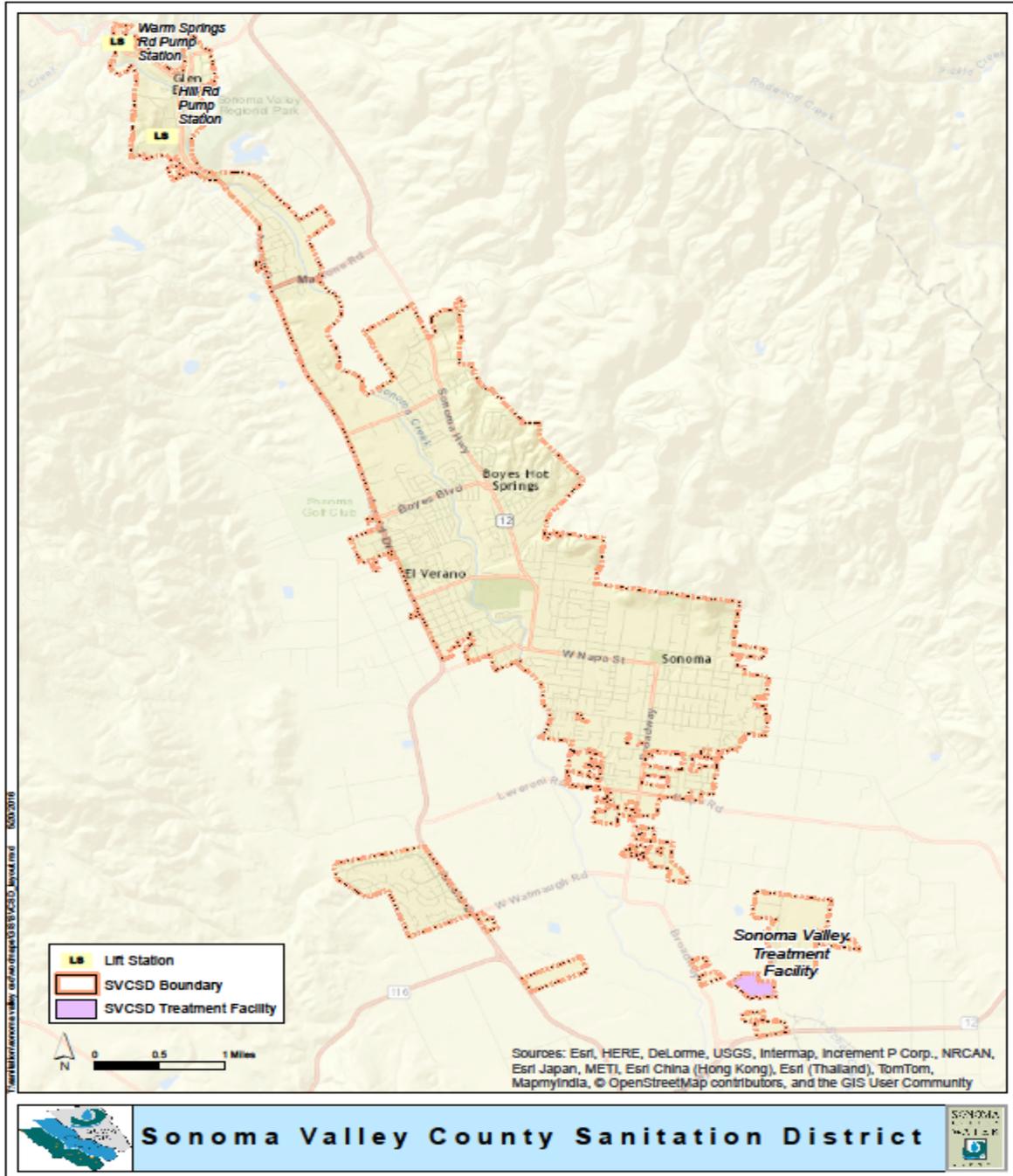


Sonoma Valley County Sanitation District

Sewer System Management Plan (SSMP)



Last Updated: June 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 Sonoma Valley County Sanitation District's (District)'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.

Sonoma Valley County Sanitation District Service Area and Sewer System

The sole publicly owned wastewater treatment facility within the Sonoma Valley is owned by the Sonoma Valley County Sanitation District (District). The District is operated by the Sonoma County Water Agency. The District service area extends from the unincorporated communities of Glen Ellen in the north to Schellville in the south. The wastewater collection system consists of approximately 132 miles of pipeline and two lift stations. The collection system conveys wastewater to District's treatment facility (treatment facility) located in the southern portion of the Sonoma Valley. The treatment facility currently provides tertiary level treatment of wastewater. The District serves approximately 17,027 equivalent single-family dwelling units with an average dry weather flow (in 2015) of approximately 2.6 million gallons per day (mgd).

SECTION 1

GOALS

The goals of the Sonoma Valley County Sanitation District 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 Sonoma Valley;
 - i. Maintain equipment in order to guarantee that in the event of a failure, there will be minimal service interruptions.
 - e. Maintain cost effectiveness while maintaining high efficiency;
 - i. Encouraged staff to attend workshop and/or conferences on topics such as Collection System Maintenance, Environmental Compliance, Plant Maintenance, and Mechanical Technology
 - f. Be responsive to customers;

SECTION 2

ORGANIZATION

Following is the organizational chart and job descriptions for the District 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 District is managed by the Sonoma County Water Agency. Therefore, the District’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 District.

General Manager: The General Manager is the principal administrative person in overall charge of the Sonoma County Water Agency/Sonoma Valley County Sanitation District.

Chief Engineer: The Chief Engineer is professionally responsible for the engineering activities of the District, 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. This coordinator is also the Chief Plant Operator for the District.

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.

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.

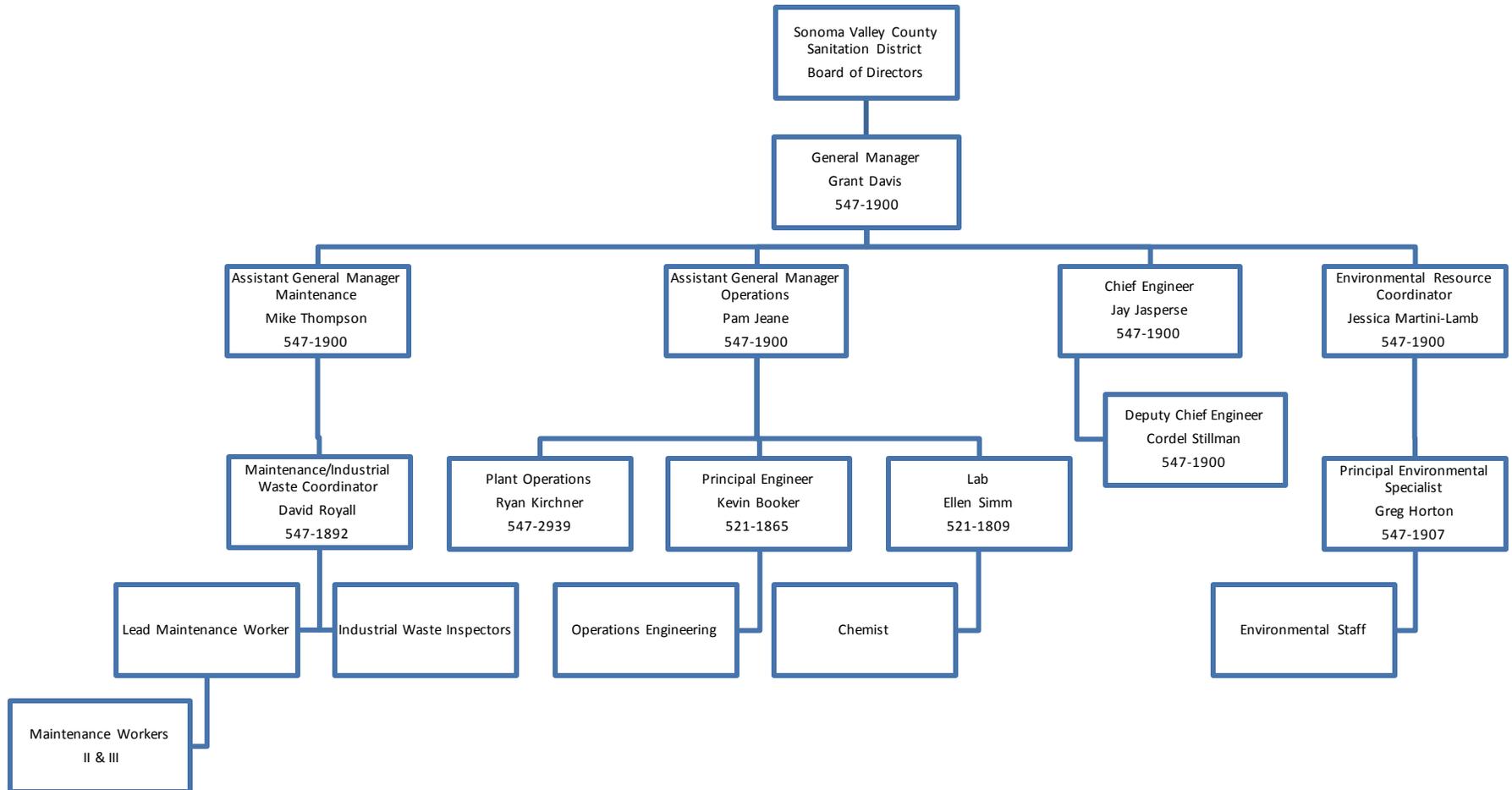
Water Agency Environmental Resources Coordinator: The Water Agency Environmental Resources Coordinator plans, directs, manages, coordinates, and supervises the work of the Environmental Resources and Public Affairs Division of the Sonoma County Water Agency;

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	547-1892	David.Royall@scwa.ca.gov
7 – FOG Control Program	Maintenance Coordinator	David Royall	547-1892	David.Royall@scwa.ca.gov
8 – SECAP	Maintenance Coordinator	David Royall	547-1892	David.Royall@scwa.ca.gov
9 – Monitoring, Measurement, and Program Modifications	Maintenance Coordinator	David Royall	547-1892	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

Sonoma Valley County Sanitation District Organizational Chart (For SSMP)



SECTION 3

LEGAL AUTHORITY

Legal Authority Sonoma Valley County Sanitation District (Sanitation Code Ordinance)

The Sanitation Codes sets forth uniform requirements for contributors to the wastewater collection and treatment system, and enables the District 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 District's Ordinance can be found at the following:

<http://www.scwa.ca.gov/files//docs/sanitation/codes/sonoma-valley-sanitation-code-2013.pdf>.

Requirement	Enrollee Code Reference*
Public Sewers	
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
Laterals	
Ensure access for maintenance, inspection, or repairs for portions of the service lateral owned or maintained by the Enrollee	Article VI – Source Control Program
FOG Source Control	
Ability to limit the discharge of FOG and other debris that may cause blockages	Article X – Grease, Oil, and Sand Interceptor Program
Enforcement	
Ability to enforce any violation of the Enrollee’s sewer ordinances	Article VII - Enforcement
Other Possible Code Sections (Referenced but not required by the SSS WDR)	
Public Sewers	
Ability to require proper installation, testing, and inspection of new and rehabilitated sewers	Article III – General Conditions for Sewer Service
Laterals	
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
FOG Source Control	
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
Enforcement	
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 Valley County Sanitation’s Sanitation Code Ordinance

SECTION 4

OPERATIONS AND MAINTENANCE

MAPPING

The Sonoma Valley County Sanitation District (District) 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.

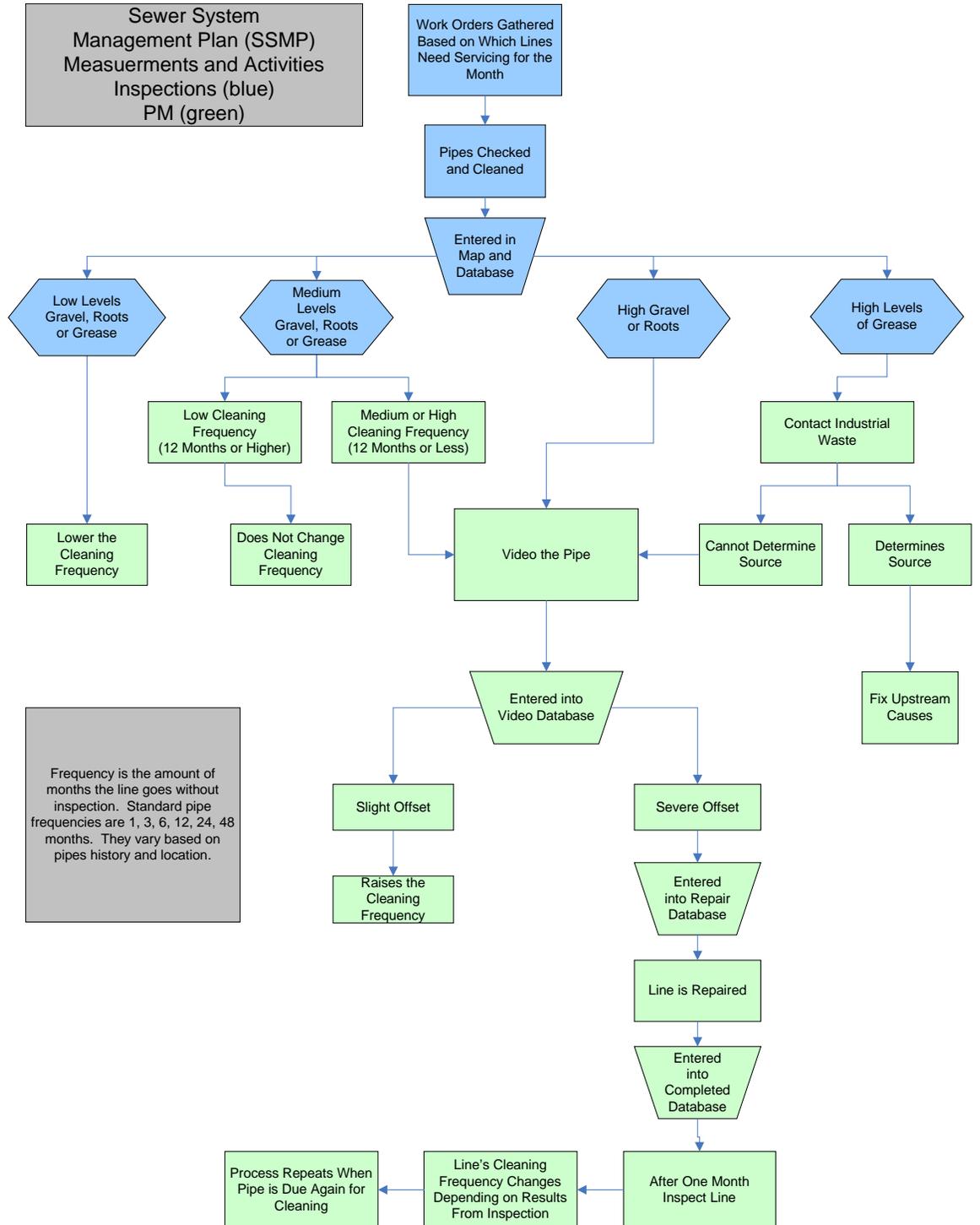
PREVENTATIVE OPERATIONS MAINTENANCE

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 District 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 District'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 District'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 District 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 District 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/lower.php?url=capital-projects>

STAFF TRAINING

The District 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 District 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 District'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 District 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 Valley County Sanitation District's Sanitation Code Ordinance (Ordinance), Article X, "Grease, Oil, and Sand Interceptor Program", the District 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 District's Ordinance, Article X, "Grease, Oil, and Sand Interceptor Program" can be found at the following link: <http://www.scwa.ca.gov/files//docs/sanitation/codes/sonoma-valley-sanitation-code-2013.pdf>

Since 2007 the District has had 15 SSO attributed to FOG. This averages out to be approximately 1.7 SSO annually that is attributed to FOG. The data illustrates that FOG is not an issue and that the current FOG control program is sufficient at this time. The District has increased routine inspections of food facilities and is developing a new database to better track inspections and FOG related issues. When a spill occurs, that is the result of FOG, the District's Industrial Waste staff walks the area and place FOG door hangers letting residents know the problem FOG can have on the sewer collection system. 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. 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 District 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

How the Capacity Assessment Was Prepared

The District sanitary sewer collection system includes sewer pipelines ranging in size from 4 to 42 inches in diameter. The larger pipes, primarily the 10-inch and larger sewers and a portion of the smaller diameter pipes, comprise the trunk sewer system, which is the primary network for conveying flows generated in the service area to the District's WWTP. The trunk sewer system was the focus of the capacity assessment in this study. (Note: The term "trunk sewer" as used in this report differs from the District designation of trunk sewers as those pipes to which service lateral connections are not allowed. All District-designated trunk sewers were included in the hydraulic model used for the capacity assessment, but other sewers not designated by the District as trunk sewers were also included.)

The project team used a systematic process that incorporated land use planning information, flow monitoring data, and design criteria for estimating wastewater flows, and applied the flows in a computer hydraulic model of the trunk sewer system. The modeled system is shown in Figure ES-2. The model was used to assess how the system would perform under various planning and flow scenarios and to identify pipes that may not have sufficient capacity to convey the predicted flows under existing or future conditions. Improvement projects were developed to provide the required capacity, the capital costs of the required projects were estimated, and the projects were prioritized based on the model results and the potential impacts of predicted model overflows.

Capacity Assessment Considers Existing and Future Planning Scenarios

Two planning scenarios, existing and future, were evaluated for this study. The existing scenario examined the current capacity of the sewer system based on existing development, with flows defined based on the District's records of customer connections and calibrated to actual flow monitoring data. The future scenario assumed increases in residential dwelling units and commercial/industrial development based on information about housing opportunity sites and planned development projects provided by Sonoma County and the City of Sonoma. Anticipated new development and redevelopment represent approximately 2,100 new residential dwelling units and 1.8 million square feet

of non-residential building floor space. The hydraulic model was used to examine the impact on the system of future increases in wastewater flows due to new development and redevelopment and determine the required sewer system capacity needed in the District's system.

Potential Capacity Deficiencies under Existing and Future Flow Conditions

For each of the planning scenarios examined, projected dry and wet weather flows were simulated in the hydraulic model. The model was calibrated to flow monitoring data to ensure that it represents a reasonably accurate depiction of system conditions. For this study, a wet weather flow monitoring program consisting of 19 temporary flow meters installed in the system during the early 2014 wet weather season was conducted to provide data to calibrate the hydraulic model and verify existing system flows.

The model integrates various dry and wet weather flow parameters to determine system capacity under different flow and planning scenarios. Key flow components incorporated into the model include: base (dry weather) wastewater flow, representing the sanitary and process flow contributions from existing and future customers; groundwater infiltration, which occurs when water seeps into pipes under the ground through cracks and pipe joints; and rainfall-dependent infiltration and inflow (RDI/I) during storm events. For this Master Plan, a 24-hour duration, 10-year return period storm event based on historical rainfall statistics was selected as the design event for evaluating system capacity and sizing required system improvements.

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). Figure ES-3 shows the model results for future PWWF conditions, indicating existing trunk sewers that were predicted by the model to be surcharged due to "throttle" conditions (peak flow exceeding full pipe capacity) or due to backwater from a downstream throttle condition, and locations of model-predicted overflows.

Note that the locations of criteria violations (surcharge to within 5 feet of manhole rims under PWWF) are not necessarily the locations of the actual capacity-deficient pipes, but are typically located further upstream due to backwater from downstream deficiencies. The specific pipe reaches with capacity deficiencies that result in criteria violations are depicted on Figure ES-4 and listed in Table ES-2. All of these locations were also predicted to be capacity issues under existing PWWF. Note that only two segments (680 feet) of 6-inch pipe in East Napa Street (part of Deficiency 10) were predicted to be surcharged under PDWF, and only under the future scenario.

It should also be noted that the District has not documented overflows in the system at all of these locations, and therefore this Master Plan recommends that additional verification monitoring be conducted to confirm predicted surcharge conditions in areas where overflows have not previously been observed.

Solutions to Potential Capacity Deficiencies

To address the capacity deficiencies identified through the modeling effort, three primary types of capacity relief alternatives were explored:

- Upsizing pipes (i.e., replacing existing pipes with larger ones)
- Construction of parallel pipes
- Flow diversions to other sewers with available capacity or to new sewer pipelines

Potential flow routing and capacity improvement alternatives were developed and tested, and proposed improvements were verified using the hydraulic model. Each proposed project site was reviewed in the field and/or on aerial maps to identify site constraints and assess potential construction conditions, methods, and issues. Based on these analyses, recommended capacity improvement projects were developed.

Recommended Capacity Improvement Program

The Capital Project Plan (CPP) recommended in this study is designed as guidance for the District to provide for adequate sewer system capacity for the District's existing and anticipated future development. Figure ES-5 and Table ES-3 present the recommended capacity improvement projects. The total estimated capital cost of the CPP is approximately \$33.6 million in late 2015 dollars, as shown in Table ES-3. These costs include baseline construction costs for gravity trunk sewers primarily using open-cut methods (trenchless methods such as pipe bursting could be considered as options for some projects during design); costs for new sewer structures; and costs allowances for project mobilization/demobilization, traffic control, trench paving, and bypass pumping for remove-and-replace projects. The total estimated construction costs also include a 30 percent allowance for contingencies for unknown conditions and a 10 percent bidding climate contingency, and the total estimated capital cost includes an allowance of 30 percent of construction cost for engineering, administration, construction management, and legal costs. The estimated costs are planning or conceptual level estimates to be used for budgeting purposes only, and are considered to have an estimated accuracy range of -30 to +50 percent. Note that the cost estimate shown for the largest project, the Downstream Trunk Replacement, is a budget estimate prepared by District staff in December 2015 and may be based on somewhat different assumptions and unit costs than those used for the other projects.

The recommended projects were divided into the six priority groups or phases based on the relative magnitude of the predicted deficiencies (e.g., extent of model-predicted surcharge or potential overflow). The project priorities are also shown in Table ES-3 and summarized by group in Table ES-4. The main trunk sewer replacement from Sonoma to Agua Caliente comprises the Priority 1 and 2 projects, as these projects are required under the District's CDO, and confirmed by the modeling conducted for this study, and are currently in the design and planning stages. The priorities generally represent decreasing magnitude of predicted overflow volume, as indicated in Table ES-2.

SECTION 9

MONITORING, MEASUREMENTS AND PROGRAM MODIFICATIONS

Monitoring

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

Monitoring /Measurements

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

Sonoma Valley County Sanitation District SSMP Element 9: Measurement, Monitoring, and Program Modifications					
Item	Performance Indicator	2012	2013	2014	2015
1	Number of dry weather SSOs	1	3	3	3
2	Number of wet weather SSOs	13	0	16	16
3	Total number of SSOs	14	3	19	19
4	Number of SSOs per 100 miles of sewer per year	0.106060606	0.022727273	0.143939394	0.143939394
5	Number of SSOs < 100 gallons	10	0	0	0
6	Number of SSOs 100 to 999 gallons	2	3	1	1
7	Number of SSOs 1,000 to 9,999 gallons	5	0	3	3
8	Number of SSOs >10,000 gallons	3	0	8	8
10	Total volume of SSOs (gal)	108,988	1,170	273270	273270
11	Total volume recovered (gal)	128	25	530	530
12	Net volume of SSOs (total minus recovered) (gal)	108,860	1,145	272740	272740
13	Total annual volume conveyed to wastewater treatment plant (MG)	1.22E+09	9.48E+08	1.32E+09	1.32E+09
14	Net volume of SSOs compared to total annual volume conveyed (% conveyed)	0.00892%	0.00012%	0.02060%	0.02060%
15	Number of SSOs caused by:				
	Roots	0	2	2	2
	Grease	0	0	1	1
	Debris	1	0		
	Pipe failure	2	1		
	Pump station failure	0	0		
	Capacity-limited pipe segment (no debris)	0	0	16	16
	Other	10	0		
16	Number of locations with more than one SSO in the past year	4	0	0	0
17	Average response time during business	20 min	98 min	N/A	N/A

	hours				
18	Average response time outside of business hours	N/A	105 min	50 min	50 min
19	Planned cleaning (LF)	432,989	485,700		
20	Unplanned cleaning (LF)	179,284	193,334		
21	Ratio of planned to unplanned cleaning (LF)	2.42	2.51		
22	Number of blockages in the past year	0	3	3	3
23	Number of blockages due to:				
	Roots	0	3	2	2
	Grease	0	0	1	1
	Debris	0	0		
	Other	0	0		

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 in September in time for the preparation of next fiscal year budget.

To address SSOs, the District, under a Cease and Desist Order (CDO) will implement the following projects:

- a) Trunk Main Replacement from approximately the intersection of West Napa St and Sonoma Hwy to approximately the intersection of Happy Lane and Anthony Court (Replace 7,108 linear feet of 21-inch diameter reinforced concrete trunk main with 27-inch diameter trunk main; replace 31 manholes; and address structural deficiency and capacity restricted sections) by October 31, 2022.
- b) Trunk Main Replacement from approximately the intersection of Happy Lane and Anthony Court to approximately the intersection of las Flores Drive and Estrella Drive (Replace 8,245 linear feet of 21-inch and 18-inch diameter reinforced concrete trunk main with appropriately larger sized force main; replace 35 manholes; and address structural deficiency and capacity restricted sections) by October 31, 2024.

SECTION 10

AUDITS

This audit contains information about successes/failures in implementing the most recent version of the District'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 District'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 District'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.

Sonoma Valley County Sanitation District

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 Sonoma Valley County Sanitation District's (District) 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 District 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 District'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 District'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 District's capacity assessment activities and documentation? **YES / NO**
- 24. Is the District 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 District'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 2016? **YES / NO**

ELEMENT 11. COMMUNICATION PROGRAM

- 28. Is the District'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 District will include SSMP updates annually in one of its sanitation newsletters. The public will have an opportunity for input into the process at a District's Board meeting.

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