

ESTERO MUNICIPAL IMPROVEMENT DISTRICT



Sewer System Management Plan

March 21, 2017

Sewer System Management Plan Sections

- I. Goals
- II. Organization
- III. Legal Authority
- IV. Operation and Maintenance Program (Measures and Activities)
- V. Design and Performance Provisions (Design and Construction Standards)
- VI. Overflow Emergency Response Plan
- VII. FOG Control Program
- VIII. System Evaluation and Capacity Assurance Plan (Capacity Management)
- IX. Monitoring, Measurement, and Plan Modifications
- X. SSMP Audits
- XI. Communication Program

Table of Contents

Introduction	2
A. Sewer System Management Plan	2
B. Sanitary Sewer System Facilities	2
B. Definitions, Acronyms, and Abbreviations.....	3
C. References.....	6
Section I: Goals	I-1
A. Introduction.....	I-1
B. Regulatory Requirements for the Goals Section.....	I-1
C. SSMP Goals	I-1
Section II: Organization.....	II-1
A. Introduction.....	II-1
B. Regulatory Requirements for Organization Section	II-1
C. Organization.....	II-1
Appendix II-A District Staff Responsible for SSMP Development, Implementation, and Maintenance	II-3

Table of Figures

Figure II-1: Organization Chart and SSO Reporting Chain of Communication.....II-2

Introduction

A. *Sewer System Management Plan*

The Sewer System Management Plan (SSMP) has been prepared by the staff of the Estero Municipal Improvement District (EMID) to meet the requirements of the San Francisco Bay Regional Water Quality Control Board and the State Water Resources Control Board. It is a compendium of the policies, procedures, and activities that are included in the planning, management, operation, and maintenance of the District's sanitary sewer system.

The structure (section numbering and nomenclature) of this SSMP follows the General Waste Discharge Requirements for Wastewater Collection Agencies (GWDR), State Water Resources Control Board Order Number 2006-0003 dated May 2, 2006. The requirements of the San Francisco Bay Regional Water Quality Control Board, where they differ from the GWDR, are also included. Revised order WQ 2013-0058 EXEC. September 9, 2013

B. *Sanitary Sewer System Facilities*

The District's sanitary sewer system facilities include 63 miles of gravity sewers, 3 miles of force mains, 48 lift stations and 1 pump station. Public sewers represent approximately 70% of the sewer system serving EMID with the remaining sewers being private sewer systems maintained by individual homeowners or homeowners associations. The 48 lift stations throughout the District include five medium size lift stations (125,000 to 500,000 gpd) and 43 small lift stations (less than 125,000 gpd). The one pump station is a 9 mgd capacity facility located in the District's Corporation Yard. The pump station is the last stop before the wastewater is pumped to the San Mateo/EMID Water Quality Control Plant located in San Mateo. The pump station and seventeen of the lift stations have dedicated standby generators. In addition the District has 4 portable generators with "quick connect" features to allow them to provide power to most of the other Lift Stations. The District is not responsible for maintenance or repair of sewer service laterals.

The majority of facilities were installed between 1960 and 1980 with an average age of 37 years. Pipe sizes range from 4 to 21 inches in diameter with 88% at 12 inches or less. The materials of construction for the gravity sewers are: clay (65%), polyvinylchloride (16%), asbestos cement (6%), and high density polyethylene (1%). The materials of construction for the force mains are: asbestos cement and high density polyethylene.

B. Definitions, Acronyms, and Abbreviations

American Water Works Association (AWWA)

American Society for Testing and Materials (ASTM)

Best Management Practices (BMP)

Refers to the procedures employed in commercial kitchens to minimize the quantity of grease that is discharged to the sanitary sewer system. Examples include scraping food scraps into a garbage can and dry wiping dishes and utensils prior to washing.

Calendar Year (CY)

California Integrated Water Quality System (CIWQS)

Refers to the State Water Resources Control Board online electronic reporting system that is used to report SSOs, certify completion of the SSMP, and provide information on the sanitary sewer system. The electronic reporting requirement became effective on May 2, 2007 in Region 2.

Capital Improvement Plan (CIP)

Refers to the document that identifies future capital improvements to the District's sanitary sewer system.

City

Refers to the City of Foster City.

Closed Circuit Television (CCTV)

Refers to the process and equipment that is used to internally inspect the condition of gravity sewers.

District

Refers to the Estero Municipal Improvement District.

Ductile Iron Pipe (DIP)

Estero Municipal Improvement District (EMID)

Fats, Oils, and Grease (FOG)

Refers to fats, oils, and grease typically associated with food preparation and cooking activities that can cause blockages in the sanitary sewer system.

Fiscal Year (FY)

Food Service Establishment (FSE)

Refers to commercial or industrial facilities where food is handled/prepared/served that discharge to the sanitary sewer system.

Force Main

Refers to a pressure sewer that conveys wastewater from a lift station or pump station to a gravity sewer or other discharge point..

Full-time Equivalent (FTE)

Refers to the equivalent of 2,080 paid labor hours per year by a regular, temporary, or contract employee.

General Waste Discharge Requirements (GWDR)

Refers to the State Water Resources Control Board Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006.

Geographical Information System (GIS)

Refers to the District's system that it uses to capture, store, analyze, and manage geospatial data associated with the District's sanitary sewer system assets.

Global Positioning System (GPS)

Refers to the handheld unit that is recommended to determine the longitude and latitude of sanitary sewer overflows for use in meeting CIWQS reporting requirements.

Grease Removal Device (GRD)

Refers to grease traps and grease interceptors that are installed to remove FOG from the wastewater flow at food service establishments.

High Density Polyethylene (HDPE)

Infiltration/Inflow (I/I)

Refers to water that enters the sanitary sewer system from storm water and groundwater and increases the quantity of flow. Infiltration enters through defects in the sanitary sewer system after flowing through the soil. Inflow enters the sanitary sewer without flowing through the soil. Typical points of inflow are holes in manhole lids and direct connections to the sanitary sewer (e.g. storm drains, area drains, and roof leaders).

Lateral

See sewer service lateral.

Legally Responsible Official (LRO)

Refers to the individual who has the authority to certify reports and other actions that are submitted through CIWQS.

Lift Station

Refers to a point in the collection system where the elevation of the wastewater is raised, using pumps, and is discharged into a nearby gravity sewer. Lift stations can be distinguished from pump stations in that they typically have shorter force mains.

Manhole (MH)

Refers to an engineered structure that is intended to provide access to a sanitary sewer for maintenance and inspection.

Monitoring, Measurement, and Plan Modifications (MMPM)

Not Applicable (NA)

Office of Emergency Services (OES)

Refers to the California State Governor's Office of Emergency Services.

Operations and Maintenance (O&M)

Overflow Emergency Response Plan (OERP)

Polyvinylchloride Pipe (PVC)

Preventative Maintenance (PM)

Refers to maintenance activities intended to prevent failures of the sanitary sewer system facilities (e.g. cleaning, CCTV, repair).

Pump Station

Refers to a point in the collection system where the elevation of the wastewater is raised, using pumps, and is discharged into a nearby gravity sewer. Pump stations are distinguished from lift stations in that they typically have longer force mains.

Regional Water Quality Control Board (RWQCB)

Refers to the San Francisco Bay Regional Water Quality Control Board.

Sanitary Sewer Overflows (SSOs)

Refers to the overflow or discharge of any quantity of partially treated or untreated wastewater from the sanitary sewer system at any point upstream from the wastewater treatment plant. SSOs typically are caused by blockages, pipe failure, pump station failure, or capacity limitation.

Sewer Service Lateral

Refers to the piping that conveys sewage from a building or privately owned and operated sewer system to the District's sewer system.

Sewer System Management Plan (SSMP)

Sanitary Sewer System

Refers to the portion of the sanitary sewer facilities that are owned and operated by the Estero Municipal Improvement District.

Standard Operating Procedures (SOP)

Refers to written procedures that pertain to specific activities employed in the operation and maintenance of the sanitary sewer system.

State Water Resources Control Board (SWRCB)

Refers to the California Environmental Protection Agency (EPA) State Water Resources Control Board and staff responsible for protecting the State's water resources.

Supervisory Control and Data Acquisition (SCADA)

Refers to the system that is employed by the District to monitor the performance of its pump stations and to notify the operating staff when there is an alarm condition that requires attention.

System Evaluation and Capacity Assurance Plan (SECAP)

Vitrified Clay Pipe (VCP)

Work Order (WO)

Refers to a document (paper or electronic) that is used to assign work and to record the results of the work.

C. References

New Requirements for Preparing Sewer System Management Plans, California Regional Water Quality Control Board San Francisco Bay Region letter to Sewer System Authorities, July 7, 2005 (www.cwea.org/conferences/sso/Reg2Letter-SSMP0705.pdf).

Sewer System Management Plan (SSMP) Development Guide, San Francisco Bay Regional Water Quality Control Board in cooperation with Bay Area Clean Water Agencies, July 2005 (www.swrcb.ca.gov/rwqcb2/download/programs/sso).

State Water Resources Control Board Order No. 2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Amended per Order No. 2013-0058 EXEC. September 9, 2013 California State Water Resources Control Board, http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/SSO_Reduction.shtml

Section I: Goals

A. Introduction

This section of the SSMP formally states the goals of the District.

B. Regulatory Requirements for the Goals Section

The GWDR requirements for the Goals section of the SSMP are:

The collection system agency must develop goals to properly manage, operate, and maintain all parts of its wastewater collection system in order to reduce and prevent SSOs, as well as to mitigate any SSOs that occur.

C. SSMP Goals

The goals of the District's SSMP are:

1. To properly manage, operate, and maintain all aspects of the District's wastewater collection system.
2. To provide adequate capacity to convey the peak wastewater flows to the San Mateo/EMID Water Quality Control Plant. Adequate capacity, for the purposes of this SSMP, is defined as the capacity to convey the peak wastewater flows that are associated with the design storm event.
3. To reduce the frequency of SSOs and, wherever possible, prevent SSOs.
4. To mitigate the impacts that are associated with any SSO that may occur.
5. To meet all applicable regulatory notification and reporting requirements.

Section II: Organization

A. Introduction

The intent of this section of the SSMP is to identify District Staff who are responsible for implementing this SSMP, responding to SSO events, and meeting the SSO reporting requirements. This section also includes the designation of the Legally Responsible Official to meet SWRCB requirements for completing and certifying spill reports.

B. Regulatory Requirements for Organization Section

The GWDR requirements for the Organization section of the SSMP are:

The collection system agency's SSMP must identify:

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

C. Organization

1. **Organization Chart**

The organization chart for the management, operation, and maintenance of the District's wastewater collection system is shown on Figure II-1.

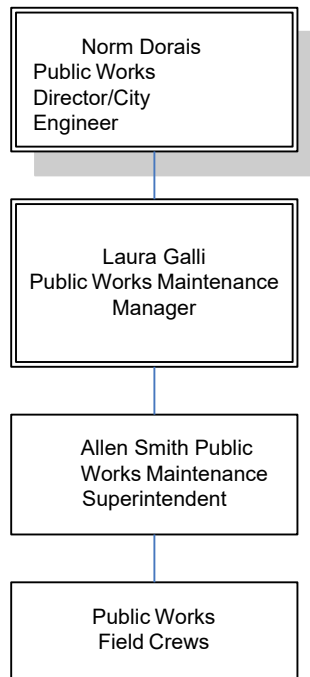
2. **Authorized Representatives**

The District's authorized representative for wastewater collection system matters is Norm Dorais, Director of Public Works. Mr. Dorais is the Legally Responsible Official and is authorized to submit and certify electronic and written spill reports to the SWRCB, the RWQCB, the County Health Agency, and the Governor's Office of Emergency Services.

Allen Smith, Public Works Maintenance Superintendent, is designated as the Authorized Representative by Mr. Dorais. Mr. Smith is authorized to submit verbal, electronic, and written spill reports to the SWRCB, the RWQCB, the County Health Agency, and the Governor's Office of Emergency Services.

Laura Galli, Public Works Maintenance Manager is designated as the Alternate Authorized Representative in Mr. Smith's absence. Mr. Dorais is authorized to submit verbal, electronic, and written spill reports to the SWRCB, the RWQCB, the County Health Agency, and the Governor's Office of Emergency Services.

Figure II-1: Organization Chart and SSO Reporting Chain of Communication



3. ***Responsibility for SSMP Development, Implementation, and Maintenance***

Mr. Smith has overall responsibility for developing, implementing, periodically auditing, and maintaining the District's SSMP.

Other District Staff responsible for developing, implementing, and maintaining specific elements of the District's SSMP, along with their job titles and contact information, are shown in Appendix II-A.

4. ***SSO Reporting Chain of Communication***

The SSO Reporting Chain of Communication follows the Organization Chart shown on Figure II-1 in the reverse order. The SSO Reporting process and responsibilities are described in detail in Section VI - Overflow Emergency Response Plan.

Appendix II-A

District Staff Responsible for SSMP Development, Implementation, and Maintenance

Name	Title	SSMP Responsibility	Phone and Email
Norm Dorais	Director of Public Works	SSMP Section <u>V</u> and Legally Responsible Official (LRO)	(650) 286-3288 Ndorais@fostercity.org
Laura Galli	Public Works Maintenance Manager	SSMP Development and Implementation/ SSO Reporting Alt.	(650) 286-3279 ndorais@fostercity.org
Allen Smith	Public Works Maintenance Superintendent	SSO Reporting/ SSMP Development and Implementation	(650) 286-3544 asmith@fostercity.org
Allan Shu	Senior Civil Engineer	SSMP Section <u>IV</u> & <u>V</u> (Lift Station Rehab And Inspection/ Design and Performance Provisions)	(650) 286-3271 ashu@fostercity.org
Vivian Ma	Associate Civil Engineer	SSMP CIP 611 (Collection System Rehabilitation)	(650) 286-3277 Vam@fostercity.org
Laura Galli	Associate Civil Engineering	SSMP Section <u>IV</u> (Lift Station 28(Collection System rehabilitation) Map Updates)	(650) 286-3280 lgalli@fostercity.org
Ashraf Shah	Assistant Engineer	SSMP Section <u>IV</u> (Sewer System Maps)	(650) 286-3588 ashah@fostercity.org

Section 3. Legal Authority

3.1. Introduction

This section of the SSMP presents the District's legal authority to comply with the SSMP requirements, as provided in its District Code and agreements with other agencies.

3.2. Regulatory Requirements for Legal Authority Element of SSMP

The summarized requirements for the Legal Authority element of the SSMP are:

3.2.1. RWQCB Requirement

The District must demonstrate that it has the legal authority (through ordinances, service agreements, and other binding procedures) to control infiltration and inflow (I/I) from satellite collection systems and private service laterals; require proper design, construction, installation, testing, and inspection of new and rehabilitated sewers and laterals; and enforce violation of ordinances.

3.2.2. GWDR Requirement

The District must demonstrate, through collection system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

- a) Prevent illicit discharges into its wastewater collection system (examples may include infiltration and inflow (I/I), storm water, chemical dumping, unauthorized debris and cut roots, etc.);
- b) Require that sewers and connections be properly designed and constructed;
- c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the District;
- d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages;
- e) Enforce any violation of its sewer ordinances;
- f) Authority to inspect grease producing dischargers; and
- g) Authority to enforce sewer-related ordinances.

3.3. District Code

The *Estero Municipal Improvement District Code* is the basis for the District's legal authorities. The District has completed a review of its Code and it is in the process of revising the Code sections to meet the requirements of the GWDR. The District to complete the revisions to its Code by April 15, 2017. The references for the current and revised sections of the District Code are summarized on Table 3-1.

Table 3-1: Legal Authority

Requirement	EMID Code Reference	Meets GWDR Requirements?
General		
Prevent illicit discharges into the wastewater collection system	8.37.120(J)	Yes
Limit the discharge of fats, oils, and grease and other debris that may cause blockages	8.37.120(E&H)	Yes
Require that sewers and connections be properly designed and constructed	8.32.010	Yes
Require proper installation, testing, and inspection of new and rehabilitated sewers	8.32.010	Yes
Laterals		
Clearly define District responsibility	8.32.100	Yes
Ensure access for maintenance, inspection, or repairs for portions of the service lateral owned or maintained by the District	NA	NA
Control infiltration and inflow (I/I) from private service laterals	8.32.100 8.36.010 8.37.120(O)	Yes
FOG Source Control		
Requirements to install grease removal devices (such as traps or interceptors), design standards for the grease removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements	8.36.040 8.36.050 8.37.100 8.37.120(H) 8.37.160 8.37.010 8.37.390	Yes
Authority to inspect grease producing facilities	8.12.090	Yes
Enforcement		
Enforce any violation of its sewer ordinances	8.04.130 8.12.250 8.37.450 8.37.460	Yes

ESTERO MUNICIPAL IMPROVEMENT DISTRICT



Sewer System Management Plan

Section 4 Operation and Maintenance Program

March 21, 2017

Table of Contents

SSMP Introduction	i
1.1. Sewer System Management Plan Components	i
1.2. Summary of Action Items and Timelines	ii
1.3. Definitions, Acronyms, and Abbreviations	iii
Section 4: Operation and Maintenance Program	1
4.4. Introduction	1
4.5. SSMP Requirements	1
4.6. Collection System Maps	2
4.7. Operation and Maintenance Program	2
4.8. Rehabilitation and Replacement Plan	4
4.9. Training Program	4
4.10. Equipment and Parts Inventory	5
4.11. Staffing And Resources	5
4.12. Outreach Program	5
Appendix 4–A: Standard Operating Procedure for Sewer Cleaning	6
Appendix 4–B: Pump Station Inspection Form	10
Appendix 4–C: Rehabilitation and Replacement Program	15
Appendix 4–D: Major Sewer System Equipment Inventory	16

List of Tables and Figures

Table 4-1: Collection System Staff Resources	5
Table 4-A-2: Criterion for Coding Debris Found During Cleaning	8
Figure 4-A-1: Excerpt from CWEA publication, “Best Practices Cleaning Results” .9	

SSMP Introduction

1.1. Sewer System Management Plan Components

- Section 1 Goals
- Section 2 Organization
- Section 3 Legal Authority
- Section 4 Operation and Maintenance Program
- Section 5 Design and Performance Provisions
- Section 6 Overflow Emergency Response Plan
- Section 7 FOG Control Program
- Section 8 System Evaluation and Capacity Assurance Plan (SECAP)
- Section 9 Monitoring, Measurement, and Program Modifications
- Section 10 SSMP Program Audits
- Section 11 Communication Program

1.2. Summary of Action Items and Deadlines

Location within SSMP	Action Item Deadline
4.7.3 Force Mains	Complete a condition assessment of the of the asbestos cement pipe (ACP) force mains by July 1, 2018.
4.9 Training Program	Complete technical training manual by September 1, 2015.
4.11 Staffing And Resources	The Districts O&M Budget is \$6,500,000 for Fiscal Year 16/17.
4.11 Staffing And Resources	The District's Five Year Capital Improvement Program allocates approximately \$4.4 million for rehabilitation/replacement projects.
4.12 Outreach Program	The District mails informational pamphlets to identified sewer system contractors biannually
Appendix 4–C: Rehabilitation and Replacement Program	Table in draft SSMP includes sample data. Need District's planned capital expenditures.
Appendix 4–D: Major Sewer System Equipment Inventory	Need equipment numbers.

1.3. Definitions, Acronyms, and Abbreviations

Capital Improvement Program (CIP)

Refers to the document that identifies future capital improvements to the City's sanitary sewer system.

Closed Circuit Television (CCTV)

Refers to the process and equipment that is used to internally inspect the condition of gravity sewers.

District

Refers to the Estero Municipal Improvement District.

Full-time Equivalent (FTE)

Refers to the equivalent of 2,080 paid labor hours per year by a regular, temporary, or contract employee.

General Waste Discharge Requirements (GWDR)

Refers to the State Water Resources Control Board Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006.

Geographical Information System (GIS)

Refers to the City's system that it uses to capture, store, analyze, and manage geospatial data associated with the City's sanitary sewer system assets.

Instrumentation and Controls (I&C)

Operations and Maintenance (O&M)

Preventative Maintenance (PM)

Refers to maintenance activities intended to prevent failures of the sanitary sewer system facilities (e.g. cleaning, CCTV, repair).

Lift Station (LS) A pumping system which elevated wastewater from a low point to a high elevation.

Regional Water Quality Control Board (RWQCB)

Refers to the San Francisco Bay Regional Water Quality Control Board.

Sanitary Sewer Overflows (SSOs)

Refers to the overflow or discharge of any quantity of partially treated or untreated wastewater from the sanitary sewer system at any point upstream from the wastewater treatment plant. SSOs are typically caused by blockages, pipe failure, pump station failure, or capacity limitation.

Sewer System Management Plan (SSMP)

State Water Resources Control Board (SWRCB)

Refers to the California Environmental Protection Agency (EPA) State Water Resources Control Board and staff responsible for protecting the State's water resources.

Fat, Oils, and Grease (FOG) – an organic matter found in wastewater produced by excess fats, oils, and grease which are poured/flushed into the wastewater collection system.

Section 4: Operations and Maintenance Program

4.4. Introduction

This section of the Sewer System Management Plan (SSMP) is intended to provide an overview of the District's operations and maintenance program.

4.5. SSMP Requirements

4.5.1. RWQCB Requirement (Measures and Activities):

- 1) Maintain up-to-date maps of the wastewater collection system facilities
- 2) Allocate adequate resources for the operations, maintenance and repair of the collection system
- 3) Prioritize preventive maintenance activities
- 4) Identify and prioritize structural deficiencies and implement a program of short-term and long-term actions to address them
- 5) Provide contingency equipment to handle emergencies, and spare/replacement parts intended to minimize equipment/facility downtime
- 6) Provide training on a regular basis for staff in collection system operations, maintenance, and monitoring
- 7) Implement an outreach program to educate commercial entities involved in sewer construction or maintenance about the proper practices for preventing blockages in mains or private laterals. This requirement can be met by participating in a region-wide outreach program.

4.5.2. GWDR Requirement (Operations and Maintenance Program):

The GWDR requirements for the Operations and Maintenance Program are:

- 1) Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable storm water conveyance facilities;
- 2) Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and unscheduled activities, such as work orders;
- 3) Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to

more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan;

- 4) Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and
- 5) Provide equipment and replacement part inventories, including identification of critical replacement parts.

4.5.3. Section Organization

The majority of the RWQCB and SWRCB (GWDR) requirements for the Operations and Maintenance (O&M) Program element of the SSMP are in agreement. The following presents the O&M Program following the SWRCB requirement first, with RWQCB requirements that are not satisfied by the response to the SWRCB requirements at the end of this section.

4.6. Collection System Maps

The District maintains its collection system maps using GIS. At a minimum, the maps will include all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable storm water conveyance facilities. The field crews use hard copy maps as well. The hard copy maps will be in the next 2 years. Corrections that are identified by the field crews on the District's GIS map are forwarded to Public Works Engineering for action. High priority corrections are completed within 30 days. High priority corrections refer to mapping information that could cause the field crews to act in a manner that could cause an SSO. Low priority corrections are completed once a year.

4.7. Operation and Maintenance Program

The elements of the District's sewer system O&M program include:

- Proactive, preventive, and corrective maintenance of gravity sewers;
- Ongoing CCTV inspection program to determine the condition of the gravity sewers;
- Rehabilitation and replacement of collection system facilities that are in poor condition; and
- Periodic inspection and preventive maintenance for lift station and force main facilities.

The details of the District's O&M programs are:

4.7.1. Gravity Sewers

The District cleans its sewer system every year, and it preventively cleans sewers with a history of problems every 1, 3, or 6 months. One collection system cleaning crew is assigned to these activities. The District's standard operating procedure for collection system cleaning is included as Appendix 4-A.

Gravity sewer maintenance is currently scheduled using paper work orders. The work orders cover preventive maintenance program and scheduled for annual routine cleaning, based on the District's 49 sewer basins. Completed gravity sewer maintenance is recorded using the District's GIS system. The GIS system maintains a history of completed maintenance by asset.

The District uses CCTV to determine the cause of its gravity sewer blockages and SSOs.

The District completes emergency repairs using its field crews and it uses underground contractors to correct non-emergency problems identified by CCTV or the sewer cleaning crew. Repairs are completed in priority order.

The District completed the Second round of inspection using CCTV in November 2013 and it intends to continue inspecting its gravity sewers on a three year cycle. One part-time CCTV inspection crew is assigned to this activity. The inspection data is reviewed by the Superintendent to determine whether repairs or rehabilitation/ replacement are warranted.

The Collection System staff maintains a list of known structural problems for use in providing input to Public Works Engineering on the Capital Improvement Program.

The District has established monthly and annual goals for production. Actual production is tracked and corrective actions are implemented when production falls behind the goals.

4.7.2. Lift Stations

The District's lift station O&M program consists of operational inspections, preventive maintenance, and corrective maintenance activities.

The operation of the lift stations is inspected monthly. The lift station inspections are completed during the first two weeks of each calendar month. Pump current draw is measured during the operational inspection and is used as a diagnostic tool to identify pump operating problems. Facility or equipment problems observed during the operational inspections are noted on logs maintained at the lift stations and on work order reports for follow-up action. Observed facility or equipment problems are also recorded on the whiteboard in the maintenance shop. All observations are transcribed onto the Lift Station Task spreadsheet. The completed corrective maintenance activities are also noted on the spreadsheet.

Preventive maintenance activities are completed during the second half of each month. Checklists are used to ensure that all required preventive maintenance tasks are completed.

Emergency generators are exercised Bi monthly.

The results of the operational inspections, preventive maintenance tasks, and any corrective maintenance are recorded on paper work orders. The completed paper work orders are recorded by asset in the District's GIS system. The GIS system maintains a history of completed maintenance by asset.

The District formally inspects the condition of its lift stations annually. The inspection process is used to identify major maintenance and rehabilitation needs.

The facility inspection is completed by a team that includes collection system field staff and other District/City employees as appropriate to the size and complexity of the facility. The inspection is based on the checklist that is included as Appendix 4-B. The completed inspection checklists are reviewed by the Superintendent to determine whether repairs, major maintenance, or rehabilitation/replacement are warranted. Repairs and major maintenance are completed by District staff. Specialty repairs, maintenance, or rehabilitation/replacement are completed by contract.

4.7.3. Force Mains

The District's force main O&M program consists of periodic inspections, preventive maintenance, and corrective maintenance activities.

The District is a member of Underground Service Alert and marks the location of its force mains to prevent damage by others during underground construction.

The force main right-of-ways are inspected yearly to identify leakage and potential incursions associated with nearby construction. Air relief valves are inspected and maintained annually. Force mains are cleaned when conditions warrant.

The District is planning to assess the condition of its asbestos cement pipe (ACP) force mains. It anticipates completing the assessment by F/Y 17/18 . As continue maintenance we will be replacing 2,200 ft of force main on Edgewater Blvd.

4.7.4. Non-Routine Maintenance

Non-routine maintenance activities include investigation and response to any complaints regarding a manhole overflow, missing or shifted manhole covers, manhole covers that are excessively noisy, residential plumbing troubles, pump station malfunction, unexpected sewer odor, etc. Sewer complaints are investigated and appropriate actions are taken to resolve the source of the problem.

4.8. Rehabilitation and Replacement Plan

The District has a Capital Improvement Program that includes the rehabilitation and replacement of its collection system assets where conditions warrant. The gravity sewer rehabilitation/replacement projects will be implemented in FY2017/2018. The District anticipates the lift station rehabilitation/replacement projects will be implemented every three years.

The sewer system projects that are included in the District's Capital Improvement Program are shown in Appendix 4-C.

4.9. Training Program

The District currently uses a combination of in-house classes; on-the-job training; and conferences, seminars, and other opportunities to train its collection system staff.

The District is developing a technical training manual and it intends to test the competency of its collection system field employees in pertinent areas of collection

system O&M. The District intends to have the technical training manual in place by December 31, 2018.

The District’s contract language requires contractors working in the collection system to provide training for their employees in collection system operation and response to collection system blockages/overflows.

4.10. Equipment and Parts Inventory

The list of the major equipment that the District uses in the operation and maintenance of its sewer system is included in Appendix 4-D.

There are no critical replacement parts required for the operation and maintenance of the District’s gravity sewer system facilities.

The Districts maintains an inventory of replacement pumps for its various lift stations.

4.11. Staffing and Resources

The Collection System Division resources that are allocated to the maintenance of the of the District’s collection system facilities (pump stations and gravity sewers) are shown on Table 4-1. The District Staff is supplemented with contractors and contract services when needed. The major equipment available to support the maintenance activities is listed in Appendix 4-D.

The Districts O&M Budget is \$8,100,000 for Fiscal Year 17/18.

The District’s Five Year Capital Improvement Program allocates approximately \$4.4 million for rehabilitation/replacement projects. The identified rehabilitation and replacement projects that are included in the District’s Five Year Capital Improvement Program are shown in Appendix 4-C.

Table 4-1: Collection System Staff Resources

Position/Activity	FTE*
Public Works Director	0.3
Maintenance Manager	0.3
Superintendent	1.0
Administrative Secretary	0.3
Lead Worker	2.0
Sewer Cleaning and Response to Service Calls	2.0
CCTV Inspection	2.0
Pump Station O&M	2.0
Total	10.0
* Full-time equivalent (FTE), 2,080 hours per year.	

4.12. Outreach Program

The District intends to use materials developed in-house and supplemented by the Bay Area Clean Water Agencies (BACWA) to inform sewer system contractors working in the District’s service area about the importance of preventing SSOs

associated with their work. The District will mail informational pamphlets to identified sewer system contractors by June 30, 2009.

Appendix 4-A: Standard Operating Procedure for Sewer Cleaning

Purpose

The purpose of this Standard Operating Procedure is to ensure that sewer cleaning is performed in a manner that will produce a high quality work product. Quality is important because it ensures that the sanitary sewers will not experience problems prior to their next scheduled cleaning.

Goal

The goal of cleaning a gravity sewer is to restore the flow area to 95% of the original flow area of the pipe.

Required Equipment and Tools

1. Personal protective equipment (steel toe boots, gloves, eye/face protection, hearing protection)
2. Calibrated gas detector
3. Proper safety cones, barricades, flagging, signs or other traffic control devices
4. Confined space equipment (tripod, harness, and ventilation blower) if necessary.
5. Sanitary sewer system map book and/or lap tops
6. Manhole hook
7. Hydro Jetter or Combo Unit collection system cleaner
7. 35 degree nozzle (general maintenance nozzle)
7. Bulldog sewer cleaning nozzle
8. 6 wire skid (“proofer”) in sizes that will be encountered during the day
9. Root saw
10. Debris traps in the sizes that will be encountered during the day
11. Grit Scoop to remove debris
12. Measuring wheel
13. Disinfectant

Required Forms

1. Cleaning Work Order
2. Pre Trip Inspection Form
3. Injury/Damage Report Form

Procedures for Sewer Cleaning Crew

Prior to Leaving the Yard

1. Plan the work so that it starts in the upstream portion of the area and moves downstream.
2. Wherever possible, plan to clean sewers from the downstream manhole.
3. Schedule and be prepared to vacuum the down stream wet well ASAP when debris may or enters the wet well
4. Inspect the sewer cleaning nozzles for wear. Replace nozzles that are excessively worn.
5. On the first day that the cleaning unit is being used that week, inspect the first 200 feet of hose and couplings for damage or wear.

At the Jobsite

6. Wear proper personnel protective equipment (PPE).
7. Fill the water tank at or near the first jobsite.
8. Determine and confirm location of upstream and downstream manholes (use street addresses, if possible).
9. Look for any overhead utilities that may come into contact with the vacuum boom during the cleaning operation.
10. Set up proper traffic control by placing traffic signs, flags, cones and other traffic control devices.
11. Move the cleaning unit into the traffic control so that the hose reel is positioned over the manhole, whenever possible.
12. Open the manhole and use the gas detector to determine if it is safe to proceed with the cleaning operation.
13. Install the cleaning nozzle on the hose.

Cleaning Operation

14. Insert the debris trap.
15. Start the auxiliary engine.
16. Lower the hose, with a guide or roller to protect the hose, into the manhole and direct it into the sewer to be cleaned.
17. Start the high pressure pump and set the engine speed to provide adequate pressure for the sewer cleaning operation.
18. Open the water valve and allow the hose to proceed up the sewer. The hose speed should not exceed 3 feet per second.
19. Allow the hose to proceed 25% into the sewer pipe section and pull the hose back.

20. One the first pull observe the nature and the quantity of debris pulled back to the manhole.
21. If there is little or no debris, allow the hose to proceed to the upstream manhole.
22. If there is moderate to heavy debris, clean the remaining portion of the sewer in steps not to exceed more than 25% increments into the sewer pipe section.
23. Open the upstream manhole and verify that the nozzle is at or past the manhole, every time a sewer pipe section is cleaned.
24. The sewer has been adequately cleaned when:
 - Successive passes with a cleaning nozzle do not produce any additional debris, and
 - The sewer is able to pass a full size, six-wire skid (“proofer”) for its entire length.
25. Determine the nature and quantity of the debris removed during the cleaning operation. Figure 4-A-1 is an excerpt from the CWEA “Best Practices Cleaning Results” publication and sets guidelines for coding debris found during field work. Use the codes in Table 4-A-2 to report the nature and quantity of debris.

Table 4-A-2: Criterion for Coding Debris Found During Cleaning

Type of Debris	Clear (no debris)	Light	Moderate	Heavy
Sand, grit, rock	CLR	GT-4	GT-3	GT-4
Grease	CLR	G-2	G-3	G-4
Roots	CLR	RTS-2	RMRTS-3	RTS-4
Other (specify)	CLR	CR-2	CR-3	CR-4

26. Remove the debris from the manhole using the vacuum unit, debris trap, or scoop.
27. Rewind the hose on the reel.
28. Remove the debris trap.
29. Clean the mating surface and close the manhole. Ensure that the manhole is properly seated.
30. Enter the results on the Work Order.
31. Move the cleaning unit, break down and store the traffic controls.
32. Proceed to the next cleaning jobsite.

At the End of the Day

33. Inspect the equipment and tools for problems.

34. Report any problems with equipment, tools, or sewers lines that were cleaned during the day to the Maintenance Lead Worker.
35. Turn in all completed Cleaning Work Orders to the Maintenance Lead Worker at end of shift.

Figure 4-A-1: Excerpt from CWEA publication, “Best Practices Cleaning Results”

Standard Measures of Observed Results			
Next to cleaning the sewer line, effective observation of results is the most important work product of the crew. This information is the basis for defining future maintenance activities. Consistency is important. The standards for “results” for six- and eight-inch diameter sewers are:			
	Clear	Moderate	Heavy
Grit	No observable grit	Less than 5 gallons 15-20 minutes to clean 1-2 passes required Requires cleaning twice or less per year Only fine grit	More than 5 gallons More than 30 minutes to clean More than 4 passes required Requires cleaning four times per year
Grease	No observable grease	Small chunks/no “logs” 15-20 minutes to clean 1-2 passes required Requires cleaning twice or less per year	Big chunks/“logs” Operator concern for downstream plugging More than 30 minutes to clean More than 4 passes required
Liquefied grease		Vacuuming not required	Vacuuming not required
Roots	No observable roots	Thin/stringy roots present No large “clumps” 15-20 minutes to clean 1-2 passes required	Thick roots present Large “clumps” More than 30 minutes to clean More than 4 passes required
Other condition observations: - Pipe material fragments - Soil/dirt - Rock (pipe bedding) - Lost nozzle			

Appendix 4–B: Lift Station Inspection Form

Inspection Information

Inspection date	
Inspection participants	
Facility name	
Facility address	
Comments	

Summary of Recommended Actions (in Priority Order)

Recommended Action(s)	Priority

Background Information (Prior 12 Months)

SSOs	
Equipment failures	
Alarm history (attach copy)	
Major maintenance activities completed (attach list if applicable)	
Pending work orders (attach copies)	
Operating problems (attach copy of operating log)	
Comments	

Security Features

Fence and gate	
External lighting	
Visibility from street	
Doors and locks	
Intrusion alarm(s)	
Signs with emergency contact information	
Other security features	
Comments	

Safety Features and Equipment

Signage (confined space, automatic equipment, hearing protection, etc.)	
Fall protection	
Emergency communication	
Equipment hand guards	
Hand rails and kickboards	
Platforms and grating	
Tag out and lock out equipment	
Hearing protection	
Eye wash	
Chemical storage	
Comments	

External Appearance

Fence	
Landscaping	
Building	
Control panels	
Other external features	
Comments	

Building/Structure

Pump station building	
Control room	
Dry well	
Wet well	
Other structures	
Comments	

Instrumentation and Controls (I&C), including SCADA Facilities

Control panel	
Run time meters	
Flow meter	
Wet well level	
Alarms	
SCADA	
Other I&C	
Comments	

Electrical and Switch Gear

Power drop	
Transformers	
Transfer switches	
Emergency generator and generator connection	
Starters	
Variable frequency drives	
Electrical cabinets	
Conduit and wireways	
Other electrical	
Comments	

Motors

Lubrication	
Insulation	
Operating current	
Vibration and alignment	
Comments	

Pumps

Lubrication	
Vibration and alignment	
Seals	
Indicated flow and discharge pressure	
Shutoff head	
Corrosion and leakage evidence	
Drive shaft	
Casing wear (thickness)	
Other	
Comments	

Valves and Piping

Valve operation	
Valve condition	
Pipe condition	
Pipe support	
Other	
Comments	

Other

Lighting	
Ventilation	
Support systems (air, water, etc)	
Signage	
Employee facilities	
Sump pump	
Overhead crane/lift points	
Portable pump connections	
Portable pumps	
Comments	

Aerial Photo of Pump Station Site (from Google Maps)

Photos of Major Equipment/Condition Issues

Appendix 4–C: Rehabilitation and Replacement Program

Project Number	Project Title	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21
Rehabilitation and	Gravity Sewer Rehabilitation					500,000
XXXX	ACP Force Main Partial replacement		2.0 M			
XXXX	SCADA System Upgrade F/Y 2030 1.0M					
XXXX	Gravity Sewer Master Plan Study		250,000			
XXXX	New CCTV Unit		220,000			
XXXX	Pump Station Rehabilitation				500K	5.5M
XXXX	Replace High Velocity Hydro Jetter Unit					184,000

Appendix 4–D: Major Sewer System Equipment Inventory

Equipment Number	Major Equipment Type	Year Purchased /Proposed
38	New CCTV Van Equipment.	2018
35	Harben Hydro Unit	2009
32	High Velocity Sewer Cleaner (Vactor)	2015
39	Combination High Velocity Sewer Cleaner (VacCon)*	2016
* This unit is available to support collection system sewer cleaning 50% of the time.		

Section 5. Design and Construction Provisions

A. Introduction

The design standards are used by the District's Public Works Department for the design of new and rehabilitated collection system facilities.

B. Regulatory Requirements for the Design and Performance Provisions Element

RWQCB Requirement

- (a) Each wastewater collection system agency shall identify minimum design and construction standards and specifications for the installation of new sewer systems and for the rehabilitation and repair of existing sewer systems; and
- (b) Each wastewater collection system agency shall identify procedures and standards for inspecting and testing the installation of new sewers, pump stations, and other appurtenances; and for rehabilitation and repair projects.

GWDR Requirement

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

C. Design Criteria

The District's Wastewater Collection System Design Criteria are:

General

- 1. Any situation that varies from the standard conditions will require additional or specialized design features to ensure reliability, access for maintenance, and economical operation and maintenance. Design conditions that differ from these standards require approval from the Public Works Department.
- 2. The sewer lift stations require telemetry equipment to be incorporated into the design of the facility. The Public Works Department will provide specific design requirements when improvement plans are submitted for plan check.

Mains

- 1. Minimum size shall be 8 inches.
- 2. The maximum depth of flow during peak dry weather flow shall not exceed 1/2 of the diameter.
- 3. No vertical or horizontal curves shall be permitted, unless otherwise approved by the Public Works Department.

4. The deflection between any two successive joints will not exceed 80% of the maximum deflection recommended in writing by the pipe manufacturer. The minimum pipe length used to construct short radius curves will be two feet.
5. Sewer main locations shall be located in the center of the street or easement. A minimum 10 foot separation outside of pipe to outside of pipe from waterlines shall be maintained.
6. Minimum cover for sewer pipe shall be 36" below the finished grade, unless otherwise approved by the Public Works Department.
7. Minimum Grade: A minimum velocity shall be 2 fps at peak daily dry weather flow. The minimum grade shall be:

<u>Pipe Diameter</u>	<u>Minimum Grade</u>
8"	0.50%
10" and larger	0.40%

8. Demands: Average daily sewer demands, in gallons per day (GPD), shall be:

Single Family Residential	280 GPD per unit
Multi-Family Residential	200 GPD per unit
Commercial	1,750 GPD per net acre
Hotel	2,450 GPD per net acre
School	20 GPD per student
Park and Open Space	170 GPD per net acre
9. Peak daily flows for residential developments shall be based on a ratio of peak to average flow of 5.
10. All sewer mains not located within the public right-of-way shall be provided with a minimum 10 foot wide sewer easement. In some special cases a wider easement may be required; easement width shall be determined by the Public Works Director. All easements shall be easily accessible to District maintenance equipment.
11. Where water and sewer mains are located within the same easement, the minimum easement width shall be 20 feet. All easements shall be easily accessible to the District for maintenance.
12. The standards for rehabilitation shall be:
 - i. All sewer main replacements in easements should be constructed using trenchless construction methods, where feasible and/or acceptable. The materials shall be SDR-17 HDPE or SDR-26 fusible PVC. Creek, railroad, and freeway crossings shall be SDR-17 HDPE or C900 PVC and the sewer main shall be installed in a steel casing with appropriate corrosion protection.
 - ii. All sewer main replacements in streets and other paved areas shall be constructed using open cut or trenchless construction methods. Mains with less than 3.5 feet of cover shall be constructed using open trench construction methods. The materials shall be SDR-26 fusible PVC or SDR-17 HDPE. Protection from surface loads shall be approved by the Public Works Department.

- iii. All sags deeper than 1.5 inches shall be eliminated using spot repairs prior to proceeding with the rehabilitation method.
- iv. All connecting manholes, lamp holes, and clean out shall be replaced or rehabilitated at the time the sewer main is rehabilitated or replaced.
- v. All laterals shall be reconnected to the main at a 45 degree angle except that HDPE laterals may be fusion welded to the main at a 30 degree angle.

Manholes

- 1. Minimum drop through manholes shall be 0.20 feet
- 2. Manholes shall be required:
 - a. At all changes of slope.
 - b. At all changes in size or material.
 - c. At all changes of direction.
 - d. At all intersections of with other mains.
 - e. At all ends of lines and beginning of all mains.
- 3. All manholes shall be numbered on the plans.
- 4. Manhole spacing shall be 300 feet maximum or as approved by the Public Works Department.
- 5. For all industrial users, an inspection manhole shall be provided immediately behind the property line.
- 6. For all residential uses, a cleanout shall be provided within 2 feet of the property line.
- 7. Match soffit elevation at all locations where sewers of different size are connected in a manhole.

Laterals

- 1. Each parcel or lot shall have only one connection to public sewer main.
- 2. Minimum size shall be 4 inches. 6 inch laterals shall be provided for properties with 5 or more connected units and all commercial connections.
- 3. Sewer laterals 6 inches and larger, shall be connected to an existing manhole or a new manhole shall be constructed.
- 4. Minimum slope shall be 1/4 inch per foot.
- 5. An inspection manhole shall be provided at the property line for industrial projects where the flow will exceed 5,000 gallons per day.
- 6. All laterals are to be shown on improvements plans by stationing or a lateral table. On "As-Built" plans all laterals shall be shown in plan view to scale and dimensioned from the nearest sewer manhole.
- 7. Location:
 - a. Perpendicular to the sewer main.

- b. Standard is from the center of lot to 5 feet above downstream lot line (shown on As-Built plans).
 - c. Services shall not be located in the driveway.
8. An “S” shall be stamped on the curb face at the lateral location.
 9. Separation between sewer and water laterals shall be per District Standard Details.
 10. Minimum cover shall be 2 feet minimum at the property line.
 11. Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. No building sewer which is within three feet of any bearing wall which might thereby be weakened shall be laid parallel thereto. The depth shall be sufficient to afford protection from frost. The building sewer shall be laid at uniform slope and in straight alignment insofar as possible. Changes in direction shall be made only with proper fittings and provided with cleanouts.
 12. Cleanouts in building sewers shall be provided where the building sewer joins the building outlet. All cleanouts shall be maintained watertight.
 13. Any lot with a finished pad elevation lower than the top of the finished street grade where the sewer main is located that serves this lot, must install a sewer back flow prevention valve on private property. The valve must be installed in a valve box for easy access and be visible from the public right-of-way. The property owner shall be responsible for the installation and maintenance of the sewer backflow prevention valve. The backflow prevention valve shall be shown on the precise grading and improvement plans.

The backflow certification shall be completed by the developer in accordance with District standards.

The property owner is responsible for maintaining the backflow prevention valve in proper operating condition at all times.

Lift Station

Lift Stations shall not be employed unless deemed essential by the Public Works Department. Design criteria to be provided by the Public Works Department.

District Sewer System – Authorized Materials

The authorized materials for the District Sewer System are shown on Table V-1.

Private Sewer Systems

1. All private sewer systems serving more than one building shall be governed by and permitted through the Building Department. A manhole shall be set at the property line and at the mainline, if required.

Table V-1: Acceptable Pipe Materials for New Gravity Sewers

Material	Designation	Standard
High Density Polyethylene (HDPE)	EHMW PE 3408 HDPE (SDR-17)	ASM D3350
Polyvinylchloride Pipe (PVC)	SDR-26 C900	ASTM D3033 or D3034 AWWA C900
Vitrified Clay Pipe (VCP)	Extra Strength with compression joints	ASTM C700 ASTM C425

2. The sewer system upstream of the manhole at the property line shall be considered private.
3. In the event that a private sewer system is proposed to be converted to a public system, the entire system must be upgraded to meet the public standards as presented in this section.
4. Acceptable pipe materials for buried main and trunk sewers 24 inches in diameter and smaller are shown in Table V-1. Materials for other applications require the approval of the Public Works Department.

Inspection and Testing Criteria

The District’s Wastewater Collection System Inspection and Testing Criteria are based on the latest edition of Standard Specifications for Public Works Construction, American Public Works Association (also known as the “Greenbook”). The District’s inspection and testing criteria are:

New Gravity Sewers

Inspection during construction – All new gravity sewers will be periodically inspected during construction to ensure that the sewer is constructed using the specified materials and methods. Specific approvals will be required by the inspector prior to backfilling the trench, prior to paving, and prior to acceptance by the District. The contractor will be required to provide survey controls so that the inspector can verify line and grade (slope). Unusual conditions and special features will be recorded for future reference.

Leakage – All new gravity sewers will be tested to verify that they have been properly constructed. Sewers between 8 and 16 inches in diameter will be tested following Standard Specifications for Public Works Construction, Section 306-1.4.4 Air Pressure Test. Sewers larger than 16 inches will be hydrostatically tested following Standard Specifications for Public Works Construction, Section 306-1.4.5 Water Pressure Test. Gravity sewers that fail the test shall be repaired and retested.

Deflection – All flexible pipe will be tested for deflection following backfill and prior to paving following Standard Specifications for Public Works Construction, Section 306-1.2.12 Field Inspection for Plastic Pipe and Fittings. Gravity sewers that fail the test shall be repaired and retested. “Re-rounding” is not allowed.

CCTV inspection – All new gravity sewers will be inspected using a closed circuit television to verify that the pipe is free from defects/damage, that the joints have been correctly constructed, and that the sewer is free from sags that will cause future operational problems. Gravity sewers shall be cleaned prior to inspection and shall be flushed with water so that sags can be identified and recorded.

Warranty inspection – All new gravity sewers will be inspected using CCTV prior to the end of the warranty period to ensure that there are no latent defects. Repairs shall be completed in a timely manner at the Contractor’s expense.

New Manholes

Inspection during construction - All new manholes will be periodically inspected during construction to ensure that the sewer is constructed using the specified materials and methods. Unusual conditions and special features will be recorded for future reference.

Leakage – All new manholes will be vacuum tested to verify that the joints, connections, and frame/cover are tight. The vacuum test will follow ASTM C1244. The test will be conducted at a 10 inch Hg vacuum. The vacuum loss shall be less than one inch Hg for the time shown in Table V-2.

Table 0-2: Minimum Manhole Vacuum Test Time in Seconds

Depth / Diameter	4 foot diameter	5 foot diameter	6 foot diameter
Depth < 15 feet	50	65	80
Depth = 15 feet or greater	70	105	130

Manholes that fail the vacuum test shall be repaired using materials and methods approved by the Public Works Department and retested.

New and Rehabilitated Pump Stations

Inspection during construction – All new and rehabilitated lift stations will be periodically inspected during construction to ensure that they are constructed using the specified materials and methods. Unusual conditions and special features will be recorded for future reference.

Functional test – All systems in new and rehabilitated lift stations will be tested to ensure they function as intended.

Performance test – All new and rehabilitated lift stations will be required to pass an extended performance test to ensure that they are capable of reliably meeting the design performance for a period of at least 120 hours of continuous operation without failure or alarms. The results of these performance tests will be recorded for use as a basis for evaluating future performance evaluations.

Section 6 Overflow Emergency Response Plan

6.1. Introduction

The purpose of the Overflow Emergency Response Plan (OERP) is to support an orderly and effective response to Sanitary Sewer Overflows (SSOs). The OERP provides guidelines for District personnel to follow in responding to, cleaning up, and reporting SSOs that may occur within the District's service area.

6.2. Regulatory Requirements for OERP Element of SSMP

The summarized requirements for the OERP element of the SSMP are:

6.2.1.

RWQCB Requirement

The collection system agency must develop an overflow emergency response plan that provides procedures for SSO notification, response, reporting, and impact mitigation.

6.2.1. *GWDR Requirement*

The collection system agency shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

- (a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;
- (b) A program to ensure appropriate response to all overflows;
- (c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, regional water boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the Monitoring and Reporting Program (MRP). All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board Waste Discharge Requirements or National Pollutant Discharge Elimination System (NPDES) permit requirements. The Sewer System Management Plan should identify the officials who will receive immediate notification;
- (d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;
- (e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and
- (f) A program to ensure that all reasonable steps are taken to contain untreated wastewater and prevent discharge of untreated wastewater to waters of the United States and minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

6.3. Overview of Legal Requirements

1. Sewage spill over 1,000 gallons that enter or may enter the waters of the State must be reported as soon as possible to the State Office of Emergency Services. The penalty for failure to report is up to \$20,000 or one year in prison. The individual responding will be responsible for taking the proper steps otherwise he/she will be subject to fines or jail time.
2. Sewage spills over 1,000 gallons or that occur in environmentally sensitive areas or areas with substantial public health risk must be reported to the Regional Water Quality Control Board as soon as possible. The RWQCB may seek Judicial Liability fines of up to \$20.00 per gallon.
3. Sewage spills that or may enter the waters of the State must be reported to the local health officer immediately. The penalty for failure to report is \$500 to \$1,000 and/or 1 year in prison. The local health officer must order abatement of the contamination. In the event contamination occurs in waters used for body contact sports, the dischargers must reimburse the cost to mitigate the contamination.
4. Regional Water Quality Control Board can seek an injunction against dischargers requiring abatement of the contamination. Individuals responsible are guilty of a misdemeanor.
5. Materials that are harmful to fish, plants or birds are prohibited from discharged to waters of the State. The civil penalty for violation, which can be assessed by the Department of Fish and Game, is not more than \$25,000 per violation.

6.4. Goals

The District's goals with respect to responding to SSOs are:

- Respond quickly to minimize the volume of the SSO;
- Eliminate the cause of the SSO;
- Contain the spilled wastewater to the extent feasible;
- Minimize public contact with the spilled wastewater;
- Mitigate the impact of the SSO;
- Meet the regulatory reporting requirements; and
- Notify the public when a threat to public health exists.

6.5. SSO Detection

The processes that are employed to notify the District of the occurrence of an SSO include: observation by the public, receipt of an alarm, or observation by District staff during the normal course of their work.

6.5.1. Public Observation

Public observation is the most common way that the District is notified of blockages and spills. Contact information for reporting sewer spills and backups are in the phone book and on the District's website: www.fostercity.org. The District's main telephone number is (650) 286-8140.

6.5.1.1. Normal Work Hours

The District's regular working hours are Monday through Thursday from 7:00 a.m. to 4:30 p.m., Friday from 7:00 a.m. to 3:30 p.m., except holidays. When a report of a sewer spill or backup is made, District staff receives the call, takes the information from the caller, fills out the first section of the Sewer Report Form, and communicates it to the Wastewater Lead Worker who responds to the site and/or dispatches a field crew.

The Public Works (PW) Field Crew determines from the information provided if the PW Maintenance Superintendent and/or PW Maintenance Manager need to be notified and immediately responds to the site. Appendix 6-A contains After Hours and Emergency Contact Information.

6.5.1.2. After Hours

The Police Dispatcher receives the call, takes the information from the caller, and communicates it to the Public Works Standby Person.

6.5.2. Receipt of Alarm

The District's 3 MGD pump station, four medium sized lift stations and remaining forty four smaller lift stations are monitored using SCADA. Alarm conditions are monitored by District Administrative Staff during normal working hours and Police Dispatch after hours. If an alarm is received, they notify appropriate District staff of the lift station alarms.

6.5.3. District Staff Observation

District staff conducts periodic inspections of its sewer system facilities as part of their routine activities. Any problems noted with the sewer system facilities are reported to appropriate District staff who, in turn, respond to emergency situations.

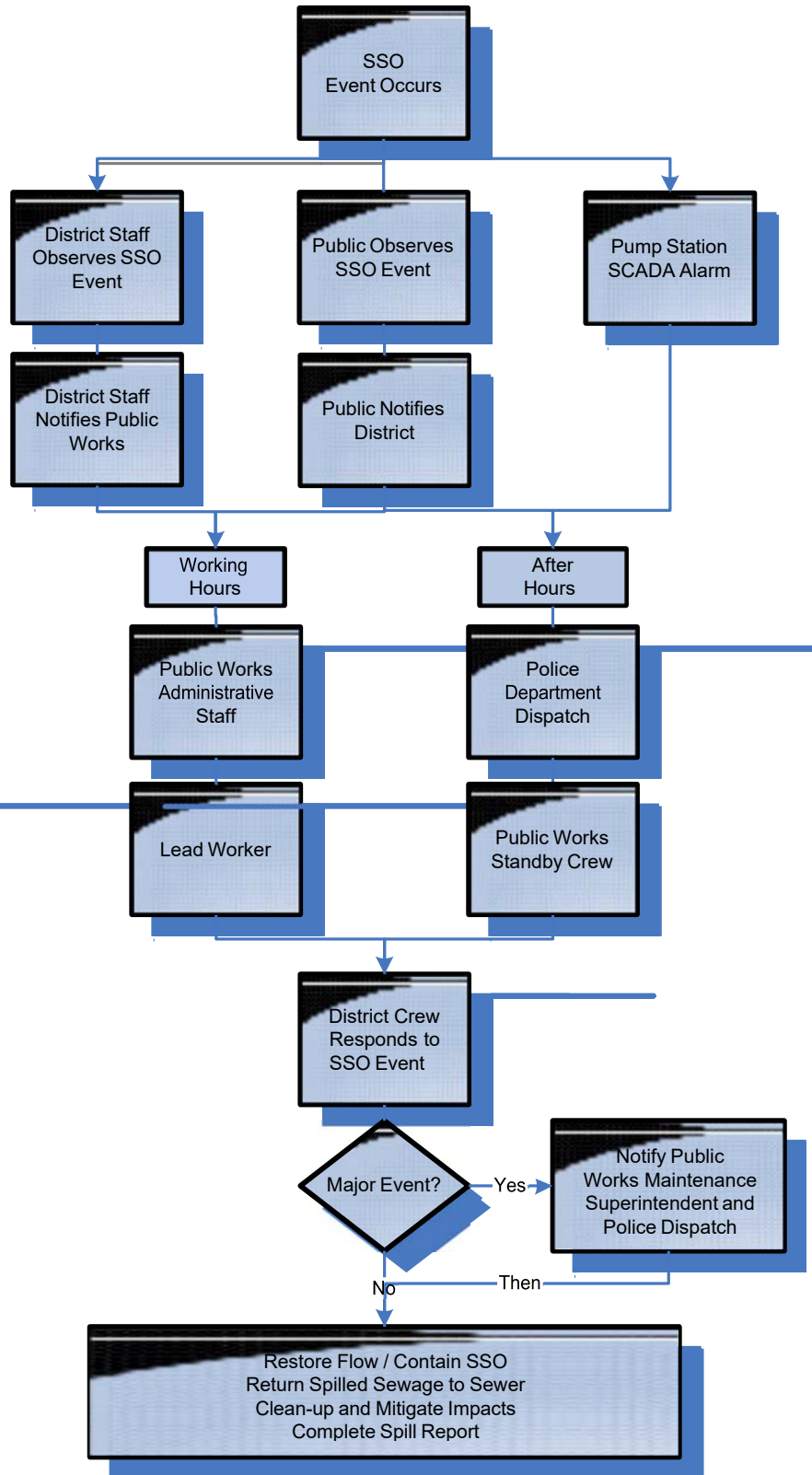
6.6. SSO Response Procedures

Sewer service calls and lift station alarms are considered high priority events that demand a prompt response. The notification and response procedure flow chart is shown on Figure 6-1. Emergency contact information is included in Appendix 6-A.

6.6.1. First Responder's Role

- To protect public health, environment and property from sewage spill events and restore area back to normal as soon as possible.
- To establish perimeters and control zones with traffic cones, barricades, vehicles or terrain.
- To promptly notify Communication Center of preliminary spill information and potential impacts.
- To contain, control the sewage discharged to the maximum extent possible. Every effort must be made to prevent the discharge of sewage into waterways above and below ground.

Figure 0-1: SSO Response Procedure Flow Chart



6.6.2. First Responder Priorities

The first responder's priorities are to:

- follow safe work practices.
- respond promptly with the appropriate equipment.
- contain the spill whenever feasible.
- restore the flow as soon as practicable.
- minimize public access to and/or contact with the spilled sewage.
- promptly notify Communications Center in event of major SSO.
- return the spilled sewage to the sewer system.
- restore the area to its original condition (or as close as possible).

6.6.3. Safety

The first responder is responsible for following safety procedures at all times. Special safety precautions must be observed when performing sewer system work.

There may be times when District personnel responding to a sewer system event are not familiar with potential safety hazards peculiar to sewer system work. In such cases it is appropriate to take the time to discuss safety issues, consider the order of work, and check safety equipment before starting the job.

6.6.4. Initial Response

All sewer system calls require a response to the reported location of the event in an attempt to minimize or eliminate an overflow. The first responder must respond to the reporting party, pump station, or site of the problem immediately and visually check for potential sewer stoppages or overflows.

The first responder should:

- Get a brief description of the nature of the problem from the caller. Determine appropriate response measures based on the circumstances and information provided by the caller (e.g. weather and traffic conditions, small back up vs. sewage flowing on the ground, etc.).
- If the situation requires, call or have Police Dispatcher call a member of the Collection System Division or Maintenance Staff. See Appendix 6-A for After Hours and Emergency Contact Information.
- Note arrival time, document conditions with photographs, contact caller if time permits.
- Verify the existence of a sewer system spill or backup.
- If the SSO is not related to the District's conveyance system:
 - Provide the caller with the phone number of the responsible agency and follow up by calling the agency and providing the details of the call.
 - Provide assistance if requested.
 - Regardless of whether the spill/backup is caused by a private lateral or other agency sewer system, the responding crew should always contain/mitigate the spilled sewage

to the extent feasible and standby until representatives of the responsible party arrive and are fully operational.

- Notify PW Maintenance Superintendent and PW Maintenance Manager as soon as possible if a spill occurs.

6.6.5. Troubleshooting and Clearing Sewer Stoppages

The first responder should follow the steps outlined below for each type of sewer call.

6.6.5.1. Lift Station Alarms

In the event that a wastewater overflow has occurred or is imminent due to a lift station failure, the first responder should initiate and organize delivery of portable pumping units (including fuel), hoses, portable lights and safety cones if required. The first responder should use their professional experience and judgment to determine if it is necessary to call for assistance.

6.6.5.2. Building Lateral Stoppage or Sewer Backup into House or Building

Inspect the District's system by checking upstream and downstream manholes. If the problem is in the District's system, call the Public Works Maintenance- Superintendent or Manager, clear the blockage, and begin the initial cleanup. See Appendices 6-F and 6-G for guidelines and customer information letter.

If the problem is in the lateral, notify the customer that the blockage is in the customer's line and inform the customer that they must contact a plumber or a drain cleaning company to correct the situation. Do not recommend specific contractors or companies.

6.6.5.3. Mainline Stoppage and/or Manhole Overflow

Inspect upstream and downstream manholes to determine the location of the blockage. Clear the blockage using appropriate equipment. Initiate spill recovery and cleanup procedures.

6.6.5.4. Odor Problem

Investigate odor complaints to determine if the District's sewer system is the cause of the complaint. Do not always assume that a malodorous condition is related to the sewer system. If the District's sewer system is the cause, proceed to cleaning the mainline to flush the system. If the cause is from another source (e.g. storm drain), notify the appropriate party.

6.6.5.5. Sewage in Street/Parking Lot

If call is received as sewage in a street or parking lot, respond immediately to determine if the cause is from the District's sewer system. If it has been determined that the overflow is from a private source, inform the responsible party (owner of the private source and/or property) and direct them to have the site cleaned up. If the source of the sewage is illegal RV dumping, notify the Public Works Maintenance- Superintendent or Manager.

The first responder should never leave a site where there is sewage in a street or parking lot until the threat of public contact is eliminated and it is clear that the site will be effectively cleaned up. If it becomes clear that the site will not be effectively cleaned up by the private party, or you are unable to determine who the responsible party is, and if there is a risk of public contact, then the first responder is required to initiate cleanup. Maintain proper documentation for use in billing the responsible party.

6.6.6. Restore Flow

Relieve the stoppage or restore the lift station as soon as possible by use of the appropriate equipment. If addressing stoppage set up downstream of the blockage and hydro clean upstream from a clear manhole. Attempt to remove the blockage from the system and observe the flows to ensure that the blockage does not recur downstream. Refer to and follow all Safety Regulations.

If the blockage cannot be cleared within a reasonable time (15 minutes), or sewer requires construction repairs to restore flow, or if the lift station cannot be restored, then initiate containment and/or bypass pumping. If assistance is required, immediately contact Police Dispatch or other employees.

6.6.7. Initiate Spill Containment Measures

The first responder should attempt to contain as much of the spilled sewage as possible using the following steps:

- When a spill, leak, and/or overflow occurs, keep sewage from entering the storm drain system to the maximum extent practicable by covering or blocking storm drain inlets and catch basins, or by containing and diverting the sewage away from open channels and other storm drain facilities (using sandbags, inflatable dams, plastic mats, etc.).
- Determine the immediate destination of the overflowing sewage.
- Review sewer maps for possible temporary upstream flow diversion bypassing.
- Pump around the blockage/pipe failure/pump station.
- Dike/dam (or sandbag) spill by building a temporary berm to collect spill.
- If overflowing sewage has made contact with the storm drainage system, attempt to contain the spilled sewage by plugging downstream storm drainage facilities.
- Modify these methods as needed to accommodate wet weather conditions where the feasibility of containment may be impacted by both the quantity of sewage and the quantity of storm water runoff.

6.7. Recovery and Clean Up

The recovery and clean up phase begins when the flow has been restored and the spilled sewage has been contained to the extent possible. The SSO recovery and clean up procedures are:

6.7.1. Water Quality Sampling and Testing

Water quality sampling and testing is required whenever 1,000 gallons or more of spilled sewage enters a water body to determine the extent and impact of the SSO. The water quality sampling procedures are:

- The first responder should collect samples. Samples should be collected as soon as possible after the discovery of the SSO event.
- Beach or lagoon samples should be collected near the point of entry of the spilled sewage and every 100 feet along the shore of stationary water bodies (to 1,000 feet up stream and 1,000 down stream of the discharge point).
- The water quality samples should be collected from upstream of the spill, from the spill area, and downstream of the spill in flowing water (e.g. creeks) or catch basins.

- A laboratory will analyze the results to determine the nature and impact of the discharge. Additional samples will be taken to determine when posting of warning signs can be discontinued. The basic analyses should include total coliform, fecal coliform, biochemical oxygen demand (BOD), dissolved oxygen, and ammonia nitrogen.

6.7.2. Public Notification

The public that may be at risk should be warned to avoid contact with sewage or sewage-contaminated water from an SSO may cause illness. The notification methods are described in the following section.

Local Agencies and individuals may need to be contacted as soon as possible, depending on the situation, including:

- Police Department for roadblock, traffic control etc.
- Public Works to close the areas such as beach, park, lagoons, and mitigate impact on drinking water storage or supply.
- Local residents who may be impacted by sewage spill.

6.7.2.1. Sign Posting and Barricading

Post the warning signs and block the contaminated areas with “Yellow Caution Tape” and barricades to keep vehicles and pedestrians away from contact with spilled sewage. Do not remove these until results of the lab tests are cleared. A sample warning sign is included as Appendix 6-J.

Creeks, streams, beaches, or property that have been contaminated as a result of an SSO should be posted at visible access locations until the risk of contamination has subsided to acceptable background levels. The warning signs, once posted, should be checked every day to ensure that they are still in place.

6.7.2.2. Notification of Media

Major spills may warrant broader public notice. The Public Works Director will contact local media when significant areas may have been contaminated by sewage. The Public Works Director will maintain contact information for local media.

6.7.3. Estimate the Volume of Spilled Sewage

Use the methods outlined in Appendix 6-H to estimate the volume of the spilled sewage. Wherever possible, document the estimate using photos of the SSO site before and during the recovery operation.

6.7.4. Recovery of Spilled Sewage

Vacuum up or pump the spilled sewage and discharge it back into the sanitary sewer system.

6.7.5. Clean up and Disinfection

When disinfecting a sewage-contaminated area, take every effort to ensure that the disinfectant or sewage treated with the disinfectant is not discharged to the storm drain system or surface waters. Methods may include blocking storm drain inlets, containing and diverting disinfectant and sewage away from open channels and other storm drain fixtures, and removing the material with vacuum equipment.

Clean up and disinfection procedures should be implemented to reduce the potential for human health issues and adverse environmental impacts that are associated with an SSO event. The procedures described are for dry weather conditions and should be modified as required for wet weather conditions. Where clean up is beyond the capabilities of District staff, a cleanup contractor will be used.

6.7.5.1. Private Property

Appendices 6-F and 6-G contain procedures and a customer letter related to spills involving private property including backups into residences and businesses.

6.7.5.2. Hard Surface Areas

Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes, brooms, and shovels.

Wash down the affected area with clean water until the water runs clear. Take reasonable steps to contain and vacuum up the wastewater.

Disinfect all areas that were contaminated from the overflow using the disinfectant solution of household bleach diluted 10:1 with water. Apply minimal amounts of the disinfectant solution using a hand sprayer. Document the volume and application method of disinfectant that was employed.

Allow area to dry. Repeat the process if additional cleaning is required.

Do not apply disinfectant solution during wet weather conditions.

6.7.5.3. Landscaped and Unimproved Natural Vegetation

Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes, brooms, and shovels.

Wash down the affected area with clean water until the water runs clear. The flushing volume should be approximately three times the estimated volume of the spill.

Either contain or vacuum up the wash water so that none is released.

Allow the area to dry. Repeat the process if additional cleaning is required.

Do not apply disinfectant solution to landscaped areas or unimproved natural vegetation.

6.7.5.4. Natural Waterways

The Department of Fish and Game should be notified in the event an SSO impacts any creeks, gullies, or natural waterways. Fish and Game will provide the professional guidance needed to effectively clean up spills that occur in these sensitive environments.

Clean up should proceed quickly in order to minimize negative impact. Any water that is used in the cleanup process should be de-chlorinated prior to use.

6.7.5.5. Wet Weather Modifications

Omit flushing during heavy storm events with heavy runoff where flushing is not required.

6.7.6. Follow-Up Activities

If sewage has reached the storm drain system, the Combination Unit should be used to vacuum/pump out the catch basin and any other portion of the storm drain that may contain sewage.

In the event that an overflow occurs at night, the location should be re-inspected first thing the following day. The operator should look for any signs of sewage solids and sewage-related material that may warrant additional cleanup activities.

6.8. Failure Analysis Investigation

The objective of the failure analysis investigation is to determine the “root cause” of the SSO and to identify corrective action(s) needed that will reduce or eliminate future potential for the SSO to recur.

The investigation should include reviewing all relevant data to determine appropriate corrective action(s). The investigation should include:

- Reviewing and completing the Sewer Report Form;
- Reviewing past maintenance records;
- Reviewing available photographs;
- Conducting a CCTV inspection to determine the condition of the line segment immediately following the SSO and reviewing the video and logs; and
- Interviewing staff who responded to the spill.

The product of the failure analysis investigation should be the determination of the root cause and the identification of the corrective actions. The Collection System Failure Analysis Form (Appendix 6-E) should be used to document the investigation.

6.9. SSO Categories

The San Francisco Bay Regional Water Quality Control Board (RWQCB) is part of the California State Water Resources Control Board (SWRCB) and it is charged with the protection of all state water resources and with protecting the beneficial uses of those resources. This includes surface waters, ground waters, salt and fresh waters. The SWRCB has the legal authority to abate, through cease and desist orders, any situation that impact or threatens to impact the waters of the state. This includes regulating all discharges to state waters, pursuing cleanup of spills, and assuring proper disposal of pollutants. The agency has broad powers to enforce standards and prohibitions to protect the waters of the state. Damage assessment reports or remedial action plans may be required of the discharger. They have extensive expertise in the area of the impact of spill on the environment and they have the ability to conduct monitoring when required.

The SRWCB has established guidelines for classifying and reporting SSOs. Reporting and documentation requirements vary based on the type of SSO.

There are three categories of SSOs as defined by the SWRCB¹:

¹ State Water Resources Control Board Monitoring and Reporting Program No. 2006-0003-DWQ (as revised by Order No. WQ 2008-0002.EXEC) Statewide General Waste Discharge Requirements for Sanitary Sewer Systems

- Category 1 - All discharges of sewage resulting from a failure in the Enrollee's sanitary sewer system that:
 - A. Have a volume of 1,000 gallons or more, or
 - B. Result in a discharge to a drainage channel and/or surface water; or
 - C. Discharge to a storm drain pipe that was not fully captured and returned to the sanitary sewer system.
- Category 2 - All other discharges of sewage resulting from a failure in the District's sanitary sewer system.
- Private Lateral Sewage Discharges - Sewage discharges that are caused by blockages or other problems within a privately owned lateral.

6.10. SSO Documentation and Reporting

All SSOs should be thoroughly investigated and documented for use in managing the sewer system and meeting established reporting requirements. The procedures for investigating and documenting SSOs are:

6.10.1. Internal SSO Reporting Procedures

6.10.1.1. Category 1 SSOs

The first responder will immediately notify Police Dispatch who will notify the PW Maintenance Superintendent or PW Maintenance Manager.

The Public Works Maintenance Superintendent or his/her designee will meet with field crew(s) at the site of the SSO event to assess the situation and to document the conditions with photos.

The first responder will fill out the Sewer Report Form and turn it in to the Public Works Maintenance Superintendent, who is the Legally Responsible Official (LRO).

In the event of a large overflow or an overflow in a sensitive area, Public Works Maintenance Superintendent will notify the Public Works Maintenance Manager and Public Works Director. The Public Works Director may notify the City Manager and Board of Directors.

6.10.1.2. Category 2 SSOs

The first responder will fill out the Sewer Report Form and turn it in to the LRO.

6.10.2. External SSO Reporting Procedures²

The California Integrated Water Quality System (CIWQS) electronic reporting system will be used for reporting SSO information to the SWRCB whenever possible. A flow chart is included as Figure 6-2 showing the external reporting response requirements based on the type of SSO.

² State Water Resources Control Board Monitoring and Reporting Program No. 2006-0003-DWQ (as revised by Order No. WQ 2008-0002.EXEC) Statewide General Waste Discharge Requirements for Sanitary Sewer Systems

6.10.2.1. *Category 1 SSOs that reach Waters of the State*

If a Category 1 SSO results in a discharge to **Waters of the State** (a drainage channel or surface water, if not fully recovered), the following reporting requirements apply:

- **Within two hours** of being notified of the spill event, the Public Works Maintenance Superintendent or his/her designee will:
 - Notify OES (and obtain spill number for use in other reports),
 - Notify the San Mateo County Environmental Health Services Division (County Health), and
 - Prepare an initial notification to the RWQCB (using the Electronic Reporting System for the San Francisco Bay Region).
- **Within 24 hours** of being notified of the spill event, the Public Works Maintenance Superintendent or his/her designee will certify to the RWQCB that OES and County Health were notified of the SSO event (using the Electronic Reporting System for the San Francisco Bay Region).
- **Within 3 business days** of being notified of the spill event, the Public Works Maintenance Superintendent or his/her designee will certify the initial report using CIWQS.
- **Within 15 calendar days** of the conclusion of SSO response and remediation, the Public Works Maintenance Superintendent or his/her designee will certify the final report using CIWQS.
- The Plant Public Works Maintenance Superintendent or his/her designee will update the certified report as new or changed information becomes available. The updates can be submitted at any time and must be certified.

6.10.2.2. *Category 2 SSOs*

Within 30 calendar days after the end of the calendar month in which the SSO occurs, Public Works Maintenance Superintendent or his/her designee will submit an electronic report using CIWQS and will certify the report. The report will include the information to meet the GWDR requirements.

6.10.2.3. *Private Lateral Sewage Discharges*

The Public Works Maintenance Superintendent or his/her designee may report private lateral SSOs using CIWQS, specifying that the sewage discharge occurred and was caused by a private lateral and identifying the responsible party (other than the District), if known.

6.10.2.4. *No Spill Certification (Monthly)*

If there are no SSOs during the calendar month, the Public Works Maintenance Superintendent or his/her designee will submit an electronic report and then certify the report that the District did not have any SSOs, **within 30 calendar days after the end of each calendar month**.

6.10.2.5. *CIWQS Not Available*

In the event that CIWQS is not available, the Public Works Maintenance Superintendent or his/her designee will fax all required information to the RWQCB office in accordance with the time schedules identified above. In such event, the District will submit the appropriate reports using

CIWQS as soon as practical. The RWQCB fax number for Region 2 is (510) 622-2460. A sample form with required information is included as Appendix 6-C.

6.10.3. Internal SSO Documentation

6.10.3.1. Category 1 and 2 SSOs

The first responder will complete a work order and the Sewer Report Form (Appendix 6-B) and provide copies to the LRO (PW Maintenance Superintendent).

The first responder will follow the procedures and complete the Sewer Overflow Building History Form (Appendix 6-D) if an SSO has occurred in a residence or building.

The Public Works Maintenance Superintendent will prepare a file for each individual SSO. The file should include the following information:

- Initial service call information
- Sewer Report Form
- Copies of the CIWQS report forms
- Volume estimate
- Failure analysis investigation results

The following are optional for Category 2 SSOs:

- Appropriate maps showing the spill location
- Photographs of spill location
- Water quality sampling and test results, if applicable

Figure 0-2: SSO External Reporting Requirement Flow Chart

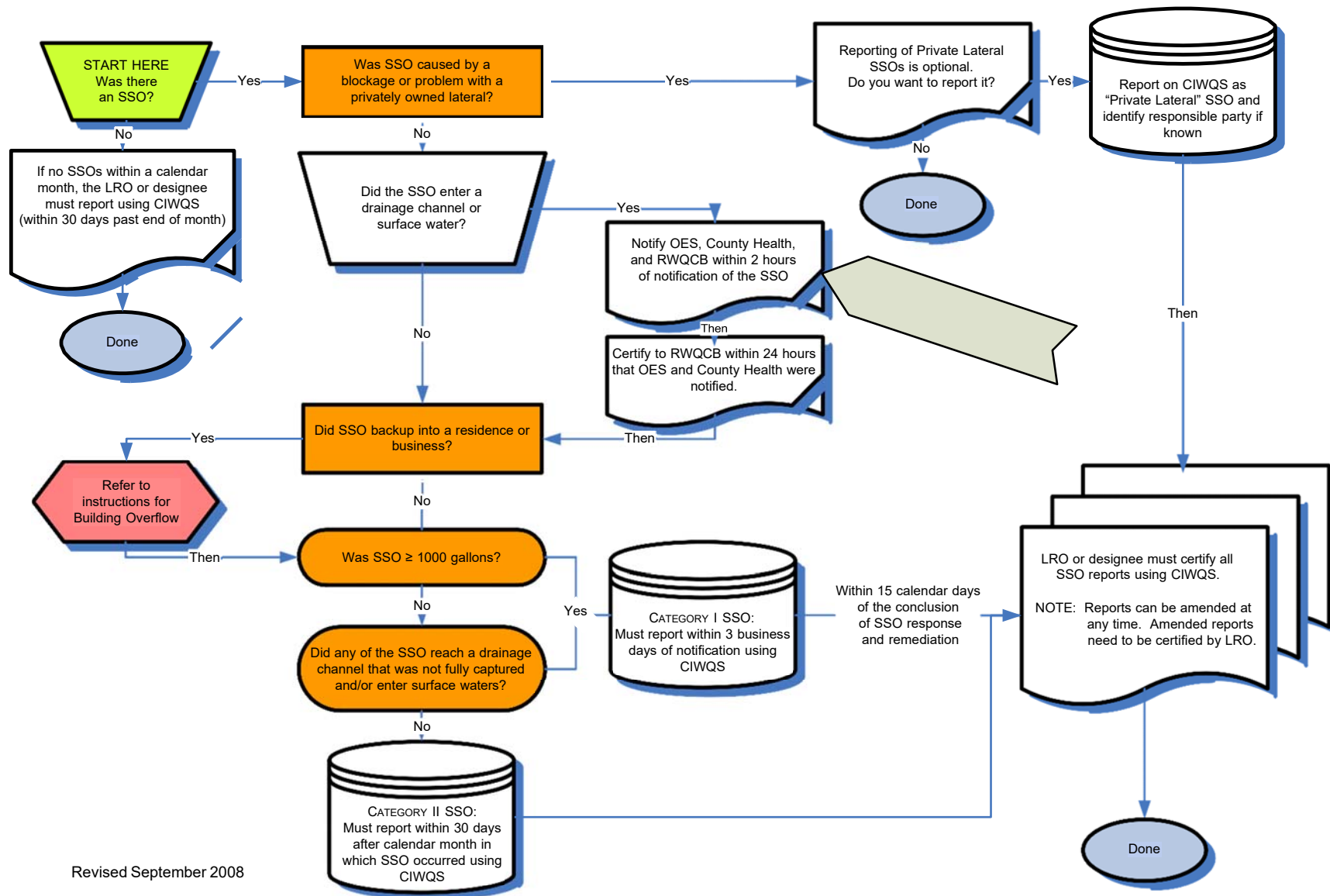


Figure 0-3: SSO External Reporting Checklist and Contact Information

Reporting and Certification Checklist
<p>Category 1 SSOs that reach Surface Waters</p> <p>2-Hour Notification:</p> <ul style="list-style-type: none"> √ Regulatory Agencies (OES, County Health, RWQCB) must be notified within two hours of ANY discharge of sewage (untreated/partially treated) to a surface water or drainage channel (that is not fully captured and returned to sewer). <p>24-Hour Certification:</p> <ul style="list-style-type: none"> √ Any SSO requiring notification based on the two-hour rule must be followed up with a certification submitted to the RWQCB within 24 hours. <p>Within 3 Business Days of Notification:</p> <ul style="list-style-type: none"> √ As a Category I SSO, it must be reported to SWRCB using CIWQS. <p>Within 15 Calendar Days of Conclusion of Response/Remediation:</p> <ul style="list-style-type: none"> √ Must be certified by LRO using CIWQS.
<p>Category 1 SSOs that do not reach Surface Waters</p> <p>Within 3 Business Days of Notification (SWRCB/CIWQS):</p> <ul style="list-style-type: none"> √ As a Category I SSO, it must be reported to SWRCB using CIWQS. <p>Within 15 Calendar Days of Conclusion of Response/Remediation:</p> <ul style="list-style-type: none"> √ Must be certified by LRO using CIWQS.
<p>Category 2 SSOs (<1,000, no Property Damage or Surface Waters)</p> <p>Within 30-Days After End of Calendar Month with SSO Event:</p> <ul style="list-style-type: none"> √ Must be reported to SWRCB using CIWQS. √ Must be certified by LRO using CIWQS.
<p>Negative Reporting (No SSOs in Month)</p> <p>Within 30 days past the end of the month</p> <ul style="list-style-type: none"> √ The LRO or designee must report using CIWQS
<p>Private Lateral SSOs (Reporting is Optional)</p> <ul style="list-style-type: none"> √ If reporting is desired, report to SWRCB as "Private Lateral" SSO and identify responsible party, if known (not the District), using CIWQS. √ Must be certified by LRO using CIWQS.

Two-Hour Notification / 24-Hour Certification & SWRCB
<ol style="list-style-type: none"> 1) OES (800) 852-7550 or (916) 845-8911 Ask for an "OES Control Number" (for RWQCB). 2) San Mateo County Environmental Health Services Division <ul style="list-style-type: none"> <input type="checkbox"/> Phone Number (650) 363-4798 <input type="checkbox"/> Fax Number (650) 627.8244 <input type="checkbox"/> General Office Number (650) 672.6200 3) RWQCB – Region 2 – Phone in the 2-Hour notification and follow up within 24 hours using the online certification or utilize the online feature for both. <ul style="list-style-type: none"> <input type="checkbox"/> Phone (2-Hour Notification) <ul style="list-style-type: none"> <input type="checkbox"/> Phone & Voice Mail (510) 622-2300 <input type="checkbox"/> Fax Number (510) 622-2460 <input type="checkbox"/> Mike Chee (510) 622-2333 <input type="checkbox"/> Maya Mcinerney (510) 622-2373 <input type="checkbox"/> Vince Christian (510) 622-2336 Online (2-Hour and/or 24-Hour Certification) <ul style="list-style-type: none"> <input type="checkbox"/> https://www.r2esmr.net/sso_login2.asp <input type="checkbox"/> <input type="checkbox"/> User Name: _____ Password: _____

California Integrated Water Quality Systems (CIWQS)
<p>SWRCB Reporting Timeframes Depend on the Size and Final Destination of the SSO.</p> <ul style="list-style-type: none"> o CIWQS must be used for reporting if the website is available <ul style="list-style-type: none"> <input type="checkbox"/> http://ciwqs.waterboards.ca.gov <input type="checkbox"/> User Name: _____ <input type="checkbox"/> Password: _____ <input type="checkbox"/> Waste Discharge Identification Number (WDID) #. 2SSO10135 o Fax RWQCB (only for use if website is down)

Sanitary Sewer Overflow (SSO)
<p>Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system that:</p> <ul style="list-style-type: none"> (i) Reach waters of the United States (including storm drains, unless fully captured and returned to sanitary sewer sytem); (ii) Do not reach waters of the United States; and (iii) Backs up into buildings and on private property that are caused by District owned lines.

Revised September 2008

6.10.4. External SSO Record Keeping Requirements³

The GWDR requires that individual SSO records be maintained by the District for a minimum of **five years** from the date of the SSO. This period may be extended when requested by the RWQCB Executive Officer. All records shall be made available for review upon SWRCB or RWQCB staff's request. Records shall be retained for all SSOs, including but not limited to the following when applicable:

- Copy of Certified CIWQS report;
- All original recordings for continuous monitoring instrumentation;
- Service call records and complaint logs of calls received by the District;
- SSO calls;
- SSO records;
- Steps that have been and will be taken to prevent the SSO from recurring and a schedule to implement those steps;
- Work orders, work completed, and any other maintenance records from the previous five years which are associated with responses and investigations of system problems related to SSOs;
- A list and description of complaints from customers or others from the previous five years; and
- Documentation of performance and implementation measures for the previous five years.

If water quality monitoring is conducted by the District or its agent(s), as a result of any SSO, records of monitoring information shall include:

- The date, exact place, and time of sampling or measurements;
- The individual(s) who performed the sampling or measurements;
- The date(s) analyses were performed;
- The individual(s) who performed the analyses;
- The analytical technique or method used; and
- The results of such analyses.

6.11. Post SSO Event Debriefing

Every SSO event is an opportunity to evaluate the response and reporting procedures. Each overflow event is unique, with its own elements and challenges including volume, cause, location, terrain, and other parameters.

As soon as possible after major SSO events, all of the participants, from the person who received the call to the last person to leave the site, should meet to review the procedures used

³ State Water Resources Control Board Monitoring and Reporting Program No. 2006-0003-DWQ (as revised by Order No. 2013-0058) Statewide General Waste Discharge Requirements for Sanitary Sewer Systems

and to discuss what worked and where improvements could be made in responding to and mitigating future SSO events. The results of the debriefing should be recorded and tracked to ensure the action items are completed.

6.12. Equipment

This section provides a list of specialized equipment that is required to support this Overflow Emergency Response Plan.

Closed Circuit Television (CCTV) Inspection Unit --A CCTV Inspection Unit is required to determine the root cause for all SSOs from gravity sewers.

Camera --A digital or disposable camera is required to record the conditions upon arrival, during clean up, and upon departure.

Emergency Response Truck -- A utility body pickup truck is required to store and transport the equipment needed to effectively respond to sewer emergencies. The equipment and tools should include containment and clean up materials.

GPS Unit (Global Positioning System) -- A hand held GPS unit is required to determine the coordinates of spills for use in meeting SWRCB SSO reporting requirements.

Combination Sewer Cleaning Truck – A combination high velocity sewer cleaning truck with vacuum tank is required to clear blockages in gravity sewers, vacuum spilled sewage, and wash-down the impacted area following the SSO event.

Portable Generators, Portable Pumps, Piping, and Hoses -- The list of portable equipment that is required to support this plan is included as Appendix 6-K.

6.13. SSO Response Training

This section provides information on the training that is required to support this Overflow Emergency Response Plan.

6.13.1. Initial and Annual Refresher Training

All District personnel who may have a role in responding to, reporting, and/or mitigating a sewer system overflow should receive training on the contents of this OERP. All new employees should receive training before they are placed in a position where they may have to respond. Current employees should receive annual refresher training on this plan and the procedures to be followed.

6.13.2. SSO Response Drills

Periodic training drills should be held to ensure that employees are up-to-date on the procedures, the equipment is in working order, and the required materials are readily available. The training drills should cover scenarios typically observed during sewer related emergencies (e.g. mainline blockage, mainline failure, force main failure, pump station failure, and lateral blockage). The results and the observations during the drills should be recorded and action items should be tracked to ensure completion.

6.13.3. SSO Training Record Keeping

Records should be kept of all training that is provided in support of this plan. The records for all scheduled training courses and for each overflow emergency response training event should include date, time, place, content, name of trainer(s), and names of attendees.

6.14. Contractors Working on District Sewer Facilities

All contractors working on District sewer facilities will be contractually required to develop a project-specific Overflow Response Plan. All contractor personnel will be required to receive training in the contractor's Overflow Response Plan and to follow it in the event that they cause or observe an SSO.

Appendix 6-A: After Hours and Emergency Contact Information

District Personnel

Name	Role/Title	Phone Number
Allen Smith	Public Works Maintenance Superintendent	650-888-7541 (cell)
Frank Schoening	Collection System Lead Worker	650-294-7503 (work) 650-483-9339 (cell)
Zaheed Danish	Collection System Lead Worker	650-294-2375 (work) 650-520-4620 (cell)
Juan-Carlos Ruiz	Collection System Worker II	650-294-7501 (work) 650-722.1974 (cell)
Robert Walker	Collection System Worker II	650-294-7506 (work) 650-533-8196 (cell)
Luis Diaz	Collection System Worker II	650-294-7520 (work) 650-464-8325 (cell)
Laura Galli	Public Works Maintenance Manager	650-286-3279 (work) 650-740-7042 (cell)

Outside Contractor Phone List

Service	Name	Contact Number
Pump Repair	The Edcco Group	650-364-6683
	Koffer Electrical Mechanical	510-567-0630
	Pump Repair Services	415-467-2150
	Robertson & Brune	650-224-5822
	Shape Pump Service	925.4859720
Backhoe/Excavation	Star Rooter and Plumbing Inc.	800-246-6425 or 510-481-1555
	Express Plumbing	800-246-6425
	Preston Pipeline	408-262-1418
Equipment Rental	Baker Tank	510-487-7020
	United Rental	408-802-7474
	Rain for Rent	925-679-2803
Environmental /HazMat	PSC	877.577.266 or 877.772.66939
	NRC Environment	800-899.4672
Electric and Gas Company	PG & E	800-743-5000

Service	Name	Contact Number
Generator Service	Westline Industries	510-364-6700
	Electro Motion	650-321-6169
	CD & Power	925.229.2700

Appendix 6-B: Sewer Report Form

SEWER REPORT FORM – PAGE 1			
<u>INITIAL INFORMATION</u>			
DATE: _	CALL RECEIVED: _	AM/PM	
RECEIVED BY: _	CALLER'S NAME: _		
CALLER'S PHONE #: _	CALLER'S ADDRESS: _		
LOCATION OF OVERFLOW: _	CROSS STREET: _		
TIME AND NAMES OF CREW MEMBERS CONTACTED: _			
DESCRIPTION OF COMPLAINT: _			
<u>FIELD REPORT: FOR RESPONSE CREW'S USE</u>			
TIME ARRIVED AT SITE: _	AM/PM	CREW NAMES: _	
ASSET #: _	U/S ASSET#: _	D/S ASSET#: _	
SIZE OF LINE: _	LENGTH OF LINE: _	EASEMENT: YES <input type="checkbox"/> NO <input type="checkbox"/>	
GPS COORDINATES: LATITUDE: <u>34.</u>		LONGITUDE: <u>-118.</u>	
COMMENTS: _			
<u>COMPLETE REMAINDER OF FORM IF AN OVERFLOW HAS OCCURRED</u>			
TIME SSO STARTED: _	TIME SSO STOPPED: _	DURATION OF SSO: _	(DAYS/HOURS)
EST. TOTAL VOLUME: _	(GALLONS)	RETURNED TO SEWER SYSTEM: _	(GALLONS)
DID SSO REACH SURFACE WATERS? YES <input type="checkbox"/> NO <input type="checkbox"/>			
VOLUME TO WATERS (INCLUDING STORM DRAIN) THAT WAS NOT RECOVERED: _			(GALLONS)
SURFACE/RECEIVING WATER LOCATION: _			
DESCRIBE HOW OVERFLOW QUANTITY WAS CALCULATED: EYEBALL EST. <input type="checkbox"/> DURATION/FLOWRATE <input type="checkbox"/>			
MEASURED VOL. <input type="checkbox"/> OTHER _			
WEATHER: SUNNY <input type="checkbox"/> CLOUDY <input type="checkbox"/> RAINY <input type="checkbox"/> RAIN FOR SEVERAL DAYS _			
PRIMARY CAUSE: ROOTS <input type="checkbox"/> GREASE <input type="checkbox"/> DEBRIS <input type="checkbox"/> VANDALISM <input type="checkbox"/> CONSTRUCTION DAMAGE <input type="checkbox"/> PIPE FAILURE <input type="checkbox"/>			
PUMP STATION FAILURE <input type="checkbox"/> POWER FAILURE <input type="checkbox"/> CAPACITY (HEAVY RAIN) <input type="checkbox"/> OTHER _			
SOURCE OF SSO: MANHOLE <input type="checkbox"/> GRAVITY MAIN <input type="checkbox"/> FORCE MAIN <input type="checkbox"/> CLEAN OUT <input type="checkbox"/> PRIVATE LATERAL <input type="checkbox"/>			
PUMP STATION <input type="checkbox"/> _ (NAME) OTHER _			
FINAL SSO DESTINATION: STORM DRAIN <input type="checkbox"/> CAPTURED FROM STORM DRAIN (100%) <input type="checkbox"/> BUILDING <input type="checkbox"/>			
YARD/LAND <input type="checkbox"/> SURFACE WATERS <input type="checkbox"/> NO SURFACE WATERS INVOLVED <input type="checkbox"/> OTHER _			
ADDITIONAL INFORMATION: _			

SEWER REPORT FORM – PAGE 2

SPILL MAGNITUDE: SSO REACHED DRAINAGE CHANNEL AND WAS NOT FULLY RECOVERED
 MORE THAN 1,000 GALLONS, BUT FULLY RECOVERED AND RETURNED TO SEWER
 BACKED UP INTO A RESIDENCE OR BUSINESS
 LESS THAN 1,000 GALLONS AND DID NOT REACH DRAINAGE CHANNEL

TIME CLEANUP BEGAN: _____ TIME CLEANUP COMPLETE: _____

DESCRIBE CLEANUP METHOD/ACTIONS TAKEN: _____

DISINFECTION: No Yes / DISINFECTION AMOUNT/TYPE: _____

SIGNS POSTED: Yes No BARRICADED: Yes No NEIGHBORS NOTIFIED: Yes No

LIST ALL PERSONNEL RESPONDING TO SPILL: _____

PICTURES/VIDEO TAKEN: No Yes / BY: _____ SAVED LOCATION: _____

SAMPLES TAKEN BY: _____ LOCATION OF SAMPLES: _____

CALLER/CUSTOMER NOTIFIED RE: STATUS: Yes No IF NOT, REASON: _____

REGULATORY AGENCIES NOTIFIED: Yes No OES SPILL #: _____

	NAME OF CONTACT	DATE/TIME
OES:	_____	_____
COUNTY HEALTH:	_____	_____
RWQCB (2-HR/24-HR):	_____	_____
CIWQS (SWRCB):	_____	_____
FISH/GAME:	_____	_____
OTHER:	_____	_____

NAME OF PERSON MAKING NOTIFICATIONS: _____

IF ASSET WAS MANHOLE, PIPE, OR CLEAN OUT, COMPLETE THE FOLLOWING:

OVERFLOWING MANHOLE: # _____	LONGITUDE/LATITUDE: _____
UPSTREAM MANHOLE: # _____	LONGITUDE/LATITUDE: _____
DOWNSTREAM MANHOLE: # _____	LONGITUDE/LATITUDE: _____
CLEAN OUT: # _____	LONGITUDE/LATITUDE: _____
SEWER MAIN: # _____	SIZE: _____ (INCHES) MATERIAL: _____

SKETCH AREA: INCLUDE MANHOLES, INTERSECTIONS, LOCATION OF STOPPAGE, ETC.

REPORT COMPLETED BY: _____ /_ / DATE SUBMITTED: _____ /_ /_

SUBMIT REPORT TO PUBLIC WORKS MAINTENANCE SUPERINTENDENT AS SOON AS POSSIBLE.

Appendix 6-D: Sewer Overflow Building History Form

SEWER OVERFLOW BUILDING HISTORY FORM	
COMPLETE THIS FORM IF AN OVERFLOW (SSO) HAS OCCURRED IN A BUILDING OR RESIDENCE	
DISTRICT STAFF ARRIVED ON-SITE: _ / _ / _	TIME: :_ EMPLOYEE NAME: _
RESIDENT NAME: _	PROPERTY OWNER/MANAGER: _
STREET ADDRESS: _	MAILING ADDRESS: _
CITY AND ZIPCODE: _	CITY AND ZIPCODE: _
PHONE: _	PHONE: _
YEAR HOME WAS BUILT: _	# OF BATHROOMS: _ # OF ROOMS AFFECTED: _
NUMBER OF PEOPLE LIVING AT THIS ADDRESS: _	APPROXIMATE TIME SEWAGE WAS SITTING: _
APPROXIMATE AMOUNT OF SPILL: _	(GALLONS) NUMBER OF PICTURES TAKEN: _ <input type="checkbox"/> DIGITAL <input type="checkbox"/> FILM
CUSTOMER CLEAN OUT: <input type="checkbox"/> NON-EXISTENT <input type="checkbox"/> FULL <input type="checkbox"/> EMPTY	
CITY CLEAN OUT: <input type="checkbox"/> NON-EXISTENT <input type="checkbox"/> FULL <input type="checkbox"/> EMPTY	
LOCATION/SEWER: <input type="checkbox"/> STREET <input type="checkbox"/> REAR EASEMENT <input type="checkbox"/> MANHOLE #_ To _	
<input type="checkbox"/> MAINLINE <input type="checkbox"/> SERVICE LINE <input type="checkbox"/> DOUBLE-WYE	
DAMAGE: <input type="checkbox"/> BLACK WATER <input type="checkbox"/> GREY WATER <input type="checkbox"/> FRESH WATER	
CLEANING COMPANY CONTACTED BY OWNER: <input type="checkbox"/> No <input type="checkbox"/> YES/TIME CALLED: :_ (WAIT FOR COMPANY TO ARRIVE)	
CLEANING COMPANY CONTACT INFORMATION: _	
IS MANHOLE VISIBLY HIGHER THAN THE DRAIN THAT OVERFLOWED? <input type="checkbox"/> YES <input type="checkbox"/> NO	
IS FINISHED FLOOR 12" OR MORE BELOW NEAREST UPSTREAM MANHOLE? <input type="checkbox"/> YES <input type="checkbox"/> NO	
DOES THE CUSTOMER HAVE A BACKFLOW PREVENTION DEVICE (BPD)? <input type="checkbox"/> YES <input type="checkbox"/> NO	
IF YES, WAS THE BPD OPERATIONAL AT THE TIME OF THE OVERFLOW? <input type="checkbox"/> YES <input type="checkbox"/> NO	
TYPE OF FLOORING IN THE AREAS AFFECTED AND CONDITION (CRACKING, VISIBLE OPEN SPACES, ETC.)	
<input type="checkbox"/> TILE <input type="checkbox"/> CARPET <input type="checkbox"/> WOOD <input type="checkbox"/> OTHER: _	
<i>DESCRIBE CONDITION:</i> _	
ARE THERE BASEBOARDS: <input type="checkbox"/> NO <input type="checkbox"/> YES / BASEBOARD MATERIAL: _	
<input type="checkbox"/> BASEBOARD BOTTOM HAS TIGHT SEAL WITH FLOOR <input type="checkbox"/> BASEBOARD TOP HAS TIGHT SEAL WITH WALL	
<input type="checkbox"/> BASEBOARD HAS SPACE BETWEEN BOTTOM & FLOOR <input type="checkbox"/> BASEBOARD HAS SPACE BETWEEN BASEBOARD & WALL	
HAS THE RESIDENT HAD ANY PLUMBING WORK DONE RECENTLY? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN	
HAS THE AREA BEEN REMODELED? <input type="checkbox"/> YES <input type="checkbox"/> NO ANY ACTIVE PLUMBING PROJECTS OBSERVED? <input type="checkbox"/> YES <input type="checkbox"/> NO	
ANY PLUMBING PROJECTS WITHIN THE LAST 3 YEARS? _	
HAVE THERE BEEN ANY PREVIOUS SPILLS AT THIS LOCATION? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN	
ADDITIONAL INFORMATION: _	

XXXX	PUBLIC WORKS MAINTENANCE SUPERINTENDENT
REVIEW DATE: _ / _ / _	REVIEW DATE: _ / _ / _

Appendix 6-E: Collection System Failure Analysis Form

COLLECTION SYSTEM FAILURE ANALYSIS FORM			
INCIDENT REPORT #:	PREPARED BY: _____		
ADDRESS/LOCATION OF SSO: _____			
TOTAL SSO VOLUME:	(GALLONS)	VOLUME RECOVERED:	(GALLONS)
CAUSE: ROOTS <input type="checkbox"/> GREASE <input type="checkbox"/> DEBRIS <input type="checkbox"/> VANDALISM <input type="checkbox"/> CONSTRUCTION DAMAGE <input type="checkbox"/> PIPE FAILURE <input type="checkbox"/> PUMP STATION FAILURE <input type="checkbox"/> POWER FAILURE <input type="checkbox"/> CAPACITY (HEAVY RAIN) <input type="checkbox"/> OTHER _____			
SUMMARY OF HISTORICAL SSOS, BACKUPS, SERVICE CALLS, OTHER PROBLEMS			
RECORDS REVIEWED BY: _____		RECORD REVIEW DATE: _____	
EVENT DATE	CAUSE/PROBLEM	DATE PREVIOUSLY CLEANED	CREW RESPONDING TO CALL
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
SUMMARY OF CCTV INFORMATION			
CCTV INSPECTION DATE: _____		TAPE NAME/NUMBER: _____	
CCTV TAPE REVIEWED BY: _____		CCTV REVIEW DATE: _____	
CCTV OBSERVATIONS: _____			

RECOMMENDATIONS			
<input type="checkbox"/> NO CHANGES OR REPAIRS REQUIRED			
<input type="checkbox"/> MAINTENANCE EQUIPMENT _____			
<input type="checkbox"/> MAINTENANCE FREQUENCY _____			
<input type="checkbox"/> REPAIR (LOCATION AND TYPE) _____			
<input type="checkbox"/> ADD TO CAPITAL IMPROVEMENT REHABILITATION/REPLACEMENT LIST _____			
ADDITIONAL INFORMATION: _____			

XXXX		PUBLIC WORKS MAINTENANCE SUPERINTENDENT	
REVIEW DATE: / /		REVIEW DATE: / /	

Appendix 6-F: Private Property Damage Procedures

Customer Relations Guidelines

It is important for employees to communicate effectively with the District's customers, especially in a sewage backup situation. How we communicate – on the phone, in writing, or in person – is how we are perceived. Good communication with the homeowner results in greater confidence in our ability to address the problem satisfactorily, less time to resolve the claim, and less damage done to the property.

As a representative of the District, you will occasionally have to deal with an irate homeowner. A backup is a stressful event and even a reasonable homeowner can become irate should he/she perceive the us as being indifferent, uncaring, unresponsive, or incompetent.

Although sometimes difficult, effective management of a sewage backup situation is critical. If it is not managed well, the situation can end up in a costly, prolonged process with the homeowner. We want the homeowner to feel assured that we are responsive and the homeowner's best interest is a top priority.

Communication Tips

1. Give the homeowner ample time to explain the situation or to vent. Show interest in what the homeowner has to say, no matter how many times you have heard it before, or how well you understand the problem.
2. As soon as possible, let the customer know that you will determine if the source of the sewer backup is in the sewer main and, if it is, will have it corrected as quickly as you can.
3. Acknowledge the homeowner's concerns. For example, if the homeowner seems angry or worried about property damage, say something like, "I understand you're concerned about the possible damage to your property, but a professional cleanup crew can restore the area, and if it is determined that the District is at fault, the property owner has the right to file a claim for any reasonable repairs or losses resulting from this incident".
4. Express regret for any inconveniences caused by the incident, but do not admit fault.
5. As much as possible, keep the homeowner informed on what is being done and will be done to correct the problem.
6. Keep focused on getting the job done in a very professional manner. Don't wander from the problem with too much unnecessary small talk with the homeowner.
7. Don't find fault or lay blame on anyone.
8. Make sure someone follows up with a telephone call to ensure everything is being handled as it should be.

Before you leave, make sure the homeowner has the name and telephone number of someone at the District to call if he/she has questions or wants information. The customer information letter contains this information and you should take the time to review this with the homeowner.

Appendix 6-G: Customer Information Letter

CUSTOMER INFORMATION REGARDING SEWER BACKUP CLAIMS

Dear Mr./Ms.: _

Date: _

Address: _

We recognize sanitary sewer backflow incidents can be stressful. The Estero Municipal Improvement District (District) has prepared this brief set of instructions to help you minimize the impact of the loss by responding promptly to the situation.

The District is not responsible for clean up charges or damages caused by blockages in the property owner's sewer lateral or caused by Code violations. At this time, the District is investigating the cause of the loss and does not assume liability for damages. However, if the investigation determines the District is responsible for this incident, the costs you incur for reasonable and necessary clean up will be included in the settlement of your claim. Regardless of whether you or the District is responsible for the loss, it is up to you to arrange for the repair of your property and to present a claim for the District's consideration.

You or the property owner should immediately contact a contractor for clean up of the affected areas. If you do not know of a company to call for service, the following emergency restoration companies are available to respond:

- Belfor USA - www.us.belfor.com - (510) 887-9106 or (800) 856-3333
- Coit Services Inc - www.coit.com - (650) 342-6023 or (800) 367-2648
-
- Fosters Quality First - (510)-657-3700
- Olympic Restoration (Coit Services Company) - www.olyrestoration.com - (650) 244-4111 or (800) 606-4110
- Paul Davis Restoration - www.pdrestoration.com - (650) 242-9759 or (888) 473-7669
- Purofirst Mid Peninsula - www.purofirst.cc - (650) 364-2432
- Service Plus Construction & Restoration - (800)-916-4322
- Servicemaster of San Mateo - (800)-439-8833
- Ultimate Construction - (650) 349-6390
- Ward-Tek Inc-Construction & Restoration: Peninsula - www.wardtekinc.com - (650) 631-7383

This list is provided as a resource only. The District does not require or endorse the use of any of these contractors. This list is not to be construed as exclusive, comprehensive or limiting in any way. Qualified contractors can be found in the Yellow Pages under "Water Damage Restoration" or "Fire & Water Damage Restoration". However, be sure you hire a contractor with experience in sewer backups and enough resources to get the job done quickly.

What you need to do now:

- √ Contact a restoration contractor for clean up and removal of affected surfaces.
- √ Do not attempt to clean the area yourself, let the contractor you hire handle this.
- √ Keep people and pets away from the affected area(s).
- √ Turn off heating/air conditioning systems.
- √ Prevent any material from reaching floor vents to prevent contamination.
- √ Do not remove items from the contaminated area – the contractor you hire will handle these contents.
- √ Contact your homeowners' insurance carrier to report a claim.
- √ If you wish to file a claim for damages with the District, do so as soon as practical with _ at _ Foster City, CA _ (_) _ . The California Government Code, Sections 900 – 960 requires filing a written claim and outlines specific time lines and notice procedures that must be used.

I/We acknowledge receipt of this letter.

Employee Signature: _

Date: _

Customer Signature: _

Date: _

Appendix 6-H: Methods for Estimating Spill Volume

A variety of approaches exist for estimating the volume of a sanitary sewer spill. This appendix documents the three methods that are most often employed. The person preparing the estimate should use the method most appropriate to the sewer overflow in question and use the best information available.

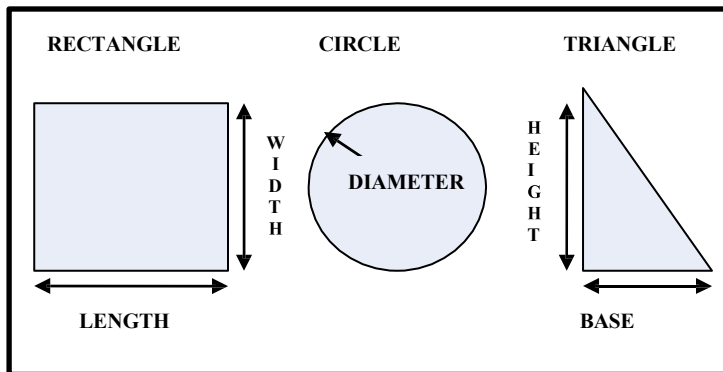
Method 1 Eyeball Estimate

The volume of small spills can be estimated using an “eyeball estimate”. To use this method imagine the amount of water that would spill from a bucket or a barrel. A bucket contains 5 gallons and a barrel contains 50 gallons. If the spill is larger than 50 gallons, try to break the standing water into barrels and then multiply by 50 gallons. This method is useful for contained spills up to approximately 200 gallons.

Method 2 Measured Volume

The volume of most small spills that have been contained can be estimated using this method. The shape, dimensions, and the depth of the contained wastewater are needed. The shape and dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.

Common Shapes and Dimensions



- Step 1 Sketch the shape of the contained sewage (see figure above).
- Step 2 Measure or pace off the dimensions.
- Step 3 Measure the depth at several locations and select an average.
- Step 4 Convert the dimensions, including depth, to feet.
- Step 5 Calculate the area in square feet using the following formulas:
 - Rectangle: $\text{Area} = \text{length (feet)} \times \text{width (feet)}$
 - Circle: $\text{Area} = \text{diameter (feet)} \times \text{diameter (feet)} \times 0.785$
 - Triangle: $\text{Area} = \text{base (feet)} \times \text{height (feet)} \times 0.5$
- Step 6 Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet.
- Step 7 Multiply the volume in cubic feet by 7.5 to convert it to gallons

Method 3 Duration and Flowrate

Calculating the volume of larger spills, where it is difficult or impossible to measure the area and depth, requires a different approach. In this method, separate estimates are made of the duration of the spill and the flowrate. The methods of estimating duration and flowrate are:

Duration: The duration is the elapsed time from the time the spill started to the time that the flow was restored.

Start time: The start time is sometimes difficult to establish. Here are some approaches:

- Local residents can be used to establish start time. Inquire as to their observations. Spills that occur in rights-of-way are usually observed and reported promptly. Spills that occur out of the public view can go on longer. Sometimes observations like odors or sounds (e.g. water running in a normally dry creek bed) can be used to estimate the start time.
- Changes in flow on a downstream flowmeter can be used to establish the start time. Typically the daily flow peaks are “cut off” or flattened by the loss of flow. This can be identified by comparing hourly flow data during the spill event with flow data from prior days.
- Conditions at the spill site change over time. Initially there will be limited deposits of toilet paper and other sewage solids. After a few days to a week, the sewage solids form a light-colored residue. After a few weeks to a month, the sewage solids turn dark. The quantity of toilet paper and other materials of sewage origin increase over time. These observations can be used to estimate the start time in the absence of other information. Taking photographs to document the observations can be helpful if questions arise later in the process.
- It is important to remember that spills may not be continuous. Blockages are not usually complete (some flow continues). In this case the spill would occur during the peak flow periods (typically 10:00 to 12:00 and 13:00 to 16:00 each day). Spills that occur due to peak flows in excess of capacity will occur only during, and for a short period after, heavy rainfall.

End time: The end time is usually much easier to establish. Field crews on-site observe the “blow down” that occurs when the blockage has been removed. The “blow down” can also be observed in downstream flowmeters.

Flow Rate: The flowrate is the average flow that left the sewer system during the time of the spill.

There are three common ways to estimate the flowrate:

- The San Diego Manhole Flowrate Chart: This chart, included as Appendix 6-I, shows sewage flowing from manhole covers at a variety of flowrates. The observations of the field crew can be used to select the appropriate flowrate from the chart. If possible, photographs are useful in documenting basis for the flowrate estimate.
- Flowmeter: Changes in flows in downstream flowmeters can be used to estimate the flowrate during the spill.

- Counting Connections: Once the location of the spill is known, the number of upstream connections can be determined from the sewer maps. Multiply the number of connections by 200 to 250 gallons per day per connection or 8 to 10 gallons per hour per connection.

For example: 22 upstream connections x 9 gallons per hour per connection
= 198 gallons per hour / 60 minutes per hour
= 3.3 gallons per minute

Spill Volume: Once duration and flowrate have been estimated, the volume of the spill is the product of the duration in hours or days and the flowrate in gallons per hour or gallons per day.

For example:

Spill start time = 11:00

Spill end time = 14:00

Spill duration = 3 hours

3.3 gallons per minute x 3 hours x 60 minutes per hour

= 594 gallons

Appendix 6-I: Manhole Overflow Flowrate Guide



City of San Diego
Metropolitan Wastewater Department

Reference Sheet for Estimating Sewer Spills
from Overflowing Sewer Manholes
All estimates are calculated in gallons per minute (gpm)

Wastewater Collection Division
(619) 654-4160



5 gpm



25 gpm



50 gpm



100 gpm



150 gpm



200 gpm



225 gpm



250 gpm



275 gpm

All photos were taken during a demonstration using metered water from a hydrant in cooperation with the City of San Diego's Water Department.

rev. 4/99

Appendix 6-J: Sample Warning Sign

DANGER!
CONTAMINATED WATER
KEEP OUT



AGUA CONTAMINADA
ALEJESE
PELIGRO!

Estero Municipal Improvement District
Public Works (650) 286-8140

Appendix 6-K: Emergency Response Equipment

Items	No.	Quantity	Comments
Hydro Flusher	32	1	
Vacuum Truck	39	1	
Overflow Response Trailer	N/A	1	Various Pumps, Hoses, and other Spill Mitigation equipment are stored in trailer.
6" Bypass Pump	N/A	2	
Utility Trucks	30,31,37	3	
Back Hoe	36	1	
Small Hydro Flusher	35	1	
Confind space truck	34	1	

Appendix 6-L: Emergency Response Inventory

Items	# Stock	Quantity	Comments
Clay Pipe		30 ft.	
PVC Pipe		30 ft.	
High Pressure Flex Piping		30 ft.	
¾ inch Crushing Drain Rock		3 yards	
Barricades		20	
Trench Plates		2	
ACP Repair Couplings		6	
Repair Couplings sizes 4"- 24"		10	
Various Flygt Pumps		4-10	
Pump Controllers (PLC's)		3	
Pump Starters		2 per type	
SCADA Radios		2	
Miltonic's Transducers		6	

Section 7: FOG Control Program

7.1 Introduction

This section of the SSMP presents the District's approach to minimizing FOG-related SSOs.

7.2 Regulatory Requirements for Goals Element

The summarized requirements for the FOG Control element of the SSMP are:

RWQCB Requirement

The collection system agency must evaluate its service area to determine whether a Fats, Oils, and Grease (FOG) control program is needed. If so, a FOG control program shall be developed as part of the SSMP. If the collection system agency determines that a FOG program is unnecessary, proper justification must be provided.

SWRCB Requirement

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

- a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;
- b) A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;
- c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;
- d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the grease removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;
- e) Authority to inspect grease producing facilities, enforcement authorities, and determination of whether the collection system agency has sufficient staff to inspect and enforce the FOG ordinance;

- f) An identification of sewer system sections subject to FOG blockages and the establishment of a cleaning maintenance schedule for each section; and
- g) Development and implementation of source control measures, for all sources of FOG discharged to the sewer system, for each sewer system section identified in (f) above.

7.3 Nature and Extent of FOG Problem

The District has experienced FOG-related SSOs in the past; however, it has not had a FOG-related SSO since it began reporting SSOs using CIWQS on May 2, 2007.

The current level of performance is thought to be the result of the District's preventive maintenance program and the FOG Source Control Program.

7.4 FOG Source Control Program

The District's FOG Source Control Program is provided under contract by the City of San Mateo. The FOG Source Control Program is described in detail in Appendix VII-A.

7.5 FOG Disposal Locations

Commercial grease disposal locations identified by the District are listed in Appendix VII-B. The District will provide the list of grease disposal facilities to commercial grease haulers regularly working within the District's service area. The District will update the list annually.

There is no indication at this time that additional grease disposal facilities are needed to serve the grease haulers working in the District's service area.

Appendix VII-A FOG Source Control Program

Background

Justification for FOG Program. The frequency of sewer line preventive maintenance (hydro-jetting), FOG buildup in lift stations, the volume of grease collection and removal at the WWTP, and the more than 40 commercial FOG generators in the service area conclude that a FOG program is warranted.

Problem Area Identification. A FOG problem area is identified by a line blockage determined to be the result of FOG or segments of the sewer where preventive maintenance has identified accumulations of FOG. Potential FOG problem areas consist mainly of trunk line segments in commercial districts that serve a concentration of food service facilities. Problem areas also appear to be associated with multi-family dwelling complexes, although sewer backups at these sites appear to be due to a combination of factors, including grease, line sags, and roots. Any commercial facility that prepares food is considered a FOG generator.

Sewer Line FOG Obstruction/Blockage Preventive Maintenance Program. Prevention of FOG-related interference to the sewer system consists of a two-prong approach: scheduled preventive maintenance (PM) of problem segments, and source control. Hydro-jetting is the most common method of trunk line preventive maintenance. Known problem areas are prioritized based on qualitative findings of previous preventive maintenance results, such as a surcharged condition or significant grease collected on the jetting nozzle. High priority segments are put on a quarterly preventive maintenance schedule and the findings are forwarded to the Source Control Program for follow-up. The segment will remain on quarterly PM until subsequent observations determine that potential for obstruction or blockage have been reduced or eliminated.

FOG Source Control Program History. A FOG source control program was initiated in 1995. A field survey identified all food service facilities with and without grease control devices. Periodic inspection of food service facilities began in 1996. In 1999 City/District municipal codes were revised to require retroactively that facilities install grease pretreatment devices that conform to the current version of the UPC. Existing cafeterias and restaurants without grease control were brought up to the minimum standard. Many lower priority FOG generators remain which have grease devices, but which do not conform to minimum requirements of the 1997 UPC. Continued accumulation of grease in the collection system is calling for increased effort to control discharge of grease.

SSMP Enhanced FOG Source Control Program. The City/District has an approved Pretreatment Program. The FOG component of the program is being enhanced by adding food service facilities to the program's waste discharge permit program and increasing public outreach.

Legal Authority

Sanitary Sewer Use Ordinance. City of San Mateo (CSM) and Estero Municipal Improvement District (EMID) Sewer Use Ordinances are nearly identical and each provides the legal authority to the implement a pretreatment program for FOG. A summary of the enabling authority is summarized as follows:

CSM	EMID Update the Sections after new Ordinance	Section Title
7.38.030	8.37.030	Definitions of “Food Service Facility” and “Grease”
7.38.100	8.37.100	Pretreatment of Industrial Waste. (c) Food Service Facilities
7.38.120	8.37.120	Specific Discharge Prohibitions. (e) Solids or Viscous Materials, (h) Oil and Grease
7.38.160	8.37.160	Requirements for Food Service Facilities. (a) Install a pretreatment system for grease removal which meets or exceeds minimum sizing requirements of the UPC by no later than January 1, 2001.
7.38.210	8.37.210	Waste Discharge Permits. (b) The City/District may require users to obtain waste discharge permits as necessary to carry out the purposes of this Chapter
7.38.350	8.37.350	Authority to Inspect and Monitor. City/District is authorized to conduct all inspection, surveillance, and monitoring procedures necessary to assure compliance with Chapter
7.38.440	8.37.430	Compliance with Chapter
7.38.460	8.37.450	Administrative Remedies
7.38.480	8.37.460	Civil Penalties
7.38.490	8.37.460	Criminal Penalties

Administration

The City of San Mateo Director of Public Works is charged with implementing a source control program throughout WWTP service area. The City of San Mateo Environmental Services Division Source Control Section administers the source control program. Building Divisions of the respective jurisdictions issue permits for installation of grease control devices in conformance to requirements of Uniform Plumbing Code.

Regulatory/Outreach Strategy

Commercial/Industrial Component. The current commercial program consists of periodic inspections of commercial food service facilities. The program is being enhanced by expanding the existing pretreatment permit program to food service facilities. The rationale includes the following:

- Commercial kitchen operations are deemed the primary source of FOG, based on FOG being a part of their industrial process and their proximity to grease deposits in the collection system
- Due to food service facility employee turnover rate, the oral message conveyed to facility management during a periodic inspection (which occurs every 1 to 2 years) is diluted or lost over time. A permit provides formal conveyance and ready reference of operating requirements to the business owner/manager.
- Waste discharge permits convey more specific requirements for maintenance frequency, recordkeeping, and other requirements.
- Permitting provides a mechanism for recovery of a portion of costs incurred in implementing the commercial/industrial component of the FOG program.
- The City of San Mateo Public Works Commission, at their March 2003 meeting, concurred with the staff recommendation to expand waste discharge permitting program to all facilities with pretreatment systems, specifically food service facilities.
- Goal is to inspect each permitted facility annually and dispense BMP information during the inspection as needed.

Multi-family/Residential Component. The non-commercial component consists of the following:

- Dispensing of educational brochures at municipal facilities, and issuing periodic public service announcements (e.g., immediately prior to pending holidays) to remind residents of prudent food preparation waste handling practices.
- Investigate feasibility of mandating installation of grease interceptors on new multi-family developments over a certain number of dwelling units.
- Other venues as opportunities arise.

Grease Removal Technology

Design and Sizing. The ordinance(s) provide the following direction. The requirement is implemented by the Building Department.

- The owner of every commercial, industrial, or institutional food service facility, shall install or cause to be installed a pretreatment system for grease removal which meets or exceeds minimum sizing requirements of the 1997 version of the UPC, by no later than January 1, 2001. The Department shall approve final sizing.
- The policy as to which potential waste streams that require FOG pretreatment is established in following chart. Additional pretreatment may be required if FOG problems evident in public sewer. Garbage grinders are strongly discouraged, but not prohibited, and their installation must conform to UPC.

New Construction w/Interceptor	All Kitchen Fixtures, Incl. Floor Drains
New Construction and Alterations w/interior grease traps	Pot Sinks, Woks, Mop/Utility Sinks
Existing Operation	Pot Sinks, Woks

- The owner of every commercial or industrial generator of grease serviced by a public sewer found to have a grease buildup at the point of connection of the side sewer, a history of grease blockage at such point, or accelerated maintenance of the public sewer resulting from the discharge of grease from said facility, may be required to implement additional grease control measures, which may include but are not limited to, installation of additional pretreatment equipment, elimination of the garbage grinder, or reimbursement of the City or District for the cost of accelerated preventive maintenance of the public sewer to prevent blockage of the sewer related to such grease discharge.
- City/District may, upon finding existing system insufficient for effective FOG retention, require additional grease control measures.

Pretreatment System Maintenance. The ordinance(s) provide the following direction. Requirement is conveyed in waste discharge permit.

- Pretreatment systems shall be inspected and maintained by the user as needed to ensure continuous efficient operation.
- Pretreatment systems shall be inspected monthly by the user or per a schedule approved by the Director.
- A record of all inspection and maintenance activity shall be kept by the user at the facility showing the date of inspection or maintenance, the activity completed, and the disposition of the removed contents, filters, cartridges, or other components.
- Failure to operate or maintain the pretreatment system in a way so as to ensure optimum efficiency, or failure to keep records of pretreatment system maintenance shall constitute a violation of this Chapter.

Waste Discharge Permits

Policy and Applicability. The waste discharge permit program as applied to the FOG source control is summarized as follows:

- Issue waste discharge permits (WDP) to facilities that are required to have pretreatment systems.
- Food service facilities are required to have pretreatment systems.

- A food service facility is defined as a commercial, industrial, or institutional facility that uses or generates grease when preparing food. Any such facility that has a cook-top or baking oven on the premises is subject to requirements for food service facilities.
- FOG pretreatment system maintenance frequency is established in waste discharge permits. Frequency is negotiated with User, and established by current owner practice, or by the benchmarks in the following chart or whichever is more frequent. Minimum frequencies for sizes not indicated may be set on a “sliding scale” between the specified sizes and frequencies.

Grease Removal Device Type	Minimum Frequency
1500 gal Grease Interceptor	Quarterly
40 lb. Grease Trap	Weekly
Automated Grease Removal Device	Daily

Permit Contents. The Food Service Facility permit package consists of the Facility information and Specific Requirements page, Best Management Practices (Attachment C), Standard Terms and Conditions (D), and Maintenance Log Sheet (E), and Employee Training Record (F). (Note: Waste Discharge Permit Attachment A does not apply to Food Service Facilities). Waste discharge Permits follow a standard format for all applications and contain the following provisions.

- Designated industrial waste streams shall discharge through pretreatment systems identified in the permit
- Bypass or modification of waste treatment systems prohibited
- Maintain waste treatment systems per manufacturer instructions or at frequency as indicated in permit, which ever is more frequent. Maintenance is defined as removal of collected contents and the unit kept in optimal physical/mechanical condition.
- Keep records of waste treatment system maintenance, including pumping and/or cleanout dates, and disposition of treatment system wastes.
- Conform to reporting requirements as required.
- Do not discharge any hazardous waste or other problem wastes.
- Notify City/District immediately of any abnormally high volume or concentration of waste discharge to that has occurred or is imminent.
- Train employees on waste discharge permit requirements, including pretreatment system maintenance recommendations and requirements, and best management practices.
- Standard Terms and Conditions

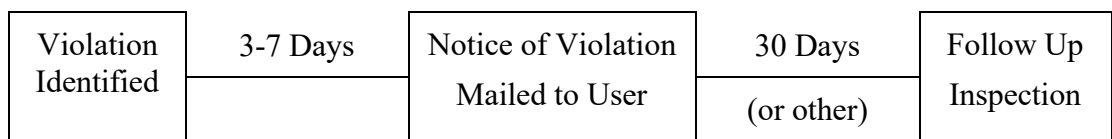
Inspection and Enforcement. Inspections are conducted to assess compliance with permit requirements. Compliance is determined by visual inspection of the Pretreatment system, interview with owner/staff about general operations and waste handling; and documentation of PT maintenance, PT waste disposition and employee training. (Note: Waste stream monitoring and analysis is not required and is not ordinarily used to determine compliance.) Inspection goal is to conduct one inspection per year. Inspections are unannounced. A copy of the inspection form is attached.

Routine protocols for determination of FOG program compliance are summarized below, along with the required enforcement response.

Compliance Issue	Enforcement Remedy
Record keeping* deficient, but equipment appears maintained, no evidence of FOG discharge	NOV
In compliance with Permit requirements, but evidence of FOG discharge (e.g. MH inspection, video inspection finding)	NOV
Equipment modified or bypassed, does not appear maintained, or evidence of FOG in sewer	NOV accompanied by Administrative Citation
1 st follow-up inspection finds return to compliance	N/A
1 st or 2 nd follow-up inspection finds failure to comply	NOV accompanied by escalated AC penalty as applicable; inspection charge, minimum of 1 hour
3 rd follow-up inspection finds failure to comply fully	NOV w/ notice of possible referral to City Attorney; inspection charge, minimum of 1 hour

*Required records include PT Equipment Maintenance log and/or service receipts and FOG waste disposal receipts

Enforcement Response Timeline



The guidance above is consistent with the Source Control Program's Enforcement Response Plan. These remedies are not exclusive. City/District may take all combination of actions specified in the Sewer use Ordinance against a noncompliant User, as well as any other enforcement remedies that that the City/District may have available.

FOG Waste Management. FOG discharge to the sewer is prohibited. Users are required to properly dispose of pretreatment wastes (brown grease) and cooking grease (yellow grease). Neither City/District nor County has a registration system for FOG waste haulers. FOG haulers are requested to submit evidence of disposal facility in use. The San Mateo/EMID WWTP does not accept trucked or hauled waste at this time.

While the User generally is capable of maintaining an under counter grease trap in-house, a pumping service must be hired to pump and properly dispose of grease interceptor contents. The User that conducts in-house maintenance of under-counter traps has a dilemma—what to with the collected brown grease. There are few options available. Disposal of liquid wastes in the trash is unlawful. The source control inspector may suggest that the User hire a rendering service to supply a separate container for the brown grease. A facility may also be able to develop a procedure to dewater small quantities (e.g. daily cleanings) by absorbing liquid with absorbent or towels and dispose with solid waste.

The following policy is established to deal with verifying disposition of grease wastes.

- Facility with grease interceptor shall keep receipts of pumping company names and service dates.
- Facility with grease trap(s) that utilize service company shall keep records of company and service dates
- Facility with grease trap(s) that services in-house must keep record of service dates only, and describe and demonstrate PT waste handling procedure
- Facility with fryer(s) shall keep yellow grease storage container on-site and receipts of rendering company service dates. (There may be other venues for handling the grease, such as transferring it to another restaurant or release to private party for personal use, such as making biodiesel fuel. Facility must, at minimum, be able to show storage containers and explain yellow grease handling procedure. The inspector may require a facility without a fryer to off-haul used cooking grease if poor work practices are identified (e.g. FOG liquid in trash or accumulated in sewer).

FOG Source Control Budget, Resources, and Cost Recovery

Budget. The FOG Program is a component of the City of San Mateo Wastewater Source Control Program. This is a specific program in the City's Business Plan. The Source Control program is funded through the Sanitary Sewer Enterprise Fund, which is funded by sewer service-related fees and charges to satellite collection system agencies for source control services. The program presently has a budget of approximately \$200,000 supports 1.5 FTE (full-time employed) staff.

Equipment Summary. The following lists Source Control Program resources only. Collection System and Spill Cleanup resources are summarized elsewhere in the SSMP.

Flow Meters (2)	Peristaltic Pump
Automatic Samplers w/ Accessories (3)	Field Testing Equipment
Portable Gas Analyzer (H ₂ S, LEL, O ₂)	Miscellaneous Sampling Supplies
Light Truck w/utility boxes	Hand Tools
Passenger Sedan	Traffic Vests & Safety Cones
Mobile Radio(2)	First Aid Kit
Desktop Computer w/ Laser Printer (2)	Protective Clothing
Manhole Safety Guard and Exhaust Fan	Digital Camera

Cost Recovery. The City of San Mateo has established a fee schedule to help recover the cost of source control activities. The schedule includes fees for permits and permit applications, inspection and sampling charges, administrative fees for noncompliance, and spill cleanup (spill cleanup recovery accounting may also handled by Collection System Maintenance Division apart from Source Control Program). The amount and application of the fees is not designed to cover the entire cost of the program. Routine fees applicable to the FOG program include the following:

Fee	Unit	CSM	EMID
Class II Waste Discharge Permit Annual Fee	Each	\$\$177.00	\$0
Inspection/Investigation Fee*	Per Hour	\$\$100.00	Not established

*Assessed for each follow-up inspection that determines continuing noncompliance. Minimum charge of 1 hour inspection time

Financial Incentives. There are no financial incentives built into the program rate structure at this time.

Effectiveness Measures

Program effectiveness will be measured using 1) FOG generator record of compliance with waste discharge permit as determined by annual inspections; and 2) Periodic video inspection of sewer prior to conducting preventive maintenance to identify the need for continued preventive maintenance of the sewer segment.

Appendix VII-B

Commercial Grease Haulers and Disposal Locations

A number of grease haulers have rendering plants for the grease from their own trucks, but don't accept grease from other haulers. The following accept grease from grease haulers in the Mountain View area as of June 2017.

Business Name	Location / Address	Phone Number	Services
Blue Sky Bio-Fuel Inc.	Oakland C	(510) 436-6654 (415) 250-9114	Primarily yellow grease, some brown grease. Can accept 7,000 gallons per day.
East Bay Municipal Utility District	Oakland	(510) 287-1632	Accepts grease, including from interceptors as feedstock to its anaerobic digesters.
Palo Alto Wastewater Treatment Plant	Palo Alto	(650) 329-2598	Accept 5,000 to 6,000 gallons per day on first come first serve basis. They are in the process of increasing their capacity.
Salinas Tallow	Salinas	(800) 621-9000	Will consider accepting grease from other reputable haulers. They purchase yellow grease and process interceptor grease.
San Jose Tallow Company	San Jose C	(408) 452-8777	They don't accept interceptor grease, but would consider accepting from outside haulers if it wouldn't impact any of their grease hauling routes.
South Bayside Systems Authority	Redwood City	(650) 591-7121	Accepts grease, including from interceptors as feedstock to its anaerobic digesters.

Section 8. System Evaluation and Capacity Assurance Plan

8.1. Introduction

This section of the SSMP presents the District's programs and activities to provide adequate capacity.

8.2. GWDR Requirements for System Evaluation and Capacity Assurance Plan Element of SSMP

The summarized requirements for the System Evaluation and Capacity Assurance Plan (SECAP) element of the SSMP are:

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

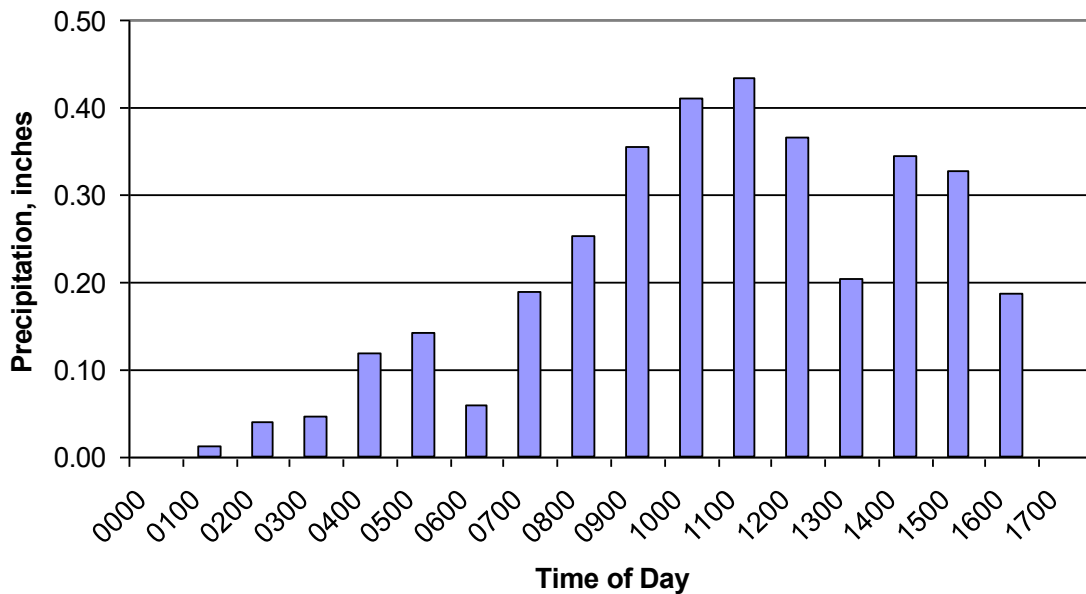
- a) **Evaluation:** Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events.
- b) **Design Criteria:** Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria.
- c) **Capacity Enhancement Measures:** The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, inflow and infiltration (I/I) reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.
- d) **Schedule:** The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D. 14 (of the GWDR).

8.3. Capacity Evaluation

The District's service area is a master planned community. The sewer system was designed to handle the flows for the service area in its current configuration. There have been neither additions to the service area nor any changes in the planned population density since the original design.

Research indicates that the January 5, 2008 storm event was significant in relationship to historical storm events. There were a number of storms during December 2007 and earlier in January 2008 that produced wet antecedent soil conditions. The hourly precipitation for the January 5, 2008 storm event is shown on Figure 8-1. The precipitation data is from the Belmont Island Park Rain Gauge (KCABELMO5). The rain gauge is located approximately 5 miles southwest of Foster City. The analysis of the January 5, 2008 storm event return interval is shown on Figure 8-2. The intensity-duration-frequency data is from the Santa Clara County Drainage Design Manual for areas with an annual precipitation of 20 inches (Foster City's annual precipitation is 20.2 inches). The analysis indicates that this storm event exceeded a 10 year return interval storm and it approached a 20 year return interval based on the 10 hour precipitation total of 3.08 inches. The 10+ year return interval is considered to provide an adequate level of protection within the District's service area.

Figure 8-1: Hourly Precipitation Data for January 5, 2008 Storm Event



The District did not have any capacity-related SSOs during storm event of January 5, 2008 demonstrating that the District's sewer system is capable of accommodating the flows associated with a 10+ year storm event. The 10+ year return interval is considered to provide an adequate level of protection from wet weather overflows within the District's service area.

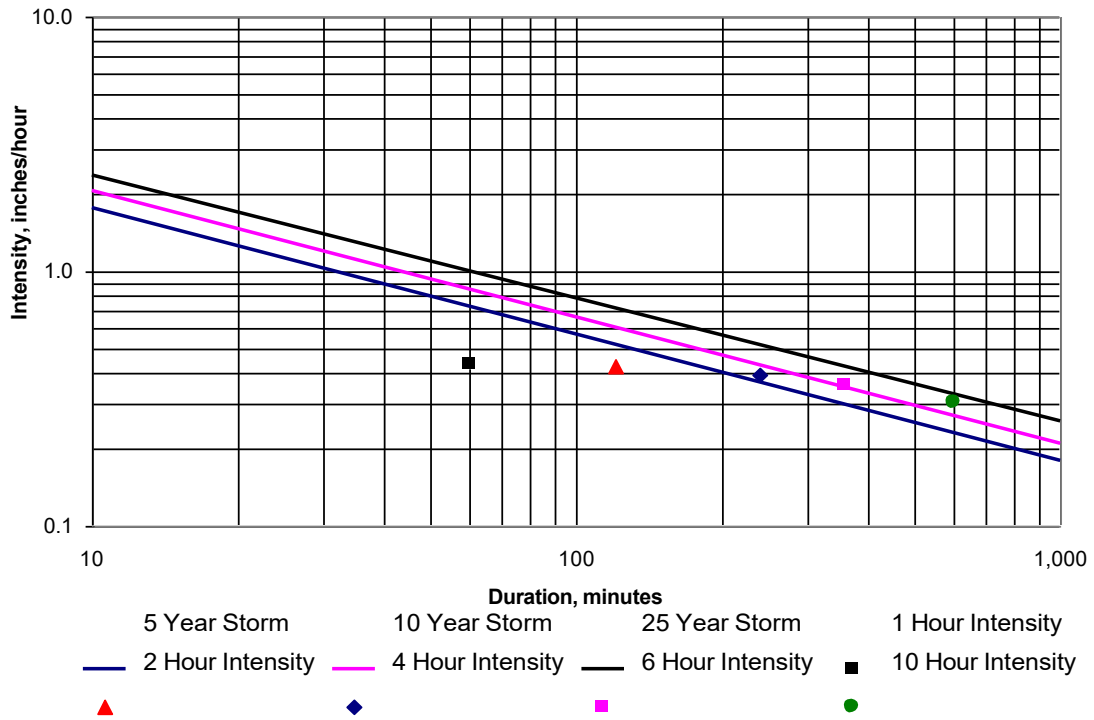
8.4. Design Criteria

The capacity-related design criteria, including base wastewater flow and peaking factors, are included in Section 4 - Design and Performance Provisions of the SSMP.

8.5. Capacity Enhancement Measures and Schedule

No capacity enhancement measures are warranted at this time based on the results of the analysis shown in 8.3 above.

Figure 8-2: January 5, 2008 Storm Event Return Interval



Section 9. Monitoring, Measurement, and Program Modifications

9.1. Introduction

This section of the SSMP presents the District's Monitoring, Measurement, and Program Modifications.

9.2. Regulatory Requirements for Monitoring, Measurement, and Program Modifications Element of SSMP

The requirements for the Monitoring, Measurement, and Program Modifications (MMPM) section of the SSMP are:

9.2.1. RWQCB Requirement

Each wastewater collection system agency shall monitor the effectiveness of each SSMP element and update and modify SSMP elements to keep them current, accurate, and available for audit as appropriate.

9.2.2. GWDR Requirement

Each wastewater collection system agency shall:

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

9.3. Performance Measures

The indicators that the District will use to measure the performance of its wastewater collection system and the effectiveness of its SSMP are:

- Total number of SSOs;
- Number of SSOs for each cause (roots, grease, debris, pipe failure, capacity, lift station failure, and other)
- Portion of sewage contained compared to total volume spilled
- Volume of spilled sewage discharged to surface water
- Compare planned preventive maintenance to actual work performed.

9.4. Baseline Performance

The baseline performance, which shows the performance of the District’s wastewater collection system prior to the development and implementation of the SSMP, is shown on Table 9-1. The District’s baseline performance is compared with similar Region 2 wastewater collection system agencies on Figure 9-1.

Additional trend and geospatial analysis will be added in future years as additional data becomes available for analysis.

Table 9-1: Baseline Performance as of June 30, 2016

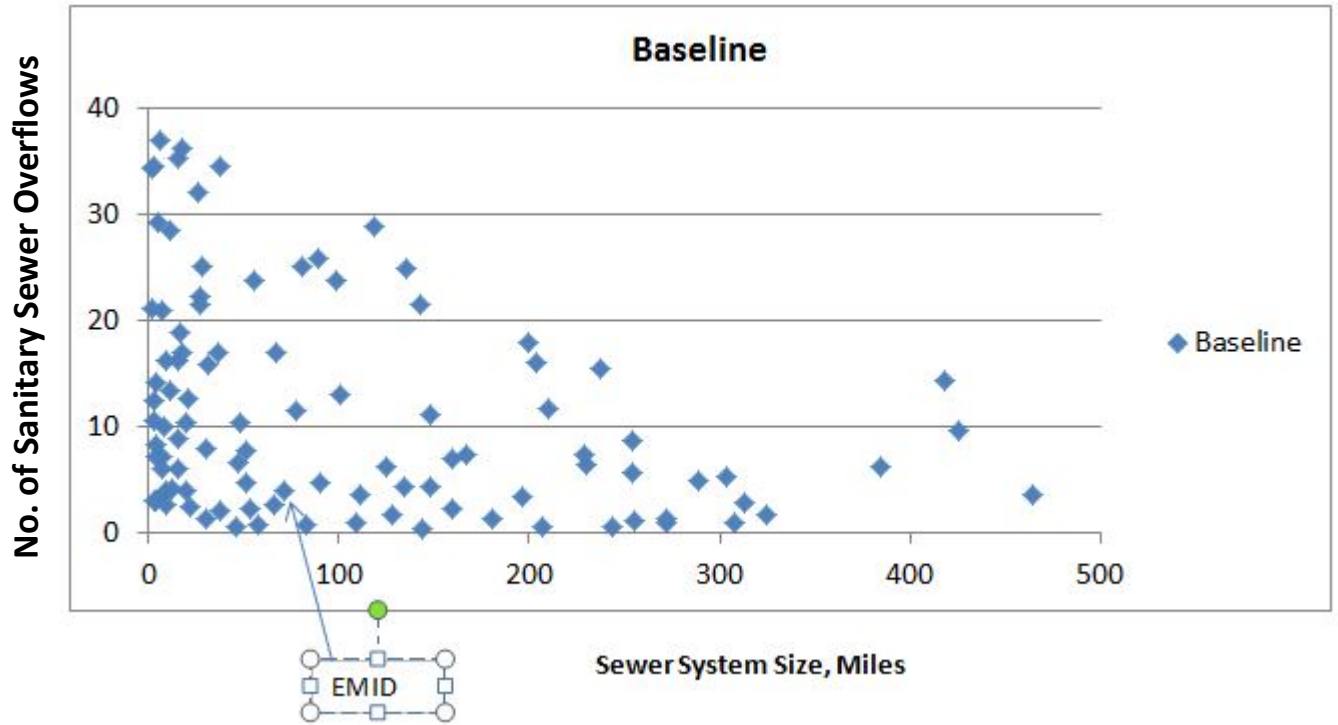
Performance Measure		Value
SSO Rate, SSOs/100 Miles/Year		2.7
Median Volume, gallons		8,275
Portion Recovered		100%
Portion to Surface Waters		0%
SSO Causes (based on 2 SSO events)	Roots	0%
	Grease	
	Debris	0%
	Pipe Failure	50%
	Capacity	0%
	Lift Station Failure	50%
	Other	

9.5. Performance Monitoring and Program Changes

The District will evaluate the performance of its wastewater collection system at least annually using the performance measures identified in Section 9.3, Performance Measures, above. The District will update the data and analysis of performance measures at the time of the evaluation.

The District may use other performance measures in its evaluation. The District will prioritize its actions and initiate changes to this SSMP and the related programs based on the results of the evaluation.

Figure 9-1: Baseline Performance Comparison with Region 2 Agencies



Source: CIWQS Category 1 and 2 SSOs, Region 2, 5/1/2015 through 6/30/16

Section 10. SSMP Program Audits Re-Numbered Sec(s)

10.1. Introduction

This section of the SSMP presents the process that the District will follow to audit its SSMP program.

10.2. Regulatory Requirements for the SSMP Program Audits Section of SSMP

The summarized regulatory requirements for the SSMP are:

10.2.1. RWQCB Requirement

Each wastewater collection system agency shall conduct an annual audit of their SSMP which includes any deficiencies and steps to correct them (if applicable), appropriate to the size of the system and the number of overflows, and submit a report of such audit along with their annual report by March 15th of the following year.

10.2.2. GWDR Requirement

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

10.3. SSMP Audits

The District will audit its SSMP every year. The audit will determine whether the SSMP meets the current requirements of the GWDR, whether the SSMP reflects the District's current practices, and whether the District is following the SSMP.

The audit will be conducted by a team consisting of District Staff. The audit team may also include members from outside agencies and/or contractors.

The scope of the audit will cover each of the sections of the SSMP. The SSMP Audit Checklist, based on the requirements in the GWDR, will be used for the audit (included as Appendix 10-A).

The results of the audit will be included in an SSMP Audit Report. The SSMP Audit Report will focus on the effectiveness of the SSMP program, compliance with the GWDR requirements, and identification of any deficiencies in the SSMP. The SSMP Audit Report will identify revisions that may be needed for a more effective program. Information collected as part of Section 9 of the SSMP, Monitoring, Measurement, and Program Modifications, will be used in preparing the audit. Tables and figures or charts will be used to summarize information about these indicators. The Audit Report to the RWQCB will include:

- A description of progress made on development of SSMP elements, and if the District is on schedule in development of the SSMP. The Audit Report will provide justification if the SSMP development is behind schedule;
- How the District implemented SSMP elements during the past year;
- The District's effectiveness in implementing the SSMP elements;
- A description of the additions and improvements made to the sanitary sewer collection system in the past reporting year; and
- A description of the additions and improvements to the SSMP that is planned for the upcoming reporting year with a projected schedule for implementation.

The Audit Report will be submitted to the RWQCB, along with the Annual Report of SSOs, by March 15th of each year. Copies of the annual Audit Reports will be maintained by the District for five years.

10.4. SSMP Updates

The District will update its SSMP at least every five years. The next update will be completed on or before March 1, 2022.

The District will determine the need to update its SSMP more frequently based on the results of the annual audit and the performance of its sanitary sewer system using information from the performance measures. In the event that the District decides that an update is warranted, the process to complete the update will be identified at that time. The District will complete the update within one year following identification of the need for the update.

The District Staff will seek the approval from the District Board of Directors for any significant changes to the SSMP. The authority for approval of minor changes such as employee names, contact information, or limited procedural changes is delegated to the Director of Public Works.

Appendix 10-A: SSMP Audit Checklist

Audit Date_

Audit Team Members_

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Current?	SSMP Implemented?
I	Goals	Reduce, prevent, and mitigate SSOs			
II	Organization	Designate LRO			
		Names and phone numbers for key management personnel			
		Names and phone numbers for key administrative personnel			
		Names and phone numbers for key maintenance personnel			
		Chain of communication for reporting SSOs			
III	Legal Authority	Prevent illicit discharges to sanitary sewer system			
		Require sewers and connection be properly designed and constructed			
		Ensure access for inspection, maintenance, and repairs (includes public portion of lateral)			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Current?	SSMP Implemented?
		Limit discharge of FOG and debris that may cause blockages			
		Require the installation of grease removal devices			
		Ability to inspect FOG producing facilities			
		Enforce violations of the District's sewer ordinances			
IV	O&M Program	Maintain up-to-date maps of the sanitary sewer system			
		Describe routine preventive maintenance program			
		Document completed preventive maintenance using system such as work orders			
		Rehabilitation and replacement plan that identifies and prioritizes sanitary sewer system defects			
		Provide regular technical training for District sanitary sewer system staff			
		Require contractors to provide training for their workers who work in the District's sanitary sewer system facilities			
		Maintain equipment inventory			
		Maintain critical spare part inventory			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Current?	SSMP Implemented?
V	Design and Performance Provisions	Design and construction standards for new sanitary sewer system facilities			
		Design and construction standards for repair and rehabilitation of existing sanitary sewer system facilities			
		Procedures for the inspection and acceptance of new sanitary sewer system facilities			
		Procedures for the inspection and acceptance of repaired and rehabilitated sanitary sewer system facilities			
VI	OERP	Procedures for the notification of primary responders			
		Procedures for the notification of regulatory agencies			
		Program to ensure appropriate response to all SSOs			
		Proper reporting of all SSOs			
		Procedure to ensure District staff are aware of and follow OERP			
		Procedure to ensure District staff are trained in the OERP procedures			
		Procedure to ensure contractor personnel are aware of and follow OERP			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Current?	SSMP Implemented?
		Procedure to ensure contractor personnel are trained in the OERP procedures			
		Procedures to address emergency operations such as traffic and crowd control			
		Program to prevent the discharge of sewage to surface waters			
		Program to minimize or correct the impacts of any SSOs that occur			
		Program of accelerated monitoring to determine the impacts of any SSOs that occur			
VII	FOG Control Program	Public outreach program that promotes the proper disposal of FOG			
		Plan for the disposal of FOG generated within the District's service area			
		Demonstrate that the District has allocated adequate resources for FOG control			
		Identification of sanitary sewer system facilities that have FOG-related problems			
		Program of preventive maintenance for sanitary sewer system facilities that have FOG-related problems			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Current?	SSMP Implemented?
VIII	SECAP	Identification of elements of the sanitary sewer system that experience or contribute to SSOs caused by hydraulic deficiencies			
		Established design criteria that provide adequate capacity District			
		Short term CIP that addressed known hydraulic deficiencies			
		Long term CIP that addressed known hydraulic deficiencies			
		Procedures that provide for the analysis, evaluation, and prioritization of hydraulic deficiencies			
		The short and long term CIPs include schedules for the correction of each identified hydraulic deficiency			
IX	Monitoring, Measurement, and Program Modifications	Maintain relevant information to establish, evaluate, and prioritize SSMP activities			
		Monitor implementation of the SSMP			
		Measure, where appropriate, performance of the elements of the SSMP			
		Assess success of the preventive maintenance program			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Current?	SSMP Implemented?
		Update SSMP program elements based on monitoring or performance			
		Identify and illustrate SSO trends			
X	SSMP Program Audits	Conduct periodic audits			
		Record the results of the audit in a report			
		Record the changes made and/or corrective actions taken			
XI	Communications Program	Communicate with the public regarding the preparation of the SSMP			
		Communicate the public regarding the performance of the SSMP			
		Communicate with tributary or satellite sewer systems			

Section 11 Communication Plan

A. Introduction

This section of the SSMP is intended to outline the process involved in communicating with interested members of the public regarding the development, implementation, and performance of this plan.

B. Regulatory Requirements for the Communications Plan

The Communication Program requirements are unique to the GWDR. The requirements are:

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

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

C. Communication During SSMP Development and Implementation

The District will post a notice on its website to inform interested members of the public it is developing an SSMP. The notice is:

Estero Municipal Improvement District is developing and implementing a Sewer System Management Plan (SSMP) pursuant to State Water Resources Control Board Order WQ 2013-0058, Statewide General Discharge Requirements of Sanitary Sewer Systems. The goal of the SSMP is to minimize the frequency and severity of sanitary sewer overflows. The SSMP covers the management, planning, design, and operation and maintenance of the Districts' sanitary sewer system. The SSMP Development Plan and Schedule are available for review at 100 Lincoln Center Drive, Foster City, during normal business hours. Interested parties can contact Allen Smith at (650)286-3546 or asmith@fostercity.org for additional information.

The District will run a public service announcement on the local public access television station. The content of the announcement is:

Estero Municipal Improvement District is developing and implementing a Sewer System Management Plan (SSMP) pursuant to State Water Resources Control Board Order 2006-0003, Statewide General Discharge Requirements of Sanitary Sewer Systems. The goal of the SSMP is to minimize the frequency and severity of sanitary sewer overflows. The SSMP will cover the management, planning, design, and operation and maintenance of the Districts' sanitary sewer system. The development process started in January 2008 and it is expected to be complete by August 2008. The SSMP Development Plan and Schedule are available for review at 100 Lincoln Center Drive, Foster City, during normal business hours. Interested parties can contact Allen Smith at (650)286-3546 or asmith@fostercity.org for additional information.

D. Communicating Sanitary Sewer System Performance

The District will report the performance of its sanitary sewer system to its Board of Directors annually at a regularly scheduled meeting and the performance information will be included in the minutes of that public meeting. The performance information will include the performance indicators listed in Section IX Monitoring, Measurement, and Program Modifications and will be compiled annually.

E. Communication with Tributary/Satellite Sanitary Sewer Systems

There are no public satellite sanitary sewer systems. This requirement does not apply to the District.