects. While some projects may remain in the Capital Project Plan (CPP), others may be dropped for a higher priority project. The CPP is a living document and is constantly changing. The Water Agency uses the CPP as a planning document. Perspective readers should be aware, that this document changes annually and to see the most current version, please click on the following link:

[http://www.scwa.ca.gov/files/docs/projects/capital-projects/2014-2019\\_Capital\\_Projects\\_Plan\\_accessible.pdf](http://www.scwa.ca.gov/files/docs/projects/capital-projects/2014-2019_Capital_Projects_Plan_accessible.pdf)

## **STAFF TRAINING**

The Airport-Larkfield-Wikiup is operated by the Water Agency. The Water Agency's maintenance staff is required to complete 12 Continuing Education Units (CEUs) annually. Workshops and/or conferences must be accredited by the California Water Environment Association (CWEA). Several of the accredited workshops are held at Water Agency offices by Water Agency staff who are accredited by CWEA. Workshop such as Confined Space, Air Monitoring, CPR, Excavation/Trenching Safety, Hazardous Energy Control, Traffic Control, and Fall Control are available to the maintenance staff.

Maintenance staff are also encouraged to attend workshop and/or conferences on topics such as Collection System Maintenance, Environmental Compliance, Plant Maintenance, and Mechanical Technology.

## **EQUIPMENT AND PARTS INVENTORY**

The Water Agency maintains an inventory of contingency equipment in order to lessen equipment or facility downtime. Contingency equipment such as portable pumps and generators are also kept on hand so as to insure proper response to emergencies. Along with the pumps and generators, other equipment, such as back trucks, a router, back hoes, a dump truck, bobtails, a wacker, viber plates, and ten wheelers are kept in inventory. These preparatory measures are made in order to guarantee that in the event of a failure, the Water Agency will experience minimal service interruptions.

# SECTION 5

## DESIGN STANDARDS

The Sonoma County Water Agency's (Water Agency) Design Construction Standards apply to the design and construction of all public sewerage facilities and are consistent with rules and regulations in the Sonoma County Water Agency's Sanitation Zones and County Sanitation Districts, whether privately financed and/or constructed under permits issued by the Water Agency or publicly financed and constructed under contract with the Water Agency.

The jurisdiction of the Water Agency includes the entire sewerage system and its appurtenances from the point of connection with the building plumbing to the discharge terminus of the final disposal or use. Maps showing the sanitation boundaries are available for inspections at the Water Agency's office.

When deemed necessary by the General Manager or Chief Engineer, special provisions, specifications addenda, and/or notes on the plans shall be provided and shall be considered as part of the specifications for the work.

The Sanitation Code of the Water Agency and County Sanitation Districts comprises the rules and regulations of the Water Agency with respect to the construction and use of sanitary sewerage facilities. In general, the ordinances: 1) provide the Board of Directors for the Water Agency and the County Sanitation Districts policy and authority of the General Manager; 2) provide regulations for lateral sewer construction and for the use and construction of public sewers; 3) provide for annexation, plan checking, and permit and inspection fees; and 4) provide the establishment of connection charges. A knowledge of the ordinance provisions and polices is essential to those proposing to design and construct sewerage facilities under permit in the Water Agency's sanitation districts and zones.

The Water Agency's Design and Construction Standards can be found at:  
<http://www.scwa.ca.gov/sanitation-codes/>

## SECTION 6

# SEWER SYSTEM OVERFLOW EMERGENCY RESPONSE PLAN

The Sewer System Overflow Emergency Response Plan (OERP) defines the Water Agency's plans, procedures and requirements for responding, remediating and reporting spills from sanitary sewers and lift stations.

The purpose of the OERP is to assure a prompt and appropriate level of response is made to every reported sewage spill received by Water Agency so that adverse effects to public health, water quality, the environment, and public and private property can be minimized. The OERP further includes provisions to ensure notifications and reports are made to the appropriate local, state and federal authorities, and that response actions taken are properly documented. By responding promptly with adequate resources to sewage spills, and providing regulatory agencies with required spill notification and spill reports, the risk of enforcement actions against the Water Agency can be minimized.

The core elements of the OERP are the spill response procedures, and the regulatory agency spill notification and reporting requirements. The OERP provides continuity between primary elements, from the initial receipt of a spill notification through completion of the regulatory spill report. In addition to these primary elements, the OERP also addresses public notification procedures, public education, public outreach, training and OERP updating. These additional elements are essential to the maintenance and development of the OERP.

The following link is to the OERP: <http://www.scwa.ca.gov/sanitation-codes/>.

## SECTION 7

# FATS, OIL, AND GREASE CONTROL PROGRAM

## Fats, Oils, and Grease

**Fats, Oils, and Grease (FOG) Legal Authority:** Under Sonoma County Water Agency (Water Agency)'s Sanitation Code Ordinance (Ordinance), Article X, "Grease, Oil, and Sand Interceptor Program", the Water Agency is granted the authority to implement a FOG Program. Article X discusses grease traps, oil and sand interceptors, administration of the interceptor program, and enforcement.

Ordinance, Article X, Section 10.01 states that "All non-domestic users, including restaurants, gas stations, and auto repair establishments with floor drains located in service areas and auto or vehicle washing facilities, shall be required to install and maintain a grease, oil, and sand interceptor at the users own expense when the General Manager finds that it is necessary for the proper handling of (a) liquid waste containing grease, (b) flammable waste, (c) sand, or (d) other harmful constituents which may be properly eliminated from the sewerage system by use of an interceptor or trap.

The Water Agency's Ordinance, Article X, "Grease, Oil, and Sand Interceptor Program" can be found at the following link: <http://www.scwa.ca.gov/sanitation-codes/>. Since 2008 the Penngrove Sanitation Zone has had 0 SSO attributed to FOG. The data illustrates that FOG is not an issue and that the current FOG control program is sufficient at this time. As a part of the District's normal inspection routine of businesses, a grease scrapper and a guide on "Food Facility Storm Water Pollution Prevention" guidelines is handout to each home. The guidelines contain information on grease handling as well as spill clean-up, hazardous waste, and the importance of grease traps/interceptors maintenance. In addition, businesses are told of agencies in the area that accepts FOG.

The Water Agency participates in the Pretreatment, Pollution Prevention, Storm Water (P3S) working group in the North Bay. P3S is a group of public agencies (Air Resources Board, Certified Unified Program Agencies, Storm Water, Regional Board, Hazardous Waste, and Local Authority, in the North Bay that discusses a number of issues, of which FOG is one of them. The group meets every other month, which allows for a consistent message to be told in the North Bay.

# SECTION 8

## CAPACITY ASSESSMENT AND SYSTEM EVALUATION AND CAPACITY ASSUARANCE PLAN

### **Summary**

In 2016, Water Agency staff conducted a capacity assessment of the Penngrove Sanitation Zone (PSZ) sanitary sewer collection system. The model results indicated that several reaches would be under surcharge conditions under wet weather conditions and cause overflows in the 10 year storm due to inflow and infiltration (I/I), however, there had been no known overflows on the reaches showing surcharges. Recent system overflows have been caused by inflows into the collection system during heavy rainfall events that exceeded the pumping capacity of the PSZ lift station. Based on the results of the analysis, the PSZ system would benefit from continued I/I monitoring and enforcement to reduce I/I, electrical equipment improvements to prevent flooding of the lift station, as well as continued evaluation of the lift station hydraulics and downstream connections.

### **Background**

Built in 1992, the PSZ service area covers approximately 475 acres and provides wastewater collection via a gravity sewer system for a current connected load of 512.49 ESDs (Equivalent Single Family Dwellings). The collection system ranges in pipe size from 6” to a maximum of 10” diameter and terminates at the PSZ lift station on Ely Road. Wastewater is pumped from the lift station to the City of Petaluma’s Wilmington Pump Station, approximately 3 miles. The PSZ currently has an Agreement with the City for the City to treat the equivalent volume of sewage for a maximum of 3,000 people. 2010 Census population: 2,522 people.

There have been two sewer capacity studies performed previously for the PSZ collection system. One was done in 1990 by Kennedy/Jenks/Chilton, and the other was done in 2002 by Water Agency staff. In addition, Water Agency staff conducted a capacity analysis of the Lift Station in 2009.

### **System Evaluation**

Between December 2014 and March 2016, the system experienced three overflows that occurred just upstream of the lift station during heavy rainfall events that exceeded the pumping capacity of the lift station. The Water Agency staff met to discuss the overflow volume, possible causes and preventative measures. After reviewing data from the PSZ

lift station, it appears that once the pipe immediately upstream of the lift station becomes full, the water rises quickly in the wet well at the lift station resulting in the upstream collection system backing up. The cause seems to be a spike in flow, caused by inflow and infiltration (I/I).

Staff implemented several immediate actions, including: investigating I/I causes, flow monitoring within the collection system, securing manhole covers upstream of the lift station and temporarily diverting flows during storms to minimize overflows. Staff continues to monitor and collect data from mainline flow meters, to review pump station hydraulics, to investigate potential I/I sources and to work with the City of Petaluma to identify and determine feasibility of alternative locations for force main connection. Future actions include smoke testing of laterals and public outreach to identify and reduce I/I.

A capacity study was performed in mid-2016 to evaluate the sewer capacity of the PSZ collection system based upon current flow data to determine where to focus efforts on preventing I/I. The system was modeled to test for build-out capacity previously and it was determined that the collection system had no capacity issues in dry weather flow conditions, but recent issues with storms have caused concerns about I/I. A model of the collection system was constructed with 5-year and 10-year storm conditions using current flow rates projected to build-out per the Draft Housing Element and wet weather flows.

Flow meters were used to collect in-stream depth, velocity and flow readings every 15 minutes from three main branches in the PSZ collection system during three wet weather months in 2015 and four months in 2016. The data was corroborated with the pump flow data as well as compared to the rain gauge in downtown Penn Grove. EPA SWMM 5.1 modeling software was used to simulate flow through the PSZ collection system through the trunk line and the three main branches of the collection system.

Model results were examined to determine trunk system capacity needs, as indicated by areas where the flow in the pipes would exceed their capacity and cause surcharge conditions (water levels higher than the crowns of the pipes) to within five (5) feet of manhole rims under PWWF conditions or above the crown of the pipe under peak dry weather flow (PDWF). The model predicted 7 pipe sections on the upper reaches of the middle branch to hit surcharge conditions in the 10-year storm model, however, Water Agency staff has not recorded any overflows in the system at these locations.

Based on the results, major improvements to the collection system are not recommended at this time, however additional verification monitoring may be conducted to confirm predicted surcharge conditions in areas where overflows have not previously been observed. Based on the flow data collected, middle and western reaches experience the most I/I and the eastern branch seems to be the least effected by I/I.

## **Capital Improvement Plan (CIP)**

The PSZ Capital Improvement Plan has been developed to address identified hydraulic deficiencies, I/I reduction and pumping capacity. The PSZ is the source of funding for all projects in the Capital Improvement Plan. The following projects have been identified and included in the 5-year CIP:

- **Penngrove Lift Station Electrical Upgrade**  
The project consists of electrical upgrades, including replacing and raising the motor control center (MCC) and rerouting the incoming service line to run overhead to safeguard the lift station against flooding and to provide reliable, redundant pump controls for the Lift Station.  
Status: In design
- **Repair, Rehabilitate and Replace Sanitation Facilities**  
The project consists of repairs, rehabilitation or replacement of the collection or pumping systems that are determined to have insufficient capacity for existing flow. Project Includes I/I detection and reduction.  
Status: On going;
- **Lift Station Pump Replacement**  
Project includes lift station hydraulic analyses and feasibility study of alternative locations for force main connection upstream of the Wilmington Pump Station, construction of improvements to replace existing wastewater pumps if need be and a required work downstream of lift station.  
Status: FY 2016-17

# SECTION 9

## MONITORING, MEASUREMENTS AND PROGRAM MODIFICATIONS

### Monitoring /Measurements

Following are measurements that will be used to monitor the goals of the Zone's SSMP and implementation of the SSMP elements and the effectiveness of the measures at reducing SSOs.

<b>Penngrove Sanitation Zone SSMP Element 9: Measurement, Monitoring, and Program Modifications</b>					
<b>Item</b>	<b>Performance Indicator</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
1	Number of dry weather SSOs	0	0	0	0
2	Number of wet weather SSOs	2	0	2	1
3	Total number of SSOs	2	0	2	1
4	Number of SSOs per 100 miles of sewer per year	0.16	0	0.16	0.08
5	Number of SSOs < 100 gallons				
6	Number of SSOs 100 to 999 gallons			1	1
7	Number of SSOs 1,000 to 9,999 gallons	1			
8	Number of SSOs >10,000 gallons	1		1	
10	Total volume of SSOs (gal)	19,168		85750	180
11	Total volume recovered (gal)	0		250	180
12	Net volume of SSOs (total minus recovered) (gal)	19,168		85,500	0
13	Total annual volume conveyed to wastewater treatment plant (MG)	34.5	27.5	29.4	24.8
14	Net volume of SSOs compared to total annual volume conveyed (% conveyed)	.05	n/a	.29	.0007
15	Number of SSOs caused by:				
	Roots				1
	Grease				
	Debris			1	
	Pipe failure				
	Pump station failure			1	

	Capacity-limited pipe segment (no debris)	2			
	Other				
16	Number of locations with more than one SSO in the past year				
17	Average response time during business hours				
18	Average response time outside of business hours				
19	Planned cleaning (LF)	26000	26000	14500	21000
20	Unplanned cleaning (LF)				
21	Ratio of planned to unplanned cleaning (LF)				
22	Number of blockages in the past year				
23	Number of blockages due to:				
	Roots				1
	Grease				
	Debris			1	
	Other	2		1	
24	Number of customer complaints in the last year				
25	Number of positive customer responses				

**Modifications:**

The above indicators will be used to monitor and track SSMP performance. The evaluation of the SSMP program effectiveness will identify data shown in Section 9 (Measurements) and provide recommendations each year in time for the preparation of the next fiscal year budget.

SECTION 10

AUDITS

This audit contains information about successes/failures in implementing the most recent version of the Zone's SSMP and identifies any revisions necessary for a more effective program.

Monitoring and Measurements data are recorded in Section 9 of this plan will be used in preparation of the audit. An explanation of the Zone's SSMP development, and accomplishments in improving the sewer system, follows the audit, including:

1. Progress made on development of SSMP elements;
2. Comparison of progress with planned schedule;
3. Justification on any delays with development of the SSMP;
4. How the Zone's implementation of SSMP elements in the past year;
5. The effectiveness of implementing SSMP elements;
6. Description of the additions and improvements made to the sanitary sewer collection system in the past reporting year;
7. Description of the additions and improvements planned for the upcoming reporting year with an estimated schedule for implementation.

# Penngrove Sanitation Zone

## Biennial Sewer System Management Plan Audit Report

**Date:**

The purpose of the Sewer System Management Plan (SSMP) Audit is to evaluate the effectiveness of The Penngrove Sanitation Zone's (Zone) SSMP and to identify whether updates are needed. This document was designed to meet the requirements of State Water Resources Control Board Order No. 2006-0003-DWQ as revised by Order No. WQ 2013-0058-EXEC. Documentation of SSMP audits are kept on file at the Sonoma County Water Agency, and an indication is made in the California Integrated Water Quality System (CIWQS) database that the audit was completed.

**Directions:** *Please update the following items in the SSMP:*

Review: Section 2; Section 3; Section 4; Section 6; and Section 9. Update as necessary.

**Directions:** *Please indicate YES or NO for each question. To answer the following questions, refer to the text of the SSMP Element, any referenced material in the text, all corresponding attachments, and any data collected to assist in assessing SSMP effectiveness. For any NO responses describe the updates or changes needed and the timeline to completion in "Description of Scheduled Updates/Changes to the SSMP" on the last page of this form.*

### **ELEMENT 1. GOALS**

1. Are the goals stated in the SSMP still appropriate and accurate? **YES / NO**

### **ELEMENT 2. ORGANIZATION**

2. Is the SSMP up-to-date with organization and staffing contact information? **YES / NO**

### **ELEMENT 3. LEGAL AUTHORITY**

3. Does the SSMP reference up-to-date information about legal authority? **YES / NO**
4. Does the Zone have sufficient legal authority to control sewer use and maintenance? **YES / NO**

## **ELEMENT 4. OPERATIONS AND MAINTENANCE PROGRAM**

### **4.a Map of the Sanitary Sewer System**

- 5. Does the SSMP reference up-to-date information about maps? **YES / NO**
- 6. Are collection system maps complete, up-to-date, and sufficiently detailed? **YES / NO**

### **4.b Preventative Maintenance Program**

- 7. Does the SSMP contain up-to-date information about preventive operations and maintenance activities? **YES / NO**
- 8. Are the Zone's preventive maintenance activities sufficient and effective in reducing and preventing SSOs and blockages? **YES / NO**

### **4.c Rehabilitation and Replacement Plan**

- 9. Does the SSMP contain up-to-date information about the rehabilitation and replacement program? **YES / NO**
- 10. Does the SSMP contain up-to-date information about Closed Circuit Television (CCTV) inspections? **YES / NO**
- 11. Are scheduled inspections and the condition assessment system effective in identifying, prioritizing, and addressing deficiencies? **YES / NO**
- 12. Does the Capital Improvement Plan (CIP) address prioritized projects for collection system assets? **YES / NO**

### **4.d Training**

- 13. Does the SSMP contain up-to-date information about existing training programs? **YES / NO**
- 14. Do supervisors believe their staff are sufficiently trained? **YES / NO**
- 15. Are staff satisfied with the training opportunities and support offered to them? **YES / NO**

### **4.e Equipment and Replacement Part Inventories**

- 16. Does the SSMP reference up-to-date information about equipment and replacement part inventories? **YES / NO**

## **ELEMENT 5. DESIGN AND PERFORMANCE PROVISIONS**

- 17. Does the SSMP contain up-to-date information about design and construction standards? **YES / NO**

## **ELEMENT 6. SSO & BACKUP RESPONSE PLAN**

- 18. Does the SSMP contain an up-to-date version of SSO Response Plan? **YES / NO**
- 19. Is the Response Plan effective in handling SSOs? (if **YES**, indicate specific information under the "Evaluation of the Effectiveness of the SSMP" section below) **YES / NO**

**ELEMENT 7. FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM**

- 20. Does the SSMP reference or contain up-to-date information about the Zone's FOG control program? **YES / NO**
- 21. Is the current FOG program effective in documenting and controlling FOG sources? **YES / NO**
- 22. Are all public outreach materials for the FOG program current? **YES / NO**

**ELEMENT 8. SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN**

- 23. Does the SSMP reference or contain up-to-date information about the Zone's capacity assessment activities and documentation? **YES / NO**
- 24. Is the Zone sufficiently addressing hydraulic deficiencies? **YES / NO**

**ELEMENT 9. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS**

- 25. Does the SSMP reference up-to-date information about the SVCSD's data collection and organization (e.g. use of CMMS, performance indicators, etc.)? **YES / NO**
- 26. Is the Zone's data collection and organization sufficient to evaluate the effectiveness of the SSMP? **YES / NO**

**ELEMENT 10. SSMP PROGRAM AUDITS**

- 27. Will this SSMP Audit be completed by every two years starting in 2014? **YES / NO**

**ELEMENT 11. COMMUNICATION PROGRAM**

- 28. Is the Zone's website up-to-date, including information related to providing an opportunity for public input on the SSMP? **YES / NO**

## **Evaluation of the Effectiveness of the SSMP**

### **Description of Scheduled Updates/Changes to the SSMP**

SECTION 3, LEGAL AUTHORITY - Edits were made to direct an individual to the actual ordinance, rather than providing a summary of the ordinance. Added table.

## SECTION 11

### COMMUNICATION PROGRAM

The Zone will include SSMP updates annually in one of its sanitation newsletters. The public will have an opportunity for input into the process at a Sonoma County Water Agency 's Board meeting.

The public may find information about the SSMP by going to the Sonoma County Water Agency website ([scwa.ca.gov](http://scwa.ca.gov)). Persons who have further questions and comments may email Kevin Booker at [Kevin.Booker@scwa.ca.gov](mailto:Kevin.Booker@scwa.ca.gov).