CITY OF ANTIOCH

Sewer System Management Plan October 2018

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2. Organization	October 2018	
3. Legal Authority	October 2018	
4. Operation and Maintenance Program	October 2018	
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1.0 Introduction

1.1. Sewer System Management Plan

This Sewer System Management Plan (SSMP) has been prepared by the Public Works Department of the City of Antioch with the assistance of Causey Consulting, Walnut Creek, CA. It is a compendium of the policies, procedures, and activities that are included in the planning, management, operation, and maintenance of the City's sanitary sewer system.

The State Water Resources Control Board (SWRCB) has issued statewide waste discharge requirements for sanitary sewer systems, which include requirements for development of an SSMP. The State Water Board requirements are outlined in Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006 (GWDR), and Order No. WQ-2008-0002-EXEC, dated February 20, 2008, which was amended by Order No. 2013-0058-EXEC, effective September 9, 2013, which changed the Monitoring and reporting Program (MRP). This SSMP is intended to update the City's existing SSMP, in continued compliance with the GWDR.

The structure (section numbering and nomenclature) of this SSMP follows the above referenced GWDR and MRP. This SSMP is organized using the SWRCB outline of elements; and contains language taken from the GWDR at that beginning of each element. The GWDR uses the term "Enrollee" to mean each individual municipal wastewater agency that has completed and submitted the required application for coverage under the WDR (in this case, the Enrollee is the City of Antioch). The City's waste discharger identification number (WDID) in the California Integrated Water Quality System (CIWQS) is 5SSO10890.

1.2. Sanitary Sewer System Facilities

The City's wastewater collection system consists of 309.97 miles of gravity pipeline (includes 26.07 miles of approved but not yet constructed lines) one small lift station, one small force main of 321 linear feet, and 6,153 manholes and access points in the collection system. The City is also responsible for the lower sewer laterals connecting parcels to the mainline sewers and maintains approximately 163 miles of lower laterals. The City's collection system serves a population of approximately 107,100 within the City's 29 square mile service area. The service area contains approximately 31,736 parcels and 31,040 residential and commercial sewer lateral connections.

The wastewater transported through the City's collection system is discharged into the Delta Diablo ("Delta") conveyance system for final transport, treatment and disposal. The City is responsible for the gravity sewer mains and the lower lateral serving each building (when a legal clean out is present). Delta is responsible for the operation and maintenance of the sewage pumping stations located on Fulton Shipyard Road @ Wilbur Avenue, and Neroly Road @ Wilbur Avenue, as well as all force mains within the City of Antioch and the wastewater treatment facility. Finally, the City coordinates with Delta Diablo for all FOG related activities described in Element 7.

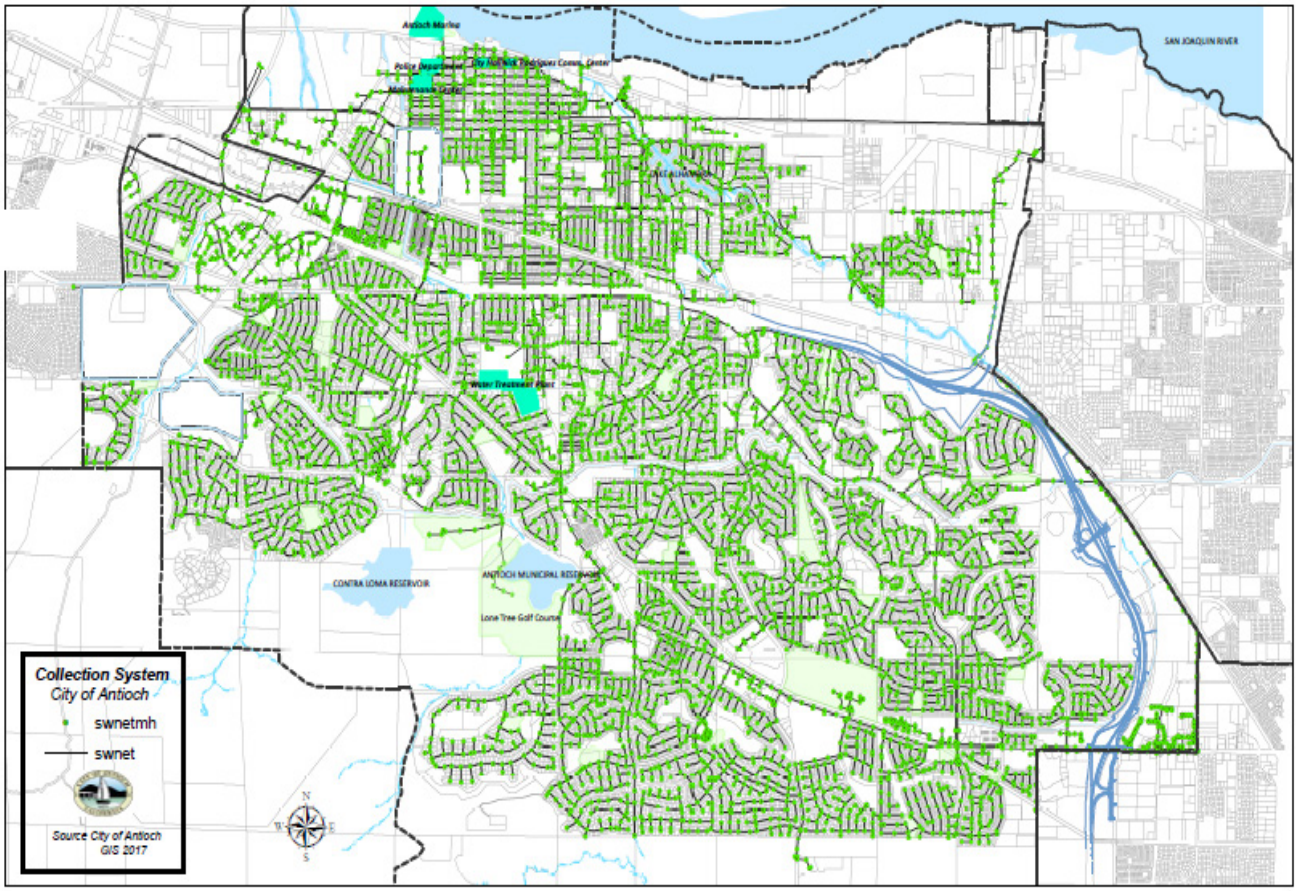
The City is required to report all sanitary sewer overflows (SSO) and reports to the California Integrated Water Quality Reporting System (CWIQS) using its unique waste discharge identification

number (WDID) issued by the State 5SSO10890. This WDID can be used by the City Council, customers or anyone interested in obtaining specific information regarding the City's record of sewer performance.

Intro Tables 1 to 3 provide specific information regarding the gravity sewer pipes maintained by the City of Antioch. In addition, the City maintains lower laterals that have installed backflow prevention devices in the lateral at City easements.

An overview map of the City's sanitary sewer system service area is displayed below.

Intro Figure 1: Antioch Sanitary Sewer System Map



Intro Table 1: Gravity Sewer System Size Distribution*

Pipe Size	Number of Pipe Segments	Pipe Length by Pipe Size	Percentage of the System
4	78	7,087	0.5
6	3035	730,330	44.6
8	2257	577,113	35.3
10	278	69,740	4.3
12	195	56,853	3.5
14	10	2013	0.1
15	89	28,043	1.7
16	9	1,761	0.1
18	140	44,881	2.8
20	6	1,271	0.1
21	54	12,947	0.9
24	32	8,605	0.6
33	106	33,151	2.0
36	10	2,882	0.2
42	3	699	0.1
48	5	1,185	0.1
Unknown	91	58,081	3.5
Totals	6,398	1,636,642	100.0
Total, miles		**309.97**	

Intro Table 2: Sewer System Materials of Construction

Pipe Material	Number of Pipe Segments	Pipe Length by Pipe Size	Percentage of the System
ACP	23	6,323	0.4
DIP	56	7,784	0.4
PVC	280	49,755	3.1
RCP	33	9,188	0.5
VCP	5,774	1,501,032	91.7
Unknown	144	57,959	3.5
Other	20	4,601	0.3
Total	6,398	1,636,642	100.1
Totals, miles		**309.97**	

Intro Table 3: Inventory of Sewer Lines by Pipe Age

Period of Construction	Percentage of the System	Pipe Length, Linear Feet
2000 – current	16	263,513
1980 – 1999	56	918,086
1960 – 1979	26	426,254
1940 – 1959	2	32,789
1920 - 1939	0	0
1900 - 1919	0	0
Totals	100	1,636,642
Totals, miles		**309.97**

Reference: CIWQS sewers
September 2017

2.0 Definitions, Acronyms, and Abbreviations

Asbestos Cement Pipe (ACP)

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.

Building Lateral – see Private Sewer lateral

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 February 14, 2007 in Region 9.

Capital Improvement Plan (CIP)

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

Cast Iron Pipe (CI)

City

Refers to the City of Antioch

Closed Circuit Television (CCTV)

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

Computerized Maintenance Management System (CMMS)

Refers to the Lucity computerized maintenance management system that is used by the City to plan, dispatch, and record the work on its sanitary sewer system.

Delta

Refers to the Delta Diablo a California Special District responsible for regional sewage treatment formally Delta Diablo Sanitation District.

Ductile Iron Pipe (DIP)

Division of Water Quality (DWQ)

Refers to the State of California Division of Water Quality of the State Water Resources Control Board.

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.

Feet per sec (fps)

First Responder

Refers to the field crew or the On-Call personnel that are the City's initial response to an SSO event or other sewer system event.

Fiscal Year (FY)

Means a 12-month periods beginning July 1st and ending June 30th.

Food Service Establishment (FSE)

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

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 5/2/2006.

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.

Global Positioning System (GPS)

Refers to a field device it that is recommended to determine the longitude and latitude of sanitary sewer overflows for use in meeting CIWQS reporting requirements.

Gallons per Day (GPD)

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.

Infiltration/Inflow (I/I)

Refers to water that enters the sanitary sewer system from storm water and groundwater.

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 Private Sewer Lateral

Legally Responsible Official (LRO)

Person(s) formally designated by an agency to be responsible for formal reporting and certifying of all reports submitted to the CIWQS.

Lift Station (LS)

A facility that transmits and lifts sewage into the City gravity sanitary sewer collection system

Lower Lateral

That portion of a private sewer lateral from the City mainline lateral connection to the property line or cleanout at the property line**.**

Manhole (MH)

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

Mainline Sewer

Refers to City wastewater collection system piping that is not a private lateral connection to a user.

Monitoring, Measurement, and Plan Modifications (MMPM)

Monitoring and Reporting Program (MRP)

State Water Resources Control Board WQ 2013-0058-EXEC effective September 9, 2013.

Municipal Separate Storm Sewer System (MS4)

National Association of Sewer Service Companies (NASSCO)

Refers to the national association responsible for the North American Standards for pipeline, manhole and lateral defect identification and assessment.

Notification of an SSO

Refers to the time at which the City becomes aware of an SSO event through observation or notification by the public or other source.

Nuisance

California Water Code section 13050, subdivision (m), defines nuisance as anything that meets all of the following requirements:

Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.

Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

Occurs during, or as a result of, the treatment or disposal of wastes.

Office of Emergency Services (OES)

Refers to the California State Office of Emergency Services.

Operations and Maintenance (O&M)

Overflow Emergency Response Plan (OERP)

Pipeline Assessment and Certification Program (PACP)

Refers to the NASSCO certification program that is used for the evaluation and condition assessment of sewer lines and appurtenances from closed circuit televising of the lines and appurtenances.

Polyvinylchloride Pipe (PVC)

Preventive Maintenance (PM)

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

Private Sewer Lateral (PSL)

That portion of a private property's building sewer as defined by the plumbing code, and is further defined as the piping of a drainage system that extends from the end of the building drain to the public sewer which includes the connection to the public sewer.

Private Lateral Sewage Discharges (PLSD)

Sewage discharges that are caused by blockages or other problems within a privately-owned lateral.

Property Damage Overflow

Refers to a sewer overflow or backup that damages a private property owner's premises.

Public Works (PW)

Regional Water Quality Control Board (CVRWQCB)

Refers to the Central Valley Regional Water Quality Control Board.

Reinforced Concrete Pipe (RCP)

Sanitary Sewer Backup (Backup)

A wastewater backup into a building and/or on private property caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

Sanitary Sewer Overflows (SSO)

Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include:

(i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;

(ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and

(iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

SSOs that include multiple appearance points resulting from a single cause will be considered one SSO for documentation and reporting purposes in CIWQS.

NOTE: Wastewater backups into buildings caused by a blockage or other malfunction of a building lateral that is privately owned are not SSOs.

SSO Categories:

Category 1: Discharge of untreated or partially treated wastewater of any volume resulting from a sanitary sewer system failure or flow condition that either:

Reaches surface water and/or drainage channel tributary to a surface water; or

Reached a Municipal Separate Storm Sewer System (MS4) and was not fully captured and returned to the sanitary sewer system or otherwise captured and disposed of properly.

Category 2: Discharge of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from a sanitary sewer system failure or flow condition that either:

Does not reach surface water, a drainage channel, or an MS4, or

The entire SSO discharged to the storm drain system was fully recovered and disposed of properly.

Category 3: All other discharges of untreated or partially treated wastewater resulting from a sanitary sewer system failure or flow condition.

Sanitary Sewer System or Sewer System

Refers to the sanitary sewer facilities that are owned and operated by the City of Antioch.

Sensitive Areas

Refers to areas where an SSO could result in a fish kill or pose an imminent or substantial danger to human health.

Sewer Service Lateral

Refers to the piping that conveys sewage from the building to the City's wastewater collection system.

Sewer System Management Plan (SSMP)

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, State Water Resources Control Board.

Note: The State Board is a separate entity from the Central Valley Regional Water Quality Control Board, although the two agencies are closely connected.

Supervisory Control and Data Acquisition (SCADA)

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

System Evaluation and Capacity Assurance Plan (SECAP)

Untreated or Partially Treated Wastewater

Any volume of waste discharged from the sanitary sewer system upstream of a wastewater treatment plant headworks.

Upper Lateral

Refers to that portion of a private sewer lateral from the property line to clean out at the property line to the house cleanout just outside the house mud seal.

Vitrified Clay Pipe (VCP)

Waste Discharge Identification Number (WDID)

A unique identifier assigned by the State Water Board to each Enrollee for regulatory record and data management purposes.

Water Body

Any stream, creek, river, pond, impoundment, lagoon, wetland, or bay.

Water of the State

Refers to "any surface water or groundwater, including saline waters, within the boundaries of the state." (California Water Code § 13050(e)).

Water Quality Monitoring Plan (WQMP)

Work Order (WO)

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

2.1. References

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

State Water Resources Control Board Order No. Order No. 2013-0058-EXEC, Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, September 9, 2013.

Element I: Goals

SWRCB Waste Discharge Requirement:

The goal of the Sewer System Management Plan (SSMP) is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.

I.1: SSMP Goals

The goals of the City of Antioch SSMP are:

1. To properly and safely manage, operate, and maintain all portions of the City's wastewater collection system;
2. To provide adequate capacity to convey the peak wastewater flows to the City's wastewater treatment plant. Adequate capacity, for the purposes of the SSMP, is defined as the capacity to convey the peak wastewater flows that are associated with peak wet weather flows;
3. To help minimize the frequency of SSOs;
4. To help mitigate the impacts that are associated with any SSO that may occur; and
5. To help meet all applicable regulatory notification and reporting requirements.

Element II: Organization

SWRCB Waste Discharge Requirement:

The Sewer System Management Plan (SSMP) must identify:

a. The name of the responsible or authorized representative as described in Section J of this Order.

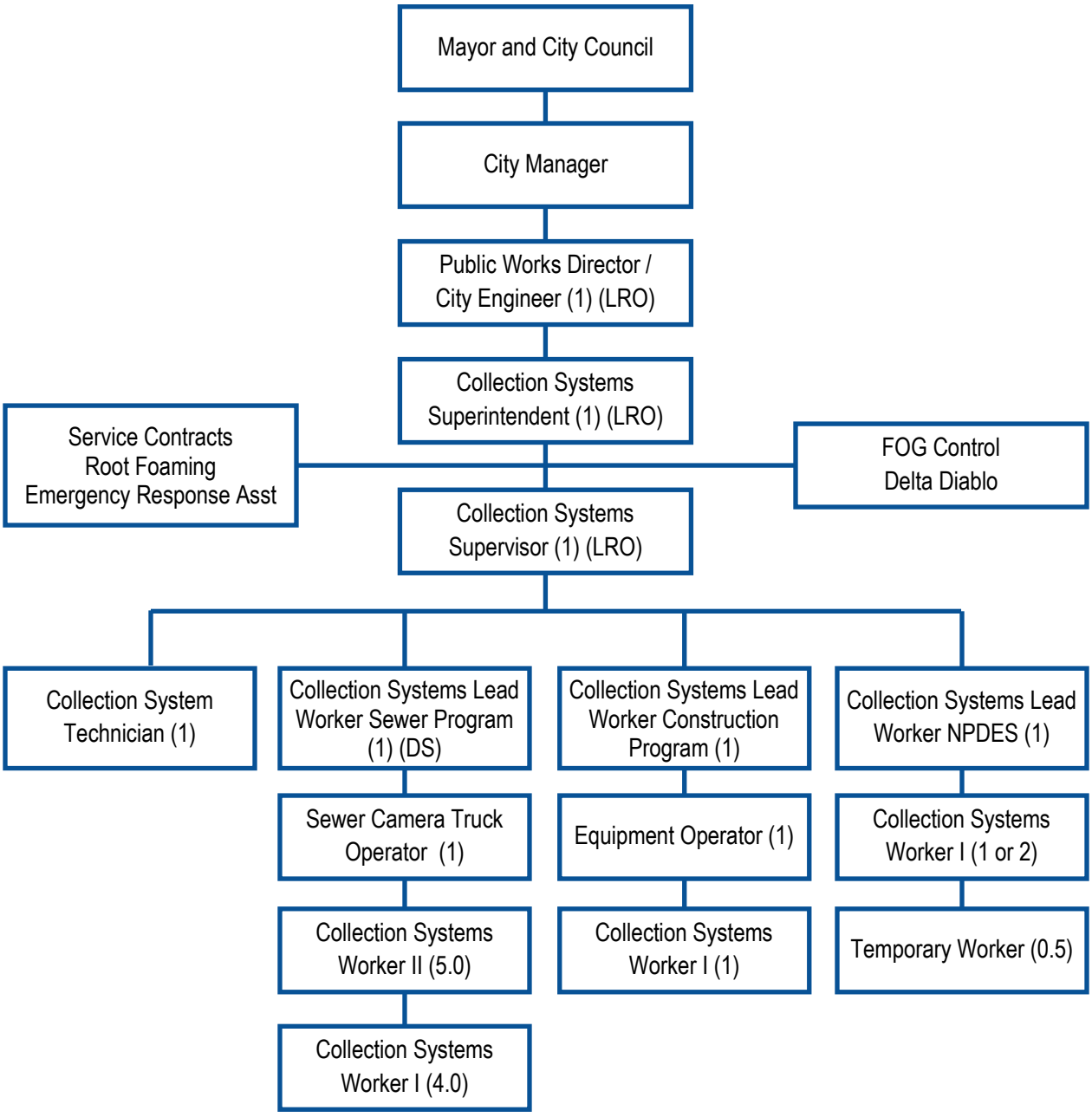
b. The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and

c. 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)).

II.1: Organizational Structure

The organization chart for the management, operation, and maintenance of the City's wastewater collection system is shown below.

Figure II - 1: Antioch Public Works Collection Systems Organization Chart



II.2: Authorized Representatives

The City's Authorized Representative in all wastewater collection system matters is the Public Works Director. He/she is authorized to submit verbal, electronic, and written spill reports to the Central Valley Regional Water Quality Control Board (RWQCB), SWRCB, Contra Costa County Health Services Agency, and OES. He/she, as one of the City's Designated LRO, is authorized to certify electronic spill reports submitted to the SWRCB through CIWQS or otherwise.

The Wastewater Superintendent is authorized to act as the City's LRO in the Public Works Director's absence. He/she is authorized to submit verbal, electronic, and written spill reports to

the Central Valley Regional Water Quality Control Board (RWQCB), SWRCB, Contra Costa County Health Services Agency, and OES. He/she is authorized to certify electronic spill reports submitted to the SWRCB.

The Collection Systems Superintendent is an LRO and is also authorized to submit verbal, electronic, and written spill reports to the RWQCB, SWRCB, Contra Costa County Health Services Agency, and OES. He/she is authorized to certify electronic spill reports submitted to the SWRCB

The Collection Systems Supervisor is an LRO and is also authorized to submit verbal, electronic, and written spill reports to the RWQCB, SWRCB, Contra Costa County Health Services Agency, and OES. He/she is authorized to certify electronic spill reports submitted to the SWRCB.

The Collection System technician and the Lead Collection Systems Worker are Data Submitters and are also authorized to submit verbal, electronic, and written spill reports to the RWQCB, SWRCB, Contra Costa County Health Services Agency, and OES.

II.3: Responsibility for SSMP Implementation and Maintenance

The Public Works Director/City Engineer has the overall responsible for developing, implementing, and maintaining the City's SSMP. The City has designated certain classifications as legally responsible officials (LRO) with the responsibility for reporting and certification of all documents and SSO reporting in CIWQS required by the WDR. In addition, other classifications are designated Data Submitters (DS) who are authorized to insert draft data into the CIWQS Online SSO Database on behalf of the City if authorized by the LRO. The City is required to notify the SWRCB within thirty (30) days of the addition or removal of any person designated as an LRO or DS.

Other City Staff responsible for developing, implementing, and maintaining specific elements of the City's SSMP, along with their job titles and contact information, are shown in Appendix 2-A and further described in the following paragraphs:

Public Works Director/City Engineer – LRO - Under general administrative direction, plans, directs, manages, and oversees the activities and operations of the Public Works Department including water treatment and distribution, wastewater collection, storm drain and channel maintenance, street maintenance, signs, striping, and street light maintenance, fleet services, parks maintenance, facilities maintenance, geographic information systems, and marina operations; engineering development, design, review and construction inspection for new development and facility expansion and improvement and utility infrastructure rehabilitation; protects and advances the City's water rights; develops and implements short and long term goals for the department; coordinates assigned activities with other departments and outside agencies; and provides highly responsible and complex administrative support to the City Manager.

Collection Systems Superintendent – LRO - Under administrative direction, directs, manages, supervises, and coordinates the activities and operations of the Collection Systems/NPDES Division within the Public Works Department including maintenance and repair of the City's wastewater and storm water systems, facilities and related equipment; ensures compliance with

state and federal regulations and requirements; coordinates assigned activities with other divisions, departments, and outside agencies; and provides highly responsible and complex administrative support to the Public Works Director.

Collection Systems Supervisor – LRO – Under direction, supervises, assigns, reviews, and participates in the work of staff responsible for the maintenance and repair of City wastewater and storm water systems, facilities and related equipment; ensures City compliance with local, state, and federal codes and regulatory requirements; ensures work quality and adherence to established policies and procedures; coordinates assigned activities with other divisions, contractors, and outside agencies; oversees projects and inspects projects for contract compliance; maintains appropriate work records including time cards and work orders; serves as technical resource for assigned work crews; and performs the more technical and complex tasks relative to assigned area of responsibility.

Collection System Technician – DS - Under general supervision, installs hardware and software and provides end-user support for personal computer systems; and assists with the administration of the data network. Is responsible for the entry of sewer system related verbal, electronic, and entry of data for spill reports to the RWQCB, SWRCB, Contra Costa County Health Services Agency, and the State of California OES database system.

Lead Collection Systems Worker – DS - Under direction, leads, oversees, reviews, and participates in the more complex and difficult work of staff responsible for performing a variety of duties involved in the maintenance, operation, and repair of the City's wastewater collection system and lift stations; operates a variety of maintenance and construction equipment including a pressurized hydro cleaner and/or sewer vacuum truck; and performs a variety of technical tasks relative to assigned areas of responsibility. When assigned to NPDES, also plans, assigns, reviews and evaluates the work of crews engaged in storm channel and storm drain maintenance activities, including: construction, maintenance and repair; oversees contract work; participates in actual work performed and performs related work as assigned.

Collection System Worker II - Under general supervision (Lead Collection Systems Worker), performs a variety of semi-skilled and skilled duties involved in the maintenance, operation, and repair of the City's wastewater collection system and lift stations; and operates a variety of maintenance and construction equipment including a pressurized hydro cleaner and/or sewer vacuum truck.

Collection System Worker I - Under general supervision of the Lead Collection System Worker performs a variety of semi-skilled and skilled duties involved in the maintenance, operation, and repair of the City's wastewater collection system and lift stations; and operates a variety of maintenance and construction equipment including a pressurized hydro cleaner and/or sewer vacuum truck.

Sewer Camera Truck Operator - Under general supervision of the Collection Systems Supervisor, directs and personally performs a variety of tasks related to the Closed-Circuit Televising (CCTV) of the City's wastewater collection and storm systems, and related appurtenances; regularly performs a variety of functions, and technical tasks relevant to CCTV

operations and responsibilities; possess the knowledge and understanding needed to use CCTV equipment and other heavy equipment, vehicles, power tools, and hand tools utilized in the televising, maintenance, cleaning and repair of the City's wastewater and storm collection system; understand the purpose, method and use of safety equipment and safe working practices and procedures and ensures adherence to safe work procedures and practices; and may serve as a crew leader.

Contractors - The City currently utilizes service contracts for root foaming and roach control and has an emergency response services contract with NorCal Pipeline when needed for emergency response assistance**.** The root control and roach control are provided by service contractors.

The Public Works Director shall have the overall responsibility for, implementing, periodically auditing, and maintaining the City's SSMP. He/she may delegate these responsibilities to his/her staff.

Other City Staff responsible for developing, implementing, and maintaining specific elements of the City's SSMP, along with their job titles and contact information, are shown in **Table II - 1**.

Table II - 1: Responsible Officials for SSMP Implementation and Maintenance

SSMP Element	Legally Responsible Official	Name	Phone Number	Email Address
Introduction	Director/City Engineer	Jon Blank	925-779-6953	jblank@ci.antioch.ca.us
I – Goals	Director/City Engineer	Jon Blank	925-779-6953	jblank@ci.antioch.ca.us
II – Organization	Director/City Engineer	Jon Blank	925-779-6953	jblank@ci.antioch.ca.us
III – Legal Authority	City Attorney	Derek Cole	925-779-7015	dcole@ci.antioch.ca.us
IV – O&M Program	Collection System Superintendent	Jeff Cook	925-779-6953	Jcook@ci.antioch.ca.us
V – Design & Performance Provisions	Director/City Engineer	Jon Blank	925-779-6953	jblank@ci.antioch.ca.us
VI – Overflow Emergency Response Program	Collection System Superintendent	Jeff Cook	925-779-6962	jcook@ci.antioch.ca.us

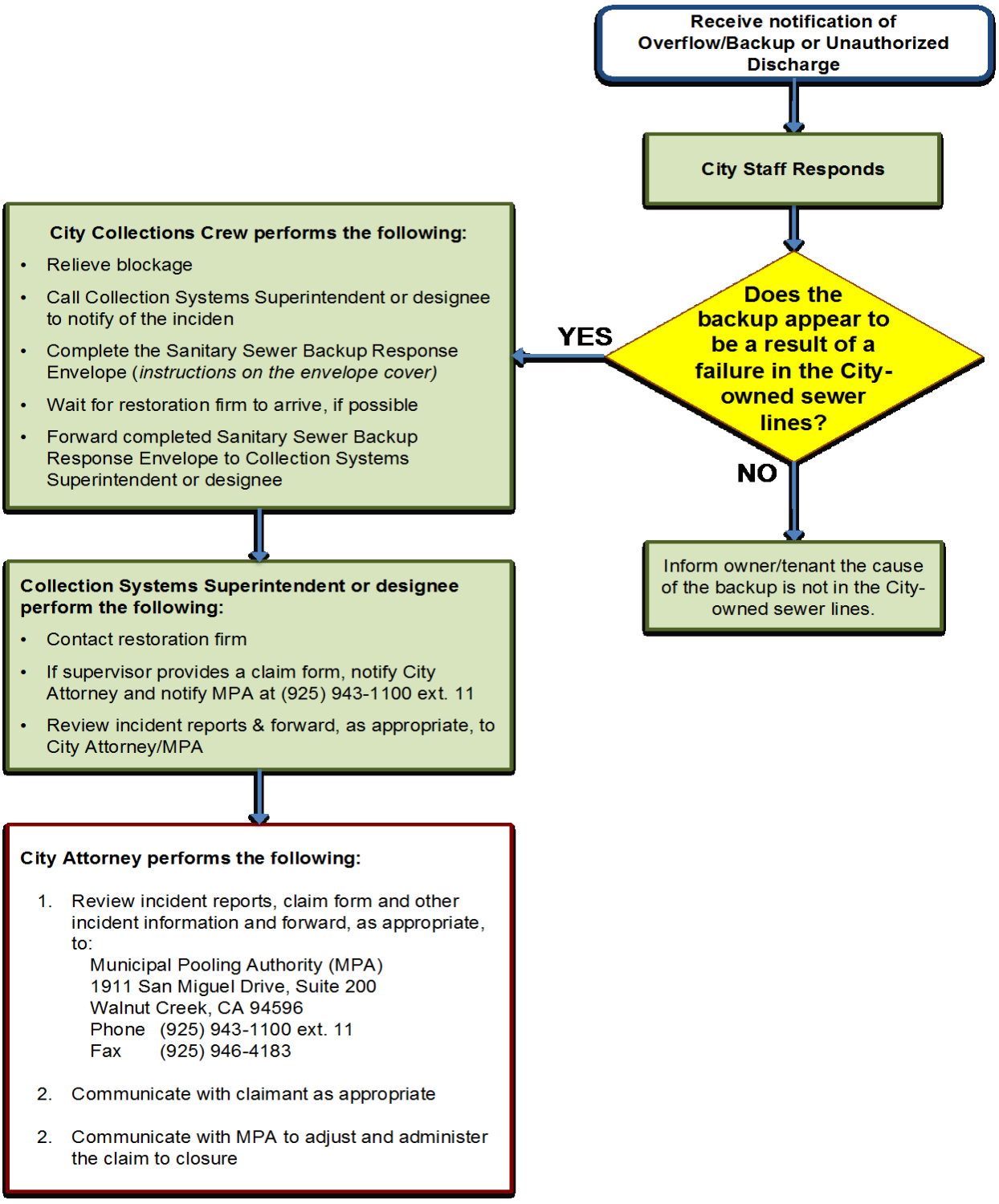
SSMP Element	Legally Responsible Official	Name	Phone Number	Email Address
VII – FOG Control Program	City Clean Water Program Delta	Julie Haas-Wajdowicz Darrell Cain	925-779+7097 925-756-1915	darrellc@deltadiablo.org
VIII – System Evaluation and Capacity Assurance Plan	Collection Systems Superintendent	Jeff Cook	925-779-6962	jcook@ci.antioch.ca.us
IX – Monitoring, Measurement, and Program Modifications	Collection Systems Superintendent	Jeff Cook	925-779-6962	jcook@ci.antioch.ca.us
X – SSMP Program Audits	Collection Systems Superintendent	Jeff Cook	925-779-6962	jcook@ci.antioch.ca.us
XI Communication	Collection Systems Superintendent	Jeff Cook	925-779-6962	jcook@ci.antioch.ca.us
Appendix A – SSMP Adoption Documents	Director/City Engineer	Jon Blank	925-779-6953	jblank@ci.antioch.ca.us
Appendix B – SSMP Change Log	Collection Systems Superintendent	Jeff Cook	925-779-6962	jcook@ci.antioch.ca.us
Appendix C – SSMP Audit Reports	Collection Systems Superintendent	Jeff Cook	925-779-6962	jcook@ci.antioch.ca.us
Appendix D – Overflow Emergency Response Plan	Collection Systems Superintendent	Jeff Cook	925-779-6962	jcook@ci.antioch.ca.us

SSMP Element	Legally Responsible Official	Name	Phone Number	Email Address
Appendix E – Water Quality Monitoring Plan	Collection Systems Superintendent	Jeff Cook	925-779-6962	jcook@ci.antioch.ca.us

II.4: SSO Reporting Chain of Communication

The SSO Reporting Chain of Command follows the Organization Chart shown above in

Figure II - 1: Antioch Public Works Collection Systems Organization Chart. The SSO reporting process and responsibilities are described in detail in the Overflow Emergency Response Plan.



Element III: Legal Authority

SWRCB Waste Discharge Requirement:

Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

Prevent illicit discharges into its sanitary sewer system (examples may include I/I, stormwater, chemical dumping, unauthorized debris and cut roots, etc.);

Require that sewers and connections be properly designed and constructed;

Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;

Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and enforce any violation of its sewer ordinances.

III.1: Municipal Code

The Antioch Municipal Code describes the City's current legal authority required for compliance with the GWDR. That authority is specifically contained within the District Code Titles and Sections that are summarized below in Table III-1.

In addition, the City works cooperatively with Delta Diablo (Delta) on all FOG Program elements and coordinates all FOG program requirements in conjunction with the District's most current Delta Code. The critical references to the District Code provide additional authorities for the administration of the Program. The City will continue to coordinate with Delta to provide the legal authority to permit, inspect and enforce FOG producing facilities within the City's service area.

Table III - 1: Summary of Legal Authorities

Requirements	Code References Antioch Municipal Code (AMC) Delta District Code (DD)
General	
Prevent illicit discharges into the wastewater collection system	AMC 6-4.108; DD 2.28.065
Limit the discharge of fats, oils, and grease and other debris that may cause blockages	AMC 6-4.109; DD 2.28.650

Requirements	Code References Antioch Municipal Code (AMC) Delta District Code (DD)
Require that sewers and connections be properly designed and constructed	AMC 9-4.605
Require proper installation, testing, and inspection of new and rehabilitated sewers	AMC 9.4-702
Laterals	
Clearly define City responsibility	COA Construction Details/ Sewer Lateral Cleanout Letter
Ensure access for maintenance, inspection, or repairs for portions of the service lateral owned or maintained by the City	AMC 6-4.115
Control infiltration and inflow (I/I) from private service laterals	AMC 9-4.2009(A)
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	AMC 6-4.103; 6-4.112; 8-5.01; DD 2.28.650; 655; .660
Authority to inspect grease producing facilities	AMC6-4.115; DD 2.28.350
Enforcement	
Enforce any violation of its sewer ordinances	AMC 1-2.07; 5-1.103; 5-1.201; 6-4.210; DD 2.28.430 to .510 and .665

Element IV: Operations and Maintenance Program

WRCB Waste Discharge Requirement:

The Sewer System Management Plan (SSMP) must include those elements listed below that are appropriate and applicable to the Enrollee's system:

a. 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 stormwater conveyance facilities;

b. 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 Preventive Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;

c. 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;

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

IV.1: Collection System Mapping

The City has a Geographical Information System (GIS) that includes the information for its wastewater collection system assets including gravity line segments, manholes, pumping facilities, and force mains. The City also has information in its GIS for its storm drainage system. The GIS information is available to appropriate City staff.

The field crews can use hard copy maps or GIS on an IPAD in the future of both the sanitary sewer system and storm drainage system assets produced using the GIS. A process exists for GIS updates and corrections that are initiated by the field crews to ensure up-to-date and accurate information.

GIS updates and corrections are incorporated from record drawings, corrections from crews based on field observation and repairs, development plans, and CIP information/projects.

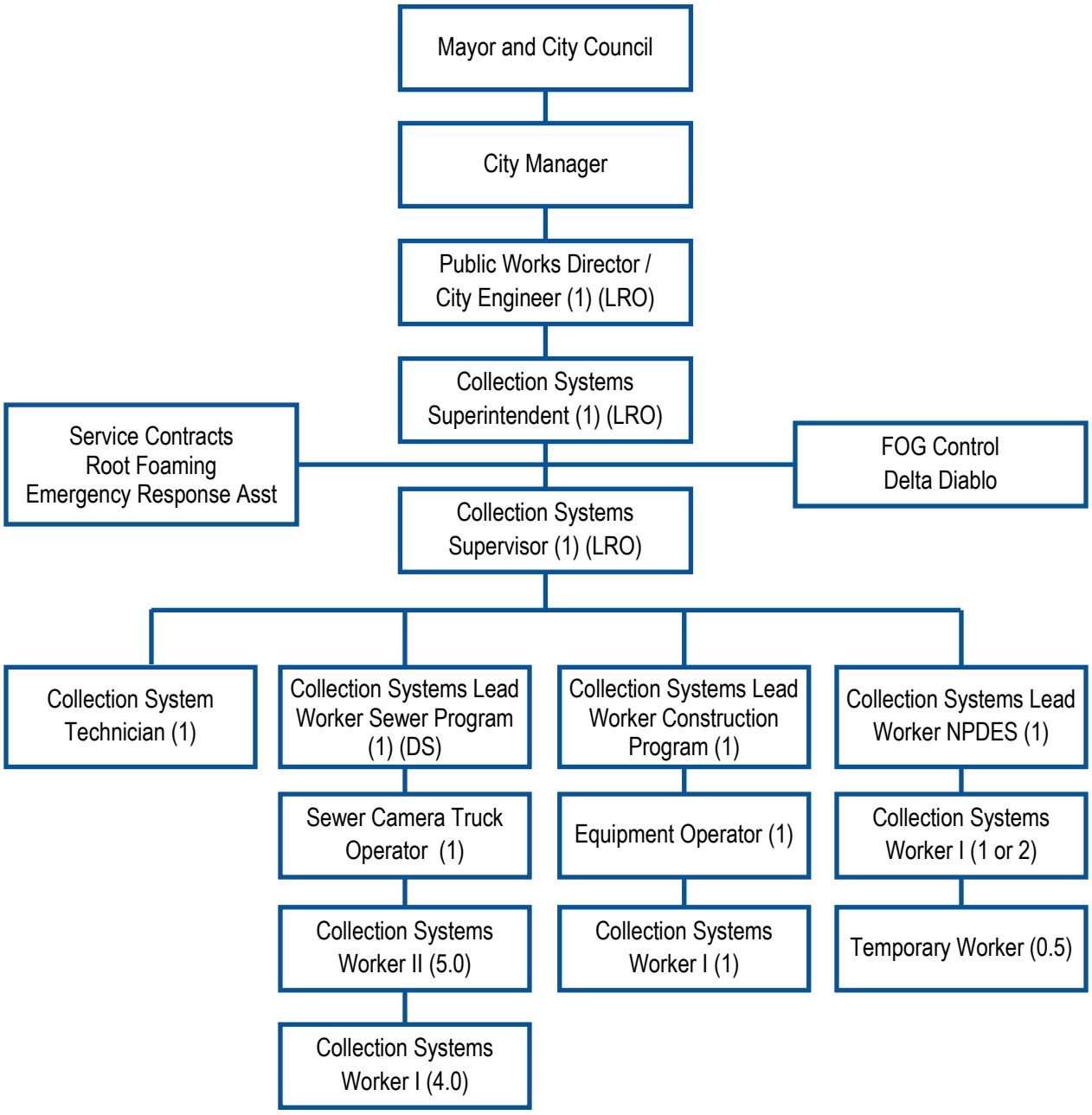
IV.2: Preventive Operation and Maintenance

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

- Proactive, preventive, and corrective maintenance of gravity sewers and lower laterals;
- Ongoing CCTV inspection program to determine the condition of the gravity sewers;
- Rehabilitation and replacement of sewers that are in poor condition; and
- Periodic inspection and preventive maintenance for the lift stations and force mains.

The collection system organization chart for implementing the City's O&M program is shown below in **Figure IV - 1: Antioch Public Works Department Organization Chart**. The details of the program are explained following the chart.

Figure IV - 1: Antioch Public Works Department Organization Chart



IV.2.1: Gravity Sewers

The City proactively cleans all sewer pipelines smaller than 24 inches at least every three years. The City also preventively cleans sewers with a history of problems ("hot spots") every 3, 6, 9 and 12 months. Approximately 4% of the system is currently included in the hot spot cleaning program. All cleaning operations rate the results of the cleaning effort using Appendix 4-A, Criteria for Rating Cleaning Results to evaluate the materials that are removed from the cleaning operation. Large diameter pipelines 24 inches and larger are cleaned by City crews or by contract as needed. The City targets cleaning operations to return any pipe to 90% of original capacity.

Table IV - 1: Historical Line Cleaning Summary provides the hot spot pipe cleaning information of all pipes included in the program as of December 2014. Pipes are added to the hot spot cleaning program based upon results of the cleaning operations that have identified fats, oils, or grease as a problem, results of CCTV inspections, or as a result of an SSO that is caused by FOG. The pipe segments remains on the hot spot list until three successive cleaning results are clear or light as defined in the Appendix 4-A.

Table IV - 1: Historical Line Cleaning Summary

Calendar Year	Pipeline Cleaning, Linear Feet	Collection System Linear Feet of Pipe	Percentage of System
2012	708,585	1,639,440	43.22
2013	665,852	1,639,440	40.61
2014	644,224	1,639,440	39.30
2015	602,639	1,639,440	36.76
2016	1089679	1,636,272	66.6
2017	1,273,257	1,636,272	77.8
Total	4,984,236	1,636,272	304.6
Annual Average	**648,902**	**N/A**	**N/A**

The City also conducts more frequent cleaning on lines segments that have been determined to require a higher frequency of cleaning. All lines that are considered high frequency are cleaned on a quarterly basis. Summary statistics for the high frequency lines are shown in

Table IV - 2: High Frequency Cleaning Mainlines below.

Table IV - 2: High Frequency Cleaning Mainlines

High Frequency Lines Cleaning Frequency, months	Number of Pipe Segments	Total Length of Pipe per Frequency, linear feet	Total Annual Pipe Cleaning, Linear Feet
Quarterly	289	70,679	282,716
Totals	289	70,679	282,716

The City conducts inspections and condition assessment of all manholes in the system at least every three (3) years. The manholes are assessed using the MACP condition rating criteria by

NASSCO. These ratings result in the development of necessary improvements and prioritized capital renewal and replacement in the five-year capital program.

The City is responsible for the operations and maintenance of the lower laterals that connect to the private upper lateral from residences and buildings. Maintenance of the lower laterals includes CCTV, root cutting, and replacement during main line sewer projects.

The City has one closed circuit television ("CCTV") inspection crew to proactively inspect its wastewater collection system facilities; to investigate the causes of stoppages and SSOs; and to support the Capital Improvement Program condition assessment.

The City has already inspected and televised all gravity sewer main lines that are equal to or less than 10 inches in diameter within approximately the last 10 years. Within five (5) years of 2013, for the approximately 25 miles of gravity sewer main lines that lie within two hundred (200) feet of water bodies (defined as "any stream, creek, river, pond, impoundment, lagoon, wetland, or bay" and not including storm drainage channels), the City will inspect and CCTV the City's gravity sewer main lines exceeding 10 inches in diameter, not including force mains, and to grade all 25 miles of gravity sewer main lines of all sizes. Grading will be done using a Pipeline Assessment and Certification Program ("PACP") rating scale by NASSCO. The City will be establishing return frequencies for CCTV assessments prior to the next SSMP Audit and will utilize the Decision Matrix for CCTV Return Frequency based upon PACP Rating System attached in Appendix IV-G below.

The City has one sewer repair crew to correct minor problems identified by the CCTV or sewer cleaning crews. Repairs are completed in priority order. Significantly defective gravity sewer main lines (having received a rating of 4 or 5 on the PACP rating scale) located within 200 feet of water bodies or of areas designated as critical habitat for endangered species will be given higher priority for repair and replacement than other sewer main lines in the City with comparable defects located more than 200 feet from surface waters. Major repairs are contracted to private contractors when the repair or replacement is beyond the capabilities of the City construction crew.

The City has also identified one crew with responsibility for responding to issues related to lower laterals for operations, maintenance and renewal of these assets. The City estimates that there are approximately163 miles of lower laterals.

The City conducts visual inspections of its wastewater collection system facilities during significant storm events. These facilities include sewers with known hydraulic limitations; pump stations, siphons, and creek crossings.

The wastewater collection system staff maintains a list of known structural deficiencies. This list is maintained in priority order based upon the PACP Quick Rating System. High priority structural deficiencies are repaired as soon as possible by the City's sewer repair crew or by an outside contractor on an as-needed basis.

In the course of completion of the televising and grading activities described above, the City will repair or replace, as needed, the gravity sewer main lines determined to be a grade of 5 within two

(2) years of that determination and within four (4) years of determination of a grade of 4. With respect to sewer main lines that receive a grade of 3 based on the PACP rating system, the City will ascertain whether such lines need to be repaired and will use similar priority ranking to that described above.

The City will CCTV all gravity sewer main lines, except force mains by 2023, except for those sewer main lines that have undergone a CCTV inspection in the last ten (10) years and except for sewer main lines that were constructed, replaced, or repaired in the last twenty (20) years based upon the decision flow chart in Appendix 4-F.

The City uses its Lucity CMMS to track complaints, plan work, initiate work orders, and document completed work. Lucity provides hardcopy work orders for the crews and persons responding to complaints. These work orders, when completed, are entered into the Lucity system for future management reporting as necessary. In the future, the City will be exploring the use of laptop or IPAD applications that may assist with the recording of data from both maintenance and emergency responses.

The City is currently developing standard operating procedures for collection system equipment and expects that these will be completed in the next twelve months.

IV.2.2: Pump Stations and Force Mains

The pump station and force main asset information is shown in **Table IV - 3: Summary of Pump Stations and**

Table IV - 4: Summary of Force Main Assets

The City has a program of regularly scheduled inspections and maintenance for the pump stations that it operates and maintains. A copy of the Marina Pump Station Inspection/Maintenance Checklist Form is included in Appendix IV-E. In addition, the City annually does a comprehensive condition assessment of the entire pump station facility and force main system utilizing the Lift Station Condition Assessment Checklist attached in Appendix 4-F. The City regularly inspects the force main alignment for evidence of force main failures and inspects the discharge manhole for any signs of corrosion as the flow exits the force main.

The preventive maintenance program consists of monthly inspection and cleaning and major maintenance as required.

Table IV - 3: Summary of Pump Stations

Pump Station Name	Location	No. Pumps	Pump HP/each	Pump Manufacturer	Design Flow, gpm	Standby Generation, KW
Marina	5 Marina Place	2	2	Ebarra	20-180	None

Table IV - 4: Summary of Force Main Assets

Pump Station Name	Force Main Asset Information			
	Installed	Length	Size	Material
	Date	Linear Feet	Inches	
Marina	1988	321	4	PVC

IV.2.3: 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 received by the Public Works Department are investigated and appropriate actions are taken to resolve the source of the problem. All complaints are logged in the Lucity system including the final disposition of the complaint as required by the WDR.

IV.2.4: Private Sewer Laterals

The City staff on December 16, 2014 presented to the City Council an ordinance clearly defining lateral responsibilities and possibly establishing a program for the mandatory inspection and/or repair of privately-owned sewer laterals. The City Council at that time tabled the matter indicating that for the matter to be reconsidered it would require an affirmative vote of the City Council for reconsideration.

IV.2.5: Root Foaming

The City annually contracts for the root foaming of certain segments of pipes that are known to have root intrusion problems. These activities usually involve the cutting of the roots and then 2 or 3 months later, the application of the root foam as the roots begin to emerge. This activity has been shown to be a positive addition to the overall maintenance program and will continue as long as it is an effective tool for the management of roots in the collection system.

IV.2.6: Rehabilitation and Replacement Program

The City has an ongoing sewer rehabilitation and replacement program to address the portions of its wastewater collection system where conditions warrant. The projects that are included in the City's Five-Year Capital Improvement Program (CIP) are shown in Appendix 4-B. Projects are included in the CIP based upon prioritization from the CCTV condition assessment and based upon input from the field crews that have identified problem areas from the cleaning operations. Additionally, the City's 2014 Wastewater Collection System Master Plan develops and discusses philosophy for the renewal and replacement of the City's sewer pipelines. The report identifies a current potential backlog of $6.5 million for pipes that have already exceeded their design useful lives. The report also identifies long-term renewal and replacement needs of between $1.4 and $1.7 million per year for the next twenty (20) years. The Master Plan further states the need for a

more defined CCTV program to more closely match the renewal needs with the actual condition and field inspection results

IV.2.7: Training Program

IV.2.7-1: City Staff

The City uses a combination of in-house classes; equipment manufacturer training; on the job training (including periodic rotation); and conferences, seminars, and other training opportunities to train its wastewater collection system staff. Recurring training opportunities are shown on in the table below.

Table IV - 5: Training Opportunities

Sponsor	Event	Timeframe	References
California Water Environment Association	Annual Conference	April	www.cwea.org
	Northern Regional Training Conference	September	
	Northern Regional Safety Training	October	
	Bay Area Collection Systems Committee	Monthly/Quarterly	
	Specialty Conferences	Periodic	
Tri-State Conference	Annual Conference	September	www.tristateseminar.com
Water Environment Federation	Collection System Specialty Conference	Spring	http://www.wef.org/ConferencesTraining/ConferencesEvents/CollectionSystems/
California State University, Sacramento	Methods for Evaluating and Improving Collection System Performance		http://www.gateway.calstate.edu/extension/professional_development.cfm

Sponsor	Event	Timeframe	References
City of Antioch	SSMP and OERP Training with field exercises	Annual or as needed to assure compliance	Antioch Sewer System Management Plan
California State University, Sacramento	Videos, manuals, home study courses	www.owp.csus.edu	California State University, Sacramento
City of Antioch	Tailgate and safety sessions and employee on the job mentoring.		City of Antioch

IV.2.7-2: Training Resources (Materials)

Annually the City conducts training for all collection system employees on the SSMP including Element 6, Overflow Emergency Response Plan. This training may include classroom training and/or field exercises on volume estimation and overflow containment procedures. Finally, the City subsequent to a large SSO will conduct debriefings and training based upon the results and findings of the SSO debrief and failure analysis conducted pursuant to Element 6. It is anticipated that annually each employee should receive approximately 40 hours of collection system training as well as field mentoring from long term employees.

The City requires its wastewater collection system employees in the position of Collection Systems Operator I or higher to be certified in Collection System Maintenance by the California Water Environment Association. The certification process requires employees to demonstrate that they have participated in 12 hours of training every two years in order to renew their certificates.

IV.2.7-3: Contractors for City Projects

The City's contract language requires contractors working in or near the wastewater collection system to provide emergency response training for their employees. The City standard specifications will in the future require that contractors provide an acceptable emergency response plan or certify that their plan is at least as detailed as the City OERP. In addition, all preconstruction and monthly progress meetings with contractors include discussion of emergency response procedures and requirements.

IV.2.8: Equipment and Replacement Parts

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

The City has developed a Critical Replacement Parts List and a Replacement Parts Inventory procedure. The Critical Sewer System Replacement Parts Inventory is included as Appendix 4-D.

IV.3: Element VI – Appendices

IV.3.1: Appendix 4-A Criteria for Rating Cleaning Results

	Clear	Light	Moderate	Heavy
Debris	Code: **CL** ▪ No observable debris	Code: **DL** ▪ Minor amount of debris ▪ 15 minutes or less to clean ▪ 1 pass	Code: **DM** ▪ Less than 5 gallons of debris per line segment ▪ 15-30 minutes to clean ▪ 2-3 passes	Code: **DH** ▪ More than 5 gallons of debris per line segment ▪ More than 30 minutes to clean ▪ More than 4 passes ▪ Operator concern for future stoppage
Grease	Code: **GL** ▪ No observable grease	Code: **GL** ▪ Minor amount of grease ▪ 15 minutes or less to clean ▪ 1 pass	Code: **GM** ▪ Small "chunks" ▪ No "logs" ▪ 15-30 minutes to clean ▪ 2-3 passes	Code: **GH** ▪ Big "chunks" or "logs" ▪ More than 30 minutes to clean ▪ More than 4 passes ▪ Operator concern for future stoppage
Roots	Code: **CL** ▪ No observable roots	Code: **RL** ▪ Minor amount of roots ▪ 15 minutes or less to clean ▪ 1 pass	Code: **RM** ▪ Thin stringy roots ▪ No "clumps" ▪ 15-30 minutes to clean ▪ 2-3 passes	Code: **RH** ▪ Thick roots ▪ Large "clumps" ▪ More than 30 minutes to clean ▪ More than 4 passes ▪ Operator concern for future stoppage
Other: Pipe wall fragments Soil / Dirt / Rock	Code: **CL** ▪ No observable materials	Code: **OL** ▪ Specify material (if possible) ▪ Minor amount of material	Code: **OM** ▪ Specify material ▪ Less than 5 gallons of material per line segment	Code: **OH** ▪ Specify material ▪ More than 5 gallons of material per line segment ▪ Operator concern for future stoppage
This table was adapted from *Best Practices Manual: Hydroflush Cleaning of Small Diameter Sewers,* California Collection System Collaborative Benchmarking Group, February 2001.				

IV.3.2: Appendix 4-B: Rehabilitation and Replacement Program

Project Number	Project Title	FY 2018/19	FY 2019/20	FY 2019/20	FY 2020/21	FY 21/22
7724	Sewer Mains Improvement Program	150	150	150	150	150
7736	Sewer Facility Rehabilitation Program	0	150	150	150	150
7745	Northeast Antioch Annexation Infrastructure Improvements	2500	0	0	0	0

Project Number	Project Title	FY 2018/19	FY 2019/20	FY 2019/20	FY 2020/21	FY 21/22
7723	Sewer Main Trenchless Rehabilitation	800	200	200	200	200
Annual Totals		**3450**	**500**	**500**	**500**	**500**
Notes: All budget values in $1,000 **Figures from COA Capital Improvement Program June 2018**						

IV.3.3: Appendix 4-C: Major Sewer System Equipment Inventory

Inventory Date: July 2018

Inventory/Condition Checked by: Jeff Cook

Equipment Number	Major Equipment Type	Year Purchased
101	Hydroflush Truck	2012
107	Combination Hydroflush Truck	2016
697	Combination Hydroflush Truck	2011
106	Ford F350 4x4 with lift gate	2017
109	Ford F150 4x4	2016
104	CCTV Inspection Truck	2014
102, 103	Ford F-350 Utility Truck with Boom	2012, 2015
677	Ford F-550 Flat Bed Truck with Boom	2000
691	Ford F-750 Bobtail Dump Truck	2003
112	Caterpillar 430DF Backhoe	2016
684	Caterpillar 924G Front Loader	2001
988	Godwin 8” Trailer-Mounted Pump	2000
989	Godwin 4” Trailer-Mounted Pump	2000
990	Pipe Trailer with Pipe and Fittings	2002
974/987	Light Trailer with Generator (2)	2000
966	Trailer Mounted Compressor	1997
11, 13, 17	Diesel Whacker DS70 Soil Compactor (3)	2011
N/A	MSA Altair 5X Air Monitor (4)	2011
N/A	MSA Airhawk II Self Contained Breathing Apparatus (2)	2012
N/A	5000watt Dayton Generator	N/A

Equipment Number	Major Equipment Type	Year Purchased
N/A	6000 E Onan Generator	N/A
N/A	EG 2200 Honda Generator	N/A
105	F250 Spray Truck	2017
257	John Deere Tractor	1998
382	F350 Super Diesel Utility Truck	2001

IV.3.4: Appendix 4-D: Critical Sewer System Replacement Parts Inventory
Inventory Date: July 2018
Inventory/Condition Checked by: John Adams

Part Description	Quantity in Inventory	Location
VCP Pipe – 4”, 6”, 8”, 21”, 36”	Various	Maintenance Yard/Central Stores
PVC Pipe – 6”, 8”, 10”, 12”	Various	Maintenance Yard/Central Stores
Ductile Iron Pipe – 4”, 6”, 8”, 10”, 12”, 16”, 18”	Various	Maintenance Yard/Central Stores
VCP, PVC, and Ductile Iron Pipe, various fittings and couplings for multiple sizes	Various	Maintenance Yard/Central Stores
Various sizes of manhole covers and rodding inlet covers	Various	Maintenance Yard/Central Stores
Pump Station parts	Various	Maintenance Yard/Central Stores
Force main parts	Various	Maintenance Yard/Central Stores
Pump Station electronic components	Various	Maintenance Yard/Central Stores

IV.3.5: Appendix 4-E Marina Pump Station Inspection/Maintenance Checklist

Marina Pump Station Facility
200 L Street, Antioch , Ca 94509

Inspection / Maintenance Check List

Inspection Date:		Inspection Performed By:	

Exterior Inspections

Security:	Ok	Notes	Safety:	Ok	Notes	Vandalism:	Ok	Notes
Access doors			Alarm Siren			Damage		
Control panels			Strobe Light			Paint		
Secured locks			Signage			Structure		
Alarm System			Confined Space Equip					
Fall Protection								
Guard Rails			Emergency Contact Data					

Controls & Instrumentation

Control Panel		Notes	Electrical		Notes	Instruments		Readings
Switches Manual / Auto	Pump1 Pump2		Wiring Cables Power-Control	Pump1 Pump2		Current Meters	Pump 1 Pump 2	
Motor Overload Tripped Reset	Pump1 Pump2		Motor Starters	Pump1 Pump2		Run Time Meters	Pump 1 Pump 2	
High level Alarm	Pump1 Pump2		Controllers	Pump1 Pump2				
Alarm System	Pump1 Pump2							

Pump Motors

Pump		Notes	Controls		Notes	Condition		Notes
Blockages	Pump1 Pump2		Float switches	1,2,3,4		Corrosion	Pump 1 Pump 2	
Vibration(s)	Pump1 Pump2		Cable(s)			Piping & Supports	Pump 1 Pump 2	
Alignment	Pump1 Pump2		Leakage			Valves	Pump 1 Pump 2	
Impeller	Pump1 Pump2							

Wet Well

Construction	Ok	Notes	Maintenance	Ok	Notes	Odors	Ok	Notes
Condition			Grease			H2S		
Corrosion			Debris			Foul		

Events

Equipment Failures Pumps Controls		Operating Problems List	Pump Power Motor		Major Maintenance Repairs	
SSO's		Alarm				

Comments:	

IV.3.6: Appendix 4-F Pump Station/Force Main Condition Assessment Checklist

Inspection Information	
Inspection date	
Inspection participants	
Facility name	
Facility address	
Comments	

Background Information (Prior 12 Months)	
SSOs	
Equipment failures	
Alarm history (attach copy)	
Major maintenance activities (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	
PS building	
Control room	
Dry well	
Wet well	
Other structures	
Comments	

Instrumentation and Controls (including SCADA Facilities)	
Control panel	
Run time meters	
Flow meter	
Wet well level	
Alarms	
SCADA	
Other instrumentation & controls	
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	
Other	
Comments	

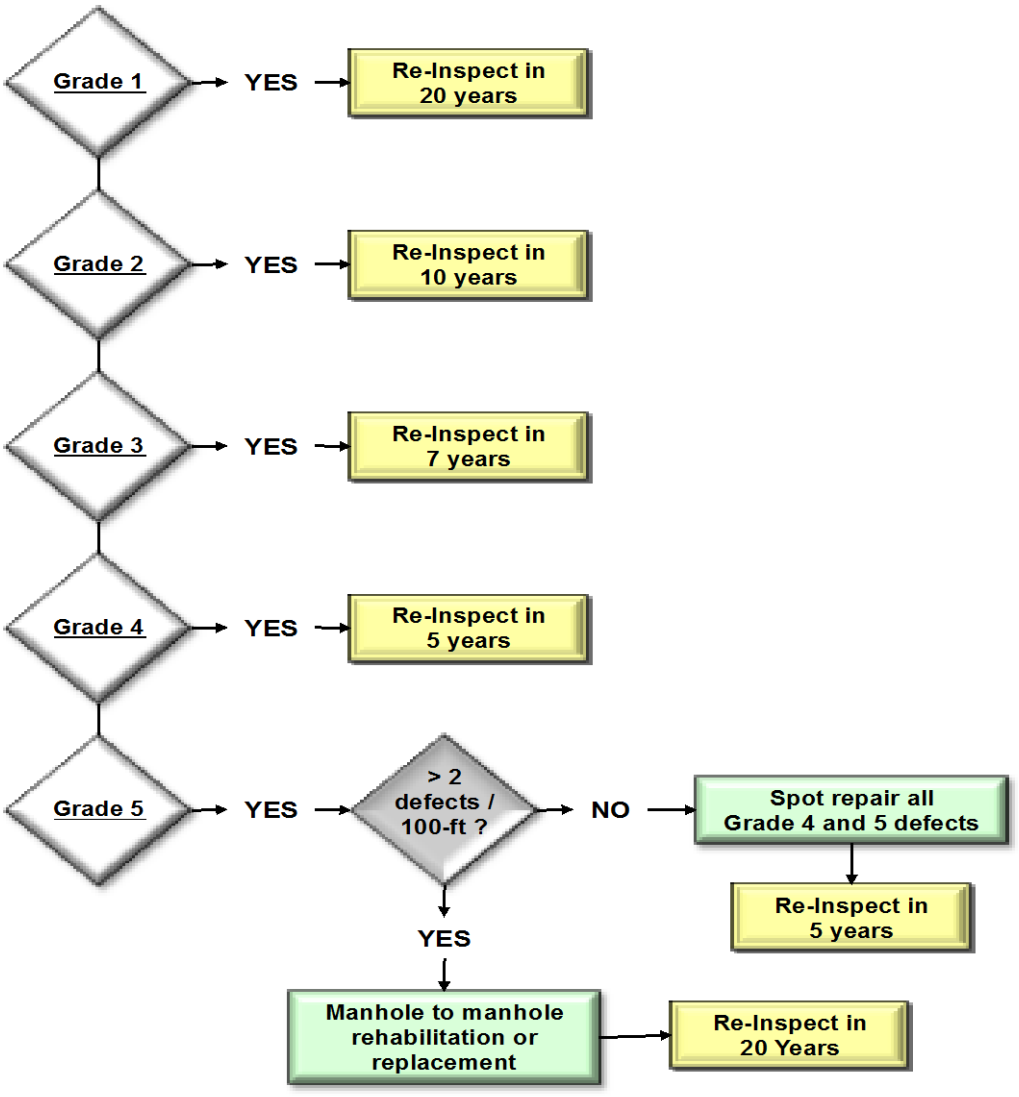
Pumps	
Lubrication	
Vibration and alignment	
Seals	
Indicated flow and discharge pressure	
Shutoff head	
Corrosion and leakage evidence	
Drive shaft	
Other	
Comments	

Valves and Piping	
Valve operation	
Valve condition	
Pipe condition	
Pipe support	
Other	
Comments	

Other	
Lighting	
Ventilation	
Support systems (air, water, etc.)	
Signage	
Employee facilities	

Other	
Sump pump	
Overhead crane	
Portable pump connections	
Portable pumps	
Comments	

IV.3.7: Appendix 4-G Decision Matrix for CCTV Return Frequency based upon PACP Rating System



Element V: Design and Performance Provisions

SWRCB Waste Discharge Requirement:

a. Design and construction standards and specifications for the installation of new sanitary sewer systems, lift 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.

V.1: Introduction

This section of the SSMP presents the City's Design and Construction Standards.

V.2: GWDR Requirements for Design and Performance Provisions Element of SSMP

The summarized requirements for the Design and Construction Standards element of the SSMP include design and construction standards and specifications for the installation of new sewer systems and for the rehabilitation and repair of existing sewer systems.

The City must also have procedures and standards for inspecting and testing the installation of new sewers, pump stations, and other appurtenances; and for rehabilitation and repair projects.

V.3: Standard Specifications for Wastewater Facilities

The City's standards pertaining to the design, construction, and inspection of gravity sewer systems, sewer force mains, and other facilities to be operated and maintained by the City are included in the current version of the Central Contra Costa Sanitary District Standard Specifications for Design and Construction (Design Standards). The intent of the Design Standards is to provide design engineers with information on the requirements and preferences for facilities to be conveyed to the City for ownership, operation, and maintenance. The Design Standards provide information on the type of facilities and equipment that are acceptable to the City. The Design Standards also cover the requirements for inspection and testing prior to acceptance by the City. Standards for the repair and rehabilitation of existing facilities are also addressed in the Design Standards.

The City has also produced a set of Construction Details dated June 2, 2014 and are available on the City website at http://www.ci.antioch.us/CityGov/CommDev/Engineering/docs/construction-Details.pdf

Element VI: Overflow Emergency Response Plan

SWRCB Waste Discharge Requirement:

Each Enrollee 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 an 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 MRP. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The Sewer System Management Plan (SSMP) 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 and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to 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.

Sanitary Sewer Overflow Emergency Response Plan

(ref. SWRCB Order No. 2006-0003-DWQ Element VI) (City of Antioch Overflow Emergency Response Plan by DKF Solutions Group, LLC.).

The following sections in Element VI provide the basic City philosophy and policies for the handling of all emergency overflow activities. The full OERP document is included in its entirety in Appendix D attached. In addition, the September 2013 MRP revisions requires the City to have an agency specific Water Quality Monitoring Plan (WQMP) that established City procedures for the sampling and monitoring of all overflows greater than 50 gallons or more that enter a water body as identified in the WQMP and Section 9.1 of the OERP. The complete WQMP is attached in Appendix E.

VI.1: Purpose

The purpose of the City of Antioch's Overflow Emergency Response Plan (OERP) is to support an orderly and effective response to Sanitary Sewer Overflows (SSOs). The OERP provides guidelines for City personnel to follow in responding to, cleaning up, and reporting SSOs that may occur within the City's service area. This OERP satisfies the SWRCB Statewide General Waste Discharge Requirements (GWDR), which require wastewater collection agencies to have an Overflow Emergency Response Plan.

VI.2: Policy

The City's employees are required to report all wastewater overflows found and to take the appropriate action to secure the wastewater overflow area, properly report to the appropriate regulatory agencies, relieve the cause of the overflow, and ensure that the affected area is cleaned as soon as possible to minimize health hazards to the public and protect the environment. The City's goal is to respond to SSOs as soon as possible following notification. The City will follow reporting procedures in regard to sewer spills as set forth by the Central Valley Regional Water Quality Control Board (*CVRWQCB)* and the California State Water Resources Control Board (*SWRCB)***.**

VI.3: Goals

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

- Work safely;
- Respond quickly to minimize the volume of the SSO;
- Eliminate the cause of the SSO;
- Prevent sewage system overflows or leaks from entering the storm drain system or receiving waters to the maximum extent practicable;
- Contain the spilled wastewater to the extent feasible;
- Minimize public contact with the spilled wastewater;
- Mitigate the impact of the SSO/restore flows;
- Meet the regulatory reporting requirements;
- Evaluate the causes of failure related to certain SSOs; and
- Revise response procedures resulting from the debrief and failure analysis of certain SSOs.
- Return all/portion of the flow top the sanitary sewer system.

VI.4: Authority

- Health & Safety Code Sections 5410-5416
- CA Water Code Section 13271
- Fish & Wildlife Code Sections 5650-5656
- State Water Resources Control Board Order No. 2006-0003-DWQ

- State Water Resources Control Board Order 2013-009-DWQ effective September 9, 2013

VI.5: References

- Overflow Emergency Response Plan, 2017, DKF Solutions Group, LLC (Note: all packets referred to in Appendix D are found in the Public Works Office not in the maintenance vehicles.
- Appendix A: Regulatory Notifications Packet
- Appendix B: Sanitary Sewer Backup Packet
- Appendix C: Sanitary Sewer Overflow Packet
- Appendix D: Field Sampling Kit
- Appendix E: Contractor Orientation
- Appendix F: Contact Information

Element VII: Fats, Oils, and Grease (FOG) Control Program

SWRCB Waste Discharge Requirement:

Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan 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 removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;
e. Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;
f. An identification of sanitary sewer system sections subject to FOG blockages and 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 sanitary sewer system for each section identified in (f) above.

VII.1: Introduction

This section presents the FOG Control Program for the City of Antioch. This FOG Control Program will be jointly managed, staffed, and administered by the City and Delta Diablo ("Delta") , which also runs the program in the Bay Point and Pittsburg service areas.

VII.2: Nature and Extent of FOG Problem

The City currently has approximately 225 food service establishments (FSEs) within the service area. The City has contracted with Delta to assist with the management, administration and enforcement of the FOG Source Control Program in the City of Antioch. This effort is also coordinated by Delta in the City of Pittsburg and the unincorporated area of Bay Point all within the Delta treatment plant service area. Finally, Delta also manages the industrial waste permit program in Antioch.

Data regarding the nature and extent of the FOG problems in the Antioch system was analyzed including the location of FOG-related service calls (which include blockages), FOG-related SSOs, frequent preventive maintenance, and food service establishments (FSEs). The City FOG Program results for the past six years shows a substantial reduction in FOG related overflows from 15 down to 2 in 2016.

VII.2.1: Antioch Sewer System

During the period January 2015 to September 2018, twelve (12) SSOs for during period were related to FOG. This is down from 15 in 2-12 to just 2 in 2017 and 2018 to date. Delta conducted one hundred and twenty-eight (128) FSE inspections during this same period. Inspections by Delta are only performed in areas of known FOG maintenance concerns. Therefore, the City's preventive maintenance efforts combined with the Delta's FOG Source Control Program appear to be effective in minimizing the problems associated with commercial FOG sources.

VII.2.2: Summary of FOG Data Analysis

The analysis of the SSO, FSE, and frequent maintenance lines shows that FOG is a factor in the City, but the current FOG Source Control Program and the preventive maintenance programs have been effective at reducing the frequency of SSOs in commercial areas (see **Figure IX-2 Number of Overflows by Cause**). The ongoing FOG-related problems appear to be associated with high density residential and, to a lesser extent, low-density residential sources.

VII.3: FOG Source Control Program & Inspections

Delta and the City will continue the FOG Source Control Program. The responsibilities of each agency for the elements of the FOG Source Control Program are shown below in **Table VII - 1: FOG Control Program Activities and Responsibilities**.

Table VII - 1: FOG Control Program Activities and Responsibilities

Focus	Activity	Antioch	DDSD
Commercial Sources	Focused FSE Program (permits, inspections)		X
	Administer FSE permit fees to cover program costs		X
	Inspect GRD maintenance		X
	Develop common standards for GRD	X	X
	Specify GRD size	X	
	Require installation of GRD	X	
	Inspect GRD installation	X	

Focus	Activity	Antioch	DDSD
	Identify FOG disposal sites and distribute to grease haulers		X
	Study feasibility of FOG disposal at DDSD TP		X
	Outreach to businesses		X
	Provide information re: FOG problems to District inspector(s)	X	
	Enforcement action	X	
High Density Residential Sources	Optimize sewer cleaning	X	
	Repair/replace problem sewers	X	
	Prepare outreach materials		X
	Outreach to property managers	X	
	Enforcement action	X	
Low Density Residential Sources	Optimize sewer cleaning	X	
	Repair/replace problem sewers	X	
	Prepare outreach materials		X
	Outreach to upstream residents	X	
Gather Information	Gather information for next SSMP update	X	
	Customer survey		X

VII.4: Public Outreach Program

Delta and City crews provide information on proper FOG disposal to residents that have experienced a FOG-related blockage or SSO.

Blockages and SSOs caused by FOG appear to be primarily from residential sources. Delta has prepared materials/flyers to be used for a focused public education/outreach program. Delta and the City also provide public education/outreach materials to commercial and residential sources that are tributary to sewers that experience FOG-related stoppages and SSOs. Delta maintains a

webpage for FOG with a description of the impacts of FOG to the collection system and the environment and provides the following list of tips for keeping FOG from causing blockages and overflows:

- Never pour fats, oil, or grease down sink drains or into toilets.
- Do not dispose of fats, oils, or grease in your regular garbage or trash receptacle. When cooled, put used cooking oil back into the original container for disposal.
- It doesn't matter whether you run hot water or cold water - home garbage disposals do NOT keep grease out of the plumbing system.
- If you soak a greasy pan, place a paper towel over the drain basket to catch grease and food particles as you pour the water down the drain.
- Scrape grease and food scraps from plates, pots, pans, utensils, and grills into a can or other heatproof container.
- Bring your FOG container, along with large quantities of oil from turkey fryers, to your local Household Hazardous Waste collection center for FREE disposal and recycling.

For safe disposal, bring your cooking oil and grease to the Delta Household Hazardous Waste Collection Facility

VII.5: Acceptable FOG Disposal Facilities

A list of facilities in the San Francisco Bay Area that accept grease from grease haulers is included as Appendix VII-A. The list will be provided to commercial grease haulers regularly working within the service area. Lists of grease haulers approved by the East Bay Municipal Utility District (EBMUD) and the Sacramento Regional County Sanitation District (SRCSD) are included as Appendices VII-B and VII-C.

VII.6: FOG Inspections

VII.6.1: FOG Legal Authority

The City's Municipal Code provides the legal basis for the FOG Source Control Program as shown in Section 3 – Legal Authority. In addition, Delta maintains its own legal authority for inspections and enforcement in its District Code in Sections 2.28.650 et seq.

VII.6.2: Staffing

Delta and the City provide the staffing required to administer, inspect and enforce the FOG program.

VII.6.3: Facility Inspections

Delta conducts periodic facility inspections of permitted FSEs located in identified FOG Hot Spot areas to ensure that Best Management Practices (BMPs) are being followed, that GRDs are properly installed, and that operating/maintenance requirements are being followed. The frequency of inspection is based on the historical performance of the facility. Poor performing facilities are inspected more frequently. FSEs will be inspected at least once every five years.

VII.6.4: Investigation and Enforcement

Delta and the City will work together to identify FSEs that cause FOG-related blockages or SSOs. Delta conducts facility inspections to determine the source of the FOG in these instances.

Delta and the City will initiate enforcement action against FSEs in their service areas that are determined to be in violation of the requirements of the FOG Control Program. Enforcement actions may include a verbal warning, a written warning, administrative orders (which may include fines), and possibly disconnection from the public sewer system. During the period from January 2012 through April 2017 no enforcement actions of the FOG Program regulations were found to be necessary.

VII.7: FOG Preventive Maintenance

The City's preventive maintenance programs are currently focused on the problematic sewer line segments. The ongoing identification of FOG Hot Spots provides the basis for the FOG Control Program. FOG sources that cause blockages or SSOs will be included in the FOG Control Program. The results of the sewer cleaning operations will be used to revise sewer cleaning frequencies based upon the results matrix in Element 4.

City staff will provide the Delta FOG Source Control Program Inspectors with timely notice when gravity sewers experience FOG-related blockages or SSOs.

Delta and the City will work together to update the FOG Hot Spot areas as necessary and will provide preventive maintenance for gravity sewers in their service areas that are located in the FOG Hot Spot areas at the frequency required to minimize recurring FOG-related blockages and SSOs.

VII.8: GRD Requirements

VII.8.1: Design Standards, Plan Review, and Inspection

Delta and the City have developed common specifications for the installation and sizing of GRDs. The City is responsible for reviewing proposed development plans to ensure that they address the installation of GRDs. The City has in place processes to ensure the GRDs are properly installed during new construction and remodels as part of its Code Enforcement duties.

VII.8.2: Maintenance Standards and BMPs

Delta and the City have developed common standards for the proper maintenance of GRDs. FSEs that discharge significant quantities of grease will be tracked using discharge permits administered by Delta.

Delta will encourage FSEs to employ BMPs as part of their efforts to control the discharge of FOG to the public sewer system. The BMPs that will be encouraged include:

- Posting "No Grease" signs over sinks and dishwasher;
- Collecting and recycling cooking oil;
- "Dry wiping" pots, pans, and kitchen equipment before cleaning with proper disposal of the wipes and grease;

- Maintaining/cleaning grease traps on a regular schedule;
- Checking grease interceptors on a regular schedule (grease and solids should not exceed 25% of interceptor depth);
- Using absorbent paper under fryer baskets;
- Using absorbent (such a rice hulls, cat litter) to pick up oil and grease spills; and
- Not using emulsifiers or solvents other than dishwashing detergents.

Delta activities will include the distribution of placards and literature promoting the use of BMPs and observations/comments will be provided during facility inspections to encourage the use of BMPs.

VII.8.3: Record Keeping and Reporting

Delta and the City work together to update the list of FSEs in each service area.

VII.9: Element VII – Appendices

VII.9.1: Appendix VII-A – FOG Disposal Sites

The City understands that the following locations accept grease from liquid waste haulers in the San Francisco Bay Area:

Business Name	Location	Phone Number	Services
Blue Sky Bio-Fuel, Inc.	Oakland	(510) 436-6654 (415) 250-9114	Primarily yellow grease, some brown grease. Can accept 7,000 gallons/day.
East Bay Municipal Utility District (EBMUD)	Oakland	(510) 287-1632	Accepts grease.
Palo Alto Wastewater Treatment Plant	Palo Alto	(650) 329-2598	Accepts 5,000 to 6,000 gallons/day on first come first serve basis. They are in the process of increasing their ability to accept more (as of July 2008).
Sacramento Regional County Sanitation District	Sacramento	(916) 875-FATS	
Salinas Tallow	Salinas	(800) 621-9000	Will consider accepting grease from other reputable haulers. They purchase yellow grease and process the

Business Name	Location	Phone Number	Services
			interceptor grease with residue going to landfill.
San Jose Tallow Company	San Jose	(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.

VII.9.2: Appendix VII-B: East Bay Municipal Utility District (EBMUD) Approved Grease Haulers

EBMUD Approved Grease Haulers
East Bay Municipal Utility District, Environmental Services Division
Telephone (510) 287-1651

Name	Phone Number
A-1 Septic Tank Service, Inc.	(510) 886-4455
A-1 – Little River	(707) 937-0496
Able Septic Tank Service	(408) 377-9990
All Valley Environmental, Inc.	(559) 498-8378 or (559) 217-5949
Ameriguard Maintenance Services	(800) 347-7876
Blue Sky Bio-Fuels	(510) 868-9229
Burr Plumbing and Pumping	(408) 287-2877
Coast Environmental	(800) 588-7762
Darling International, Inc.	(415) 647-4890
Ernie's Plumbing	(925) 228-5242
Joe's Farmers Septic and Grease Service	(707) 546-3236
Liquid Environmental Solutions of California	(866) 694-7327

Name	Phone Number
North Coast Sanitary	(707) 884-1095
Pioneer Liquid Transport	(800) 366-6808
Portosan – Santa Rosa	(707) 566-2000
R & D Grease Trap Cleaning	(707) 632-5827
Roto Rooter Plumbing	(510) 483-2324
SRC Pumping Company	(916) 363-1342
Trap Recyclers	(800) 994-7867

VII.9.3: Appendix VII-C: Sacramento Regional County Sanitation District Approved Grease Haulers

Sacramento Regional County Sanitation District (SRCSD) (916) 875-FATS

Name	Address	Phone Number
A-1 Septic Service	P.O. Box 762 West Sacramento, CA 94591	(916) 371-4160
ABC Plumbing, Heating & Air Conditioning	205 22nd Street, Sacramento, CA 95816	(916) 448-0801
Ace Plumbing, Heating & Air	4405 Franklin Blvd., Sacramento, CA 95820	(916) 422-2333
Advanced Septic Service	6513 Auburn Blvd., Citrus Heights, CA 95621	(916) 726-5150
All Pumping & Septic	1289 Sonoma Avenue, Sacramento, CA 95815	(916) 925-1333
All Valley Environmental Inc.	523 N. Brawley Avenue, Fresno, CA 93706	(559) 498-8378
Ameriguard Maintenance Services, LLC	4681 E. Vine Avenue, Fresno, CA 93725	(559) 497-2925
APS Environmental, Inc	6643 32nd Street 103, North Highlands, CA 95660	(916) 454-2000

Name	Address	Phone Number
Best Construction & Maintenance Inc.	8550 Jackson Road, Sacramento, CA 95826	(916) 383-4533
Chuck & Auburn Septic	4504 Yankee Hill Ct., Rocklin, CA 95677	(916)624-8500
Cook's Portable Toilets & Septic	1402 Riosa Road, Lincoln CA 95648	(916) 645-8560
Darling International	11946 Carpenter Road, Crows Landing, CA 95313	(209) 667-9153
C & C Septic Service	12851 Stockton Blvd., Galt, CA 95632	(916) 366-1111
Howard's Grease Trap Pumping	8185 Cashel Way, Sacramento, CA 95829	(916) 681-0433
Liquid Environmental Solutions of CA	Corporate office, 12626 High Bluff Drive, Suite 240, San Diego, CA 92130-2070	866-694-7327
Roto Rooter Plumbers	2551 Albatross Way, Sacramento, CA 95815	(916) 482-1422
Sacramento Rendering Company	dba SRC Pumping Co., P.O. Box 276424, Sacramento, CA 95830	(916)363-4821
Sweet Septic Systems	5701 Mother Lode Drive, Placerville, CA 95667	(916) 622-8768

Element VIII: System Evaluation and Capacity Assurance Plan

SWRCB Waste Discharge Requirement:

The Enrollee 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; and

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, 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 Sewer System Management Plan (SSMP) review and update requirements as described in Section D. 14.

VIII.1: Introduction

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

VIII.2: Evaluation – Collection System Master Plan

The City completed a past Sewer System Master Plan in September 2003 and has completed an update in a Wastewater Collection System Master Plan ("Master Plan") Final Report dated October 2014 by RMC Water and Environment. This Master Plan provided a comprehensive analysis of the wastewater collection system to support the City's ongoing efforts to upgrade the sewer infrastructure. The master planning effort included a detailed assessment of the trunk sewer system based upon flow monitoring, rainfall records and the development of a hydraulic

model for both existing and general plan estimated expansion of the City service area over the next twenty (20) years. Finally, the Master Plan also evaluated the renewal and replacement needs for the City sewer system based upon an analysis of pipe age and material types as described and detailed in Element 4 of the SSMP.

Flows were monitored in 20 sewer basins. The flow monitoring was conducted during the winter of 2012/2013 along with rainfall data collected from three (3) temporary rain gages installed during this study period.

VIII.3: Design Criteria

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

VIII.4: Capacity Enhancement Measures - Capital Improvement Program

The City prepares an annual list of capital improvement projects that includes projects to address known collection system capacity issues. Public Works Engineering Staff prioritize and select the projects to be included on the annual list. Alternatives are analyzed, and schedules are established during the design process. The capital improvement schedules are planned by the Capital Improvement Division after coordination with the Collection System Superintendent and a general schedule and budget can be found on the City Website. Capital Improvements are also planned by the Collections division and completed by various contractors. These rehabilitation and capacity improvements are prioritized by ongoing CCTV inspection results.

The anticipated schedule for the City's sewer system capacity improvement projects is included in the City's CIP Detailed Budget, which is included in Appendix 4-B.

VIII.5: References

City of Antioch 5 Year Capital Improvement Program 2017-2022, June 12, 2018

Wastewater Collection System Master Plan, Winzler & Kelly, September 2, 2003.
Wastewater Collection System Master Plan, RMC Water and Environment, October, 2014

VIII.6: Element VIII – Appendices

VIII.6.1: Appendix VIII-A: Capital Improvement Program Detailed Budget – see Appendix 4B

Element IX: Monitoring, Measurement, and Program Modifications

SWRCB Waste Discharge Requirement:

The Enrollee shall:

a. Maintain relevant information that can be used to establish and prioritize appropriate Sewer System Management Plan (SSMP) activities;
b. Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;
c. Assess the success of the preventive 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.

Identify and illustrate SSO trends, including: frequency, location, and volume.

IX.1: Introduction

This section of the SSMP presents the City's Monitoring, Measurement, and Program Modifications (MMPM).

IX.2: GWDR Requirements for Monitoring, Measurement, and Program Modifications Element of SSMP

The requirements for the Monitoring, Measurement, and Program Modifications element of the SSMP are that the City shall:

a. Maintain and update relevant information 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 preventive 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.

IX.3: Performance Measures

The indicators that the City uses to measure the performance of its wastewater collection system and the effectiveness of its SSMP are:

- Total number of SSOs (from gravity sewers and lower laterals);
- Number of SSOs for each cause (roots, grease, debris, pipe failure, capacity, pump station failures, and other);
- Portion of sewage contained/recovered compared to total volume spilled;
- Volume of spilled sewage discharged to surface water, if any.

IX.4: Baseline Performance

The baseline performance, which shows the performance of the City's wastewater collection system, is shown below on **Table IX - 1: Baseline Performance January 2012 through December 2017**.

Table IX - 1: Baseline Performance January 2012 through December 2017

Metric	2012	2013	2014	2015	2016	2017
Miles of Lines						
Mains	310.5	310.5	310.5	309.8	309.8	309.8
Laterals	162.7	162.7	162.7	162.7	162.7	162.7
Pressure Sewers				7.0	7.0	7.0
Total	**473.2**	**473.2**	**473.2**	**472.5**	**472.5**	**472.5**
Number of SSO						
Mains	15	14	11	5	4	3
Laterals	33	59	43	40	26	31
Total	**48**	**73**	**54**	**45**	**30**	**34**
SSO Rate/100 miles/year						
Mains	4.83	4.51	3.54	1.61	1.29	0.97
Laterals	20.28	36.26	26.43	24.59	15.98	19.05
Total	**10.14**	**15.43**	**11.41**	**9.52**	**6.35**	**7.20**

Metric	2012	2013	2014	2015	2016	2017
Volume, gallons						
Mains	2,509	15,758	625,947	1,442	476	9,938
Laterals	865	1,857	1,033	1,334	1,363	8,532
Total	**3,374**	**17,615**	**626,980**	**2,776**	**1,839**	**18,470**
Portion Recovered						
Mains	2,321	14,580	337,787	622	466	2075
Laterals	659	1,564	1,008	1317	1353	366
Total	**2,980**	**16,144**	**338,795**	**1,939**	**1,819**	**2,441**
Percent recovered						
Mains	93%	93%	54%	43%	98%	21%
Laterals	76%	84%	98%	99%	99%	4%
total	88%	92%	54%	70%	99%	13%
Portion to Surface Water						
Mains	0	19,665	0	0	0	0
Laterals	0	0	0	0	0	8,023
total	0	0	0	0	0	8,023
Average Volume, gallons/SSO						
Mains	167	1,126	56,904	288	119	3,313
Laterals	26	31	24	33	52	275
total	70	241	11,611	62	61	545

IX.5: Performance Monitoring and Program Changes

The City evaluates the performance of its wastewater collection system at least annually using the performance measures identified in Section 9.3 - Performance Measures. The City updates the data and analysis of performance measures at the time of the evaluation.

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

Figure IX - 1: SSO Overflows by City Asset

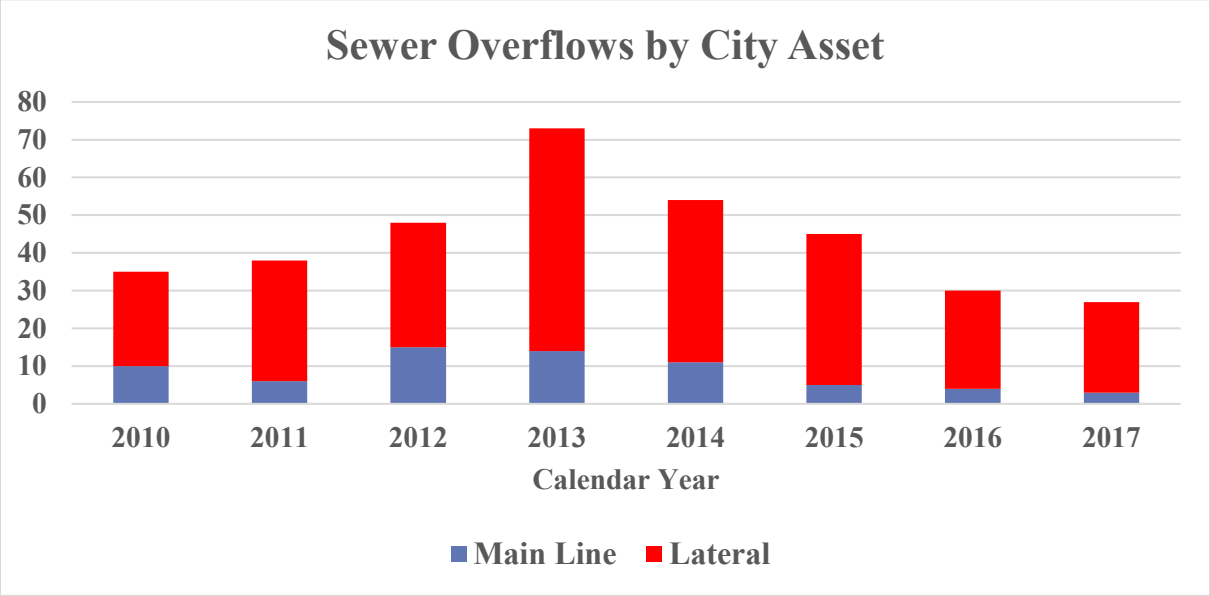


Figure IX - 2: Number of Overflows by Cause

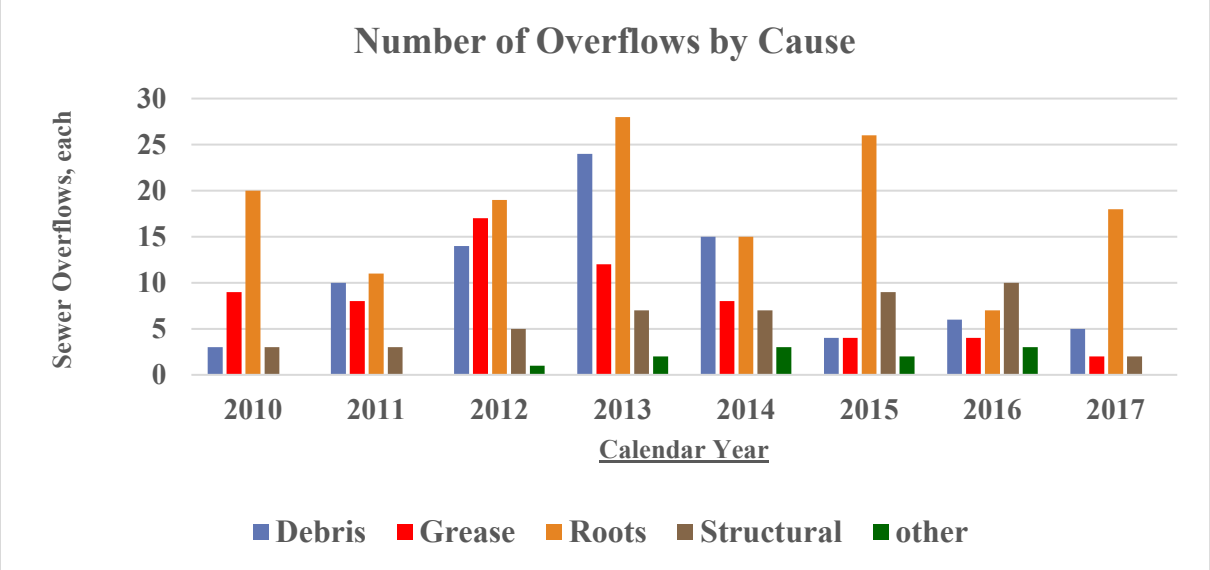


Figure IX - 3: Historical SSO Volumes

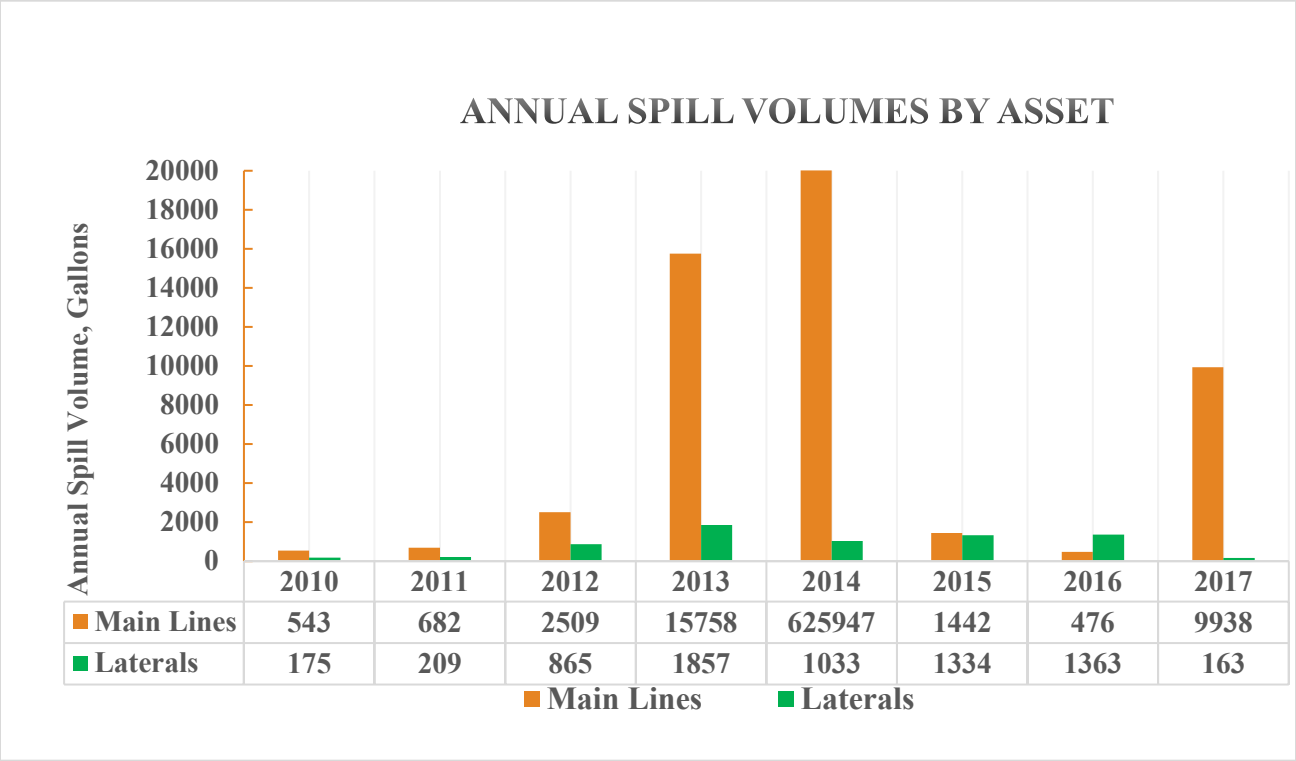


Figure IX - 4: Overflows Volumes Percent Recovered

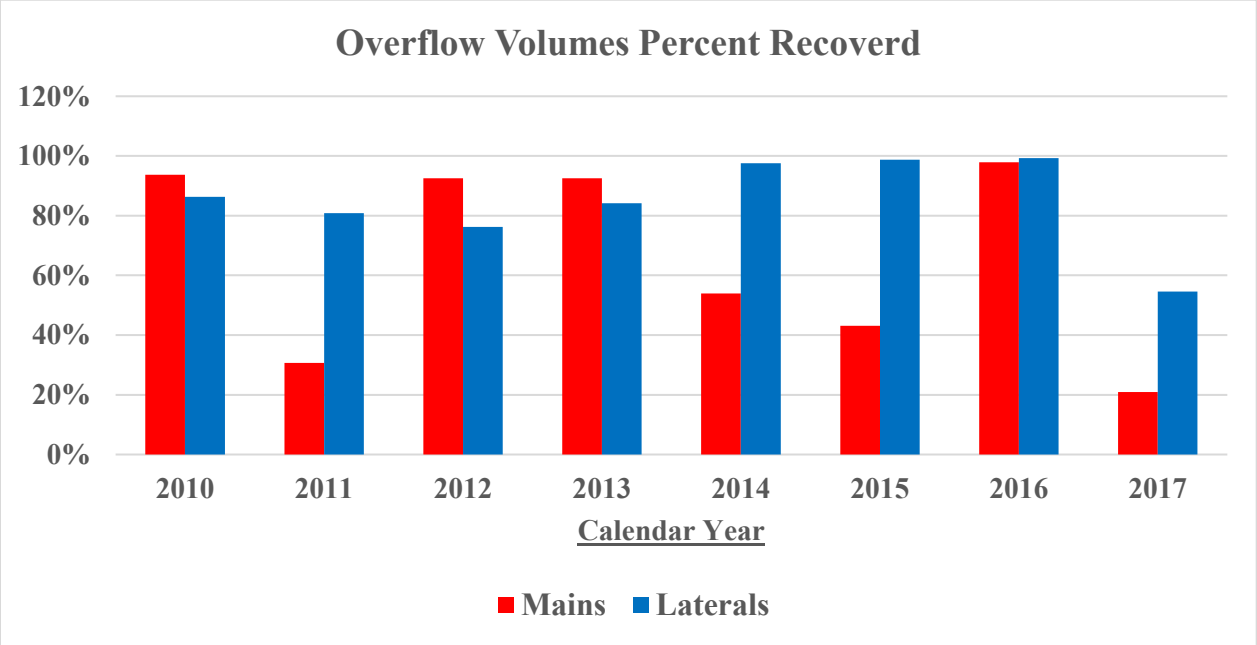


Figure IX - 5: Historical SSO Rates

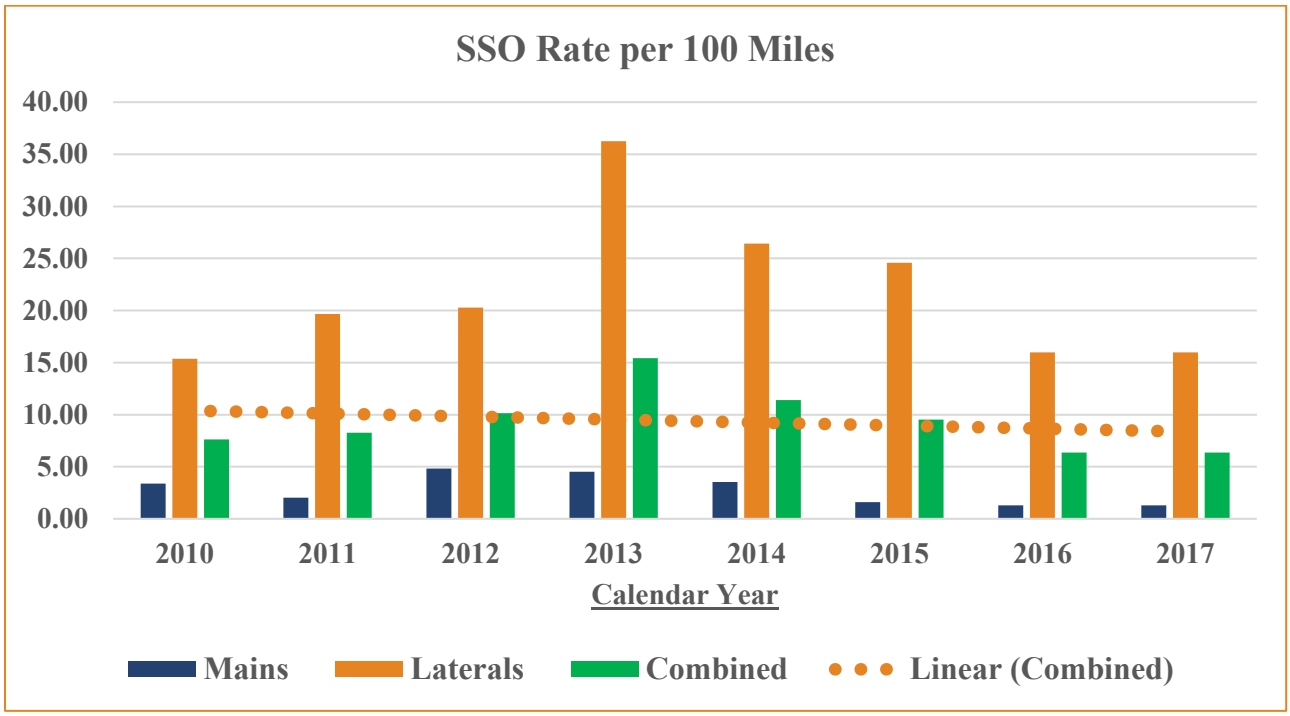


Table IX - 2: Historical Line Cleaning Summary

Calendar Year	Main Cleaning, linear feet	Gravity Mainline, Linear feet	Percentage of the System
2012	769,216	1,639,440	46.9
2013	860,929	1,639,440	52.5
2014	1,060,757	1,639,440	64.7
2015	602,639	1,636,054	36.8
2016	1,089,108	1,636,054	66.6
2017	1,273,257	1,636,054	77.8
Average		**1,638,085.6**	

Figure IX - 6: Historical Line Cleaning by Calendar Year

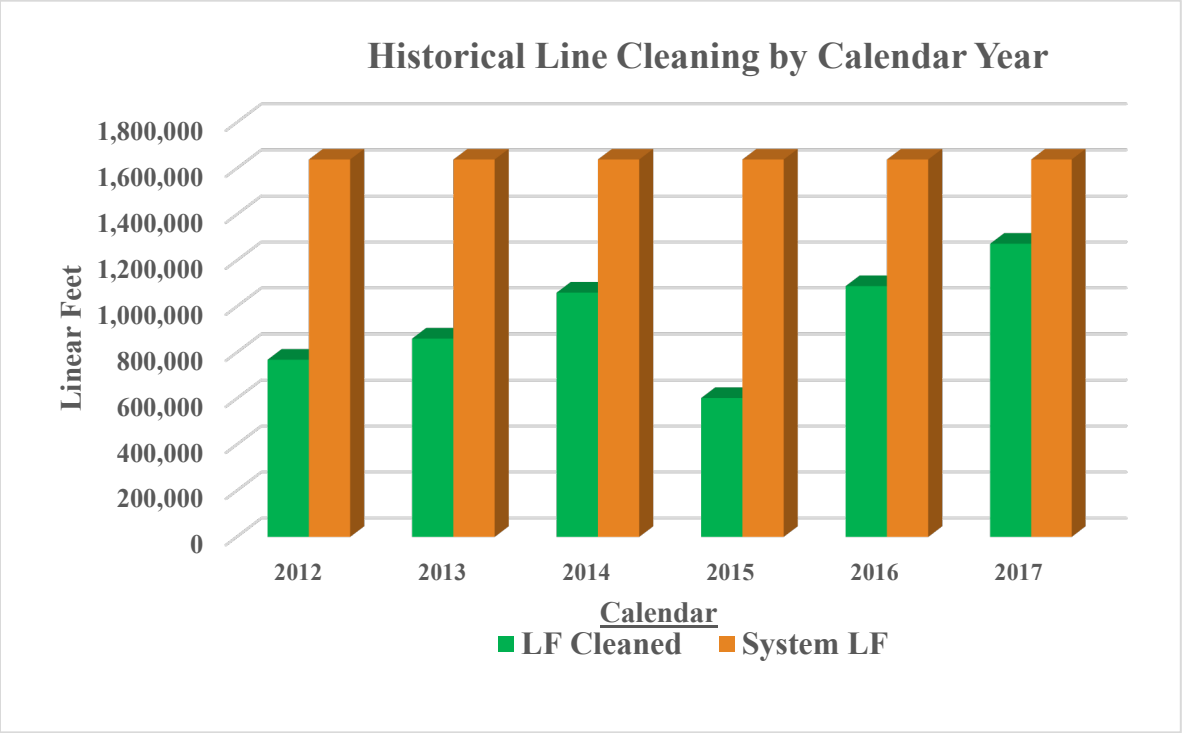
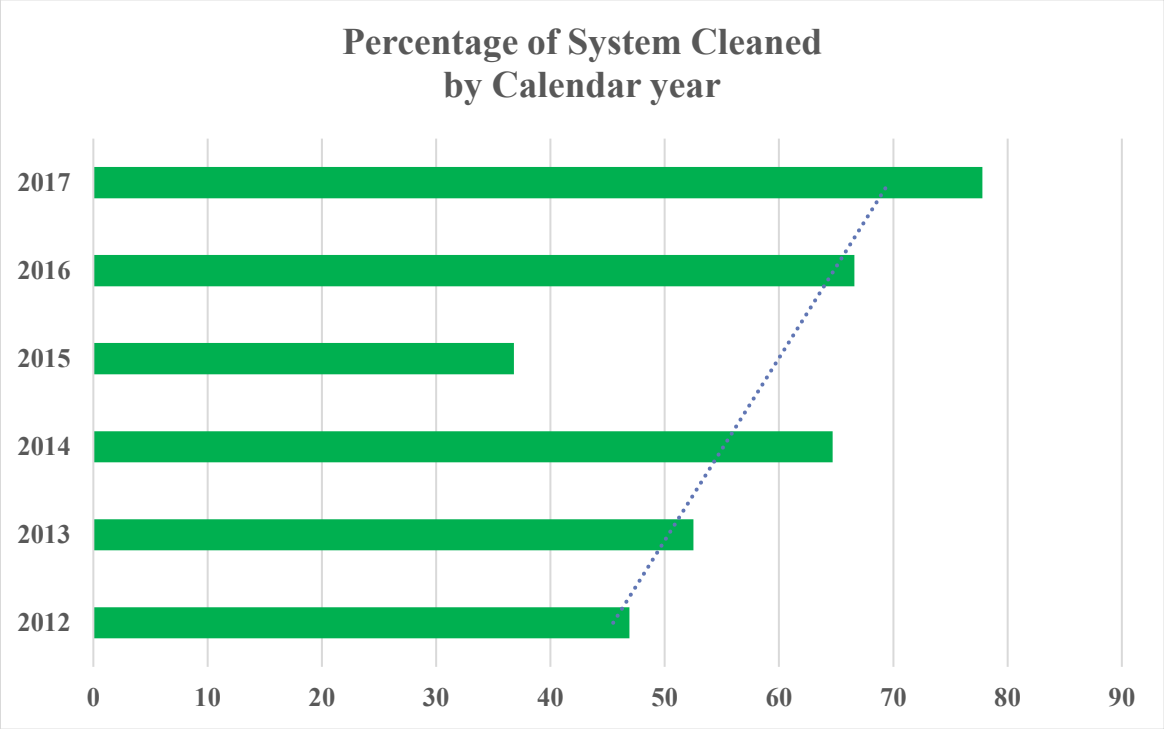


Figure IX - 7: Percentage of System Cleaned by Calendar Year



Element X: SSMP Program Audits

SWRCB Waste Discharge Requirement:

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

X.1: Introduction

This section of the SSMP presents the process that the City will follow to audit its SSMP Program.

X.2: GWDR Requirements for the SSMP Program Audits Element

The regulatory requirements for the SSMP include conducting 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 focuses on evaluating the effectiveness of the SSMP and the Enrollee's compliance with the SSMP requirements, including identification of any deficiencies in the SSMP and steps to correct them.

X.3: SSMP Audits

The City audits its SSMP at least biannually. The audit determines whether the SSMP meets the current requirements of the GWDR, whether the SSMP reflects the City's current practices, and whether the City is following the SSMP. Audits of the SSMP must occur no later than two years from the original adoption date of the first SSMP. The first audit was completed on March 1, 2010 and covered CY 2008 and 2009. The last audit was completed February 20, 2012 covering 2010 and 2011. Both are attached in Appendix C. A team consisting of City Public Works Department staff conducts the audits. Audit teams may also include members from other areas of the City, outside agencies, and/or contractors. Delta will be queried for input during any audit as to the status and effectiveness of the FOG Source Control Program.

The scope of the audit covers each of the sections of the SSMP. The Audit Checklist, Appendix 10-A, based on the requirements in the GWDR, is used for the audits.

The results of the audits are included in an SSMP Audit Report. The SSMP Audit Report attached in Appendix 10-A focuses on the effectiveness of the SSMP Program, compliance with the GWDR requirements, and identification of any deficiencies in the SSMP. The SSMP Audit Report identifies revisions needed for a more effective program. Information collected as part of Element IX - Monitoring, Measurement, and Program Modifications are also reviewed during the audits. Tables and figures or charts are used in the Audit Report to summarize trends in the performance indicators. The Audit Report includes a list of any changes made to the SSMP

resulting from the Audit findings. The Audit Report will be completed by March 1st following each audit year. Copies of the bi-annual Audit Reports will be maintained by the City for five years and attached to the SSMP In Appendix C. The results of any audit report will be considered for a public presentation to the City Council upon completion and approval by the legally responsible official.

X.4: SSMP Updates

The City will update its SSMP not later than every five years from the original date of adoption by the City Council. The City will determine the need to update its SSMP more frequently based on the results of audits and the performance of its sanitary sewer system using information from the Monitoring and Measuring Program. In the event that the City decides that an update is warranted, the process to complete the update will be identified at that time and a determination if "substantial changes" have occurred which require recertification by the City Council.

The City Staff will seek the approval from the City Council for any significant changes to the SSMP. The authority for approval of minor or non-substantive changes, such as the modification of employee names and contact information, or procedural changes is delegated to the Public Works Director and will be documented in the SSMP Change Log in Appendix A.

X.5: Appendix 10-A: SSMP Audit Checklist

City of Antioch
SSMP Audit Checklist
Report Form

The purpose of the SSMP Audit is to evaluate the effectiveness of the City of Antioch's (City's) SSMP and to identify any needed for improvement.

Directions: Please check YES or NO for each question. If NO is answered for any question, describe the updates/changes needed and the timeline to complete those changes.

Element I – Goals	YES	NO
A. Are the goals stated in the SSMP still appropriate and accurate?	☐	☐
Discussion:		

Element II – Organization	YES	NO
A. Is the List of City Staff Responsible for SSMP, Table 2-1 current?	☐	☐
B. Is the Sanitary Sewer Overflow Responder List current?	☐	☐
C. Is Figure 2-1 of the SSMP, the City Organization Chart, current?	☐	☐
D. Are the position descriptions an accurate portrayal of staff responsibilities?	☐	☐
E. Is Table 2-2 in the Chain of Communication for Reporting and Responding to SSOs section accurate and up-to-date?	☐	☐
Discussion:		

Element III – Legal Authority	YES	NO
Does the SSMP contain current references to the Antioch Municipal Code documenting the City's legal authority to:		
A. Prevent illicit discharges?	☐	☐
B. Require proper design and construction of sewers and connections?	☐	☐
C. Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the City?	☐	☐

D. Limit discharges of fats, oils and grease?	☐	☐
E. Enforce any violation of its sewer ordinances?	☐	☐
F. Were any changes or modifications made in the past year to City Sewer Ordinances, Regulations or standards?	☐	☐
Discussion:		

Element IV – Operations & Maintenance	**YES**	**NO**
Collection System Maps		
A. Does the SSMP reference the current process and procedures for maintaining the City's wastewater collection system maps?	☐	☐
B. Are the City's wastewater collection system maps complete, current and sufficiently detailed?	☐	☐
C. Are storm drainage facilities identified on the collection system maps? If not, are SSO responders able to determine locations of storm drainage inlets and pipes for possible discharge to waters of the state?	☐ ☐	☐ ☐
Prioritized Preventive Maintenance	**YES**	**NO**
D. Does the SSMO describe current preventive maintenance activities and the system for prioritizing the cleaning of sewers?	☐	☐
E. Based upon information in the Annual SSO Report, are the City's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	☐	☐
Scheduled Inspections and Condition Assessments	**YES**	**NO**
F. Is there an ongoing condition assessment program sufficient to develop a capital improvement plan addressing the proper management and protection of infrastructure assets? Are the current components of this program documented in the SSMP?	☐ ☐	☐ ☐
Contingency Equipment and Replacement Inventory	**YES**	**NO**
G. Does the SSMP list the major equipment currently used in the operation and maintenance of the collection system and documents the procedures of inventory management?	☐	☐
H. Are contingency and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?	☐	☐

Training	YES	NO
I. Does the SSMP document current training expectations and programs?	☐	☐
Outreach to Plumbers and Building Contractors	**YES**	**NO**
J. Does the SSMP document currently outreach efforts to plumbers and building contractors?	☐	☐
Discussion:		
Element V – Design and Performance Standards	**YES**	**NO**
A. Does the SSMP reference current design and construction standards for the installation for new sanitary sewer systems, pump stations and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?	☐	☐
B. Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines?	☐	☐
Discussion:		
Element VI – Overflow and Emergency Response Plan	**YES**	**NO**
A. Does the City's Sanitary Sewer Overflow Emergency Response Plan establish procedures for the emergency response, notification, and reporting of SSOs?	☐	☐
B. Is City staff and contractor personnel appropriately trained on the procedures of the Sanitary Sewer Overflow Emergency Response Plan?	☐	☐
C. Considering SSO performance data, is the Sanitary Sewer Overflow Emergency Response Plan effective in handling SSOs in order to safeguard public health and the environment?	☐	☐
D. Are all SSO and claims reporting forms current or do they require revisions or additions?	☐	☐

E.	Does all SSO event recordkeeping meet the SSS GWDR requirements? Are all SSO event files complete and certified in the CIWQS system?	☐ ☐	☐ ☐
F.	Is all information in the CIWQS system current and correct? Have periodic reviews of the data been made during the year to assure compliance with SSS GWDR? Have all Technical Report and Water Quality Sampling requirements been met and uploaded to the CIWQS data management system?	☐ ☐ ☐	☐ ☐ ☐
Discussion:			

Element VII – Fats, Oils and Grease (FOG) Control Program		**YES**	**NO**
A.	Does the FOG Control Program include efforts to educate the public on proper handling and disposal of FOG?	☐	☐
B.	Does the FOG Control Program identify sections of the collection system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?	☐	☐
C.	Are requirements for grease removal devices, best management practices (BMP), record keeping, and reporting established in the City's FOG Control Program?	☐	☐
D.	Does the City have sufficient legal authority to implement and enforce the FOG Control Program?	☐	☐
E.	Is the current FOG program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system	☐	☐
F.	Was required training on SSMP and OERP completed and documented? Were field exercises with field staff on SSO volume estimation conducted and documented?	☐	☐
G.	Did all public improvement plans and specifications that could impact collection system operations include requirements for OERP training or were contractor OERP programs at least as stringent as the City OERP? Were regular items included in project meeting agendas to discuss emergency response procedures and communications?	☐ ☐	☐ ☐
Discussion:			

Element VIII – System Evaluation and Capacity Assurance Plan	YES	NO
A. Does the City of Antioch Sanitary Sewer Master Plan evaluate hydraulic deficiencies in the system, establish sufficient design criteria and recommend both short and long-term capacity enhancement and improvement projects?	☐	☐
B. Does the City's Capital Improvement Plan (CIP) establish a schedule of approximate completion dates for both short and long- term capacity improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity accomplishment?	☐	☐
Discussion:		

Element IX – Monitoring, Measurement and Program Modifications	YES	NO
A. Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?	☐	☐
B. Is the City able to sufficiently evaluate the effectiveness of the SSMP elements based on relevant information?	☐	☐
C. Were the consent decree performance metrics met?	☐	☐
Discussion:		

Element X – SSMP Audits	YES	NO
A. Will the SSMP Audit be completed, reviewed and filed in Appendix B?	☐	☐
Discussion:		

Element XI – Community Program	YES	NO
A. Does the City effectively communicate with the public and other agencies about the implementation of the SSMP and continue to address any feedback?	☐	☐

B. Did the City Council receive and review the Annual Sewer System Report? Was the annual report uploaded to the City Sewer Section website and added to Appendix C?	☐ ☐	☐ ☐
C. Did City staff conduct and document meetings with satellite collection systems? Are all agreements with satellite systems current or are changes necessary to these agreements?	☐ ☐	☐ ☐
Discussion:		

Change Log	**YES**	**NO**
A. Is the SSMP Change Log current and up to date?	☐	☐
Discussion:		

Audit Team: _____ **Date:** _____

Prepared By: _____ **Date:** _____

Reviewed By: _____ **Date:** _____

Certified By: _____ **Date:** _____

Approved for Filing on: _____

Element XI: Communication Program

SWRCB Waste Discharge Requirement:

The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of its Sewer System Management Plan (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.

XI.1: Introduction

This section of the SSMP presents the process involved in communicating with interested members of the public regarding the development, implementation, and performance of this plan. This Communication Program also addresses communication between Antioch, Delta, and Pittsburg.

XI.2: Communication Regarding SSMP Implementation

The City posted a notice on its website to inform interested members of the public that a copy of the SSMP is available for review at the Public Works Yard or on the City website.

XI.2.1: City of Antioch Sewer System Management Plan (SSMP)

Pursuant to State Water Resources Control Board Order 2006-0003-DWQ, Statewide General Discharge Requirements of Sanitary Sewer Systems, the City of Antioch has developed and implemented a Sewer System Management Plan (SSMP). 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 agency's sanitary sewer system.

The SSMP is available for review at the Department of Public Works, 1201 West 4th Street, during normal business hours in addition, the SSMP is posted on the City website along with all references contained in the SSMP. Interested parties can contact Jeff Cook at (925) 779-6950 or jcook@ci.antioch.ca.us for additional information.

XI.3: Communicating Sanitary Sewer System Performance

The City reports SSOs electronically to the California Integrated Water Quality System (CIWQS). The electronic SSO data are available by agency or region at: www.waterboards.ca.gov/ciwqs/publicreports.html and the City WDID is 5SSO10890.

The City has placed a notice on its website that the sanitary sewer performance information is available at the CIWQS public access website.

XI.3.1: Sanitary Sewer System Performance

Effective August 2007, the City began reporting SSOs electronically to the California Integrated Water Quality System (CIWQS). The electronic SSO data, as well as information regarding regulatory actions, is available at: www.waterboards.ca.gov/ciwqs/publicreports.html using the Waste Discharge Identification (WDID) Number 5SSO10890.

The City provides various customer communications and education information on the City website, through brochures, newsletters and annual reports to the City Council of the activities and performance results of the collection system operations. In addition, Delta includes website information regarding the FOG program and pretreatment program that are available for residential and commercial customers. The City will be considering the development of additional outreach materials regarding the collection system operations in the next SSMP cycle utilizing information and results in the Audit Reports.

XI.4: Communication with Tributary/Satellite Sanitary Sewer Systems

The City is a satellite sanitary sewer system that discharges into Delta's conveyance system and wastewater treatment plant. The City and Delta work together to develop and implement their SSMPs. The primary means of communication is through the SSMP Coordinating Committee. Each of the three agencies discharging to Delta is represented on the committee and can place items on the committee meeting agenda.

The regular opportunities for communication include:

- Scheduled SSMP quarterly Coordinating Committee meetings
- Annual Training Events, including SSMP refresher training and emergency response drills

The point of contact at each of the agencies to communicate any SSMP-related issues is:

Agency	Name	Phone	Email
City of Antioch	Jeff Cook	(925) 779-6950	bchalk@ci.antioch.ca.us
Delta	Darrell Cain	(925) 778-4040	darrellc@deltadiablo.org

Appendices

Appendix A: SSMP Change Log

City of Antioch
Sewer System Management Plan
Change Log

Date	SSMP Element/ Section	Description of Change/Revision Made	Change Authorized By:
October 2018	Title Page	Updated and added historical adoptions and WDID	City Council
October 2018	Version Control	Revised to current	City Council
October 2018	Intro Tables 1 -3	Updated for current information	City Council
October 2018	Acronym Listing	Updated for new acronyms	City Council
October 2018	City Organization Chart	Updated and correct titles, CIWQS designations and FTEs.	City Council
October 2018	Sec II.2	Revised with new titles and removed several classifications.	City Council
October 2018	Table II-1	Revised responsible contact persons for personnel changes.	City Council
October 2018	Section II.4	Updated contact classifications.	City Council
October 2018	Figure IV-1	Revised organization chart (see above)	City Council
October 2018	Tables IV-3 and 4	Updated for 2017 results	City Council
October 2018	Appendix 4-B	Added20/21 capital costs	City Council
October 2018	Appendix 4-C	Updated equipment inventory.	City Council
October 2018	Section VII.2	Revised FSE information and performance history.	City Council
October 2018	Table IX-1	Added 2017 data.	City Council
October 2018	Figures IX-1 thru 7	Added results from 2017 and graphed revisions.	City Council

Date	SSMP Element/ Section	Description of Change/Revision Made	Change Authorized By:
October 2018	Table IX-2	Added 2017 line cleaning results.	City Council
October 2018	Section XI.4	Updated the Coordinating Committee meeting schedule	City Council
October 2018	OERP Appendix D	Update flow charts and narratives for classification changes	City Council

Appendix B: SSMP Adoption Documents

RESOLUTION NO. 2009/34

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ANTIOCH ADOPTING THE SEWER SYSTEM MANAGEMENT PLAN

WHEREAS, on May 2, 2006, the State Water Resources Control Board (SWRCB), issued Order No. 2006-0003-DWQ, entitled Statewide General Waste Discharge Requirements of Sanitary Sewer Systems (GWDR); and

WHEREAS, pursuant to the statewide GWDR, public agencies that own and operate sanitary sewer systems greater than one mile in length must develop an SSMP in accordance with the SWRCB requirements and their governing body must approve the completed SSMP; and

WHEREAS, the City of Antioch Public Works Department staff has prepared an SSMP to meet the requirements of the SWRCB; and

NOW THEREFORE BE IT RESOLVED by the Council of the City of Antioch that it hereby approves the SSMP.

* *

I HEREBY CERTIFY that the foregoing resolution was passed and adopted by the City Council of the City of Antioch, at a regular meeting thereof, held on the 28th day of April 2009 by following vote:

AYES: Council Members Kalinowski, Rocha, Moore, Parsons and Mayor Davis

NOES: None

ABSENT: None

JOLENE MARTIN, City Clerk

Appendix C: SSMP Audit Reports

City of Antioch

SANITARY SEWER MANAGEMENT PLAN AUDIT REPORT FOR CY 2008 & 2009

February 16, 2010

Subject: SSMP Audit Report for Calendar Year 2008 & 2009

The purpose of this document is to report the results of the annual Sewer System Management Plan (SSMP) Audit conducted by the City of Antioch covering the Calendar Year (CY) 2008 and CY 2009.

Sanitary Sewer System Characteristics and Performance

The City of Antioch's sanitary sewer system serves a population of approximately 100,150 in a 28.8 square mile service area. The sanitary sewer system facilities include approximately 300 miles of gravity sewers, one small lift station, and one out-of-service lift station. The City of Antioch is responsible for the maintenance of lower laterals. Wastewater is discharged into the Delta Diablo Sanitation District wastewater system for treatment, disposal, and reuse. Delta Diablo Sanitation District is also responsible for the operation and maintenance of the sewage pumping station located on Fulton Shipyard Road and all forced mains within the City of Antioch.

The City's sanitary sewer system had 10 mainline overflows and 32 lower lateral overflows during CY 2008 and 8 mainline overflows and 18 lower lateral overflows during CY 2009. These figures are up slightly from CY 2007 when the City experienced 7 mainline overflows. The number of SSO's was reduced in CY 2009 from CY 2008 that demonstrates and supports the effectiveness of the City's current programs and priorities.

The calculated mainline overflow rate for the City was 3.3 SSO's/100 miles/year in CY 2008 and 2.6 SSO's/100 miles/year in CY 2009. Overall SSO's in the past two years compare favorably with the Region 2 median rate of 11.4 SSO's/100 miles/year.

SSMP Status

The City of Antioch registered and started reporting online with the California Integrated Water Quality System (CWIQS) prior to the September 2, 2007 due date.

The City of Antioch completed its SSMP prior to the November 1, 2008, deadline established by the RWQCB. The SSMP Development Plan and Schedule was adopted by the City Council October 9, 2007. The completed SSMP was adopted by the City Council April 28, 2009.

The City certified completion of the SSMP through the California Integrated Water Quality System (CIWQS) in time to meet the May 2, 2009 deadline established by the State Water Resources Control Board (SWRCB).

The City is currently implementing its SSMP and intends to use the results of this audit to identify those portions of the SSMP that have not been fully implemented.

SSMP Audit

This audit, covering calendar years 2008 & 2009, is the first of every other year SSMP audits with the first due by March 1, 2010. This audit was conducted on February 15, 2009, with the goal of assessing the

current state of implementation of the SSMP. A team consisting of City Public Works staff familiar with sanitary sewer system operations conducted the audit. The audit team members were:

Agency	Team Member	Title
City of Antioch	Karen Rios	Administrative Analyst
	Roger Clarke	Collection System Supervisor
	Tom Sains	Collection System Superintendent

Audit Results

Identified Strengths

The following strengths were identified during the audit.

- Implementation of the SSMP nearing completion,
- Goals for system performance are in place (e.g. 10 mainline SSO's for CY 2008 and 8 mainline SSO's for CY 2009) and communicated to field crews,
- Long range planning for capacity underway,
- Condition assessment and rehabilitation/replacement programs with annual funding,
- Current and useful field map books mostly supported by GPS coordinates for facilities located in easements,
- Service Call/SSO Response procedures condensed into useful manual and supported by ample emergency response equipment,
- USA response, CMMS data entry, and SSO reporting utilized well,
- Well organized records,
- Well trained field crews and quick response times,
- Sufficient and well-maintained sewer cleaning/repair equipment,
- The majority of our repairs are performed in house, and
- The majority of staff is CWEA certified in Collection System Maintenance.

Identified Deficiencies and Corrective Actions

The deficiencies below were identified during the audit. They are shown on the following table along with the planned corrective actions. The City intends to complete these corrective actions during calendar year 2010 – 2011.

- Written policy/Municipal Codes with respect to lateral responsibility,
- CIP plans to update the Sewer Master Plan FY 2012/2013,

- Identify siphons and creek crossings,
- Not using the Collection System Failure Analysis form on SSO's
- Develop critical parts list,
- Add annual CIP budget dollar amount to SSMP Element 4 Appendix 4-B
- Develop outreach to plumbers and document it in the SSMP Element 4

Identified Deficiencies and Planned Corrective Actions

Area	Identified Deficiency	Corrective Action
Goals	None	N/A
Organization	None	N/A
Legal Authority	Lateral responsibility is not defined in Municipal Codes	Develop Municipal Codes to identify legal responsibility
O&M Program	Infrequent technical training with neighboring agencies	Coordinate technical training with outside agencies
	No formal process to periodically assess the condition of siphons and creek crossings	Develop processes to periodically assess the condition especially after storm events
	Critical parts list has not been identified	Develop a critical parts inventory
	Lacking outreach to plumbers	Develop and document in the SSMP outreach to plumbers
	Update Appendix 4-B Rehab and Replacement Program	Add years 2011/2012 CIP dollar figures
	Process to assign repair/rehabilitation/ replacement priorities is informal	Develop code-based fields between CMMS and CCTV data to identify capital projects according to pipeline assessment through PACP ratings and historical data.
Design and Performance Provisions	None	N/A

Area	Identified Deficiency	Corrective Action
OERP	SSO data not reconciled against CIWQS data leading to the potential for discrepancies between the CIWQS and District SSO databases	Reconcile the SSO data during preparation of the annual SSO Report to the RWQCB
	SSO's documentation has not included the Collection System Failure Analysis Form	Form will be used beginning in 2010
FOG Control Program	Responsibilities and activities included in the FOG Control Program are currently being clarified between Delta Diablo Sanitary District and the City of Antioch	Continue to define responsibilities for the FOG Control Program
FOG Control Program	Inconsistent grease removal equipment requirements between Delta Diablo Sanitary District and the City of Antioch	Consider developing regional standards for grease removal equipment to be installed by commercial grease dischargers
	Staffing levels required to support the FOG Control Program has not been quantified	Quantify staffing levels when FOG Control Program responsibilities are better defined
	Are requirements for grease removal devices, best management practices (BMP), record keeping, and reporting established in the FOG Control Program?	The District is currently discussing the details w/ the Cities and the FOG portion of the SSMP will reflect these changes in 2010
SECAP	Existing City sewer system master plan from 2003 is currently being reviewed by CIP for updating	Complete updated sewer system master plan by CIP planned FY 2012-2013
MMPM	None	N/A
SSMP Program Audits	None	N/A
	Self audit will be kept on file at the City of Antioch for five years.	N/A

Area	Identified Deficiency	Corrective Action
Communications Plan	None	N/A

Optional Audit Report Sections

The City believes that the information provided above adequately characterizes the current state of its SSMP and its implementation. The City has chosen not to respond to the optional audit report sections that were identified as "helpful information" in the SSMP Development Guide.

Certification

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Tom Sains

Collection System Superintendent

City of Antioch

City of Antioch SSMP Audit Checklist
(Modified from BACWA recommended checklist)

Element 1 – Goals		Yes	No
A	Are the goals stated in the SSMP still appropriate?	X	
Element 2 -- Organization		**Yes**	**No**
A	Is the Key Staff contact information current?	X	
B	Is the "Organization Chart and SSO Reporting Chain of Command" current?	X	
C	Is the chain of communication for reporting and responding to SSOs accurate and up-to-date?	X	
D	Is the designation of the Legally Responsible Official current?	X	
E	Is responsibility for the implementation and maintenance of the SSMP understood and being followed?	X	
Element 3 – Legal Authority		**Yes**	**No**
Does the SSMP contain excerpts from the current District/Municipal Code documenting the Agency's legal authority to:			
A	Prevent illicit discharges?	X	
B	Require proper design and construction of sewers and connections?	X	
C	Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the City?		X
D	Limit discharges of fats, oil and grease?	X	
E	Enforce any violation of its sewer ordinances?	X	
Element 4 – Operations and Maintenance		**Yes**	**No**
Collection System Maps			
A	Does the SSMP reference the current process and procedures for maintaining the City's wastewater collection system maps?	X	

B	Are the City's wastewater collection system maps complete, current, and sufficiently detailed?	**X**	
Resources and Budget			
C	Does the City allocate sufficient funds for the effective operation, maintenance, and repair of the wastewater collection system? And is the current budget structure documented in the SSMP?	**X**	
D	Is the current budget structure documented in the SSMP?	**X**	
Prioritized Preventive Maintenance			
E	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewer lines?	**X**	
F	Based upon information in the Annual SSO Report, are the City's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	**X**	
Scheduled Inspections and Condition Assessments			
G	Is there an ongoing condition assessment program sufficient to develop a capital improvement program addressing the proper management and protection of infrastructure assets?	X	
H	Are the current components of this program documented in the SSMP?	X	
Contingency Equipment and Replacement Inventory			
I	Does the SSMP list the major equipment currently used in the operation and maintenance of the wastewater collection system and document the procedures for inventory management?	X	
J	Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?	X	
Training			
K	Is the training calendar current?	X	
L	Does the SSMP document current training expectations and programs for the Agency's wastewater collection system staff?	X	
Outreach to Plumbers and Building Contractors			

M	Does the SSMP document current outreach efforts to plumbers and building contractors?		X
Element 5 – Design and Performance Standards		**Yes**	**No**
A	Does the SSMP contain current design and construction standards for the installation of new sanitary sewer systems, pump stations and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?	**X**	
B	Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines?	**X**	
Element 6 – Overflow and Emergency Response Plan		**Yes**	**No**
A	Does the Sanitary Sewer Overflow and Backup Response Plan establish procedures for the emergency response, notification, and reporting of sanitary sewer overflows (SSOs)?	**X**	
B	Are Agency staff and contractor personnel appropriately trained on the procedures of the Sanitary Sewer Overflow and Backup Response Plan?	**X**	
C	Considering performance indicator data developed for the SSMP, is the Sanitary Sewer Overflow and Backup Response Plan effective in handling SSOs in order to safeguard public health and the environment?	**X**	
Element 7 – Fats, Oils, and Grease (FOG) Control Program		**Yes**	**No**
A	Does the Fats, Oils, and Grease (FOG) Control Program include efforts to educate the public on the proper handling and disposal of FOG?	**X**	
B	Does the FOG Control Program identify sections of the wastewater collection system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?	**X**	
C	Are requirements for grease removal devices, best management practices (BMP), record keeping, and reporting established in the FOG Control Program?		**X**
D	Does the Agency have sufficient legal authority to implement and enforce the FOG Control Program?	**X**	
	Is the current FOG Control Program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system?	**X**	

Element 8 – System Evaluation and Capacity Assurance Plan (SECAP)		Yes	No
A	Does the SECAP evaluate hydraulic deficiencies in the system, establish sufficient design criteria and recommend both short-term and long-term capacity enhancement and improvement projects?	**X**	
B	Does the Agency's capital improvement program (CIP) establish a schedule of approximate completion dates for both short-term and long-term improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity accomplishment?	**X**	
Element 9 – Monitoring, Measurement, and Program Modifications		**Yes**	**No**
A	Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?	**X**	
B	Is the Agency able to sufficiently evaluate the effectiveness of SSMP elements based on relevant information?	**X**	
Element 10 – SSMP Audits		**Yes**	**No**
A	Will the SSMP Audit be submitted with the SSO Annual Report to the Regional Water Board by established deadlines?		**X**
Element 11 – Communication Program		**Yes**	**No**
A	Does the Agency effectively communicate with the public and other agencies about the development and implementation of the SSMP and continue to address any feedback?	**X**	

CIWQS questionnaire updated last August 2009

City of Antioch

SANITARY SEWER MANAGEMENT PLAN AUDIT REPORT FOR CY 2010 & 2011

February 20, 2012

Subject: SSMP Audit Report for Calendar Year 2010 & 2011

The purpose of this document is to report the results of the annual Sewer System Management Plan (SSMP) Audit conducted by the City of Antioch covering the Calendar Year (CY) 2010 and CY 2011.

Sanitary Sewer System Characteristics and Performance

The City of Antioch's sanitary sewer system serves a population of approximately 103,054 in a 28.8 square mile service area. The sanitary sewer system facilities include approximately 300 miles of gravity sewers, one small lift station, and one out-of-service lift station. The City of Antioch is responsible for the maintenance of lower laterals. Wastewater is discharged into the Delta Diablo Sanitation District wastewater system for treatment, disposal, and reuse. Delta Diablo Sanitation District is also responsible for the operation and maintenance of the sewage pumping stations located on Fulton Shipyard Road, Neroly Road @ Wilbur Avenue, as well as all forced mains within the City of Antioch.

The City's sanitary sewer system experienced 10 mainline overflows and 24 lower lateral overflows during CY 2010 and 3 mainline overflows and 24 lower lateral overflows during CY 2011. These figures are slightly down from 2008 & 2009 when the City experienced 18 main overflows and 50 lateral overflows combined. The number of SSO's were reduced in CY 2010 and 2011 from CY 2008 and 2009 that demonstrates and supports the effectiveness of the City's current programs and priorities despite being short staffed.

The calculated mainline overflow rate for the City was 3.04 SSO's/100 miles/year in CY 2010 and 1.35 SSO's/100 miles/year in CY 2011. Overall SSO's in the past two years compare favorably with the Region 5S median rate of 14.63 SSO's/100 miles/year for 2010 and 12.76 SSO's/100 miles/year for 2011.

The calculated lateral overflow rate for the City was 15.41 SSO's/100 miles/year in CY 2010 and 17.26 SSO's/100 miles/year in CY 2011. The number of SSO's for laterals compare favorably with Region 5S median rate of 24.55 SSO's/100 miles/year in CY 2010 and 23.7 SSO's/100 miles/year in CY 2011.

SSMP Status

The City of Antioch registered and started reporting online with the California Integrated Water Quality System (CWIQS) prior to the September 2, 2007 due date.

The City of Antioch completed its SSMP prior to the November 1, 2008, deadline established by the RWQCB. The SSMP Development Plan and Schedule was adopted by the City Council October 9, 2007. The completed SSMP was adopted by the City Council April 28, 2009.

The City certified completion of the SSMP through the California Integrated Water Quality System (CIWQS) in time to meet the May 2, 2009 deadline established by the State Water Resources Control Board (SWRCB).

The City is currently implementing its SSMP and intends to use the results of this audit to identify those portions of the SSMP that have not been fully implemented.

SSMP Audit

This audit, covering calendar years 2010 & 2011, is the second of the every other year SSMP audits with the first due by March 1, 2010 and the second due March 1, 2012. This audit was conducted on February 20, 2012, with the goal of assessing the current state of implementation of the SSMP. A team consisting of City Public Works staff familiar with sanitary sewer system operations conducted the audit. The audit team members were:

Agency	Team Member	Title
City of Antioch	Karen Rios	Administrative Analyst Consultant
	Cleveland Porter	Acting Collection System Supervisor
	Tom Sains	Collection System Consultant

Audit Results

Identified Strengths

The following strengths were identified during the audit.

- Implementation of the SSMP completed,
- Goals for system performance are in place (e.g. 10 mainline and 24 lateral SSO's for CY 2010 and 3 mainline and 24 lateral SSO's for CY 2011) and communicated to field crews,
- Long range planning for capacity and corrosion underway, funds identified in the SSMP Element 4 Appendix 4-B,
- Condition assessment and rehabilitation/replacement programs with annual funding are in place; CCTV is using PACP coding,
- Current and useful field map books mostly supported by GPS coordinates for facilities located in easements; siphons identified,
- Service Call/SSO Response procedures condensed into useful manual and supported by ample emergency response equipment,
- USA response, CMMS data entry, and SSO reporting utilized well,
- Well organized records,
- Well trained field crews and quick response times,
- Updated and well-maintained sewer cleaning/repair equipment,
- The majority of our repairs are performed in house, and

- The majority of staff is CWEA certified in Collection System Maintenance.

Identified Deficiencies and Corrective Actions

The deficiencies below were identified during the audit. They are shown on the following table along with the planned corrective actions. The City intends to complete these corrective actions during calendar years 2012 – 2014.

- Written policy/Municipal Codes with respect to lateral responsibility,
- Update the SSMP related to retired staff members,
- CIP plans to update the Sewer Master Plan FY 2013/2014,
- Identify creek crossings and develop preventive maintenance templates,
- Develop critical parts list,
- Develop outreach to plumbers and document it in the SSMP Element 4
- Short staffed due to retirements and hiring freeze,

Identified Deficiencies and Planned Corrective Actions

Area	Identified Deficiency	Corrective Action
Goals	Superintendent, Supervisor retired, CCTV Operator retired, Leadworker position vacant, and three Maintenance staff positions vacant	Reorganize, rehire/promote staff, to correct deficiency and become fully staffed by December 2014
Organization	Organization Chart and Responsibilities not up to date due to retirements	Update the Organization Chart and Responsibilities by December 2012
Legal Authority	Lateral responsibility is not defined in Municipal Codes	Develop Municipal Codes to identify legal responsibility for laterals
O&M Program	Infrequent technical training with neighboring agencies	Coordinate technical training with outside agencies
	No formal process to periodically assess the condition of creek crossings	Develop processes to periodically assess the condition especially after storm events
	Critical parts list has not been identified	Develop a critical parts inventory
	Lacking outreach to plumbers	Develop and document in the SSMP outreach to plumbers

Area	Identified Deficiency	Corrective Action
	Update Appendix 4-B Rehab and Replacement Program	Add years through 2016 CIP dollar figures
	Update Appendix 4 – C Major Sewer System Equipment Inventory	Update inventory by December 2012
Design and Performance Provisions	None	N/A
OERP	None	N/A
FOG Control Program	Responsibilities and activities included in the FOG Control Program are currently being clarified between Delta Diablo Sanitary District and the City of Antioch	Continue to define responsibilities for the FOG Control Program
FOG Control Program (cont.).	Are requirements for grease removal devices, best management practices (BMP), record keeping, and reporting established in the FOG Control Program?	The District is currently discussing the details w/ the City of Antioch and the City of Pittsburg. The FOG portion of the SSMP will reflect these changes in 2013
SECAP	Existing City sewer system master plan from 2003 is currently being reviewed by CIP for updating	Complete updated Sewer System Master Plan by CIP planned FY 2013-2014
MMPM	None	N/A
SSMP Program Audits	None	N/A
	Self audit will be kept on file at the City of Antioch for five years.	N/A
Communications Plan	City website needs updating	Update the City website by December 2012

Optional Audit Report Sections

The City believes that the information provided above adequately characterizes the current state of its SSMP and its implementation. The City has chosen not to respond to the optional audit report sections that were identified as "helpful information" in the SSMP Development Guide.

Certification

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Tom Sains

Collection System Consultant

City of Antioch

City of Antioch SSMP Audit Checklist

(Modified from BACWA recommended checklist)

Element 1 – Goals		Yes	No
A	Are the goals stated in the SSMP still appropriate?	X	
Element 2 -- Organization		**Yes**	**No**
A	Is the Key Staff contact information current?		X
B	Is the "Organization Chart and SSO Reporting Chain of Command" current?		X
C	Is the chain of communication for reporting and responding to SSOs accurate and up-to-date?		X
D	Is the designation of the Legally Responsible Official current?		X
E	Is responsibility for the implementation and maintenance of the SSMP understood and being followed?	X	
Element 3 – Legal Authority		**Yes**	**No**
Does the SSMP contain excerpts from the current District/Municipal Code documenting the Agency's legal authority to:			
A	Prevent illicit discharges?	X	
B	Require proper design and construction of sewers and connections?	X	
C	Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the City?		X
D	Limit discharges of fats, oil and grease?	X	
E	Enforce any violation of its sewer ordinances?	X	
Element 4 – Operations and Maintenance		**Yes**	**No**
Collection System Maps			
A	Does the SSMP reference the current process and procedures for maintaining the City's wastewater collection system maps?	X	

B	Are the City's wastewater collection system maps complete, current, and sufficiently detailed?	**X**	
Resources and Budget			
C	Does the City allocate sufficient funds for the effective operation, maintenance, and repair of the wastewater collection system? And is the current budget structure documented in the SSMP?	**X**	
D	Is the current budget structure documented in the SSMP?	**X**	
Prioritized Preventive Maintenance			
E	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewer lines?	**X**	
F	Based upon information in the Annual SSO Report, are the City's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	**X**	
Scheduled Inspections and Condition Assessments			
G	Is there an ongoing condition assessment program sufficient to develop a capital improvement program addressing the proper management and protection of infrastructure assets?	**X**	
H	Are the current components of this program documented in the SSMP?	**X**	
Contingency Equipment and Replacement Inventory			
I	Does the SSMP list the major equipment currently used in the operation and maintenance of the wastewater collection system and document the procedures for inventory management?	**X**	
J	Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?	**X**	
Training			
K	Is the training calendar current?	**X**	
L	Does the SSMP document current training expectations and programs for the Agency's wastewater collection system staff?	**X**	
Outreach to Plumbers and Building Contractors			

M	Does the SSMP document current outreach efforts to plumbers and building contractors?		X
Element 5 – Design and Performance Standards		**Yes**	**No**
A	Does the SSMP contain current design and construction standards for the installation of new sanitary sewer systems, pump stations and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?	X	
B	Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines?	X	
Element 6 – Overflow and Emergency Response Plan		**Yes**	**No**
A	Does the Sanitary Sewer Overflow and Backup Response Plan establish procedures for the emergency response, notification, and reporting of sanitary sewer overflows (SSOs)?	X	
B	Are Agency staff and contractor personnel appropriately trained on the procedures of the Sanitary Sewer Overflow and Backup Response Plan?	X	
C	Considering performance indicator data developed for the SSMP, is the Sanitary Sewer Overflow and Backup Response Plan effective in handling SSOs in order to safeguard public health and the environment?	X	
Element 7 – Fats, Oils, and Grease (FOG) Control Program		**Yes**	**No**
A	Does the Fats, Oils, and Grease (FOG) Control Program include efforts to educate the public on the proper handling and disposal of FOG?	X	
B	Does the FOG Control Program identify sections of the wastewater collection system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?	X	
C	Are requirements for grease removal devices, best management practices (BMP), record keeping, and reporting established in the FOG Control Program?		X

D	Does the Agency have sufficient legal authority to implement and enforce the FOG Control Program?	X	
E	Is the current FOG Control Program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system?	X	
Element 8 – System Evaluation and Capacity Assurance Plan (SECAP)		**Yes**	**No**
A	Does the SECAP evaluate hydraulic deficiencies in the system, establish sufficient design criteria and recommend both short-term and long-term capacity enhancement and improvement projects?	X	
B	Does the Agency's capital improvement program (CIP) establish a schedule of approximate completion dates for both short-term and long-term improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity accomplishment?	X	
Element 9 – Monitoring, Measurement, and Program Modifications		**Yes**	**No**
A	Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?	X	
B	Is the Agency able to sufficiently evaluate the effectiveness of SSMP elements based on relevant performance metrics?	X	
Element 10 – SSMP Audits		**Yes**	**No**
A			X
Element 11 – Communication Program		**Yes**	**No**
A	Does the Agency effectively communicate with the public and other agencies about the development and implementation of the SSMP and continue to address any feedback?	X	

CIWQS questionnaire updated last October 9, 2017

Appendix D: Overflow Emergency Response Plan

City of Antioch, CA

Overflow Emergency Response Plan

Effective Date: _____

Revised Date: _____

Approved by: _____

Signature: _____

Prepared by David Patzer, DKF Solutions Group
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(707) 373-9709 dpatzer@dkfsolutions.com

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Sanitary Sewer Overflow Emergency Response Plan

(ref. SWRCB Order No. 2006-0003-DWQ Element VI)

1. Purpose

The purpose of the City of Antioch's Overflow Emergency Response Plan (OERP) is to support an orderly and effective response to Sanitary Sewer Overflows (SSOs). The OERP provides guidelines for City personnel to follow in responding to, cleaning up, and reporting SSOs that may occur within the City's service area. This OERP satisfies the SWRCB Statewide General Waste Discharge Requirements (GWDR), which require wastewater collection agencies to have an Overflow Emergency Response Plan.

2. Policy

The City's employees are required to report all wastewater overflows found and to take the appropriate action to secure the wastewater overflow area, properly report to the appropriate regulatory agencies, relieve the cause of the overflow, and ensure that the affected area is cleaned as soon as possible to minimize health hazards to the public and protect the environment. The City's goal is to respond to sewer system overflows as soon as possible following notification. The City will follow reporting procedures in regards to sewer spills as set forth by the Central Valley Regional Water Quality Control Board (*CVRWQCB)* and the California State Water Resources Control Board (*SWRCB)*.

3. Definitions As Used In This OERP

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.

FROG – Fats, Roots, Oils, and Grease: Refers to fats, oils, and grease typically associated with food preparation and cooking activities that can cause blockages in the sanitary sewer system. Tree root invasion (R) presents an additional problem. If a mat of root hair forms in the sewer line it slows the flow of wastewater and exacerbates the rate of accumulation of FOG materials.

LEGALLY RESPONSIBLE OFFICIAL (LRO): Refers to an individual who has the authority to certify reports and other actions that are submitted through CIWQS.

MAINLINE SEWER: Refers to City wastewater collection system piping that is not a private lateral connection to a user.

MAINTENANCE HOLE OR MANHOLE: Refers to an engineered structure that is intended to provide access to a sanitary sewer for maintenance and inspection.

NOTIFICATION OF AN SSO: Refers to the time at which the City becomes aware of an SSO event through observation or notification by the public or other source.

NUISANCE - California Water Code section 13050, subdivision (m), defines nuisance as anything that meets all of the following requirements:

a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.

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b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

c. Occurs during, or as a result of, the treatment or disposal of wastes.

PREVENTATIVE MAINTENANCE: Refers to maintenance activities intended to prevent failures of the wastewater collection system facilities (e.g. cleaning, CCTV, inspection).

PRIVATE LATERAL SEWAGE DISCHARGES – Sewage discharges that are caused by blockages or other problems within a privately owned lateral.

SANITARY SEWER OVERFLOW (SSO) - Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include:

(i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;

(ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and

(iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

SSOs that include multiple appearance points resulting from a single cause will be considered one SSO for documentation and reporting purposes in CIWQS.

NOTE: Wastewater backups into buildings caused by a blockage or other malfunction of a building lateral that is privately owned are not SSOs.

SSO Categories:

Category 1: Discharge of untreated or partially treated wastewater of any volume resulting from a sanitary sewer system failure or flow condition that either:

- Reaches surface water and/or drainage channel tributary to a surface water; or
- Reached a Municipal Separate Storm Sewer System (MS4) and was not fully captured and returned to the sanitary sewer system or otherwise captured and disposed of properly.

Category 2: Discharge of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from a sanitary sewer system failure or flow condition that either:

- Does not reach surface water, a drainage channel, or an MS4, or
- The entire SSO discharged to the storm drain system was fully recovered and disposed of properly.

Category 3: All other discharges of untreated or partially treated wastewater resulting from a sanitary sewer system failure or flow condition.

SANITARY SEWER SYSTEM: Any publicly-owned system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant headworks used to collect and convey wastewater to the publicly owned treatment facility. Temporary storage and conveyance facilities (such as vaults, temporary

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piping, construction trenches, wet wells, impoundments, tanks, etc.) are considered to be part of the sanitary sewer system, and discharges into these temporary storage facilities are not considered to be SSOs.

SENSITIVE AREA: Refers to areas where an SSO could result in a fish kill or pose an imminent or substantial danger to human health (e.g. parks, aquatic habitats, etc.)

SEWER SERVICE LATERAL: Refers to the piping that conveys sewage from the building to the City's wastewater collection system.

UNTREATED OR PARTIALLY TREATED WASTEWATER: Any volume of waste discharged from the sanitary sewer system upstream of a wastewater treatment plant headworks.

WATERS OF THE STATE*:* Waters of the State (or waters of the United States) means any surface water, including saline waters, within the boundaries of California. In case of a sewage spill, storm drains are considered to be waters of the State unless the sewage is completely contained and returned to the wastewater collection system and that portion of the storm drain is cleaned.

4. State Regulatory Requirements for Element 6, Overflow Emergency Response Plan

Regional Water Quality Control Board (RWQCB) Requirement
The collection system agency must develop an overflow emergency response plan that provides procedures for SSO notification, response, reporting, and impact mitigation.

General Waste Discharge Requirement (GWDR)
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.

The Sewer System Management Plan and critical supporting documents are available to the public at www.ci.antioch.ca.us.

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5. Goals

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

- Work safely;
- Respond quickly to minimize the volume of the SSO;
- Eliminate the cause of the SSO;
- Prevent sewage system overflows or leaks from entering the storm drain system or receiving waters to the maximum extent practicable;
- Contain the spilled wastewater to the extent feasible;
- Minimize public contact with the spilled wastewater;
- Mitigate the impact of the SSO;
- Return all or portion of sewage to sanitary system;
- Meet the regulatory reporting requirements;
- Evaluate the causes of failure related to certain SSOs; and
- Revise response procedures resulting from the debrief and failure analysis of certain SSOs.
- Return all or portion of sewage spill to sanitary sewer

6. SSO Detection and Notification

ref. SWRCB Order No. 2006-0003-DWQ VI(a)

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

The City operates Antioch wastewater lift stations. In the event of any pump failure, the high level sensor activates the SCADA alarm system and the City is contacted. To prevent overflow, wastewater from the wet well can either be pumped into a vacuum truck for disposal to a nearby sanitary sewer manhole, or pumped into a holding tank using vacuum trucks or vendors with tankers.

6.1 PUBLIC OBSERVATION

Public observation is the most common way that the City is notified of blockages and spills. Contact numbers and information for reporting sewer spills and backups are in the phone book, on the City's website: http://www.ci.antioch.ca.us, and also on the side of CCTV van and Vac-cons. The City's telephone number for reporting sewer problems during office hours is (925) 779-6950, and the after hours number is (925) 778-2441 (police dispatch).

Normal Work Hours

When a report of a sewer spill or backup is made during normal work hours, Public Works Reception receives the call, takes the information from the caller, and generates a Work Order in Lucity. Work Order is emailed to the Collection Systems Superintendent, and texted to the Collections Supervisor or, if not available, to the Collections Crew or Collection Systems Superintendent.

After Hours

After hours calls are automatically forwarded to Police dispatch at (925) 778-2441. Dispatch notifies the on-call Collections Crew.

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When calls are received, either during normal work hours or after hours, the individual receiving the call will collect the following information:

- Time and date of call
- Specific location of potential problem
- Nature of call
- In case of SSO, estimated start time of overflow
- Caller's name and telephone number
- Caller's observation (e.g., odor, duration, location on property, known impacts, indication if surface water impacted, appearance at cleanout or manhole)
- Other relevant information

The following (Figure 6.1) is an overview of receiving a sewage overflow or backup report.

Figure 6.1 Overview of Receiving a Sewage Overflow or Backup Report Procedure

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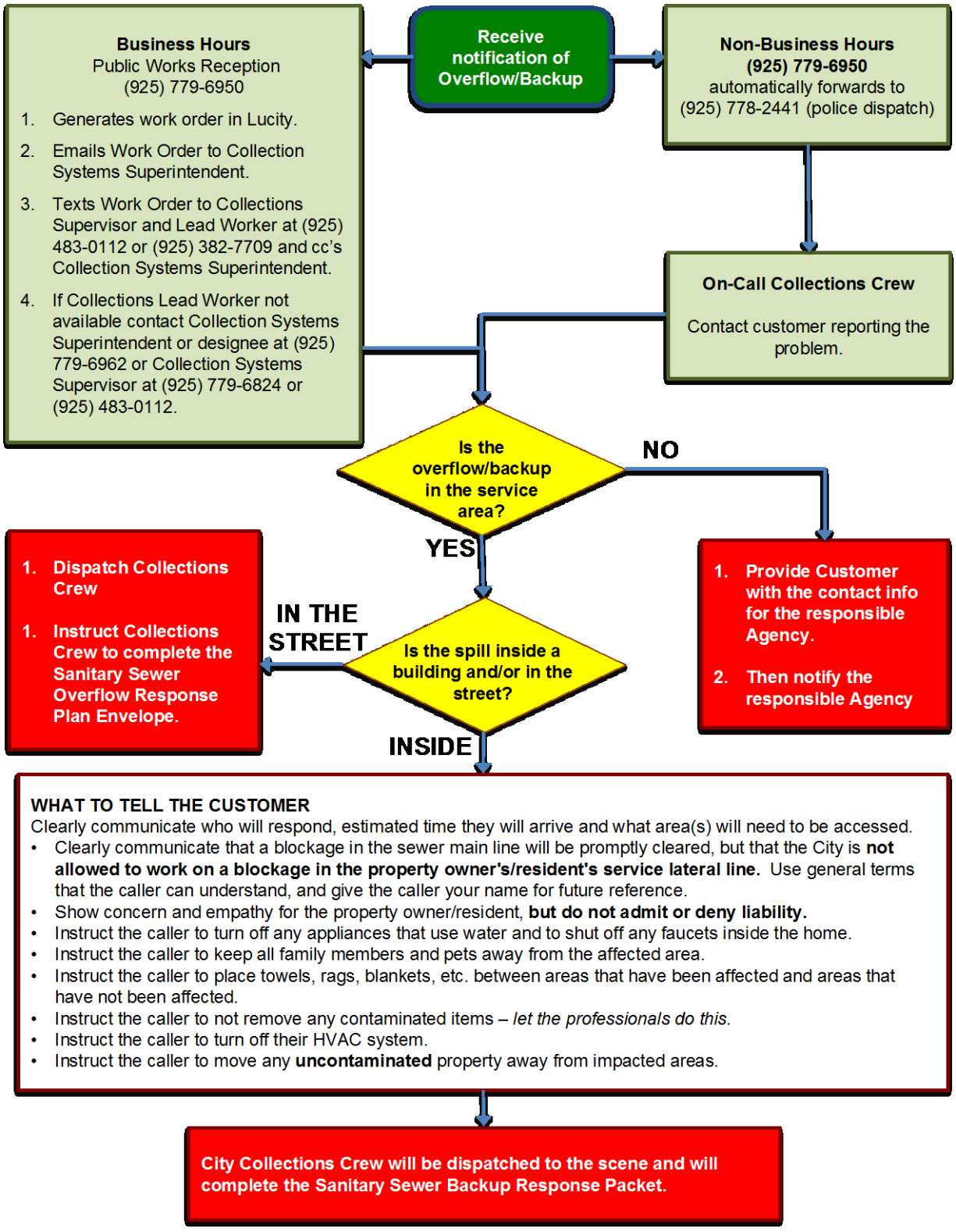

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6.2 CITY STAFF OBSERVATION

City 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 City staff that, in turn, responds to emergency situations. Work orders are issued to correct non-emergency conditions.

6.3 CONTRACTOR OBSERVATION

The following procedures are to be followed in the event that a contractor causes or witnesses a Sanitary Sewer Overflow. If the contractor causes or witnesses an SSO they will:

1. Immediately notify the City by calling (925) 779-6950 during business hours or (925) 778-2441 after hours.
2. Protect storm drains.
3. Protect the public.
4. Provide Information to City Staff such as start time, appearance point(s), suspected cause, weather conditions, etc.
1. Direct ALL media and public relations requests to the Public Works Director or Collection Systems Superintendent.

Appendix F includes a handout for Contractors with a flowchart of the above procedures.

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7. SSO Response Procedures

ref. SWRCB Order No. 2006-0003-DWQ Element 6(b)

7.1 Sewer Overflow/Backup Response Summary

The City will respond to SSOs as soon as feasible following notification of an overflow/backup or unauthorized discharge. The following (Figure 7.1) is an overview of the response activities.

Figure 7.1 Overview of SSO/Backup Response

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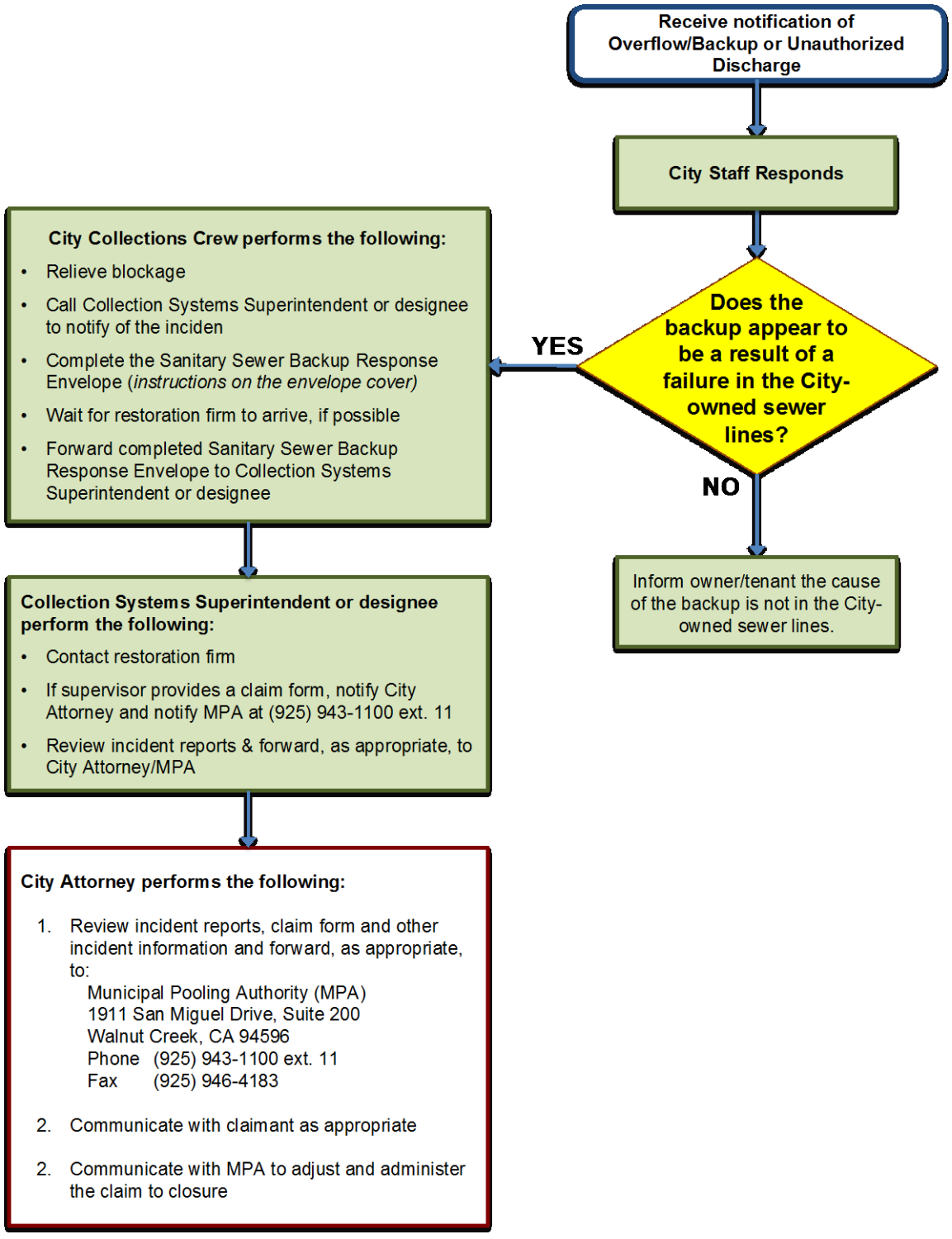

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7.2 First Responder Priorities

The first responder's priorities are:

- To follow safe work practices.
- To respond promptly with the appropriate and necessary equipment.
- To contain the spill wherever feasible.
- To restore the flow as soon as practicable.
- To minimize public access to and/or contact with the spilled sewage.
- To promptly notify the Sewer Maintenance Team Leader in event of major SSO.
- To return the spilled sewage to the sewer system.
- To restore the area to its original condition (or as close as possible).
- To photograph and document affected and unaffected areas from a spill.

7.3 Safety

The first responder is responsible for following safety procedures at all times. Special safety precautions must be observed when performing sewer work. There may be times when City personnel responding to a sewer system event are not familiar with potential safety hazards peculiar to sewer 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. This includes use of gas monitoring detectors for air quality in manholes and traffic controls at the site.

7.4 Initial Response

The first responder must respond to the reporting party/problem site and visually check for potential sewer stoppages or overflows.

The first responder will:

- Note arrival time at the site of the overflow/backup.
- Verify the existence of a public sewer system spill or backup.
- Determine if the overflow or blockage is from a public or private sewer.
- Identify and assess the affected area and extent of spill.
- Contact caller if time permits.
- If the spill is large or in a sensitive area, document conditions upon arrival with photographs. Decide whether to proceed with clearing the blockage to restore the flow or to initiate containment measures. The guidance for this decision is:
    - Small spills (i.e., spills that are easily contained) – proceed with clearing the blockage.
    - Moderate or large spill where containment is anticipated to be simple – proceed with the containment measures.
    - Moderate or large spills where containment is anticipated to be difficult – proceed with clearing the blockage; however, whenever deemed necessary, call for additional assistance and implement containment measures.
- Take steps to contain the SSO. For detailed procedures refer to Appendix B: Sanitary Sewer Backup Procedures, and Appendix D: Sanitary Sewer Overflow Packet.

7.5 Initiate Spill Containment Measures

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

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- Determine the immediate destination of the overflowing sewage.
- Plug storm drains using air plugs, sandbags, and/or plastic mats to contain the spill, whenever appropriate. If spilled sewage has made contact with the storm drainage system, attempt to contain the spilled sewage by plugging downstream storm drainage facilities.
- Contain/direct the spilled sewage using dike/dam or sandbags.
- Pump around the blockage/pipe failure.

For detailed procedures refer to Appendix D: Sanitary Sewer Overflow Packet.

7.6 Restore Flow

Using the appropriate cleaning equipment, 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 reoccur downstream. If the blockage cannot be cleared within a reasonable time from arrival, or sewer requires construction repairs to restore flow, then initiate containment and/or bypass pumping. If assistance is required, immediately contact other employees, contractors, and equipment suppliers. For detailed procedures refer to Appendix D: Sanitary Sewer Overflow Packet.

7.7 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 Trucks* -- A utility body pickup truck, or open bed is required to store and transport the equipment needed to effectively respond to sewer emergencies. The equipment and tools will include containment and clean up materials.
- *Portable Generators, Portable Pumps, Piping, and Hoses* – Equipment used to bypass pump, divert, or power equipment to mitigate an SSO.
- *Combination Sewer Cleaning Trucks* -- Combination high velocity sewer cleaning trucks with vacuum tanks are required to clear blockages in gravity sewers, vacuum spilled sewage, and wash down the impacted area following the SSO event.
- *Air plugs*
- *Sandbags*
- *Rubber storm drain*
- *SSO Sampling Kits*
- *Portable Lights*

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Standard operating procedures for the following equipment are located in the shop and on the City intranet.

Equipment Number	Major Equipment Type
11, 13, 17	Diesel Whacker DS70 Soil Compactor (1)
101	Hydroflush Truck
102, 103	Ford F-350 Utility Truck with Boom
104	CCTV Inspection Truck
105	Ford F-250 Spray Truck (2017)
106	Ford F-350 4x4 with Lift Gate (2017)
107	Combination Hydroflush Truck (2016)
109	Ford F-150 4x4 with Trainer Hitch (2016)
110	Ford F-350 Flatbed Truck
111	Felling Trailer
112	Caterpillar 430F Backhoe (2016)
112	Cat 430F2
257	John Deere Tractor (1998)
682	F-350 Super Diesel Utility Truck (2001)
684	Caterpillar 924G Front Loader
685	Sterling Dump
691	Ford F-750 Bobtail Dump Truck
697	Combination Hydroflush Truck
792	Ford Expedition / Supervisor
974, 987	Light Trailer with Generator (2)
988	Godwin 8” Trailer-Mounted Pump
989	Godwin 4” Trailer-Mounted Pump
N/A	MSA Altair 5X Air Monitor (4)
N/A	EG 2200 Honda Generator

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7.8 Critical Sewer System Replacement Parts Inventory

Inventory Date: December 2014
Inventory/Condition Checked by: Cleveland Porter

Part Description	Quantity in Inventory	Location
VCP Pipe – 4", 6", 8", 21", 36"	various	Maintenance Yard/Central Stores
PVC Pipe – 6", 8", 10", 12"	various	Maintenance Yard/Central Stores
Ductile Iron Pipe – 4", 6", 8", 10", 12", 16", 18"	various	Maintenance Yard/Central Stores
VCP, PVC, and Ductile Iron Pipe, various fittings and couplings for multiple sizes	various	Maintenance Yard/Central Stores
Various sizes of manhole covers and rodding inlet covers	various	Maintenance Yard/Central Stores
Pump Station replacement Pump	(2)	Maintenance Yard/Central Stores
Force main parts	various	Maintenance Yard/Central Stores
Pump Station electronic components	various	Maintenance Yard/Central Stores

8. Recovery and Cleanup

ref. SWRCB Order No. 2006-0003-DWQ Element 6(e)

The recovery and cleanup phase begins immediately after the flow has been restored and the spilled sewage has been contained to the extent possible. The SSO recovery and cleanup procedures are:

8.1 Estimate the Volume of Spilled Sewage

Use the methods outlined in the Sanitary Sewer Backup Response Packet (Appendix B), Sanitary Sewer Overflow Response Packet (Appendix D), and/or the Field Guide to estimate the volume of the spilled sewage. Wherever possible, document the estimate using photos and/or video of the SSO site before and during the recovery operation.

8.2 Recovery of Spilled Sewage

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

8.3 Clean-up and Disinfection

Clean up and disinfection procedures will 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 will be modified as required for wet weather conditions. Where cleanup is beyond the capabilities of City staff, a cleanup contractor will be used.

Private Property

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City crews are responsible for the cleanup when the property damage is minor in nature and is outside of private building dwellings, such as in front, side and backyards, easements, etc. In all other cases, affected property owners can call a water damage restoration contractor to complete the cleanup and restoration. If the overflow into property is the definite cause of City system failure, the property owner can call out a water damage restoration contractor to complete the cleanup and restoration. In both cases, City claim forms may be issued if requested by the property owners.

Hard Surface Areas
Collect all signs of sewage solids and sewage-related material either by protected hand or with the use of rakes and brooms. Wash down the affected area with clean water and/or deozyme or similar non-toxic biodegradable surface disinfectant until the water runs clear. The flushing volume will be approximately three times the estimated volume of the spill. Take reasonable steps to contain and vacuum up the wastewater. Allow area to dry. Repeat the process if additional cleaning is required.

Landscaped and Unimproved Natural Vegetation
Collect all signs of sewage solids and sewage-related material either by protected hand or with the use of rakes and brooms. Wash down the affected area with clean water until the water runs clear. The flushing volume will 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.

Natural Waterways
The Department of Fish and Wildlife will be notified by CalOES for SSOs greater than or equal to 1,000 gallons.

Wet Weather Modifications
Omit flushing and sampling during heavy storm events (i.e., sheet of rainwater across paved surfaces) with heavy runoff where flushing is not required and sampling would not provide meaningful results.

8.4 Public Notification

Signs will be posted and barricades put in place to keep vehicles and pedestrians away from contact with spilled sewage. County Environmental Health instructions and directions regarding placement and language of public warnings will be followed when directed. Additionally, the Collection Systems Superintendent will use his/her best judgment regarding supplemental sign placement in order to protect the public and local environment. Signs will not be removed until directed by County Environmental Health, Collection Systems Superintendent, or designee.

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

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

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When contact with the local media is deemed necessary, the Public Works Director and/or Collection Systems Superintendent will provide the media with all revelvant information.

9. Water Quality

ref. SWRCB Order No. 2006-0003-DWQ Element 6(f)

9.1 Water Quality Sampling and Testing

The City conducts water quality sampling and testing for total and fecal coliform and E. Coli whenever it is estimated that an SSO of fifty thousand (50,000) gallons or more enters a water body, and if field crews can safely access the affected surface waters.

If sampling and testing is conducted under the previous paragraphs, then the City will collect and test samples from three (3) locations: 1) the point of discharge to the water body; 2) in the water body upstream of the point of discharge; and 3) in the water body downstream of the point of discharge in accordance with the Field Sampling Procedures in the OERP.

If any of the tested constituents are found at higher levels in the point of discharge sample and in the downstream sample than in the upstream sample, then the City will then determine and address the cause of the SSO that entered the water body, and will employ the following measures to prevent future overflows in that location by: 1) immediately spot-repairing the defect or replacing a segment of the line if the SSO is caused by a structural defect; or 2) if the defect is non-structural, such as grease, blockage or vandalism, then perform additional maintenance, cleaning or other appropriate measures to remedy the non-structural defect.

The samples shall be brought for analysis to McCampbell Analytical, Inc. or whichever lab the City currently contracts for sample analysis.

9.2 SSO Technical Report

If 50,000 gallons or greater from an SSO reaches surface waters, an SSO Technical Report must be prepared and submitted to the CIWQS online SSO database within 45 calendar days of the SSO end date. The SSO Technical Report must include, at a minimum, the following:

i. Causes and Circumstances of the SSOs;
   a. Complete and detailed explanation of how and when the SSO was discovered.
   b. Diagram showing the SSO failure point, appearance point(s), and final destination(s).
   c. Detailed description of the cause(s) of the SSO.
   d. Copies of the original field crew records used to document the SSO.
   e. Historical maintenance records for the failure location.

ii. Response to SSO:
   a. Chronological narrative description of all actions taken to terminate the SSO.
   b. Explanation of how the OERP was implemented to respond to and mitigate the SSO.
   c. Final corrective action(s) completed and/or planned to be completed, including a schedule or actions not yet completed.

iii. Water Quality Monitoring
   a. Description of all water quality sampling activities conducted including analytical results and evaluation of the results.
   b. Detailed location map illustrating all water quality sampling points.

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10. Sewer Backup Into/Onto Private Property Claims Handling Policy

It is the policy of the City that a claims form shall be offered to anyone wishing to file a claim. The following procedures will be observed for all sewer overflows/backups into/onto private property:

- City staff will offer a City claim form irrespective of fault whenever it is possible that the sanitary sewer backup may have resulted from an apparent blockage in the City-owned sewer lines or whenever a City customer requests a claim form. The claim may later be rejected if subsequent investigations into the cause of the loss indicate the City was not at fault.

- It is the responsibility of the City Collections Crew to gather information regarding the incident and notify the Collection Systems Superintendent or designee.

- It is the responsibility of the City Attorney or designee to review all claims and to oversee the adjustment and administration of the claim to closure.

11. Notification, Reporting, Monitoring and Recordkeeping Requirements

ref. SWRCB Order No. 2006-0003-DWQ Element 6(c)

In accordance with the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (SSS GWDRs), the City of Antioch maintains records for each sanitary sewer overflow. Records include:

- Documentation of response steps and/or remedial actions.
- Photographic evidence to document the extent of the SSO, field crew response operations, and site conditions before and after field crew SSO response operations have been completed.
- Documentation of how any estimations of the volume of discharged and/or recovered volumes were calculated including all assumptions made.
- Regulator required notifications are outlined in Section 11.1 on the following page.

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11.1 Regulator Required Notifications

ELEMENT	REQUIREMENT	METHOD
NOTIFICATION	Within two hours of becoming aware of any Category 1 SSO greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water, the City will notify the California Office of Emergency Services (CalOES) and obtain a notification control number.	Call Cal OES at: **(800) 852-7550**
REPORTING	• Category 1 SSO: The City will submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. • Category 2 SSO: The City will submit draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date. • Category 3 SSO: The City will submit certified report within 30 calendar days of the end of month in which SSO the occurred. • SSO Technical Report: The City will submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters. • "No Spill" Certification: The City will certify that no SSOs occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no SSOs occurred. • Collection System Questionnaire: The City will update and certify every 12 months	Enter data into the CIWQS Online SSO Database[1] (http://ciwqs.waterboards.ca.gov/) certified by the Legally Responsible Official(s) [2]. All information required by CIWQS will be captured in the Sanitary Sewer Overflow Report. Certified SSO reports may be updated by amending the report or adding an attachment to the SSO report within 120 calendar days after the SSO end date. After 120 days, the State SSO Program Manager must be contacted to request to amend an SSO report along with a justification for why the additional information was not available prior to the end of the 120 days.
WATER QUALITY MONITORING	The City will conduct water quality sampling within 48 hours after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.	Water quality results will be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.
RECORD KEEPING	The City will maintain the following records: • SSO event records. • Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP. • Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters.	Self-maintained records shall be available during inspections or upon request.

[1] In the event that the CIWQS online SSO database is not available, the Collection Systems Superintendent will notify SWRCB by phone in accordance with the time schedules identified above. In such an event, the City will submit the appropriate reports using the CIWQS online SSO database when the database becomes available. A copy of all documents that certify the submittal in fulfillment of this section shall be retained in the SSO file.

[2] The City always has at least one LRO. Any change in the LRO(s) including deactivation or a change to contact information, will be submitted to the SWRCB within 30 days of the change by calling (866) 792-4977 or emailing help@ciwqs.waterboards.ca.gov.

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	• Collection system telemetry records if relied upon to document and/or estimate SSO Volume.	

For reporting purposes, if one SSO event of whatever category results in multiple appearance points in a sewer system, a single SSO report is required in CIWQS that includes the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that cause the SSO, and descriptions of the locations of all other discharge points associated with the single SSO event.

11.2 Complaint Records

The City maintains records of all complaints received whether or not they result in sanitary sewer overflows. These complaint records include:

- Date, time, and method of notification
- Date and time the complainant or informant first noticed the SSO or occurrence related to the call
- Narrative description describing the complaint
- A statement from the complainant or informant, if they know, of whether or not the potential SSO may have reached waters of the state
- Name, address, and contact telephone number of the complainant or informant reporting the potential SSO (if not reported anonymously)
- Follow-up return contact information for each complaint received (if not reported anonymously)
- Final resolution of the complaint with the original complainant
- Work service request information used to document all feasible and remedial actions taken

The City's electronic work order system is used to maintain complaint records for calls received whether or not they result in an SSO. A work order is generated when a complaint call comes in. The dispatched crew takes notes about actions taken to address the SSO and the results are entered into the work order system.

Records will be maintained for a minimum of five years.

12. Post SSO Event Debriefing

ref. SWRCB Order No. 2006-0003-DWQ Element 6(d)

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

As soon as possible after Category 1 and Category 2 SSO events, all of the participants, from the person who received the call to the last person to leave the site, will meet to review the procedures used and to discuss what worked and where improvements could be made in preventing or responding to and mitigating future SSO events. The results of the debriefing will be documented and tracked to ensure the action items are completed as scheduled.

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13. Failure Analysis Investigation

ref. SWRCB Order No. 2006-0003-DWQ Element 6(d)

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 or for other SSOs to occur.

The investigation will include reviewing all relevant data to determine appropriate corrective action(s) for the line segment. The investigation will include:

- Reviewing and completing the Sanitary Sewer Overflow Report (D-2 in Appendix D) and any other documents related to the incident
- Reviewing the incident timeline and other documentation regarding the incident
- Reviewing communications with the reporting party and witness
- Reviewing volume estimate, volume recovered estimate, volume estimation assumptions and associated drawings
- Reviewing available photographs
- Interviewing staff that responded to the spill
- Reviewing past maintenance records
- Reviewing past CCTV records
- Conducting a CCTV inspection to determine the condition of all line segments immediately following the SSO and reviewing the video and logs,
- Reviewing any Fats, Oils, Roots and Grease (FROG) related information or results
- Post SSO debrief records
- Interviews with the public at the SSO location

The product of the failure analysis investigation will be the determination of the root cause and the identification and scheduling of the corrective actions. The Collection Systems Failure Analysis Form (in Appendix B and Appendix D) will be used to document the investigation.

14. SSO Response Training

ref. SWRCB Order No. 2006-0003-DWQ Element 6(d)

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

14.1 Initial and Annual Refresher Training

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

Affected employees will receive annual training on the following topics by knowledgeable trainers:

- The City's Overflow Emergency Response Plan and Sanitary Sewer Management Plan
- Sanitary Sewer Overflow Volume Estimation Techniques
- Researching and documenting Sanitary Sewer Overflow Start Times
- Impacted Surface Waters: Response Procedures

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- State Water Resources Control Board Employee Knowledge Expectations
- Employee Core Competency Evaluations on Sanitary Sewer Operations
- Water Quality Sampling Plan

The City will verify that annual safety training requirements are current for each employee, and that employees are competent in the performance of all core competencies. This will be verified through interviews and observations. The City will address, through additional training/instruction, any identified gaps in required core competencies.

Through SWRCB Employee Knowledge Expectations training the employee will be able to answer the following:

1. Please briefly describe your name and job title.
2. Please describe for us approximately when you started in this field and how long you have worked for your agency.
3. Please expand on your current position duties and role in responding in the field to any SSO complaints.
4. Please describe your SOPs used to respond/mitigate SSOs when they occur.
5. Describe any training your agency provides or sends you to for conducting spill volume estimates.
6. We are interested in learning more about how your historical SSO response activities have worked in the field. We understand from discussions with management earlier that you use the OERP from the SSMP. Please elaborate on how you implement and utilize the procedures in the plan.
7. Historically, before any recent changes, can you please walk us through how you would typically receive and respond to any SSO complaints in the field?
8. Can you tell us who is responsible for estimating SSO volumes discharged? If it is you, please describe how you go about estimating the SSO volume that you record on the work order/service request forms?
9. What other information do you collect or record other than what is written on the work order form?
10. Describe if and when you ever talk with people that call in SSOs (either onsite or via telephone) to further check out when the SSO might have occurred based on what they or others know? If you do this, can you tell us where this information is recorded?
11. We understand you may be instructed to take pictures of some sewer spills/backups into structures. Other than these SSOs, when else would you typically take any pictures of an SSO?
12. Please walk us through anything else you'd like to add to help us better understand how your field crews respond and mitigate SSO complaints.

14.2 SSO Response Drills

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

14.3 SSO Training Record Keeping

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Records will 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 and will include date, time, place, content, name of trainer(s), and names and titles of attendees.

14.4 Contractors Working On City Sewer Facilities

All construction contractors working on City sewer facilities will be required to develop a project-specific OERP, will provide project personnel with training regarding the content of the contractor's OERP and their role in the event of an SSO, and to follow that OERP in the event that they cause or observe an SSO. Emergency response procedures shall be discussed at project pre-construction meetings, regular project meetings and after any contractor involved incidents.

All service contractors will be provided, and required to observe contractor procedures. See Appendix F: Contractor Orientation.

15. High Priority Assets

The following assets need to be monitored and inspected for physical/visible damage, and operation must be verified prior to, during, and following an extreme weather event or natural disaster. Refer to the sewer maps for asset locations.

- Pump Stations
- Overcrossings and Undercrossings
- Siphons
- Lines 20" or greater

16. Authority

- Health & Safety Code Sections 5410-5416
- CA Water Code Section 13271
- Fish & Wildlife Code Sections 5650-5656
- State Water Resources Control Board Order No. 2006-0003-DWQ
- State Water Resources Control Board Order 2013-009-DWQ effective September 9, 2013

17. References

- Sanitary Sewer Overflow and Backup Response Field Guide, 2013, DKF Solutions Group, LLC
- Appendix A: Regulatory Notifications Packet
- Appendix B: Sanitary Sewer Backup Packet
- Appendix C: Service Vehicle Forms Binder
- Appendix D: Sanitary Sewer Overflow Packet
- Appendix E: Field Sampling Kit
- Appendix F: Contractor Orientation
- Appendix G: Contact Information

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Appendix A

REGULATORY NOTIFICATIONS PACKET

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Regulatory Notifications Packet

Instructions:

1. Receive call from on-site crew reporting a Sanitary Sewer Overflow.
2. Open this packet.
3. Refer to the Regulatory Reporting Guide for instructions.
4. Use the SSO Reporting Checklist (A-2) for the appropriate category of spill to document that all notifications are made according to the reporting schedule.

Contents:

Print on 6”x9” envelope

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Reporting Instructions

Deadline	See reverse side for definitions of the categories of spills of untreated or partially treated wastewater from publically owned sanitary sewer system			Spill from Private Lateral
	Category 1	**Category 2**	**Category 3**	
2 hours after awareness of SSO	• If the SSO is greater than or equal to 1,000 gallons, call CalOES at (800) 852-7550. • Call the Collection Systems Superintendent • If SSO occurs in areas where the public gathers (e.g., schools, parks, shopping centers, etc.) call Contra Costa County Environmental Health Services • If discharge is near water treatment plant intake pumps, notify the City of Antioch Water Treatment Plant	If SSO occurs in areas where the public gathers (e.g., schools, parks, shopping centers, etc.): • Call Contra Costa County Environmental Health Services • Call Collection Systems Superintendent • If discharge is near water treatment plant intake pumps, notify the City of Antioch Water Treatment Plant	If SSO occurs in areas where the public gathers (e.g., schools, parks, shopping centers, etc.): • Call Contra Costa County Environmental Health Services • Call the Collection Systems Superintendent • If discharge is near water treatment plant intake pumps, notify the City of Antioch Water Treatment Plant	-
48 Hours after awareness of SSO	If 50,000 gal or more were not recovered, begin water quality sampling and initiate impact assessment	-	-	-
3 Days after awareness of SSO	Submit Draft Spill Report in the CIWQS* database	Submit Draft Spill Report in the CIWQS* database	-	-
15 Days after response conclusion	Certify Spill Report in CIWQS*. Update as needed until 120 days after SSO end time	Certify Spill Report in the CIWQS* database. Update as needed until 120 days after SSO end time	-	-
30 Days after end of calendar month in which SSO occurred	-	-	Certify Spill Report in the CIWQS* database. Update as needed until 120 days after SSO end time	-
45 days after SSO end time	If 50,000 gal or more were not recovered, submit SSO Technical Report using CIWQS*	-	-	-

* In the event that the CIWQS online SSO database is not available, notify the State Water Resources Control Board (SWRCB) by phone or email until the CIWQS online SSO database becomes available: (See contact information on Side B)

Note: For reporting purposes, if one SSO event results in multiple appearance points, complete one SSO report in the CIWQS SSO Online Database, and report the location of the SSO failure point, blockage or location of the flow condition that caused the

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SSO, in the CIWQS SSO Online Database, including all the discharge points associated with the SSO event.

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Contact Information:

CalOES:	(800) 852-7550
Public Works Director	(925) 779-6953
Contra Costa County Environmental Health Services:	(925) 692-2500
City of Antioch Water Treatment Plant	(925) 779-7027
State Water Resources Control Board (SWRCB): Gil Vasquez, Water Resources Control Engineer	(916) 322-1400 Gil.Vazquez@waterboards.ca.gov

Authorized Personnel

The following personnel are authorized to perform regulatory reporting:

- Collection Systems Superintendent
- Water Distribution Superintendent
- Public Works Director
- Public Works Technician
- Collection Systems Supervisor
- Collection Systems Leadworker

The City's Legally Responsible Officials (LROs) are authorized to electronically sign and certify SSO reports in CIWQS:

LRO Name	Job Title	Contact Information
Jeff Cook	Collection Systems Superintendent	Phone: (925) 779-6962 Cell: (925) 383-1919
John Blank	Public Works Director	Phone: (925) 779-6953
John Adams	Collection System Supervisor	Phone: (925) 779-6824 Cell: (925) 483-0112

Definitions of Spill Categories

The response crew will complete the SSO Report form in the SSO Packet to document how the category was determined.

Category	Definition
Category 1:	Discharge of untreated or partially treated wastewater of any volume resulting from a sanitary sewer system failure or flow condition that either: • Reaches surface water and/or drainage channel tributary to a surface water; or • Reached a Municipal Separate Storm Sewer System (MS4) and was not fully captured and returned to the sanitary sewer system or otherwise captured and disposed of properly.
Category 2:	Discharge of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from a sanitary sewer system failure or flow condition that either: • Does not reach surface water, a drainage channel, or an MS4, or • The entire SSO discharged to the storm drain system was fully recovered and disposed of properly.
Category 3:	All other discharges of untreated or partially treated wastewater resulting from a sanitary sewer system failure or flow condition.

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Regulatory Notifications Packet
Category 1 SSO Reporting Checklist

A-2a

Use this Checklist for Category 1 SSOs only

STEP 1: Receive call from crew.

☐ If the spill is greater than or equal to 1,000 gallons, confirm whether or not they have notified CalOES. If so, complete the information in Step 2.

STEP 2: 2-hour Notification

If the spill is greater than or equal to 1,000 gallons, notify CalOES within 2 hours of the time the agency was notified of the spill.

☐ **Notify CalOES** at (800) 852-7550:

- Date Called: _____
- Time called: _____ : _____ ☐AM ☐PM
- CalOES Control number: _____

☐ **Call the Public Works Director** at (925) 779-6953

☐ **Call the Collection Systems Superintendent** at (925) 779-6962 or (925) 383-1919

☐ If SSO occurs in areas where the public gathers (e.g., schools, parks, shopping centers, etc.) call **Contra Costa County Environmental Health Services** at (925) 692-2500

☐ **Notify Water Treatment Plant** for SSOs near the City of Antioch's drinking water intake pumps.

STEP 3: Within 48-Hours after awareness of SSO

☐ Only if 50,000 gallons or more was not recovered, implement Water Quality Monitoring Plan.

STEP 4: Within 3 Days after awareness of SSO

☐ Submit a Draft Spill Report using the CIWQS online reporting database.

STEP 5: Within 15 Days after response conclusion

☐ Certify the Spill Report using the CIWQS online reporting database. Updates to the Spill Report may be made for up to 120 days following the conclusion of the SSO Response.

STEP 6: Within 45 Days after SSO end time

☐ Within 45 days after the conclusion of the SSO Response, submit an SSO Technical Report using the CIWQS online reporting database only if 50,000 gallons or more was spilled to surface waters.

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Regulatory Notifications Packet

Category 2 & 3 SSO Reporting Checklist

A-2b

Use this Checklist for Category 2 and 3 SSOs only

STEP 1: Receive call from crew.

STEP 2: 2-hour Notification

If SSO occurs in areas where the public gathers (e.g., schools, parks, shopping centers, etc.):

- ☐ **Call Contra Costa County Environmental Health Services** at (925) 692-2500
- ☐ **Call the Public Works Director** at (925) 779-6953
- ☐ **Call the Collection Systems Superintendent** at (925) 779-6962 or (925) 383-1919
- ☐ **Notify Water Treatment Plant** for SSOs near the City of Antioch's drinking water intake pumps.

STEP 2: Submit Draft Spill Report (Category 2 only)

- ☐ Submit a Draft Spill Report using the CIWQS online reporting database within 3 days after awareness of Category 2 SSO.

STEP 3: Certify Spill Report

- ☐ Certify the Spill Report using the CIWQS online reporting database:
  - Category 2 SSO: Within 15 days after the conclusion of the response
  - Category 3 SSO: Within 30 days after the end of the calendar month in which the SSO occurred

- ☐ Updates to the Spill Report may be made for up to 120 days following the conclusion of the SSO Response.

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Appendix B

SANITARY SEWER BACKUP RESPONSE PACKET

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City of Antioch: Overflow Emergency Response Plan

Sanitary Sewer Backup Response Packet
Table of Contents

For pre-assembled packets contact DKF Solutions Group at 707.373.9709 or dpatzer@dkfsolutions.com

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In the event of a **Sewer Backup** into a home/business
READ THIS FIRST

If this is a Category 1 SSO greater than or equal to 1,000 gallons, contact the Collection Systems Superintendent to make the 2-hour notification to CalOES.

Notifications Trigger:	Contact Immediately:	Telephone:
Any sewer backup	Municipal Pooling Authority (MPA)	(925) 943-1100 ext. 11
If the backup is into a business or home and may be the responsibility of the City	Collection Systems Superintendent	(925) 779-6962 (925) 383-1919
	Collection Systems Supervisor	(925) 779-6824 (925) 483-0112
For any media requests	Public Works Director	(925) 779-6953
For cleaning services (restoration/remediation)	Restoration Management Service Master	(800) 400-5058 (800) 480-8439

Collections Crew:

- ❑ Follow the instructions on the Sewer Backup Response Flowchart (B-1). Note: If multiple dwelling units are affected, use one packet per unit and check here: ☐
- ❑ If indicated on the flowchart, give the customer the Bubbled Toilets Letter (C-1) and/or the Customer Service Packet and have them initial here: *Customer acknowledges receipt of Customer Service Packet:* _____
- ❑ Place completed forms in this envelope, complete the Chain of Custody record (right) and forward this packet to the Collection Systems Superintendent.

Print Name: _____

Initial: _____

Date: _____

Time: _____

Collection Systems Superintendent:

- ❑ Review the enclosed forms.
- ❑ If Category 1 SSO greater than or equal to 1,000 gallons, contact CalOES at (800) 852-7550.
- ❑ Complete the Regulatory Notifications Packet.
- ❑ Complete the Claims Submittal Checklist (B-9), including the Collection System Failure Analysis form (B-10).
- ❑ Complete the Chain of Custody record (right) and forward this packet to the City Attorney.

Print Name: _____

Initial: _____

Date: _____

Time: _____

City Attorney:

- ❑ Refer to the Claims Submittal Checklist (B-9).

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Sanitary Sewer Backup Response Packet

Backup Response Flowchart

B-1
Side A

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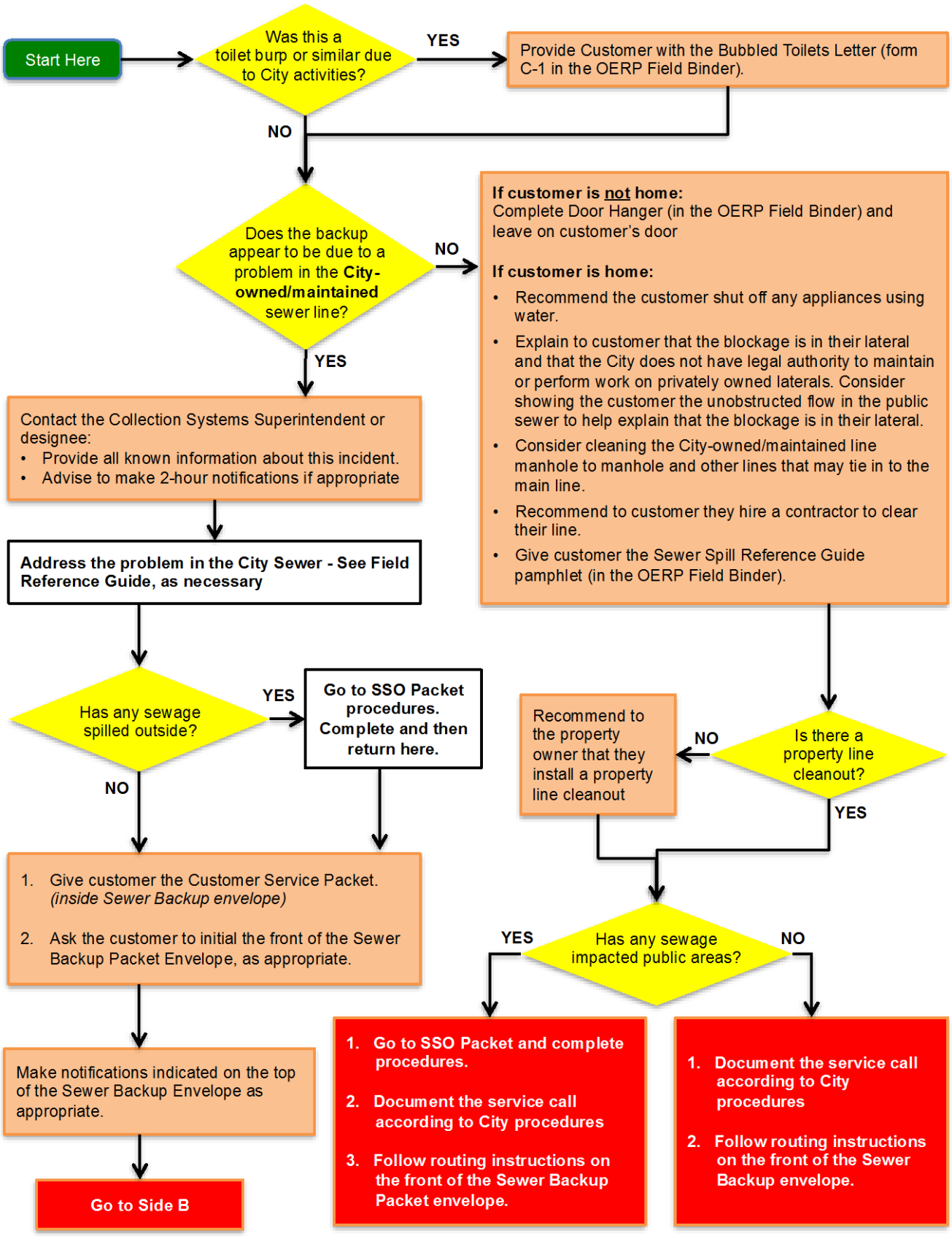

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Sanitary Sewer Backup Response Packet

Backup Response Flowchart

B-1
Side B

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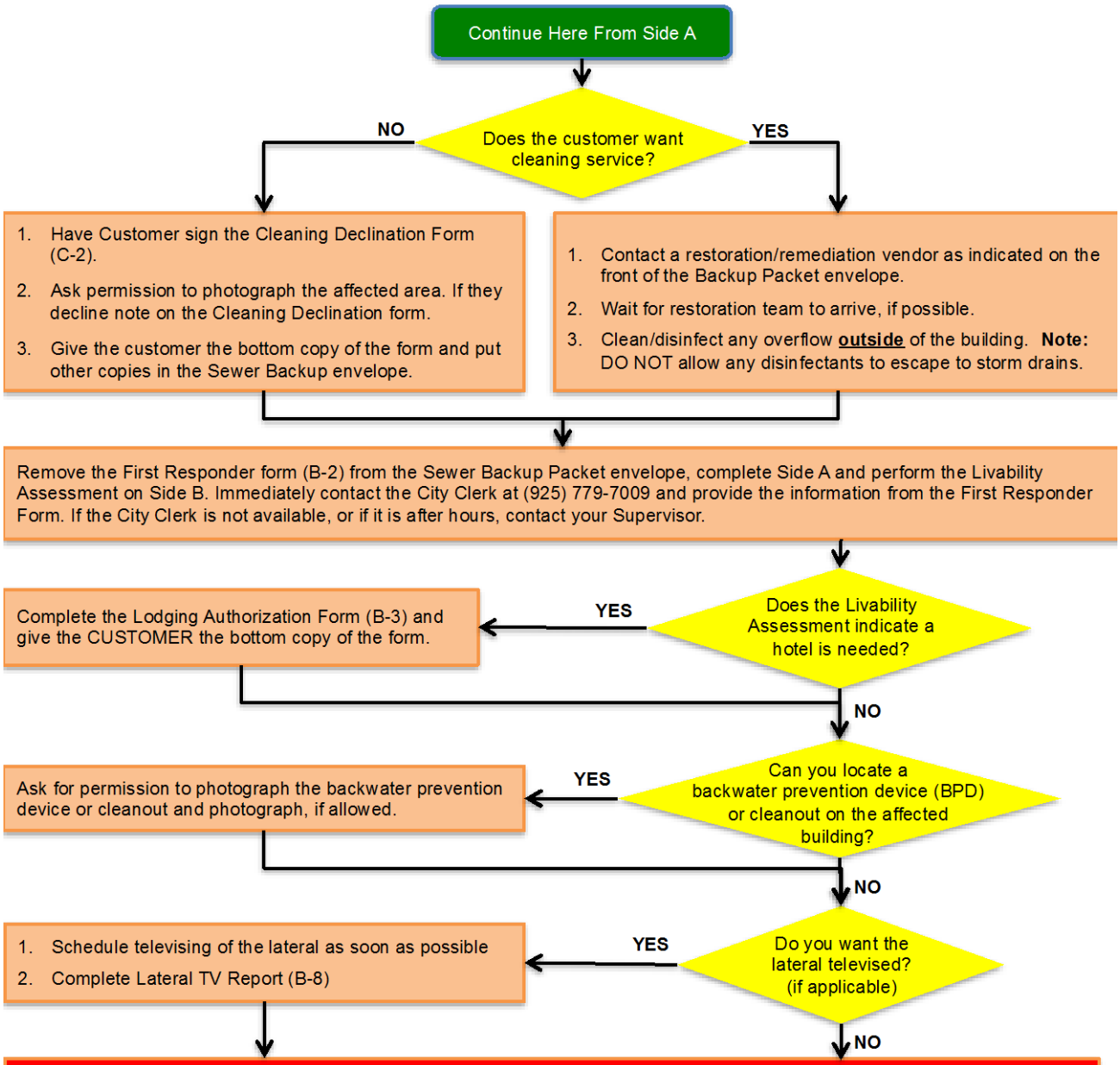

MEDIA AND PUBLIC RELATIONS GUIDELINES:

Exercise caution in contacts with the public or media when you respond to a spill. Any information you provide or statements you make may become pertinent in the event of possible court action, it is important to **AVOID THE FOLLOWING**:

- Giving out the wrong information,
- Making accusations against customers, businesses or other agencies
- Speculating about the situation you are responding to
- Providing incorrect facts about a company or other agency

Be courteous and attempt to provide accurate information to questions within the limits above. In some cases, it may be appropriate to say that we do not have any information, or to delay answering a question and then to say when an answer might be available.

In most cases, refer media requests to the media coordinator indicated on the front of the Sewer Overflow Packet envelope.

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City of Antioch: Overflow Emergency Response Plan

Sanitary Sewer Backup Response Packet
First Responder Form

B-2
Side A

Fill out this form as completely as possible.
Ask customer if you may enter the home. If so, take photos of damaged and undamaged areas.

PERSON COMPLETING THIS FORM:	PHONE: DATE: TIME:
TIME STAFF ARRIVED ON-SITE:	
DID CUSTOMER CALL CLEANING CONTRACTOR? ☐ Yes ☐ No If YES, name of contractor:	
RESIDENT:	PROPERTY MANAGERS: OWNER/TENANT:
STREET ADDRESS: CITY, STATE AND ZIP: PHONE:	STREET ADDRESS: CITY, STATE AND ZIP: PHONE:
IS NEAREST UPSTREAM MANHOLE VISIBLY HIGHER THAN THE DRAIN THAT OVERFLOWED? ☐ Yes ☐ No	
# OF PEOPLE LIVING AT RESIDENCE:	

Approximate Age of Home:	# of Bathrooms:	# of Rooms Affected:
Approximate Amount of Spill (gallons):	Approximate Time Sewage Has Been Sitting (hrs/days):	
Numbers of Pictures Taken	Digital or Film?	

Does property have a Property Line Cleanout?	☐ YES ☐ NO ☐ Unknown
Does the Customer have a Backwater Prevention Device (BPD)?	☐ YES ☐ NO ☐ Unknown
If yes, was the BPD operational at the time of the overflow?	☐ YES ☐ NO ☐ Unknown
Have there ever been any previous spills at this location?	☐ YES ☐ NO ☐ Unknown
Has the resident had any plumbing work done recently? *If YES, please describe:*	☐ YES ☐ NO

GO TO SIDE B

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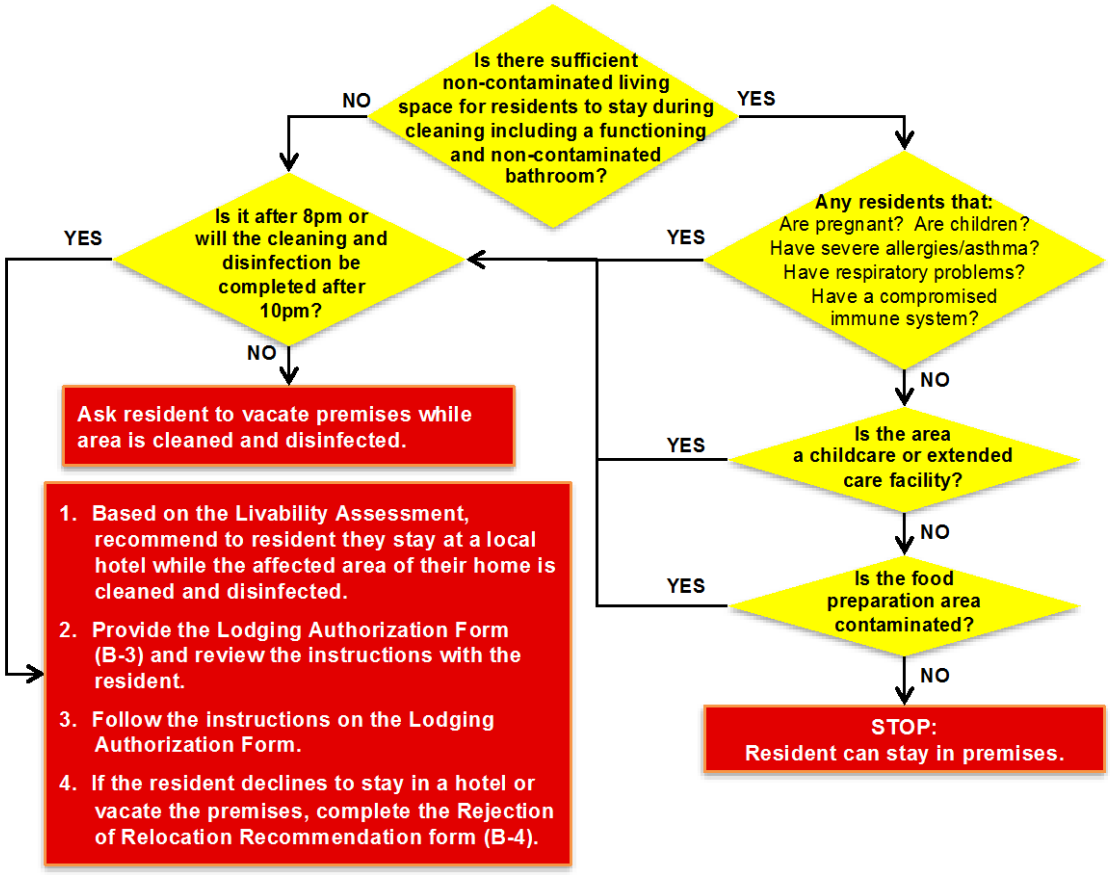
Sanitary Sewer Backup Response Packet
First Responder Form

B-2
Side B



LIVABILITY ASESSMENT

SANITARY SEWER LINE BLOCKAGE LOCATION

PLEASE CHECK THE BOXES THAT DESCRIBE YOUR OBSERVATIONS:

Customer Cleanout Was:	Public Cleanout was:
☐ Non-Existent	☐ Non-Existent
☐ Full	☐ Full
☐ Empty	☐ Empty

On the diagram below, indicate the location of the sewer line and where the problem occurred.

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Recommended Follow-Up Action(s):

Affected House	Upstream House

Did sewage go under buildings? ☐ Yes ☐ No ☐ Unsure

Place completed form in Sewer Backup Envelope and follow routing instructions

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B-3

Sanitary Sewer Backup Response Packet
Lodging Authorization Form

INSTRUCTIONS TO CITY MAINTENANCE WORKERS:

1. Explain the circumstances of the backup. If the Livability Assessment indicates that a hotel is needed, offer alternate lodging to the customer. If they agree, ask the customer which hotel identified below they prefer. Contact the Collection Systems Superintendent who will make the necessary arrangements.
2. Review this form with the customer and instruct them to read the Instructions to Resident section below.
3. Instruct the customer that this emergency authorization is for LODGING ONLY – NO FOOD, MINIBAR, MOVIE, PHONE or Other Charges).
4. Explain to customer that if circumstances require additional nights' lodging and other incidentals, the City Attorney will address them.
5. Have the customer sign the Acknowledgement section of this form.
6. Complete this Authorization Form and sign.
7. Give the bottom copy of this form to the customer.

INSTRUCTIONS TO RESIDENT: The City of Antioch recommends that you temporarily relocate to a local hotel for your safety and convenience while your residence is being cleaned. Please note that this emergency authorization is granted under the following conditions:

1. This authorization provides for one (1) nights' lodging at the hotel selected below.
2. The authorization is good for **room and tax ONLY**.
3. Additional nights, other allowances, and special circumstances may be discussed by contacting the City Attorney at (925) 779-7015 or Municipal Pooling Authority at (925) 943-1100 ext. 11.

CUSTOMER ACKNOWLEDGEMENT:

I/we have read and understood the terms and conditions governing this offer of temporary relocation and agree to abide by them as described above.

Customer Name (please print): _____

Customer Address: _____

Phone # where customer may be reached: _____

Customer Signature: _____ Date: _____

☐ Check here to decline this offer of temporary relocation. Customer Signature: _____

Good for one (1) night's stay on (date): _____ Number of affected residents: _____

City of Antioch Representative's Name: _____ Phone Number: _____

This voucher is valid at the following hotels:

Comfort Suites – Antioch/Oakley 5949 Bridgehead Road Oakley, CA 94561 925-755-1222	Extended Stay America – Pleasant Hill 3320 Buskirk Avenue Pleasant Hill, CA 94523 925-945-6788	Holiday Inn – Concord 1050 Burnett Avenue Concord, CA 94520 925-687-5501
Ramada Inn – Antioch 2436 Mahogany Way Antioch, CA 94509 925-754-6600	Holiday Inn Express – Brentwood 8820 Brentwood Blvd Brentwood, CA 94513 925-634-6400	

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Hotel Staff: Please direct any questions regarding this voucher to the City of Antioch, CA's City Attorney at (925) 779-7015 or Municipal Pooling Authority at (925) 943-1100 ext. 11.

Distribution: Top Copy to: City records Middle Copy to: Collection Systems Superintendent Bottom Copy to Customer

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Sanitary Sewer Backup Response Packet

Release by Customer to Not Relocate Due to a Backup into Structure

B-4

On _____, a backup into structure occurred at _____
(date) (address)

Property Owner: _____

Resident: _____

Due to a backup into the structure, the above listed property has sewage to be cleaned up/mitigated, which may also include remediation of part of the structure. It is recommended by City of Antioch, CA that the residents of the above listed property relocate until the cleanup/mitigation and any required remediation is completed. City of Antioch, CA staff has provided the information to the resident: "Your Responsibilities as a Private Owner."

Resident(s) determined that they did not want to relocate and will remain in the structure.

PROPERTY OWNER/RESIDENT RELEASE OF LIABILITY AND ASSUMPTION OF RISK

I have decided that I do not want to relocate from the address listed above during any cleanup/mitigation and/or remediation. I have received all the materials listed above from City of Antioch, CA. I understand that there are inherent risks with exposure to sewage and the associated cleanup/mitigation and/or remediation process due to the potential for coming into contact with sewage through breathing, swallowing, or cuts and abrasions in the skin that may cause pathogens. Risks may range from (1) minor temporary discomfort and illness, (2) more serious illness that may require medical treatment, (3) very serious illness that could result in life threatening conditions and including death. I know, understand, and appreciate these and other risks inherent in being exposed to sewage. I knowingly assume all such risks that may result from my own actions, inactions, or negligence of others, and the condition of the structure during the cleanup/mitigation and/or remediation process.

I, for myself, my heirs, personal representative or assigns, hereby release, discharge and hold harmless City of Antioch, CA, its respective Boards, officers, employees, agents and contractors from any and all claims, actions, causes of action, demands, rights, damages, costs, loss of service, expenses, legal expenses, including subrogation or liens or damage caused by or related to my remaining in the structure while cleanup/mitigation and/or remediation is performed as a result of the backup.

_____ _____
Resident Signature Date

_____
City of Antioch, CA Witness

Comments: _____

_____

Distribution: Top Copy to: City records Middle Copy to: Collection Systems Superintendent Bottom Copy to Customer

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City of Antioch: Overflow Emergency Response Plan

Sanitary Sewer Backup Response Packet
Sanitary Sewer Overflow Report

B-5
Side A

INSTRUCTIONS: Complete all items *EXCEPT* those that are shaded gray

SSO Category *(check one)*:

☐ Category 1: Discharge of untreated or partially treated wastewater of any volume resulting from a sanitary sewer system failure or flow condition that either (1) Reaches surface water and/or drainage channel tributary to a surface water; OR (2) Reached a Municipal Separate Storm Sewer System (MS4) and was not fully captured and returned to the sanitary sewer system or otherwise captured and disposed of properly.

☐ Category 2: Discharge of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from a sanitary sewer system failure or flow condition that either (1) Does not reach surface water, a drainage channel, or an MS4, OR (2) The entire SSO discharged to the storm drain system was fully recovered and disposed of properly.

☐ Category 3: All other discharges of untreated or partially treated wastewater resulting from a sanitary sewer system failure or flow condition

☐ Spill from Private Lateral (specify): ☐ Single Family Home ☐ Multi-Family Home ☐ High Density Residential (5+ units) ☐ Food Service Establishment (FSE) ☐ Mixed Use Property ☐ Industrial Property ☐ Commercial Property ☐ Public quasi-public institution (hospital, schools, fire department, etc.)

IMMEDIATE NOTIFICATION: If this is a Category 1 SSO ≥1,000 gallons, contact CalOES within 2 hours at (800) 852-7550.

A. SSO LOCATION

SSO Location Name:		
Street Name and Number:		
Nearest Cross Street:	City:	Zip Code:
County:	SSO Location Description:	

B. SSO DESCRIPTION (Complete Volume Estimation Worksheets and/or refer to Field Guide as needed for estimations.)

SSO Appearance Point (check one or more): ☐ Force Main ☐ Lateral Cleanout (Private) ☐ Lower Lateral (Public) ☐ Inside Building or Structure ☐ Manhole ☐ Pump Station ☐ Other Sewer System Structure (specify):

Were there multiple appearance points? ☐ No ☐ Yes, number of appearance points:

Did the SSO reach a drainage channel and/or surface water? ☐ Yes (*Category 1)* ☐No

If the SSO reached a storm sewer, was it fully captured and returned to the Sanitary Sewer? ☐ Yes ☐No (*Category 1)*

Was this spill from a private lateral? ☐ Yes ☐No If YES, name of responsible party:

Spill Destination(s): ☐ Surface waters other than ocean ☐ Drainage channel ☐ Building/structure ☐ Separate Storm drain ☐ Paved surface ☐ Unpaved surface ☐ Street/curb/gutter ☐ Other:
*Provide name(s) of affected drainage channels, beach, etc.:

Total Estimated SSO volume: gallons

Est. volume that reached a separate storm drain that flows to a surface water body:	gal	Recovered:	gal
Est. volume discharged directly to a surface water body (e.g., creek):	gal	Recovered:	gal
Est. volume discharged to land:	gal	Recovered:	gal
Est. volume discharged to a non-manmade drainage channel that conveys storm runoff:	gal	Recovered:	gal

Calc. Methods: ☐Photo Comparison ☐Upstream Lat. Connections ☐Area/Volume (include sketch/photo with dimensions) ☐Other (describe):

C. SSO OCCURRING TIME (complete Start Time Determination Form and then complete information below)

Estimated SSO start date:	Estimated SSO start time:
Date SSO reported to sewer crew:	Time SSO reported to sewer crew:
Date sewer crew arrived:	Time sewer crew arrived:
Who was interviewed to help determine start time?	
Estimated SSO end date:	Estimated SSO end time:

D. CAUSE OF SSO

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Where did failure occur? (Check all that apply): ☐ Air Relief or Blow-Off Valve ☐ Force Main ☐ Gravity Mainline ☐ Siphon ☐ Lower Lateral (public) ☐ Upper Lateral (private) ☐ Manhole ☐ Pump Station (specify): oControls oMechanical oPower ☐ Other:

D. CAUSE OF SSO - continued

SSO cause *(check all that apply)*: ☐ Air Relief or Blow-Off Valve Failure ☐ Construction Diversion Failure ☐ CS Maintenance ☐ Damage by others ☐ Debris (specify): oFrom Construction oFrom Lateral oGeneral oRags ☐ Flow Exceeded Capacity
☐ FOG (Fats, oil, grease) ☐ Inappropriate Discharge ☐ Natural Disaster ☐ Operator Error ☐ Root Intrusion
☐ Pipe Structural Problem/Failure ☐ Pipe Structural Problem/Failure (Installation) ☐ Rainfall Exceeded Design
☐ Pump Station Failure (specify): oControls oMechanical oPower ☐ Siphon Failure ☐ Vandalism
☐ Surcharged Pipe ☐ Non - Dispersible Wipes ☐ Other (specify):

Diameter (in inches) of pipe at point of blockage/spill cause (if applicable):

Sewer pipe material at point of blockage/spill cause (if applicable):

Estimated age of sewer asset at the point of blockage or failure in months (if applicable):

Description of terrain surrounding point of blockage/spill cause: ☐ Flat ☐ Mixed ☐ Steep

SSO response activities (check all that apply): ☐ Cleaned-Up ☐ Mitigated Effects of Spill ☐ Contained All or Portion of Spill ☐ Restored Flow ☐ Returned All Spill to Sanitary Sewer System ☐ Returned Portion of Spill to Sanitary Sewer System ☐ Property Owner Notified ☐ Other Enforcement Agency Notified (specify) ☐ Other (specify):

E. Category 1 SSO EMERGENCY RESPONSE

SSO emergency response completed (date & time):	

Visual inspection result of impacted waters (if applicable):

Any fish killed? ☐ Yes ☐ No Any ongoing investigation? ☐ Yes ☐ No

Were health warnings posted? ☐ Yes ☐ No If yes, provide health warning/beach closure posting/details:

Was there a beach closure? ☐ Yes ☐ No If yes, name of closed beach(es):

Were samples of impacted waters collected? ☐ Yes ☐ No
If YES, select the analyses: ☐ DO ☐ Ammonia ☐ Bacteria ☐ pH ☐ Temperature ☐ Other:

F. RECOMMENDED CORRECTIVE ACTIONS

Recommended corrective actions: (check all that apply and provide detail)
☐ Add sewer to preventive maintenance program
☐ Adjust schedule/method of preventive maintenance
☐ Enforcement action against FROG source
☐ Inspect Sewer Using CCTV to Determine Cause
☐ Plan rehabilitation or replacement of sewer
☐ Repair Facilities or Replace Defect
☐ Other (specify)

G. GENERAL SSO RESPONSE

What major equipment was used in the response (if no work order was created)?

List all agency personnel involved in the response including name, title and their role in the response (if no work order was created):

H. NOTES

I. NOTIFICATION DETAILS

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CalOES contacted date and time (if applicable):	
CalOES Control Number (if applicable):	Spoke to:

This form prepared by:	NAME:	TITLE:	DATE:
This form reviewed by:	NAME:	TITLE:	DATE:

Place completed form in Sewer Backup Envelope and follow routing instructions.

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Sanitary Sewer Backup Response Packet

Start Time Determination Form

B-6

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Spill Date: _____ Location: _____

Accurate start time determination is an essential part of spill volume estimation. Depending on the flow rate, being even one minute off can have a huge impact on the volume estimation. Be as precise as possible. Do not round to quarter hour increments. Start time must be based on all available information (interviews with neighbors, emergency responders, etc.)

What time was the agency notified of the spill? _____ ☐ **AM** ☐ **PM**

Who notified the agency? _____

Did they indicate what time they noticed the spill? ☐ **YES** ☐ **NO** If yes, what time? _____ ☐ **AM** ☐ **PM**

Who at the agency received the notification? _____

What time did the crew arrive at the site of the spill? _____ ☐ **AM** ☐ **PM**

Who was interviewed regarding the start time of the spill? Include their name, contact information, and the statement they provided:

Name	Contact Information	Statement

Describe in detail how you determined the start time for this particular spill:

Spill Start Date: _____ **Spill Start Time:** _____ ☐ **AM** ☐ **PM**

Spill End Date: _____ **Spill End Time:** _____ ☐ **AM** ☐ **PM**

Spill Duration: _____ minutes

_____	x 60	=	_____
# of hours			minutes
_____	x 1440	=	_____
# of days			minutes

This form completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

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Duration and Flow Rate Estimation Photo Comparison Worksheet

STEP 1: Compare the spill to reference images to estimate flow rate of the current overflow. Describe which reference photo(s) were used and any additional factors that influenced applying the reference photo data to the actual spill:

Flow Rate Based on Photo Comparison: _____ gallons per minute (gpm)

STEP 2: Multiply the spill rate by the spill duration to calculate the estimated spill volume.

_____ gpm	X	_____ minutes	=	_____ gallons
Flow Rate		Spill Duration		Estimated Spill Volume

Did the spill occur during a period of consistent flow in this portion of the sytem? ☐ Yes ☐ No

If no, explain how, based on this portion of the collection system and its users, you believe it may have impacted the estimated spill volume:

STEP 3: By what percentage are you adjusting the estimation? ☐ increase ☐ decrease _____ %

Translate the percentage into gallons: _____ gallons

Calculate the adjusted spill volume estimate:

_____ gallons	+ or -	_____ gallons	=	_____ gallons
Estimated Spill Volume		Adjustment		**Estimated spill volume**

STEP 4: Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

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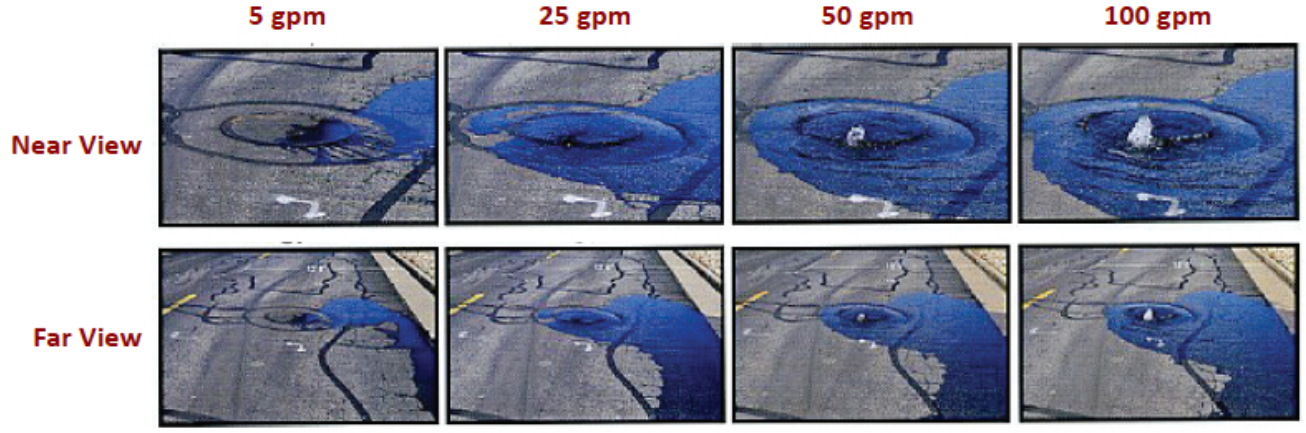
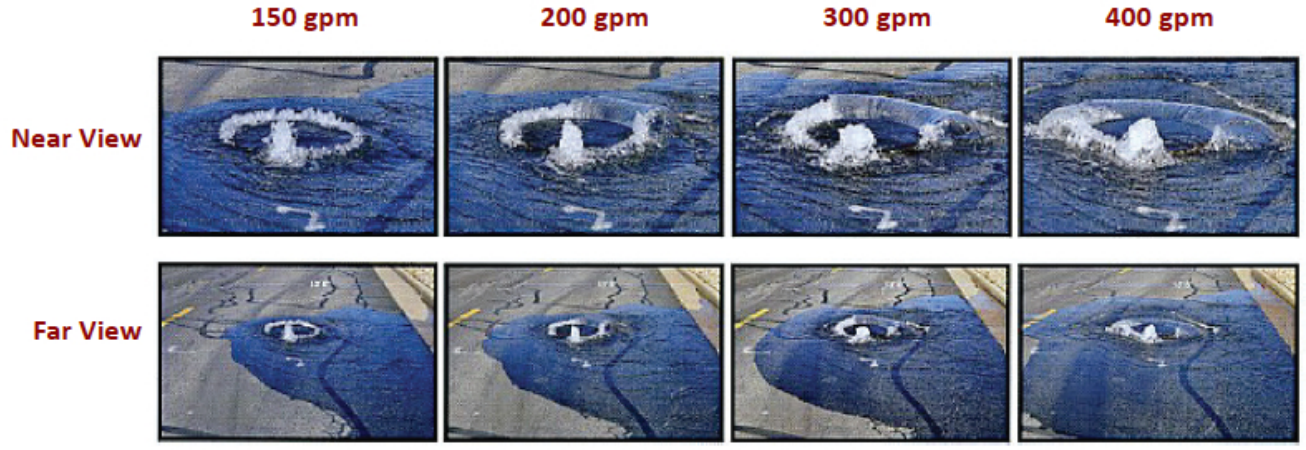
Duration and Flow Rate Estimation Reference Photographs

Use the photographs below as reference only. Other factors also influence the actual flow rate.

SSCSC Manhole Overflow Gauge

CWEA Southern Section Collections Systems Committee
Overflow Simulation courtesy of Eastern Municipal Water District





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Area Volume Estimation: Ponded Sewage – *Page 1 of 4*

(Refer to reference guides on pages 3 and 4 as needed)

STEP 1: Describe spill area surface: ☐Asphalt ☐Concrete ☐Dirt ☐Landscape ☐Inside Building
☐Other: _____

STEP 2: Draw/sketch the outline (footprint) of the spill. Then break the footprint down into recognizable shapes. Refer to the example on the **Area/Volume Method: Ponded Sewage Reference Page 1.**

STEP 3: Calculate the area of the footprint. Complete the table below for each shape identified in Step 2. If two shapes overlap, select one of the two shapes and estimate the percentage of that shape that does not overlap. Enter that percentage in the % Not Overlapping column. This will ensure that the overlap area is only counted once. Refer to the example on the Area/Volume Method: Ponded Sewage Reference Page 1.

Rectangles	Length	X	Width	X	% Not Overlapping	=	Area
	ft	X	ft	X	%	=	ft²
	ft	X	ft	X	%	=	ft²
	ft	X	ft	X	%	=	ft²

Triangles	Base	X	Height	Multiplier	X	% Not Overlapping	=	Area
	ft	X	ft	÷ 2	X	%	=	ft²
	ft	X	ft	÷ 2	X	%	=	ft²
	ft	X	ft	÷ 2	X	%	=	ft²

Circles	π	X	Radius	X	Radius	X	% Not Overlapping	=	Area
	3.14	X	ft	X	ft	X	%	=	ft²
	3.14	X	ft	X	ft	X	%	=	ft²
	3.14	X	ft	X	ft	X	%	=	ft²

Total Spill Area (sum of all three tables above): _____ ft²

STEP 4: Calculate the volume of the spill that **was NOT absorbed** into the ground. If the entire spill was absorbed, skip to Step 5.

a. If the spill is of varying depths, take several measurements at different depths and find the average.

_____ inches ÷ _____ = _____ inches ÷ 12 = _____ feet
sum of measurements | # of measurements | average depth in inches | average depth in feet of ponded sewage

b. Calculate spill volume of ponded sewage in cubic feet by multiplying the Total Spill Area in Step 3 by the average depth calculated in Step 4a. Convert from cubic feet to gallons by multiplying by 7.48.

_____ ft² x _____ ft = _____ ft³ x 7.48 gal = _____ gallons
spill area (Step 3) | average depth (Step 4a) | spill volume in cubic feet | estimated volume of ponded sewage

GO TO NEXT PAGE

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Area Volume Estimation: Ponded Sewage – *Page 2 of 4*

(Refer to reference guides on pages 3 and 4 as needed)

STEP 5: Calculate the volume of the spill that was absorbed into the ground. If only a wet stain is observed, use the guidelines from the Area/Volume Method: Ponded Sewage Reference Page 1 for the average depth instead of performing the calculations in Steps 5a and 5b below.

a. In order to perform this calculation, you must first determine the water content in the soil using the method described on Area/Volume Method: Ponded Sewage Reference Page 2:

Volume of known quantity of water:	V_1 = _____ gallons
Area of wetted footprint:	A = _____ ft^2
Average Depth of Wet Soil:	D = _____ ft
Volume of Wet Soil in Feet = A x D	V_2 = _____ ft^3
Convert cubic feet to gallons = V_2 x 7.48	V_3 = _____ gallons
Calculate water content in soil $V_1 \div V_3$ x 100	Water Content = _____ %

b. Calculate the depth of the actual sewage spill that was absorbed into the ground. First, measure the depth of the wet soil in several locations within the wetted area of the sewage spill. Determine the average depth of the wet soil by taking several measurements at different depths and finding the average. Convert the measurement to feet:

_____ inches (sum of measurements) ÷ _____ (# of measurements) = _____ inches (average depth in inches) ÷ 12 = _____ feet (average depth in feet)

c. Calculate volume of the spill that was absorbed into the ground in cubic feet by multiplying the Total Spill Area from Step 3 by the average depth calculated in Step 5b. Then convert from cubic feet to gallons by multiplying by 7.48. Then multiply by the water content percentage determined in Step 5a.

_____ ft^2 (spill area (Step 3)) x _____ ft (average depth (Step 5b)) = _____ ft^3 (spill volume in cubic feet) x 7.48 gal x _____ % (water content (Step 5a)) = _____ gallons (estimated volume of absorbed sewage)

STEP 6: Add the volume not absorbed (Step 4) plus the volume absorbed (Step 5) to get the total estimated volume:

_____ gallons (volume not absorbed) + _____ gallons (volume absorbed) = _____ gallons (Total Estimated Spill Volume)

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

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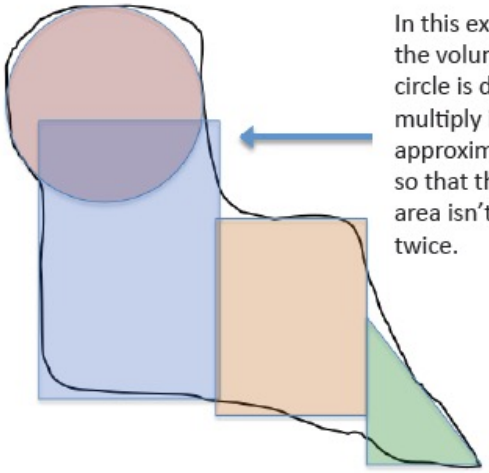
Area Volume Estimation: Ponded Sewage – *Page 3 of 4*

REFERENCE

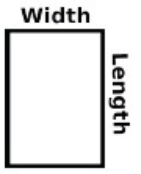
Computation	Formula/Guide
To convert inches to feet	Divide the inches by 12 or use the chart on the bottom right of this page.
Volume of one cubic foot	7.48 gallons of water
Area: Two-dimensional measurement represented in square feet.	Square/rectangle: Area = Length x Width Circle: Area = πr^2 (where $\pi \approx 3.14$ and r = radius = ½ diameter) Triangle: Area = ½ (Base x Height)
Volume: Three-dimensional measurement represented in cubic feet.	Rectangle/square footprint: Volume = Length x Width x Depth Circle footprint (cylinder): Volume = πr^2 x Depth (where $\pi \approx 3.14$ and r = radius = ½ diameter) Triangle footprint: Volume = ½ (Base x Height) x Depth
Depth: Contained or "Ponded" sewage	Measure actual depth of standing sewage whenever possible. When depth varies, measure several representative sample points and determine the average. Add the depth of the sample points and then divide that total by the number of sample points. If the depth is not measurable because it is only a wet stain, consider using the following estimated depths: • Depth of a wet stain on concrete surface: 0.0026' (1/32") • Depth of a wet stain on asphalt surface: 0.0013' (1/64")

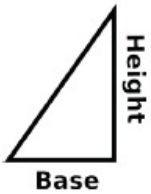
Example of how to draw/sketch the outline (footprint) of the spill for Step 2:

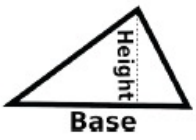
1. Sketch the outline of the spill (black line).
2. Break the sketch down into recognizable shapes (circles, squares, etc.) as well as you can.



In this example, after the volume of the circle is determined, multiply it by approximately 65% so that the overlap area isn't counted twice.







Convert Inches to Feet	
Inches	Feet
1/8"	0.01'
1/4"	0.02'
3/8"	0.03'
1/2"	0.04'
5/8"	0.05'
3/4"	0.06'
7/8"	0.07'
1"	0.08'
2"	0.17'
3"	0.25'
4"	0.33
5"	0.42'
6"	0.50'
7"	0.58'
8"	0.67'
9"	0.75'
10"	0.83'
11"	0.92'
12"	1.00'

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Area Volume Estimation: Ponded Sewage – *Page 4 of 4*
REFERENCE

Example of how to determine the water content in wetted soil, measured as a percentage.

By determining the water content in the soil when a known quantity of water is used, it will be possible to estimate the sewage content in the soil where the actual spill occurred.

	Step	Example
	Select an area of dry soil (near the wetted footprint of the spill) to sample. If possible, use a form to keep the water contained to a geometric shape (circle, square, rectangle, etc.).	Place a 2 foot diameter form onto an area of dry soil.
V_1	Pour a known amount of water onto the soil and let it soak in for an adequate amount of time. (This quantity is V_1 in Step 5 on the worksheet)	Pour one gallon of water into the form and let it soak in for 15 minutes.
A	Pull the form and measure the AREA of the wetted soil. It will likely be larger than the form. (This measurement is A in Step 5 on the worksheet)	In this example, let's say the wetted soil footprint's diameter is 2 ft 2 in. We convert the inches to feet and get a diameter of 2.17 ft. The radius is ½ of the diameter, so r = 1.085 ft So using the formula: Area = πr^2 (where $\pi \approx 3.14$) the area of the footprint is 3.14 x 1.085 ft x 1.085 ft = 3.70 ft^2
D	Using a small hand tool, dig down into the soil until dry soil is reached. Measure the DEPTH of the wet soil. Do this in multiple locations and average the measurements. Convert to feet. (This measurement is D in Step 5 on the worksheet)	Dig into the soil in 3 locations and measure the depth of the wetted soil. It is usually easiest to measure this depth in inches, so in this example we will measure in inches and then convert to feet. In this example, let's say we take the following measurements: 2½ inches, 1½ inches and 3¾ inches We convert the measurements to decimals and get 2.5 in, 1.5 in, and 3.75 in. Then we average the 3 measurements by adding them together and then dividing by 3: 2.5 in + 1.5 in + 3.75 in = 7.75 in 7.75 in ÷ 3 = 2.58 in Convert the number to feet by dividing by 12: 2.58 in ÷ 12 in = 0.215 ft
V_2	Multiply the AREA of the wet soil by the average DEPTH of the wet soil to determine the VOLUME of the wet soil in cubic feet. (This measurement is V_2 in Step 5)	3.70 ft^2 x 0.215 ft = 0.80 ft^3
V_3	Multiply by 7.48 to convert the volume in cubic feet (ft^3) to the volume in gallons (gal). *NOTE: This measurement is V_3 in Step 5*	Multiply the volume in cubic feet by the conversion multiplier to get the volume in gallons 0.80 ft^3 x 7.48 gal/ft^3 = 6 gal
Water Content	Calculate the water content in the soil: • Since you started with a known amount, you know how much water is in the soil. • Divide that known amount of water by the calculated volume of soil to get the percent of water content in the soil.	Divide the known volume of water by the calculated volume of soil 1 gal ÷ 6 gal = .17 so 17% is the water content in the soil.

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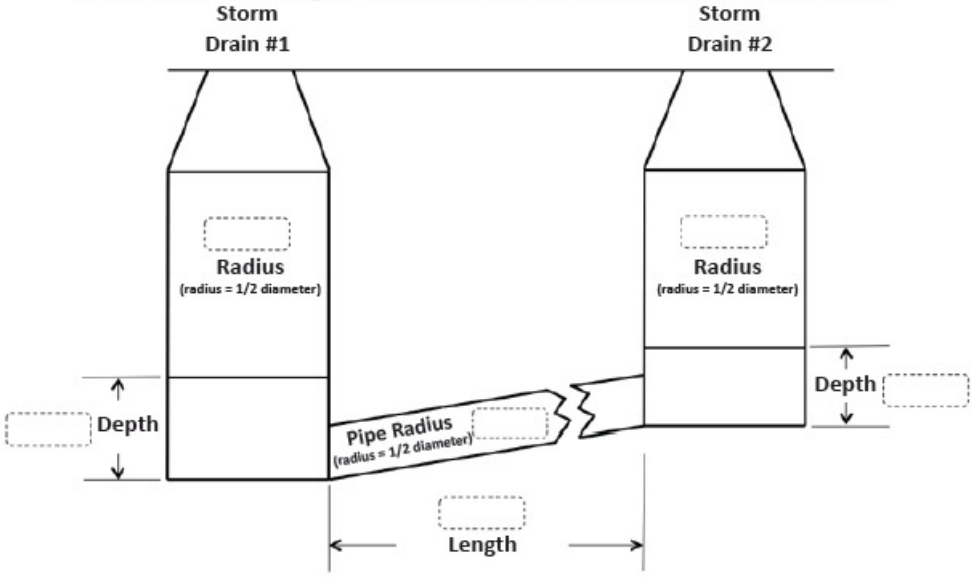
Area Volume Estimation: Storm Drain System

STEP 1: Take measurements (in feet) and enter them in the dashed boxes below.
Use the table to the right as needed to convert inch measurements to feet.



Convert Inches to Feet	
Inches	Feet
1/8"	0.01'
1/4"	0.02'
3/8"	0.03'
1/2"	0.04'
5/8"	0.05'
3/4"	0.06'
7/8"	0.07'
1"	0.08'
2"	0.17'
3"	0.25'
4"	0.33
5"	0.42'
6"	0.50'
7"	0.58'
8"	0.67'
9"	0.75'
10"	0.83'
11"	0.92'
12"	1.00'

STEP 2: Complete the table below for each part of the storm drain system diagrammed above.

	π	X		X		X		=	
Storm Drain #1	3.14	X	Radius ft	X	Radius ft	X	Depth ft	=	Volume ft³
Storm Drain #2	3.14	X	Radius ft	X	Radius ft	X	Depth ft	=	Volume ft³
Pipe	3.14	X	Radius ft	X	Radius ft	X	Length ft	=	Volume ft³

STEP 3: Add the right column together to calculate the total spill volume in cubic feet.
Multiply by 7.48 to convert to gallons.

_____ ft³ + _____ ft³ + _____ ft³ x 7.48 = _____ gallons

Drain #1 Volume | Drain #2 Volume | Pipe Volume | **Estimated Spill Volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

STEP 4: Attach a map of the impacted storm drain to this form for future reference.

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

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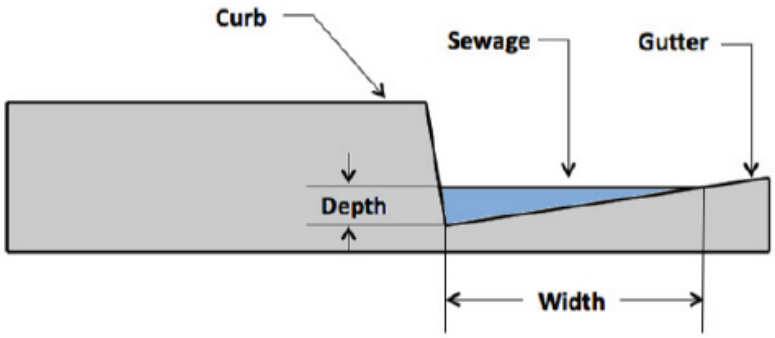
Sanitary Sewer Backup Response Packet
Overflow Volume Estimation

B-7.4

Area Volume Estimation: Roadway Gutter

STEP 1: Measure the length of the contained spill in feet: _____ feet

STEP 2: Measure the depth and width of the overflow in the gutter. Convert measurements to feet. Refer to the drawing below.



Depth: _____ inches ÷ 12 = _____ feet

Width: _____ inches ÷ 12 = _____ feet

STEP 3: Calculate the overflow volume using the following equation:

_____ X _____ X _____ ÷ 2 = _____ ft^3

Length | Depth | Width | Estimated spill volume in cubic feet

STEP 4: Convert the overflow volume from cubic feet to gallons:

_____ ft^3 X 7.48 = _____ gallons

Estimated spill volume in cubic feet | **Estimated Spill Volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

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Sanitary Sewer Backup Response Packet
Overflow Volume Estimation

B-7.5

Lower Lateral Estimation

STEP 1: Determine the number of Equivalent Dwelling Units (EDUs) for this spill: _____EDUs
NOTE: A single-family residential home = 1 EDU. For commercial buildings, refer to agency documentation.

STEP 2: The estimated flow volume per EDU is 180 gallons per day (GPD). The chart below shows how the volume has been allocated to four time periods during the day to show the flow volume for each time period in gallons per minute.

1. Enter the number of minutes the spill was active during each period in column B.
2. Multiply column B times column C to calculate the estimated gallons spilled for each time period.
3. Add the numbers in column C together to calculate the total estimated spill volume per EDU.

Time Period	A	B	C
	Gallons per minute for this period	Minutes spill was active during period	A x B = gallons spilled for this period
6 AM to Noon	0.20		
Noon to 6 PM	0.15		
6 PM to Midnight	0.13		
Midnight to 6 AM	0.03		
Total Estimated Spill Volume per EDU (sum of column C):			

STEP 3: Multiply the Estimated Spill Volume per EDU in the Step 2 chart by the number of EDUs determined in Step 1.

_____ gallons (Volume per EDU) X _____ (# of EDUs) = _____ gallons (Estimated Spill Volume)

STEP 4: Adjust spill volume as necessary considering other factors, such as activity that would cause a fluctuating flow rate (doing laundry, taking showers, etc.). Explain rationale below and indicate adjusted spill estimate (attach a separate page if necessary):

Estimated Spill Volume: _____ gallons

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:
Name: _____ Signature: _____
Job Title: _____ Date: _____

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Sanitary Sewer Backup Response Packet

Lateral TV Report

B-8

PLEASE COMPLETE AS THOROUGHLY AS POSSIBLE

PERSON COMPLETING THIS FORM:

DATE:
PHONE:

CAMERA TYPE:

AFFECTED PROPERTY STREET ADDRESS:

CITY, STATE AND ZIP:

PHONE

LOCATION OF CAMERA ENTRY:

LOCATION OF CAMERA STOP:

DESCRIBE AREA TV'd:

UPSTREAM MANHOLE #:

PLEASE CHECK ALL THAT WERE DISCOVERED – *Describe Extent & Location Using Camera Entry Point As Reference*:

- ❒ Broken Lateral – Describe:
  Depth:
- ❒ Roots – Severity: ☐ Light ☐ Moderate ☐ Heavy
- ❒ Grease – Severity: ☐ Light ☐ Moderate ☐ Heavy
- ❒ Sag – Describe:
  Depth:
- ❒ BPD – Describe:
  Location:
- ❒ Cleanout – Describe:
  Location:
- ❒ Joint/Junction – Describe:
  Depth
- ❒ Grade – Describe:
- ❒ Grit – Severity: ☐ Light ☐ Moderate ☐ Heavy
- ❒ Other – Describe:

TIME OF OVERFLOW:

TIME BLOCKAGE RELIEVED:

TIME LATERAL TV'd:

DEPTH OF LATERAL:

RECOMMENDED
FOLLOW UP WORK ACTIONS:

Mark for USA location? ☐ Yes ☐ No

Lateral Locations Marked in Green Paint? ☐ Yes ☐ No

SIGNATURE OF EMPLOYEE PERFORMING TV WORK:

DATE

If applicable, place completed form in Sewer Backup Packet and follow routing instructions.

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Sanitary Sewer Backup Response Packet
Claims Submittal Checklist

B-9

Collection Systems Superintendent

1. **Complete the following information:**

   Title: _____

   Name: _____

   Phone: _____

   Today's Date: _____

   Copy the items listed below and retain for internal archiving purposes.

2. **Place the originals back in the Backup Response Envelope and forward envelope with original forms to the City Clerk:**

   - ☐ **Form B-2: First Responder Form**
   - ☐ **Form B-3: Lodging Authorization Form**
   - ☐ **Form B-4: Release by Customer to Not Relocate**
   - ☐ **Form B-5: Sanitary Sewer Overflow Report**
   - ☐ **Form B-6: Start Time Determination Form**
   - ☐ **Form B-7: Volume Estimation Form(s)**
   - ☐ **Form B-8: Lateral TV Report**
   - ☐ **Form B-9: Claims Submittal Checklist** *(this form)*
   - ☐ **Form C-1: Declination of Cleaning Services**
   - ☐ **All photos taken** *(hardcopy or electronic)*
   - ☐ **Any other information you feel is important in this claim**

3. **Go to Regulatory Notifications Packet and make all appropriate notifications.**
4. **Complete Form B-10: Collection Systems Failure Analysis**

City Attorney

1. **Verify claims packet is complete.**
2. **Forward to:** Municipal Pooling Authority (MPA)

   1911 San Miguel Drive Ste 200
   Walnut Creek CA 94596

   Telephone: (925) 943-1100 EXT 11
   Fax: (925) 946-4183

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Sanitary Sewer Backup Response Packet
Collection Systems Failure Analysis

B-10
Side A

To be completed by the Collection Systems Superintendent or Designee

Incident Report #		Prepared By	
SSO/Backup Information			
Event Date/Time	Address		
Volume Spilled	Volume Recovered		
Cause			
Summary of Historical SSOs/Backups/Service Calls/Other Problems			
Date	Cause	Date Last Cleaned	Crew
Records Reviewed By:		Record Review Date:	
Summary of CCTV Information			
CCTV Inspection Date		Tape Name/Number	
CCTV Tape Reviewed By		CCTV Review Date	
Observations/Recommendations:			

Go to Side B

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Sanitary Sewer Backup Response Packet
Collection Systems Failure Analysis

B-10
Side B

Recommendations					
☐	Type	Specific Actions	Who is Responsible?	Completion Deadline	Who Will Verify Completion?
	No Changes or Repairs Required	n/a	n/a	n/a	n/a
	Repair(s)				
	Construction				
	Capital Improvement(s)				
	Change(s) to Maintenance Procedures				
	Change(s) to Overflow Response Procedures				
	Training				
	Misc.				
Comments/Notes:					
Review Date:					

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City of Antioch CA
Overflow Emergency Response Plan

Customer Service Packet

Contents:

Instructions:

1. Review the Customer Information letter to determine actions that need to be taken immediately.
2. See the Customer Information letter for information about filing a claim.
3. Review the Sewer Spill Reference Guide pamphlet.

If you have any questions contact:

Regarding Sewer Issues: City Public Works Department at (925) 779-6950
Regarding Submitting a Claim for Damages: City Attorney (925) 779-7015

Paquete informativo del servicio al cliente

Contenido:

Instrucciones:

1. Analice la carta informativa para el cliente a fin de determinar las medidas que se deben tomar de manera inmediata.
2. Consulte la carta informativa para el cliente a fin de obtener información sobre cómo presentar un reclamo.
3. Analice el folleto de la Guía de referencia sobre desbordes cloacales.

En caso de preguntas, comuníquese con:

Para temas cloacales: el Departamento de Obras Públicas de la ciudad, llamando al (925) 779-6950

Para presentar un reclamo por daños: la Oficina del Abogado de la ciudad, llamando al (925) 779-7015

This packet provided by: _____ Phone: _____

Print on 6" x 9" envelope

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City of Antioch: Overflow Emergency Response Plan

Sanitary Sewer Backup Response Packet

Customer Information Regarding Sewer Backup Claims

CS-1

Dear Resident:

We recognize that sewer back flow incidents can be stressful and require immediate response when all facts concerning how an incident occurred are unknown. Rest assured that we do all we can to prevent this type of event from occurring. Nevertheless, occasionally tree roots or other debris in the sewer lines cause a backup into homes immediately upstream of the blockage. At this time the City is investigating the cause of this incident.

If the City is found to be responsible for the incident, we are committed to cleaning and restoring your property, and to protecting the health of those affected during the remediation process.

The cleaning contractor provided by the City has been selected because of their adherence to established protocols that are designed to assure all parties thorough, cost-effective and expeditious cleaning services. You also have the right to select your own cleaning contractor, but the City does not guarantee payment of fees/expenses incurred and reserves the right to dispute fees/expenses deemed not usual and customary.

If you wish to discuss this matter, please contact the City Public Works Department at (925) 779-6950. If you wish to submit a claim for damages, please complete the claim form in this packet. Completed Claim Forms are to be submitted to the City Attorney at City Hall, 3rd and H Streets, P.O. Box 5007, Antioch CA 94531.

Claims against the City must comply with the California Government Code Sec. 910-913.2. The City Attorney has the responsibility for processing any claims for damages that are submitted and can be reached at (925) 779-7015.

What you need to do now:

The City has prepared this brief set of instructions to help you minimize the impact of the loss by responding promptly to the situation.

- Do not attempt to clean the area yourself; let the cleaning and restoration company handle this.
- Keep people and pets away from the affected area(s).
- Turn off all appliances that use water.
- Turn off heating/air conditioning systems.
- Do not remove items from the area – the cleaning and restoration company will handle this.
- If you had recent plumbing work, contact your plumber or contractor and inform them of this incident.
- If you intend to file a claim, do so as soon as practical in order to have your claim considered. To obtain a claim form contact the City Attorney at (925) 779-7015.
    - **Please Note:** The general provisions for the filing of claims against public entities are contained in Part 3 (*commencing at Section 900)* of Division 3.6 of the Government code. Certain claims are not governed by these provisions, including tax and assessment matters, liens, employee compensations, workers' compensation, unemployment compensation, welfare, securities, and others.
    - The form and contents of a claim are specified by Section 910, et seq. A claim relating to a cause of action for death or for injury to person or to personal property or growing crops shall be presented not later than six months after accrual of the cause of action; other claims shall be presented within one year (*Section 911.2).*
    - Claims are to be presented by delivery or mailing to the City Attorney, Antioch, CA *(Section 915).*
    - It is suggested that the claimant refer to claims law and be fully advised with respect to the exceptions and further provisions contained therein.

Important Legal Notice: For your protection, read carefully, obtain a reliable translation, and/or consult your attorney.

Noticia Legal Importante: Para su proteccion lea usted con cuidado debe de obtener una translacion que sea punctual y de confianza o consulte con su abogado.

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Ciudad de Antioch: Desbordamiento plan de respuesta de emergencia

Paquete de Respuesta a Desbordamiento de Alcantarilla Sanitaria
Información de Cliente Acerca de Demandas de Desbordamiento de Alcantarilla

CS-1

Estimado vecino:

Reconocemos que los incidentes provocados por el reflujo de aguas cloacales pueden ser estresantes y exigen una respuesta inmediata cuando se desconocen los hechos relacionados con la causa del incidente. Tenga la seguridad de que hacemos todo lo posible para evitar que sucedan este tipo de incidentes. Sin embargo, las raíces de los árboles u otros desechos que se encuentran en las cañerías principales del sistema cloacal provocan, de vez en cuando, un desborde en el interior de las viviendas justo arriba de la obstrucción. En este momento, la Ciudad está investigando la causa de este incidente.

Si se determina que la Ciudad es responsable del incidente, nos comprometemos a limpiar y restaurar su propiedad, así como a proteger la salud de aquellas personas que hayan sido afectadas durante el proceso de reparación.

La empresa de servicios de limpieza que provee la Ciudad fue seleccionada debido a su cumplimiento con los protocolos establecidos, los que se diseñaron para garantizar servicios de limpieza cuidadosos, expeditivos y de bajo costo a todas las partes. También tiene derecho a elegir su propia empresa de servicios de limpieza; sin embargo, la Ciudad no garantiza el pago de cargos y/o gastos que incurra y se reserva el derecho a objetar los cargos y/o gastos que considere que no son habituales.

Si desea conversar sobre este tema, comuníquese con el Departamento de Obras Públicas de la ciudad, llamando al (925) 779-6950. Si desea presentar un reclamo por daños, completar el formulario de reclamación en este paquete. Los Formularios de reclamo que estén completos deben presentarse ante el Abogado de la Ciudad, que se encuentra ubicado en City Hall, 3rd and H Streets, P.O. Box 5007, Antioch CA 94531

Los reclamos presentados contra la Ciudad deben cumplir con las disposiciones de los artículos 910-913.2 del Código del Gobierno de California (*California Government Code Sec. 910-913.2*). El Abogado de la Ciudad asume la responsabilidad de procesar todos los reclamos iniciados por daños que se presenten, éstos pueden consultarse llamando al (925) 779-7015.

Lo que necesita saber en este momento:

La Ciudad redactó esta breve serie de instrucciones para ayudarlo a minimizar el impacto de la pérdida respondiendo de manera inmediata ante la situación.

- No intente limpiar la zona usted mismo; permita que la empresa de limpieza y restauración se encargue de esto.
- Mantenga a las personas y a las mascotas alejadas de la(s) zona(s) afectada(s).
- Apague todos los aparatos que utilicen agua.
- Apague los sistemas de calefacción y/o aire acondicionado.
- No quite los elementos que se encuentran en la zona; la empresa de limpieza y restauración se encargará de esto.
- Si recientemente se realizaron obras de plomería, comuníquese con su plomero o servicio de plomería e infórmele sobre este incidente.
- Si tiene pensado presentar un reclamo, hágalo lo antes posible para que éste sea tenido en cuenta. Para obtener un formulario de reclamo, comuníquese con el Abogado de la Ciudad llamando al (925) 779-7015.
    - **Observación:** Las disposiciones generales que rigen la presentación de reclamos contra organismos públicos están incluidas en la Parte 3 (*que comienza en el Artículo 900)* del Capítulo 3.6 del Código del Gobierno (*Division 3.6 of the Government code*). Existen determinados reclamos que no se rigen por estas disposiciones, incluyendo los asuntos relacionados con los impuestos y las tasaciones, los gravámenes, la remuneración para los empleados, las indemnizaciones de los trabajadores, el subsidio de desempleo, la asistencia social, los títulos y demás.
    - La forma y el contenido del reclamo se especifican en el Artículo 910 y siguientes. Un reclamo que esté relacionado con la causa de acción por muerte o lesión de una persona o de los bienes personales o de la cosecha en crecimiento deberá presentarse antes de que se cumplan los seis meses posteriores a dicha causa de acción; los demás reclamos deberán presentarse dentro del período de un año (*Artículo 911.2).*
    - Los reclamos deberán presentarse ante el Abogado de la Ciudad, Antioch *(Artículo 915),* en persona o por correo.
    - Se sugiere que el reclamante haga referencia a la legislación sobre reclamos y que usted esté completamente asesorado sobre las excepciones y demás disposiciones incluidas en dicha legislación.

Aviso legal importante: Para su protección, lea atentamente el material, obtenga una traducción confiable y/o hable con su abogado.

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INSERT ANTIOCH CLAIM FORM

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Appendix C

SERVICE VEHICLE FORMS BINDER

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Sanitary Sewer Backup Response Packet
Bubbled Toilets Letter

C-1

Dear City of Antioch Customer,

Thank you for informing us that your toilet bubbled while our crews were working in proximity of your property. We apologize for the inconvenience and hope that this letter will answer some of your questions about bubbling toilets.

1. **Is this a health risk?**
   Element XII: The water that came out of your toilet is potable water from the toilet bowl. Unless your toilet was in use when this occurred, this water is no different than that encountered while cleaning your toilet.

2. **What is the City doing in the street?**
   Element XIII: In order to insure reliable sewer service, the City inspects, cleans, and repairs its sewer system on a continuous basis.
   Element XIV:
3. **How does sewer cleaning cause my toilet to bubble?**
   Element XV: Typical industry cleaning equipment uses high-pressure water to clean sewers. The first step is to use the high-pressure water jets to propel the hose and cleaning nozzle upstream as far as 800 feet. During this process, air within the main pipe is displaced and sometimes goes up the private lateral pipe and releases through the toilet. This can also happen during the cleaning phase, when high-pressure water is pulled downstream to the cleaning truck.
   Element XVI:
4. **What causes the air to come from my toilet?**
   Element XVII: Over the years, City crews have found that the bubbling of toilets have many causes, some of which are:
   - Obstructed vent pipes;
   - Vent pipes that are positioned too far from the toilet;
   - Lateral pipes that may be in use as the crew is cleaning (e.g. draining washing machine, draining bathtub, etc.);
   - Lateral pipes that may have obstructions that are causing them to hold water (e.g. roots, grease, etc.).

Element XVIII:

5. **What does City staff do, once informed of a bubbling toilet?**
   Element XIX: Once notified of a bubbling toilet, the crew leader explains to the customer what has happened, and checks to see if there is a clean-out in the customer's yard that could be opened in the future during cleaning. The crew leader then makes notes and completes paperwork that puts the address on the City's computerized notification list. In the future, crews will notice that this address was "bubbled" at one time, and, before commencing the cleaning, they will notify the occupant of the possibility of bubbling toilets. In the event the occupant is not present when the cleaning begins, the crews will attempt to open clean-outs and/or lower water pressure to avoid bubbling.

6. **What can I do to prevent my toilet from bubbling?**
   Element XX: When a sewer begins to drain slowly, it may be a sign that it needs to be cleaned or repaired. Trees and shrubs may have root structures that are entering the lateral pipe. The homeowner needs to make sure to have a clean-out for accessing the line. Unless there is a cleanout on the property line, it is the homeowner's responsibility to keep the sewer lateral pipe in good working condition. **The City also recommends the homeowner install a back-flow prevention device to prevent bubbling or sewer back-ups into the home.**

Element XXI:
It is always a good idea to keep the toilet lid down when not in use, and not install carpets in the bathroom unless they can be easily removed and cleaned. For more information, please visit our website at www.ci.antioch.ca.us or call the Public Works office at (925) 779-6950.

Sincerely,

City of Antioch Public Works

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Sanitary Sewer Backup Response Packet
Carta de Inodoros Burbujeados

C-1
Spanish

Estimado Cliente de la Ciudad de Antioch:

Gracias por habernos informado que su lavabo burbujeó mientras que nuestros empleados estaban trabajando en proximidad a su propiedad. Le pedimos perdón por la inconveniencia y esperamos que esta carta le contestará algunas de sus preguntas acerca de inodoros burbujeantes.

1. **¿Es riesgo de salud esto?**
   Element XXII: El agua que salió de su inodoro es agua potable de la taza del inodoro. Menos que su inodoro estaba en uso cuando esto ocurrió, esa agua no es diferente de aquella encontrada mientras que limpia su inodoro.
2. **¿Qué está haciendo la Ciudad en la calle?**
   Element XXIII: Para asegurar servicio de alcantarilla confiable, la Ciudad inspecciona, limpia, and repara su Sistema de alcantarillado en una forma continua.
3. **¿Cómo causa la limpieza de la alcantarilla que burbujee mi inodoro?**
   Element XXIV: El equipamiento industrial de limpieza típico usa agua de alta presión para limpiar alcantarillas. La primer medida es de usar chorros de agua de alta presión para propulsar a la manguera y a la boquilla de limpieza contracorriente tan lejos como ochocientos (800) pies. Durante este proceso, el aire dentro la tubería principal es desplazada y a veces camina para arriba de la tubería lateral privada y se libera por el inodoro. Esto también puede ocurrir durante la fase de limpieza, cuando agua de alta presión es jalada corriente abajo al camión de limpieza.
4. **¿Qué causa al aire que venga de mi inodoro?**
   Element XXV: A lo largo de los años, los empleados de la Ciudad han encontrado que el burbujeo de inodoros tiene muchas causas, algunas de cuales son:
   - Tubería de ventilación obstruida;
   - Tubería de ventilación que está posicionada muy lejos del inodoro;
   - Tubería lateral que pueda estar en uso mientras que los empleados estén limpiando (por ej., vaciando la máquina de lavar, vaciando el baño, etcétera);
   - Tubería lateral que podrá tener obstrucciones que están causándola a contener agua (por ej., raíces, grasa, etcétera).
5. **¿Qué hace el personal de la Ciudad, una vez informados de un inodoro burbujeante?**
   Element XXVI: Una vez notificado de un inodoro burbujeante, el líder de nuestros empleados le explica al cliente lo que ha ocurrido, y hace un chequeo para ver si hay una limpieza general en el patio del cliente que se pudiera abrir en el futuro durante la limpieza. El líder de personal luego toma apuntes y completa papeleo que pone a la dirección en la lista de notificación computarizada de la Ciudad. En el futuro, los empleados tomarán nota que hubo un tiempo en que esta dirección fue «burbujeada», y, antes de empezar la limpieza, ellos le avisarán al ocupante de la posibilidad de inodoros burbujeantes. En el evento que el ocupante no esté presente cuando la limpieza empiece, los empleados tratarán de abrir las limpiezas generales y/o rebajar la presión del agua para impedir la ocurrencia de burbujeo.
6. **¿Qué puede hacer para impedir a mi inodoro de burbujeando?**
   Element XXVII: Cuando una alcantarilla empieza a desaguar lentamente, puede que sea un indicio que se necesita limpiar o reparar. Puede que los árboles y arbustos tengan estructuras de raíces que estén entrando a la tubería lateral. El dueño/la dueña de casa necesita asegurar de tener una limpieza general para acceder la línea. Es la responsabilidad del dueño/la dueña de mantener la tubería de alcantarilla lateral en buena condición operativa.

Element XXVIII:
Siempre es buena idea de mantener la tapa del inodoro bajada cuando no esté el inodoro en uso, y no instalar alfombra en el cuarto de baño menos que esa se pueda quitar y limpiar. Para obtener más información, por favor llame a la oficina de obras públicas por el número de teléfono (925) 779-6950.

Atentamente,
La Ciudad de Antioch

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City of Antioch: Overflow Emergency Response Plan

Sanitary Sewer Backup Response Packet

Declination of Sewage Cleaning Services

C-2

Customer Information		
NAME:	ADDRESS:	TELEPHONE:

ON (date)	**AT** (time)	**Approximately** (quantity)	**GALLONS OF:** ☐ Sewage ☐ Grey Water ☐ Toilet Bowl Water ☐ Odor ☐ Other (describe):

Overflowed from (or odor emanating from)
- ☐ Toilet
- ☐ Shower/Tub
- ☐ Washer
- ☐ Other (describe):

The overflow affected the following areas *(check one):*
- ☐ Bathroom ☐ Bedroom
- ☐ Hallway ☐ Garage
- ☐ Kitchen ☐ Crawlspace
- ☐ Other (specify):

The overflow affected the following flooring:
- ☐ Tile ☐ Wood Flooring
- ☐ Linoleum ☐ Carpet
- ☐ Other (specify):

and/or additional materials:
- ☐ Area Rugs ☐ Towels
- ☐ Clothing ☐ Other (specify):

Photos: ☐ Were Not Taken ☐ Were Taken, number of photos: _____

This Form Completed By: **Date:** _____ **Time:**

CUSTOMER, please read the following and sign below:
I/We acknowledge that City of Antioch, CA (*City)* has offered to provide professional cleaning and decontamination services to remediate the sewage backup and/or overflow described above and that we declined the offer. We further understand and acknowledge that because we have declined, any necessary remediation activities will be conducted without City assistance, and that the City will not accept responsibility for work performed by persons other than those engaged by the City. The City will also not accept responsibility for any charges related to this incident that are not usual and customary. Please refer to the Customer Service Packet for whom to contact if you have any questions.

Customer Signature*:		**Date:**
The information above was explained to the customer by the following employee:	**Name:**	**Title:**
	Signature:	**Date:**

**Note to responders: if customer declines to sign this form, then have a co-worker sign here as a witness:*
Name: _____ *Signature:* _____ *Date:* _____

Recommendations to customer to clean up the spill:

- Keep pets and children out of the affected area.
- Turn off heating/air conditioning systems.
- Wear rubber boots, rubber gloves, and goggles during cleanup of the affected area.
- Remove and discard items that cannot be washed and disinfected (such as: mattresses, rugs, cosmetics, baby toys, etc.)
- Remove and discard drywall and insulation that has been contaminated with sewage or flood waters.
- Thoroughly clean all hard surfaces (such as flooring, concrete, molding, wood and metal furniture, countertops, appliances, sinks and other plumbing fixtures) with hot water and laundry or dish detergent.
- Help the drying process with fans, air conditioning units, and dehumidifiers.
- After completing cleanup, wash your hands with soap and water. Use water that has been boiled for 1 minute (allow water to cool before washing your hands.) OR use water that has been disinfected (solution of 1/8 teaspoon of household bleach per 1 gallon of water). Let it stand for 30 min. If water is cloudy, use ¼ teaspoon of household bleach per 1 gallon of water.
- Wash all clothes worn during the cleanup in hot water and detergent (wash separately from uncontaminated clothes).
- Wash clothes contaminated with flood or sewage water in hot water and detergent. Use a laundromat for washing large quantities of clothes and linens until your onsite wastewater system has been professionally inspected and serviced.

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- Seek immediate attention if you become injured or ill.

Distribution Instructions – Top Copy to City records; Middle Copy to Collection Systems Superintendent; Bottom Copy to Customer

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INSERT ANTIOCH CUSTOMIZED PAMPHLET

City of Antioch

On (date) _____, at (location)

_____,
we responded to a reported blockage of the sanitary sewer service to your property.

We discovered a blockage in:

- ☐ The sanitary sewer main and cleared the line
- ☐ The City-maintained portion of your sanitary sewer lateral and cleared the line.
- ☐ Your portion of the sanitary sewer lateral, which is your responsibility to maintain. We also found the City's portion of the lateral and the main to be flowing normally.

If you require assistance to clear your portion of the lateral you can look in the Yellow Pages of your telephone book under "Sewer Contractors" or "Plumbing Drains & Sewer Cleaning". If you plan to hire a contractor we recommend getting estimates from more than one company.

City of Antioch representative notes: _____

_____

_____

City of Antioch Representative:

_____

City of Antioch

On (date) _____, at (location)

_____,
we responded to a reported blockage of the sanitary sewer service to your property.

We discovered a blockage in:

- ☐ The sanitary sewer main and cleared the line
- ☐ The City-maintained portion of your sanitary sewer lateral and cleared the line.
- ☐ Your portion of the sanitary sewer lateral, which is your responsibility to maintain. We also found the City's portion of the lateral and the main to be flowing normally.

If you require assistance to clear your portion of the lateral you can look in the Yellow Pages of your telephone book under "Sewer Contractors" or "Plumbing Drains & Sewer Cleaning". If you plan to hire a contractor we recommend getting estimates from more than one company.

City of Antioch representative notes: _____

_____

_____

City of Antioch Representative:

_____

Appendix D

SANITARY SEWER OVERFLOW RESPONSE PACKET

Sanitary Sewer Overflow Response Packet
Table of Contents

For pre-assembled packets contact DKF Solutions Group at 707.373.9709 or kpatzer@dkfsolutions.com

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In the event of a **Sanitary Sewer Overflow**
READ THIS FIRST

- ☐ **If this is a Category 1 SSO greater than or equal to 1,000 gallons contact the Collection Systems Superintendent to make the 2-hour notification to CalOES.**
- ☐ **Check here if you believe that fats, roots, oils and/grease (FROG) caused or contributed to the SSO.**
- ☐ **Contact the Director of Public Works at (925) 779-6953 for any media requests.**

Collections Crew:

- ❑ Follow the instructions on the Sewer Overflow Response Flowchart (D-1).
- ❑ Refer to the Field Guide as necessary.
- ❑ Place completed forms in this envelope, complete the Chain of Custody record (right) and forward this packet to the Collection Systems Superintendent.

Print Name: _____

Initial: _____

Date: _____

Time: _____

Collection Systems Superintendent:

- ❑ Review the enclosed forms.
- ❑ If this is a Category 1 SSO greater than or equal to 1,000 gallons contact CalOES at (800) 852-7550 within 2-hours.
- ❑ Complete the Regulatory Notifications Packet.
- ❑ Archive this packet and all other information regarding this overflow incident according to City policy.
- ❑ Debrief using the Collection Systems Failure Analysis Form (D-5).

Print Name: _____

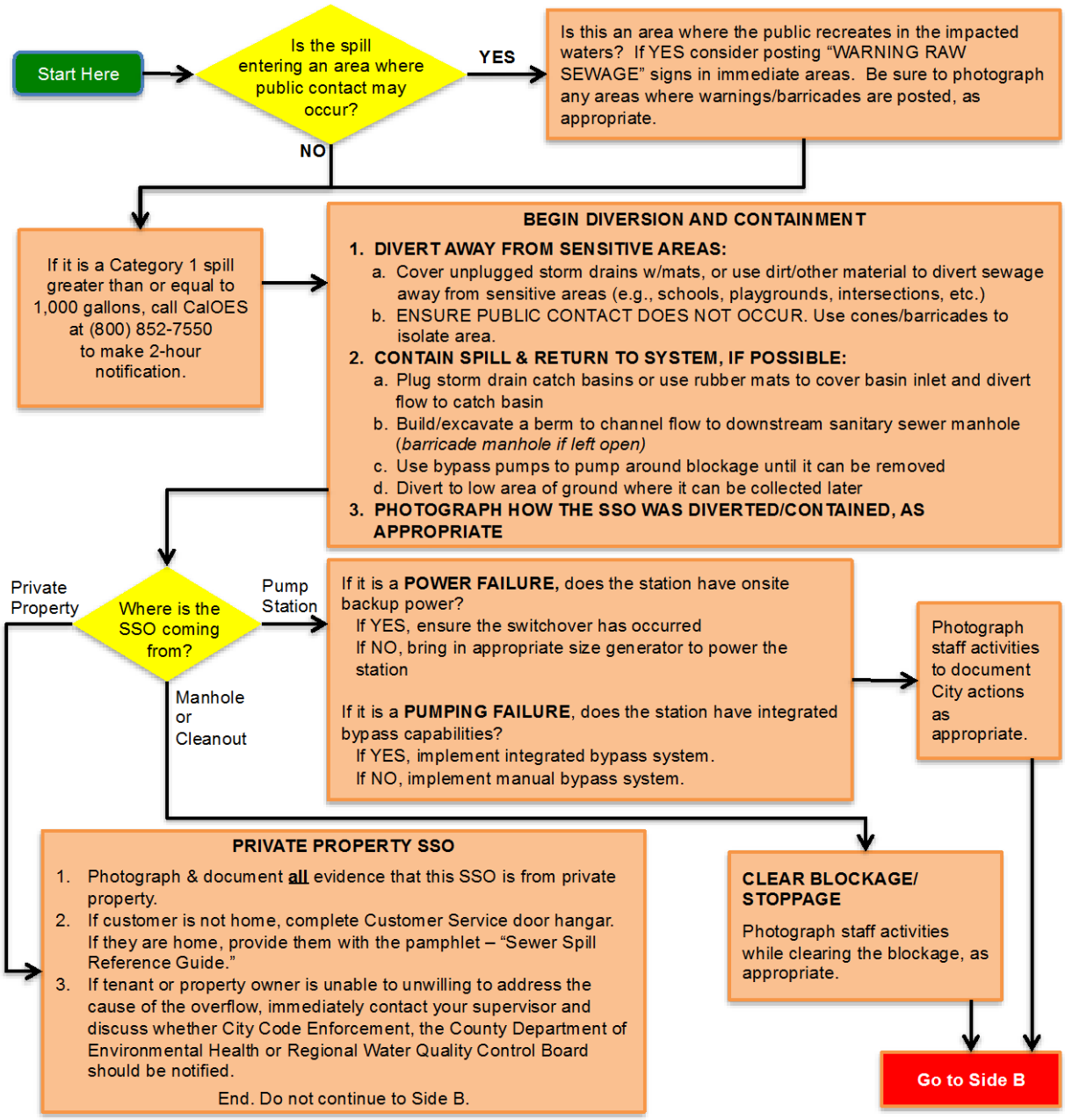
Initial: _____

Date: _____

Time: _____

Sanitary Sewer Overflow Response Packet
Overflow Response Flowchart

D-1
Side A



MEDIA AND PUBLIC RELATIONS GUIDELINES:

Exercise caution in contacts with the public or media when you respond to a spill. Any information you provide or statements you make may become pertinent in the event of possible court action, it is important to **AVOID THE FOLLOWING**:

- Giving out the wrong information including providing incorrect facts about a company or other agency
- Making accusations against customers, businesses or other agencies
- Speculating about the situation you are responding to

Be courteous and attempt to provide accurate information to questions within the limits above. In some cases, it may be appropriate to say that we do not have any information, or to delay answering a question and then to say when an answer might be available.

In most cases, refer media requests to the media coordinator indicated on the front of the Sewer Overflow Packet envelope.

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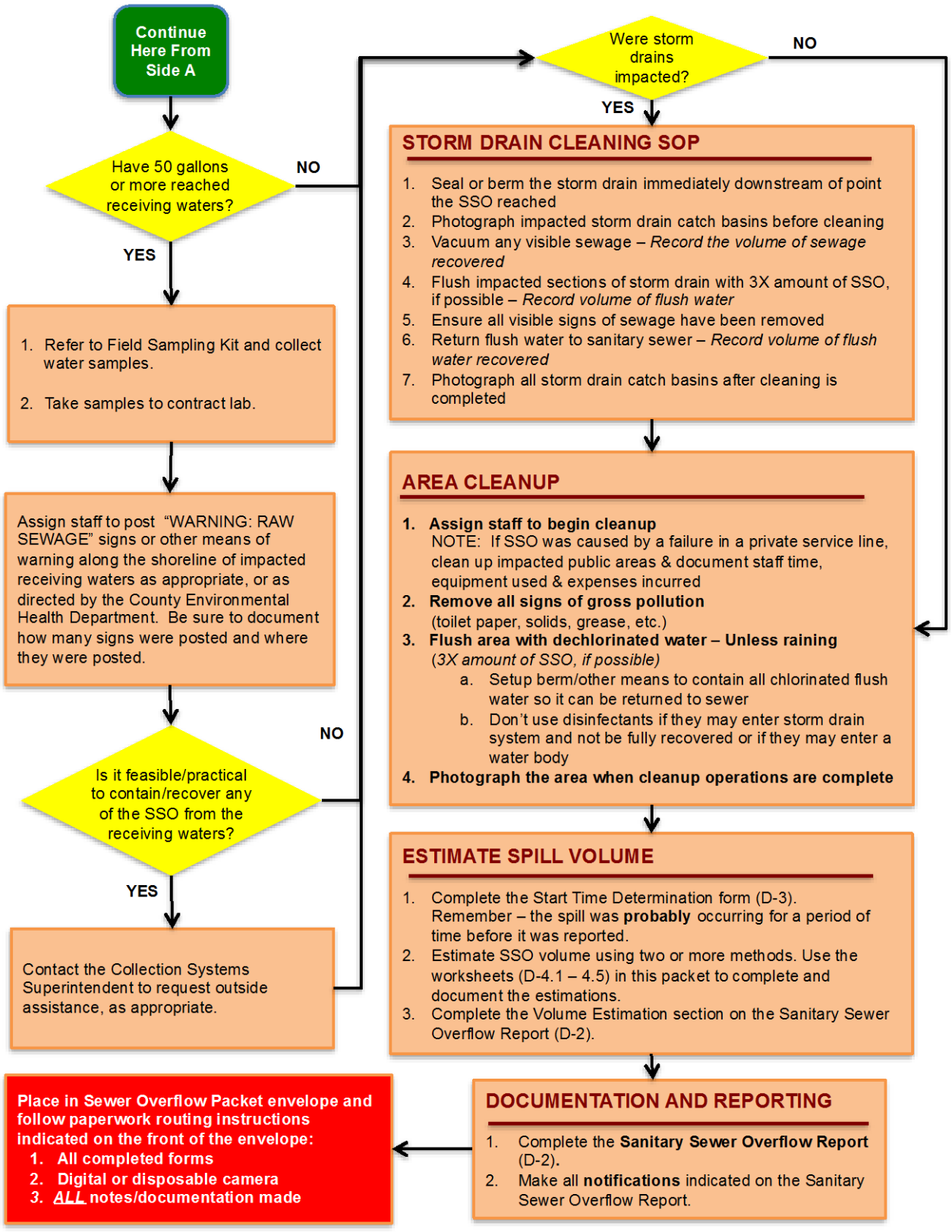
Sanitary Sewer Overflow Response Packet
Overflow Response Flowchart

D-1
Side B



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Sanitary Sewer Overflow Response Packet

Sanitary Sewer Overflow Report

D-2
Side A

INSTRUCTIONS: Complete all items *EXCEPT* those that are shaded gray

SSO Category *(check one)*:

☐ Category 1: Discharge of untreated or partially treated wastewater of any volume resulting from a sanitary sewer system failure or flow condition that either (1) Reaches surface water and/or drainage channel tributary to a surface water; OR (2) Reached a Municipal Separate Storm Sewer System (MS4) and was not fully captured and returned to the sanitary sewer system or otherwise captured and disposed of properly.

☐ Category 2: Discharge of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from a sanitary sewer system failure or flow condition that either (1) Does not reach surface water, a drainage channel, or an MS4, OR (2) The entire SSO discharged to the storm drain system was fully recovered and disposed of properly.

☐ Category 3: All other discharges of untreated or partially treated wastewater resulting from a sanitary sewer system failure or flow condition

☐ Spill from Private Lateral (specify): ☐ Single Family Home ☐ Multi-Family Home ☐ High Density Residential (5+ units) ☐ Food Service Establishment (FSE) ☐ Mixed Use Property ☐ Industrial Property ☐ Commercial Property ☐ Public quasi-public institution (hospital, schools, fire department, etc.)

IMMEDIATE NOTIFICATION: If this is a Category 1 SSO ≥1,000 gallons, contact CalOES within 2 hours at (800) 852-7550.

A. SSO LOCATION

SSO Location Name:		
Street Name and Number:		
Nearest Cross Street:	City:	Zip Code:
County:	SSO Location Description:	

B. SSO DESCRIPTION (Complete Volume Estimation Worksheets and/or refer to Field Guide as needed for estimations.)

SSO Appearance Point (check one or more): ☐ Force Main ☐ Lateral Cleanout (Private) ☐ Lower Lateral (Public) ☐ Inside Building or Structure ☐ Manhole ☐ Pump Station ☐ Other Sewer System Structure (specify):

Were there multiple appearance points? ☐ No ☐ Yes, number of appearance points:

Did the SSO reach a drainage channel and/or surface water? ☐ Yes (*Category 1)* ☐No

If the SSO reached a storm sewer, was it fully captured and returned to the Sanitary Sewer? ☐ Yes ☐No (*Category 1)*

Was this spill from a private lateral? ☐ Yes ☐No If YES, name of responsible party:

Spill Destination(s): ☐ Surface waters other than ocean ☐ Drainage channel ☐ Building/structure ☐ Separate Storm drain ☐ Paved surface ☐ Unpaved surface ☐ Street/curb/gutter ☐ Other:
*Provide name(s) of affected drainage channels, beach, etc.:

Total Estimated SSO volume: gallons

Est. volume that reached a separate storm drain that flows to a surface water body:	gal	Recovered:	gal
Est. volume discharged directly to a surface water body (e.g., creek):	gal	Recovered:	gal
Est. volume discharged to land:	gal	Recovered:	gal
Est. volume discharged to a non-man-made drainage channel that conveys storm runoff:	gal	Recovered:	gal

Calc. Methods: ☐Photo Comparison ☐Upstream Lat. Connections ☐Area/Volume (include sketch/photo with dimensions) ☐Other (describe):

C. SSO OCCURRING TIME (complete Start Time Determination Form and then complete information below)

Estimated SSO start date:	Estimated SSO start time:
Date SSO reported to sewer crew:	Time SSO reported to sewer crew:
Date sewer crew arrived:	Time sewer crew arrived:
Who was interviewed to help determine start time?	
Estimated SSO end date:	Estimated SSO end time:

D. CAUSE OF SSO

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Where did failure occur? (Check all that apply): ☐ Air Relief or Blow-Off Valve ☐ Force Main ☐ Gravity Mainline ☐ Siphon
☐ Lower Lateral (public) ☐ Upper Lateral (private) ☐ Manhole ☐ Pump Station (specify): oControls oMechanical oPower
☐ Other:

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Sanitary Sewer Overflow Response Packet

Sanitary Sewer Overflow Report

D-2
Side B

D. CAUSE OF SSO - continued

SSO cause *(check all that apply)*: ☐ Air Relief or Blow-Off Valve Failure ☐ Construction Diversion Failure ☐ CS Maintenance ☐ Damage by others ☐ Debris (specify): oFrom Construction oFrom Lateral oGeneral oRags ☐ Flow Exceeded Capacity
☐ FOG (Fats, oil, grease) ☐ Inappropriate Discharge ☐ Natural Disaster ☐ Operator Error ☐ Root Intrusion
☐ Pipe Structural Problem/Failure ☐ Pipe Structural Problem/Failure (Installation) ☐ Rainfall Exceeded Design
☐ Pump Station Failure (specify): oControls oMechanical oPower ☐ Siphon Failure ☐ Vandalism
☐ Surcharged Pipe ☐ Non - Dispersible Wipes ☐ Other (specify):

Diameter (in inches) of pipe at point of blockage/spill cause (if applicable):

Sewer pipe material at point of blockage/spill cause (if applicable):

Estimated age of sewer asset at the point of blockage or failure in months (if applicable):

Description of terrain surrounding point of blockage/spill cause: ☐ Flat ☐ Mixed ☐ Steep

SSO response activities (check all that apply): ☐ Cleaned-Up ☐ Mitigated Effects of Spill ☐ Contained All or Portion of Spill
☐ Restored Flow ☐ Returned All Spill to Sanitary Sewer System ☐ Returned Portion of Spill to Sanitary Sewer System
☐ Property Owner Notified ☐ Other Enforcement Agency Notified (specify) ☐ Other (specify):

E. Category 1 SSO EMERGENCY RESPONSE

SSO emergency response completed (date & time):

Visual inspection result of impacted waters (if applicable):

Any fish killed? ☐ Yes ☐ No Any ongoing investigation? ☐ Yes ☐ No

Were health warnings posted? ☐ Yes ☐ No If yes, provide health warning/beach closure posting/details:

Was there a beach closure? ☐ Yes ☐ No If yes, name of closed beach(es):

Were samples of impacted waters collected? ☐ Yes ☐ No
If YES, select the analyses: ☐ DO ☐ Ammonia ☐ Bacteria ☐ pH ☐ Temperature ☐ Other:

F. RECOMMENDED CORRECTIVE ACTIONS

Recommended corrective actions: (check all that apply and provide detail)
☐ Add sewer to preventive maintenance program
☐ Adjust schedule/method of preventive maintenance
☐ Enforcement action against FROG source
☐ Inspect Sewer Using CCTV to Determine Cause
☐ Plan rehabilitation or replacement of sewer
☐ Repair Facilities or Replace Defect
☐ Other (specify)

G. GENERAL SSO RESPONSE

What major equipment was used in the response (if no work order was created)?

List all agency personnel involved in the response including name, title and their role in the response (if no work order was created):

H. NOTES

I. NOTIFICATION DETAILS

CalOES contacted date and time (if applicable):

CalOES Control Number (if applicable): Spoke to:

This form prepared by: NAME:	TITLE:	DATE:
This form reviewed by: NAME:	TITLE:	DATE:

Place completed form in Sewer Backup Envelope and follow routing instructions.

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Sanitary Sewer Overflow Response Packet

Start Time Determination Form

D-3

Spill Date: _____ Location: _____

Accurate start time determination is an essential part of spill volume estimation. Depending on the flow rate, being even one minute off can have a huge impact on the volume estimation. Be as precise as possible. Do not round to quarter hour increments. Start time must be based on all available information (interviews with neighbors, emergency responders, etc.)

What time was the agency notified of the spill? _____ ☐ AM ☐ PM

Who notified the agency? _____

Did they indicate what time they noticed the spill? ☐ YES ☐ NO If yes, what time? _____ ☐ AM ☐ PM

Who at the agency received the notification? _____

What time did the crew arrive at the site of the spill? _____ ☐ AM ☐ PM

Who was interviewed regarding the start time of the spill? Include their name, contact information, and the statement they provided:

Name	Contact Information	Statement

Describe in detail how you determined the start time for this particular spill:

Spill Start Date: _____ **Spill Start Time:** _____ ☐ AM ☐ PM

Spill End Date: _____ **Spill End Time:** _____ ☐ AM ☐ PM

Spill Duration: _____ minutes

_____ x 60 = _____
# of hours minutes

_____ x 1440 = _____
# of days minutes

This form completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

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Duration and Flow Rate Estimation Photo Comparison Worksheet

STEP 1: Compare the spill to reference images to estimate flow rate of the current overflow. Describe which reference photo(s) were used and any additional factors that influenced applying the reference photo data to the actual spill:

Flow Rate Based on Photo Comparison: _____ gallons per minute (gpm)

STEP 2: Multiply the spill rate by the spill duration to calculate the estimated spill volume.

_____ gpm	X	_____ minutes	=	_____ gallons
Flow Rate		Spill Duration		Estimated Spill Volume

Did the spill occur during a period of consistent flow in this portion of the sytem? ☐ Yes ☐ No

If no, explain how, based on this portion of the collection system and its users, you believe it may have impacted the estimated spill volume:

STEP 3: By what percentage are you adjusting the estimation? ☐ increase ☐ decrease _____ %

Translate the percentage into gallons: _____ gallons

Calculate the adjusted spill volume estimate:

_____ gallons	+ or -	_____ gallons	=	_____ gallons
Estimated Spill Volume		Adjustment		**Estimated spill volume**

STEP 4: Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

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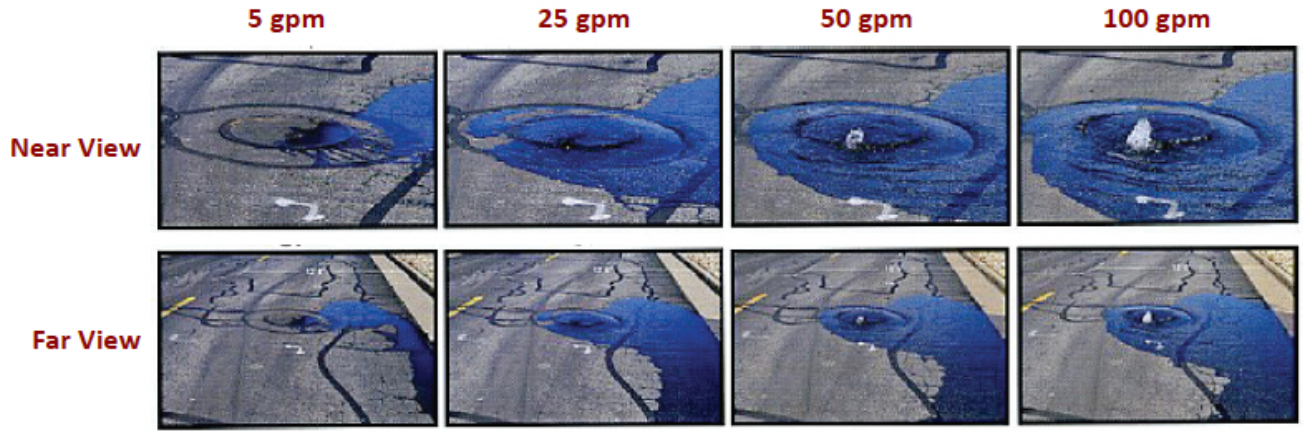
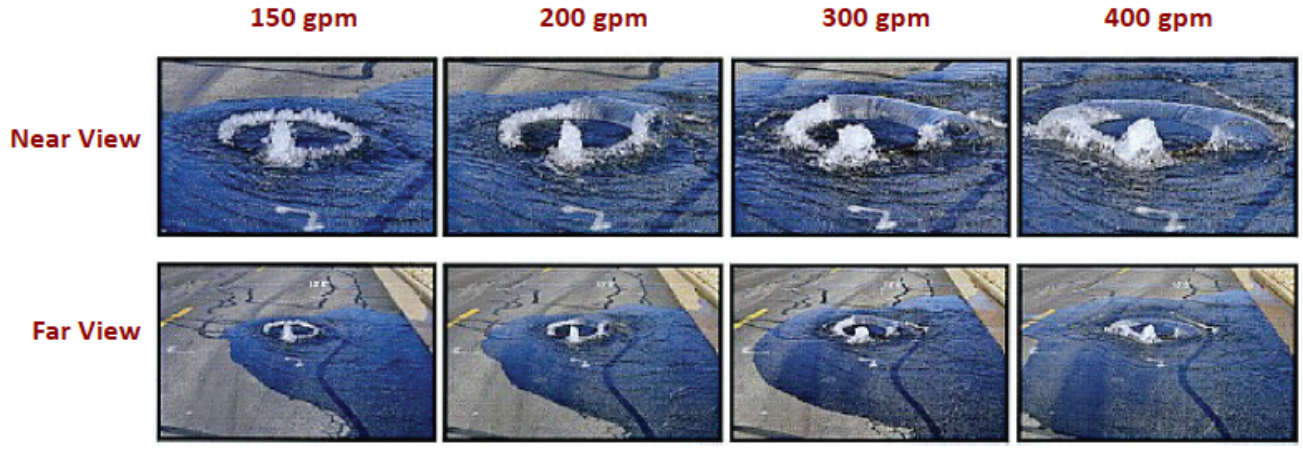
Duration and Flow Rate Estimation Reference Photographs

Use the photographs below as reference only. Other factors also influence the actual flow rate.

SSCSC Manhole Overflow Gauge

CWEA Southern Section Collections Systems Committee
Overflow Simulation courtesy of Eastern Municipal Water District





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Area Volume Estimation: Ponded Sewage – *Page 1 of 4*

(Refer to reference guides on pages 3 and 4 as needed)

STEP 1: Describe spill area surface: ☐Asphalt ☐Concrete ☐Dirt ☐Landscape ☐Inside Building ☐Other: _____

STEP 2: Draw/sketch the outline (footprint) of the spill. Then break the footprint down into recognizable shapes. Refer to the example on the **Area/Volume Method: Ponded Sewage Reference Page 1.**

STEP 3: Calculate the area of the footprint. Complete the table below for each shape identified in Step 2. If two shapes overlap, select one of the two shapes and estimate the percentage of that shape that does not overlap. Enter that percentage in the % Not Overlapping column. This will ensure that the overlap area is only counted once. Refer to the example on the Area/Volume Method: Ponded Sewage Reference Page 1.

Rectangles	Length	X	Width	X	% Not Overlapping	=	Area
	ft	X	ft	X	%	=	ft²
	ft	X	ft	X	%	=	ft²
	ft	X	ft	X	%	=	ft²

Triangles	Base	X	Height	Multiplier	X	% Not Overlapping	=	Area
	ft	X	ft	÷ 2	X	%	=	ft²
	ft	X	ft	÷ 2	X	%	=	ft²
	ft	X	ft	÷ 2	X	%	=	ft²

Circles	π	X	Radius	X	Radius	X	% Not Overlapping	=	Area
	3.14	X	ft	X	ft	X	%	=	ft²
	3.14	X	ft	X	ft	X	%	=	ft²
	3.14	X	ft	X	ft	X	%	=	ft²

Total Spill Area (sum of all three tables above): _____ **ft²**

STEP 4: Calculate the volume of the spill that **was NOT absorbed** into the ground. If the entire spill was absorbed, skip to Step 5.

a. If the spill is of varying depths, take several measurements at different depths and find the average.

_____ inches (sum of measurements) ÷ _____ (# of measurements) = _____ inches (average depth in inches) ÷ 12 = _____ feet (average depth in feet of ponded sewage)

b. Calculate spill volume of ponded sewage in cubic feet by multiplying the Total Spill Area in Step 3 by the average depth calculated in Step 4a. Convert from cubic feet to gallons by multiplying by 7.48.

_____ ft^2 (spill area (Step 3)) x _____ ft (average depth (Step 4a)) = _____ ft^3 (spill volume in cubic feet) x 7.48 gal = _____ gallons (estimated volume of ponded sewage)

GO TO NEXT PAGE

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Area Volume Estimation: Ponded Sewage – *Page 2 of 4*

(Refer to reference guides on pages 3 and 4 as needed)

STEP 5: Calculate the volume of the spill that was absorbed into the ground. If only a wet stain is observed, use the guidelines from the Area/Volume Method: Ponded Sewage Reference Page 1 for the average depth instead of performing the calculations in Steps 5a and 5b below.

a. In order to perform this calculation, you must first determine the water content in the soil using the method described on Area/Volume Method: Ponded Sewage Reference Page 2:

Volume of known quantity of water:	V_1 = _____ gallons
Area of wetted footprint:	A = _____ ft^2
Average Depth of Wet Soil:	D = _____ ft
Volume of Wet Soil in Feet = A x D	V_2 = _____ ft^3
Convert cubic feet to gallons = V_2 x 7.48	V_3 = _____ gallons
Calculate water content in soil $V_1 \div V_3$ x 100	Water Content = _____ %

b. Calculate the depth of the actual sewage spill that was absorbed into the ground. First, measure the depth of the wet soil in several locations within the wetted area of the sewage spill. Determine the average depth of the wet soil by taking several measurements at different depths and finding the average. Convert the measurement to feet:

_____ inches	÷ _____	= _____ inches	÷ 12 = _____ feet
sum of measurements	# of measurements	average depth in inches	average depth in feet

c. Calculate volume of the spill that was absorbed into the ground in cubic feet by multiplying the Total Spill Area from Step 3 by the average depth calculated in Step 5b. Then convert from cubic feet to gallons by multiplying by 7.48. Then multiply by the water content percentage determined in Step 5a.

_____ ft^2	x _____ ft	= _____ ft^3	x 7.48 gal x	_____ %	= _____ gallons
spill area (Step 3)	average depth (Step 5b)	spill volume in cubic feet		water content (Step 5a)	estimated volume of absorbed sewage

STEP 6: Add the volume not absorbed (Step 4) plus the volume absorbed (Step 5) to get the total estimated volume:

_____ gallons	+ _____ gallons	= _____ gallons
volume not absorbed	volume absorbed	Total Estimated Spill Volume

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

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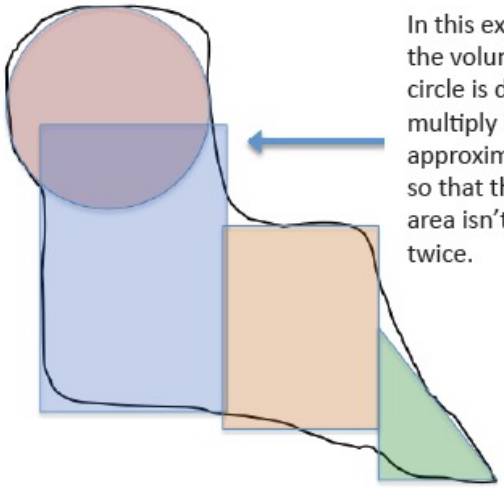
Area Volume Estimation: Ponded Sewage – *Page 3 of 4*

REFERENCE

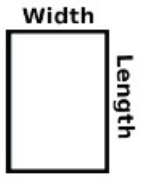
Computation	Formula/Guide
To convert inches to feet	Divide the inches by 12 or use the chart on the bottom right of this page.
Volume of one cubic foot	7.48 gallons of water
Area: Two-dimensional measurement represented in square feet.	Square/rectangle: Area = Length x Width Circle: Area = πr^2 (where $\pi \approx 3.14$ and r = radius = ½ diameter) Triangle: Area = ½ (Base x Height)
Volume: Three-dimensional measurement represented in cubic feet.	Rectangle/square footprint: Volume = Length x Width x Depth Circle footprint (cylinder): Volume = πr^2 x Depth (where $\pi \approx 3.14$ and r = radius = ½ diameter) Triangle footprint: Volume = ½ (Base x Height) x Depth
Depth: Contained or "Ponded" sewage	Measure actual depth of standing sewage whenever possible. When depth varies, measure several representative sample points and determine the average. Add the depth of the sample points and then divide that total by the number of sample points. If the depth is not measurable because it is only a wet stain, consider using the following estimated depths: • Depth of a wet stain on concrete surface: 0.0026' (1/32") • Depth of a wet stain on asphalt surface: 0.0013' (1/64")

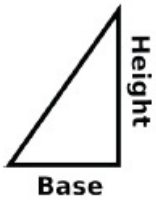
Example of how to draw/sketch the outline (footprint) of the spill for Step 2:

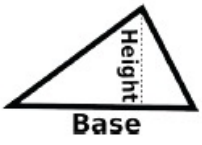
1. Sketch the outline of the spill (black line).
2. Break the sketch down into recognizable shapes (circles, squares, etc.) as well as you can.



In this example, after the volume of the circle is determined, multiply it by approximately 65% so that the overlap area isn't counted twice.







Convert Inches to Feet

Inches	Feet
1/8"	0.01'
1/4"	0.02'
3/8"	0.03'
1/2"	0.04'
5/8"	0.05'
3/4"	0.06'
7/8"	0.07'
1"	0.08'
2"	0.17'
3"	0.25'
4"	0.33
5"	0.42'
6"	0.50'
7"	0.58'
8"	0.67'
9"	0.75'
10"	0.83'
11"	0.92'
12"	1.00'

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Area Volume Estimation: Ponded Sewage – *Page 4 of 4*

REFERENCE

Example of how to determine the water content in wetted soil, measured as a percentage.

By determining the water content in the soil when a known quantity of water is used, it will be possible to estimate the sewage content in the soil where the actual spill occurred.

	Step	Example
	Select an area of dry soil (near the wetted footprint of the spill) to sample. If possible, use a form to keep the water contained to a geometric shape (circle, square, rectangle, etc.).	Place a 2 foot diameter form onto an area of dry soil.
V_1	Pour a known amount of water onto the soil and let it soak in for an adequate amount of time. (This quantity is V_1 in Step 5 on the worksheet)	Pour one gallon of water into the form and let it soak in for 15 minutes.
A	Pull the form and measure the AREA of the wetted soil. It will likely be larger than the form. (This measurement is A in Step 5 on the worksheet)	In this example, let's say the wetted soil footprint's diameter is 2 ft 2 in. We convert the inches to feet and get a diameter of 2.17 ft. The radius is ½ of the diameter, so r = 1.085 ft So using the formula: Area = πr^2 (where $\pi \approx 3.14$) the area of the footprint is 3.14 x 1.085 ft x 1.085 ft = 3.70 ft^2
D	Using a small hand tool, dig down into the soil until dry soil is reached. Measure the DEPTH of the wet soil. Do this in multiple locations and average the measurements. Convert to feet. (This measurement is D in Step 5 on the worksheet)	Dig into the soil in 3 locations and measure the depth of the wetted soil. It is usually easiest to measure this depth in inches, so in this example we will measure in inches and then convert to feet. In this example, let's say we take the following measurements: 2½ inches, 1½ inches and 3¾ inches We convert the measurements to decimals and get 2.5 in, 1.5 in, and 3.75 in. Then we average the 3 measurements by adding them together and then dividing by 3: 2.5 in + 1.5 in + 3.75 in = 7.75 in 7.75 in ÷ 3 = 2.58 in Convert the number to feet by dividing by 12: 2.58 in ÷ 12 in = 0.215 ft
V_2	Multiply the AREA of the wet soil by the average DEPTH of the wet soil to determine the VOLUME of the wet soil in cubic feet. (This measurement is V_2 in Step 5)	3.70 ft^2 x 0.215 ft = 0.80 ft^3
V_3	Multiply by 7.48 to convert the volume in cubic feet (ft^3) to the volume in gallons (gal). *NOTE: This measurement is V_3 in Step 5*	Multiply the volume in cubic feet by the conversion multiplier to get the volume in gallons 0.80 ft^3 x 7.48 gal/ft^3 = 6 gal
Water Content	Calculate the water content in the soil: • Since you started with a known amount, you know how much water is in the soil. • Divide that known amount of water by the calculated volume of soil to get the percent of water content in the soil.	Divide the known volume of water by the calculated volume of soil 1 gal ÷ 6 gal = .17 so 17% is the water content in the soil.

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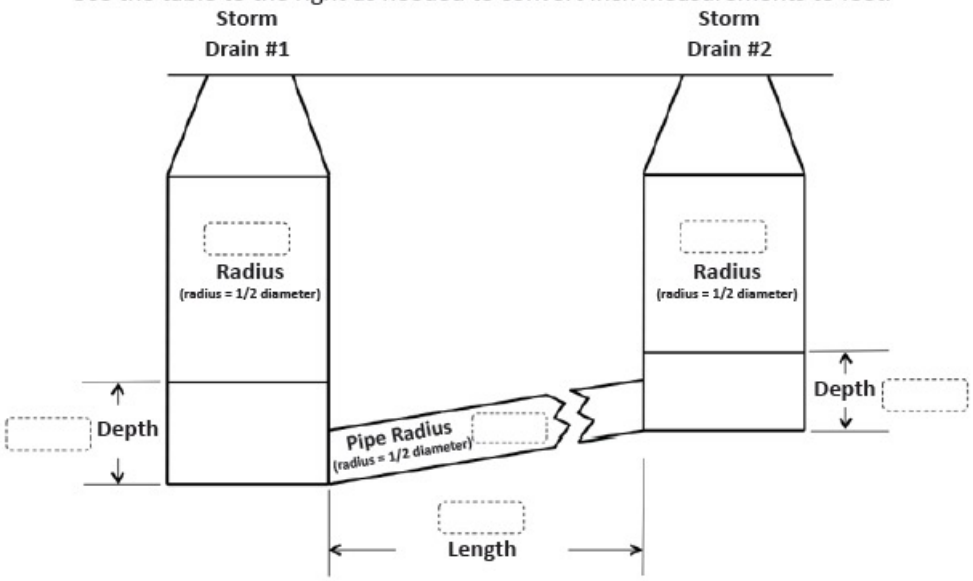
Sanitary Sewer Overflow Response Packet
Overflow Volume Estimation

D-4.3

Area Volume Estimation: Storm Drain System

STEP 1: Take measurements (in feet) and enter them in the dashed boxes below.
Use the table to the right as needed to convert inch measurements to feet.



Convert Inches to Feet	
Inches	Feet
1/8"	0.01'
1/4"	0.02'
3/8"	0.03'
1/2"	0.04'
5/8"	0.05'
3/4"	0.06'
7/8"	0.07'
1"	0.08'
2"	0.17'
3"	0.25'
4"	0.33
5"	0.42'
6"	0.50'
7"	0.58'
8"	0.67'
9"	0.75'
10"	0.83'
11"	0.92'
12"	1.00'

STEP 2: Complete the table below for each part of the storm drain system diagrammed above.

Storm Drain #1	π	X	Radius	X	Radius	X	Depth	=	Volume
	3.14	X	ft	X	ft	X	ft	=	ft³

Storm Drain #2	π	X	Radius	X	Radius	X	Depth	=	Volume
	3.14	X	ft	X	ft	X	ft	=	ft³

Pipe	π	X	Radius	X	Radius	X	Length	=	Volume
	3.14	X	ft	X	ft	X	ft	=	ft³

STEP 3: Add the right column together to calculate the total spill volume in cubic feet.
Multiply by 7.48 to convert to gallons.

_____ ft³ + _____ ft³ + _____ ft³ x 7.48 = _____ gallons

Drain #1 Volume | Drain #2 Volume | Pipe Volume | **Estimated Spill Volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

STEP 4: Attach a map of the impacted storm drain to this form for future reference.

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

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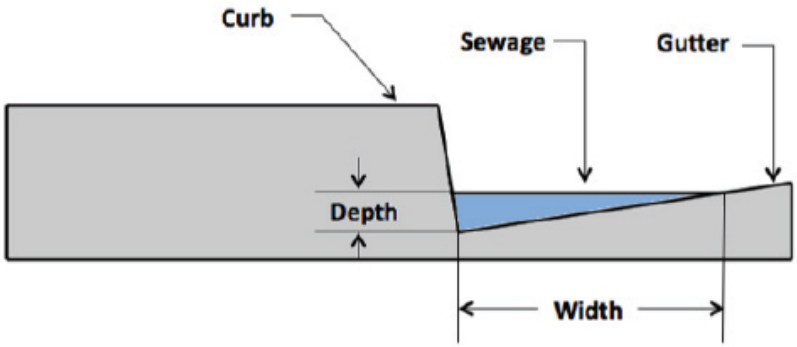
Sanitary Sewer Overflow Response Packet
Overflow Volume Estimation

D-4.4

Area Volume Estimation: Roadway Gutter

STEP 1: Measure the length of the contained spill in feet: _____ feet

STEP 2: Measure the depth and width of the overflow in the gutter. Convert measurements to feet. Refer to the drawing below.



Depth: _____ inches ÷ 12 = _____ feet

Width: _____ inches ÷ 12 = _____ feet

STEP 3: Calculate the overflow volume using the following equation:

_____ X _____ X _____ ÷ 2 = _____ ft³

Length | Depth | Width | Estimated spill volume in cubic feet

STEP 4: Convert the overflow volume from cubic feet to gallons:

_____ ft^3 X 7.48 = _____ gallons

Estimated spill volume in cubic feet **Estimated Spill Volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

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Sanitary Sewer Overflow Response Packet
Overflow Volume Estimation

D-4.5

Lower Lateral Estimation

STEP 1: Determine the number of Equivalent Dwelling Units (EDUs) for this spill: _____EDUs
NOTE: A single-family residential home = 1 EDU. For commercial buildings, refer to agency documentation.

STEP 2: The estimated flow volume per EDU is 180 gallons per day (GPD). The chart below shows how the volume has been allocated to four time periods during the day to show the flow volume for each time period in gallons per minute.

1. Enter the number of minutes the spill was active during each period in column B.
2. Multiply column B times column C to calculate the estimated gallons spilled for each time period.
3. Add the numbers in column C together to calculate the total estimated spill volume per EDU.

Time Period	A	B	C
	Gallons per minute for this period	Minutes spill was active during period	A x B = gallons spilled for this period
6 AM to Noon	0.20		
Noon to 6 PM	0.15		
6 PM to Midnight	0.13		
Midnight to 6 AM	0.03		
Total Estimated Spill Volume per EDU (sum of column C):			

STEP 3: Multiply the Estimated Spill Volume per EDU in the Step 2 chart by the number of EDUs determined in Step 1.

_____ gallons (Volume per EDU) X _____ (# of EDUs) = _____ gallons (Estimated Spill Volume)

STEP 4: Adjust spill volume as necessary considering other factors, such as activity that would cause a fluctuating flow rate (doing laundry, taking showers, etc.). Explain rationale below and indicate adjusted spill estimate (attach a separate page if necessary):

Estimated Spill Volume: _____ gallons

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:
Name: _____ Signature: _____
Job Title: _____ Date: _____

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Sanitary Sewer Overflow Response Packet
Collection Systems Failure Analysis

D-5
Side A

To be completed by Collection Systems Superintendent or Designee

Incident Report #	Prepared By
SSO/Backup Information	
Event Date/Time	Address
Volume Spilled	Volume Recovered
Cause	

Summary of Historical SSOs/Backups/Service Calls/Other Problems			
Date	Cause	Date Last Cleaned	Crew
Records Reviewed By:		Record Review Date:	

Summary of CCTV Information	
CCTV Inspection Date	Tape Name/Number
CCTV Tape Reviewed By	CCTV Review Date
Observations/Recommendations:	

Go to Side B

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Sanitary Sewer Overflow Response Packet
Collection Systems Failure Analysis

D-5
Side B

Recommendations					
☐	Type	Specific Actions	Who is Responsible?	Completion Deadline	Who Will Verify Completion?
	No Changes or Repairs Required	n/a	n/a	n/a	n/a
	Repair(s)				
	Construction				
	Capital Improvement(s)				
	Change(s) to Maintenance Procedures				
	Change(s) to Overflow Response Procedures				
	Training				
	Misc.				
Comments/Notes:					
Review Date:					

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DANGER

RAW SEWAGE • AVOID CONTACT

PELIGRO

AGUA CONTAMINADA • EVITE TODO CONTACTO

City of Antioch

Business Hours: **(925) 779-6950**

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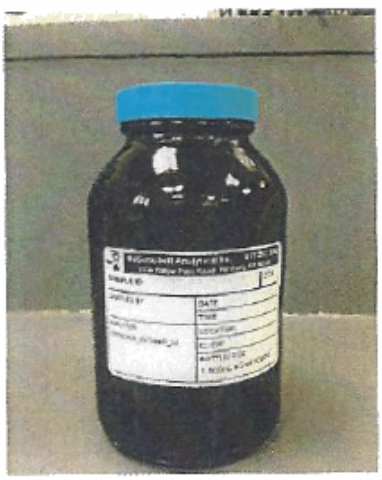
Appendix E

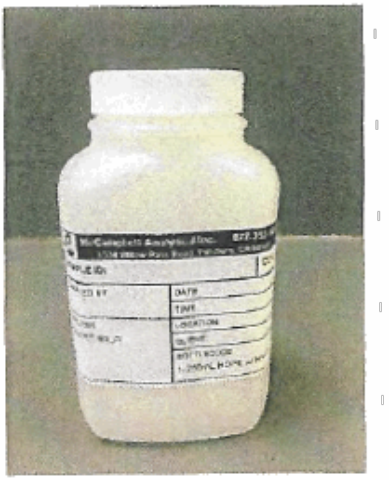
FIELD SAMPLING KIT

Field Sampling Kit
Table of Contents

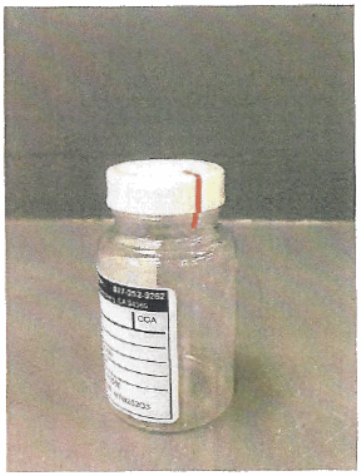
Field Beaker



Ammonia, phosphorus



Cam 17 Metals



Bacteriological

Total Nitrogen

Field Sampling Kit
Procedures for Sampling Receiving Waters and Posting Warnings after a Sewage Spill

E-1
Side A

SSO Sampling Procedures:

1. Use only the bottles in the sample kit for all samples. The samples bottles have preservative in them, so care must be used not to rinse out the preservative when sampling.
2. Collect samples in this order:
   - Upstream of the discharge location
   - At point of discharge
   - Downstream from the point where sewage entered the waterway.

   50 feet is a reasonable distance for both the upstream and downstream sample locations, provided that the sampler can safely access the affected surface water
3. **Before** collecting any samples, complete the label information on the sample bottles, including the location, date, time, and initials of sampler.
4. Put on all required personal protective equipment including latex gloves and eye protection if required.
5. Get into position to collect the sample with the field beaker. If you are in a creek, try to collect the sample from the middle of the creek, being careful not to disturb the bottom sediment. If necessary, use an extension pole to obtain the sample, and fill the field beakers by pouring from the cup of the sampler. Then, fill the sample bottles by pouring from the field beaker. Do not overfill the bottles; doing so will wash out any preservative in the bottle.
6. Once the sample container has been filled, replace the lid securely.
7. Avoid sampling debris or scum layer from the surface. To avoid this, gently move the debris or scum layer. Do not agitate the water as it will stir up sediment.
8. Special instructions for the small sample vials: These vials must be free of air bubbles when the sample collection process is complete. Slowly fill the sample vials to within ½ inch of the top. Carefully, using the vial cap or disposable plastic pipet, add just enough sample to completely fill the vials and form a meniscus (the curved surface of the water formed by surface tension). Cap the sample vials tightly, gently invert, and check for air bubbles in the vial. If there are any air bubbles present, carefully add additional water and check again for air bubbles.
9. Complete the highlighted areas on the Chain of Custody form.
10. Immediately place the samples in the cooler with the gel ice packs surrounding the samples on top, bottom and sides.
11. Take cooler containing the samples and the completed Chain of Custody to McCampbell Analytical as soon as possible. Bacteriological samples have a short hold time and need to be tested within **6 hours** of collection. McCampbell Analytical is located in Pittsburg, and is open for sample receipt 8:00 am to 9:00 pm Monday through Friday. If sampling occurs late at night or on a weekend, contact the Collections Superintendent for further instruction.

INSERT LAB FORM

Appendix F

CONTRACTOR ORIENTATION

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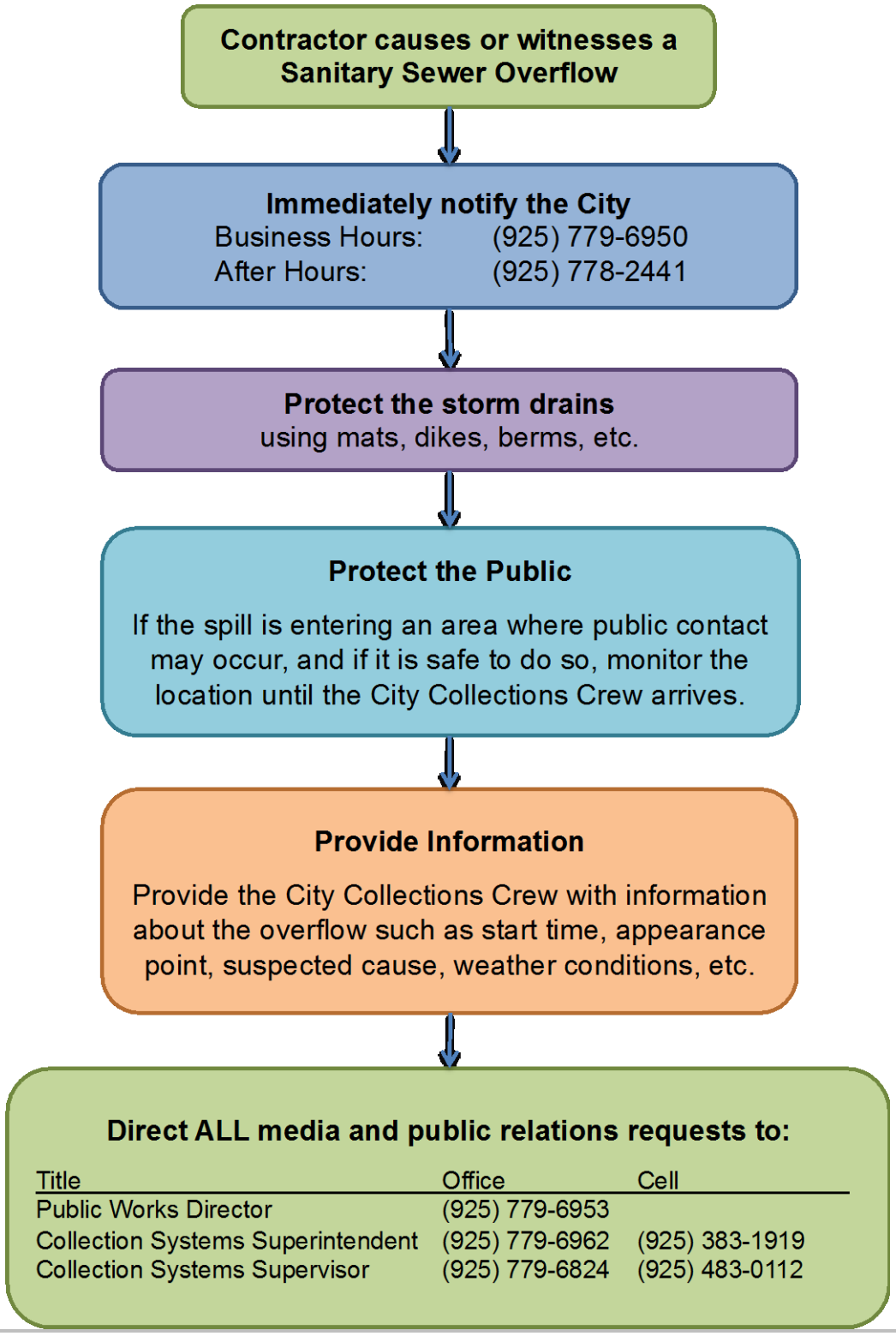
CONTRACTOR ORIENTATION

The following procedures are to be followed in the event that you cause or witness a Sanitary Sewer Overflow.



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Sanitary Sewer Overflows

How to avoid them and what to do if you don't

What?

A sanitary sewer overflow (SSO) is a discharge of untreated human and industrial waste before it reaches the wastewater treatment facility.

Where?

SSOs usually occur through manholes, plumbing fixtures and service cleanouts

Why?

SSOs are usually caused by grease, debris, root balls, or personal hygiene products blocking the sewer lines, or by unusually high flow volume.

How to prevent SSOs:

…when clearing plugged sewer laterals:

- Remove root balls, grease blockages and any other debris from the sewer
- If you can't prevent root balls, grease or debris from entering the sewer main, call us at (925) 779-6950, so we can work with you to remove the blockage and prevent blockages further downstream
- Use plenty of water to flush lines.

…when constructing or repairing sewer laterals:

- Contact the Building Department at (925) 779-7065 for a permit and lateral specifications.
- Check your work area. Make sure there is no debris left in the sewer line before you backfill.
- Avoid offset joints, which may make sewer lines vulnerable to root intrusion and grease or debris accumulation. Properly bed your joints and don't hammer tap.

If you cause or witness an SSO, immediately contact:

If you cause or witness

an SSO, immediately contact:

City of Antioch

Business Hours: (925) 779-6950

After Hours: (925) 778-2441

City of Antioch

Public Works Department

1201 West 4th Street

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Appendix G

CONTACT INFORMATION

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VENDOR CONTACT INFORMATION

Refer to the City document **Water Emergency Plan** for contact information for vendors that provide services related to overflow emergency response.

Service/Vendor	Call:	At:
Restoration Companies	Restoration Management Company	(800) 400-5058
	Service Master Clean	(800) 480-8439 (925) 288-0479
	Four Star Restoration	(800) 255-3333
Equipment Rental	All Star Rents	(925) 755-7368
	Rain for Rent	(925) 679-2803
	Hertz	(925) 680-0316
	Cresco Equipment Rentals	(925) 228-9811
	Peterson Power Systems	(510) 895-8400
	Trench Plate Rental	(925) 432-1914
	PAC Machine	(800) 231-7086 (24 hr.) (916) 387-1336
Backhoe/Excavation	Mountain Cascade	(925) 373-8370
	MJH Excavating Inc.	(925) 382-9739 (925) 757-2309
	Tiechert Construction	(209) 481-3759 (209) 481-1450
Electrical	ICR Electrical	(925) 757-8282 Dan Garcia Cell # (925) 383-8185
	Contra Costa Electric, Inc.	(925) 229-4250
	Electric Motor Service	(925) 934-4582
Pump Repair	Martell Water Systems, Inc.	(925) 432-4282
	Pump Repair Service Co.	(415) 467-2150
	Wright Environmental Services, Inc.	(800) 200-6556
	Paco Pumps, Inc.	(510) 639-3200
	Baker Corp. (Pittsburg)	925-439-8251
Environmental/HazMat	NRC Environmental	(800) 337-7455
	Veolia Environmental Services	(800) 325 2382
	Newalta Emergency Response Services	(800) 567-7455
Miscellaneous	Global Inshore Divers	(925) 439-7227
	Burlington Northern/Santa Fe Railroad	(800) 285-2164
	Union Pacific Railroad	(916) 789-6355
	Royal Brass	(925) 625-8070
	Pacific Liners	(707) 446-8222
	Pipe Pros, Inc. Video & Leak Detection	(925) 969-9182
	ABC Service Pipeline Inspection & Repair	(916) 448-3535

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INTERNAL RESOURCES CONTACT INFORMATION

Function	Contact	Telephone
Environmental Compliance	Phil Hoffmeister	(925) 779-7000 ext. 2014
Clean Water Program	Julie Haas-Wajdowicz	(925) 779-7097
Building Official	Mike Boccio	(925) 779-7065
Code Enforcement Neighborhood Improvement	Curt Michael	(925) 779-6166

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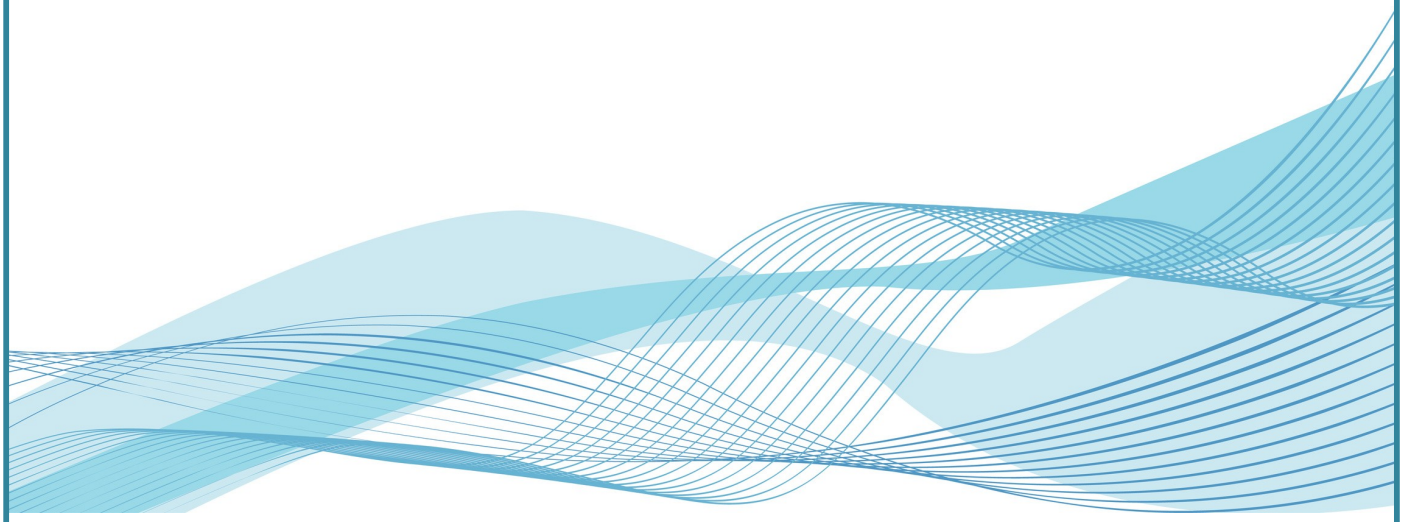
Appendix E: Water Quality Monitoring Plan

City of Antioch

Water Quality Monitoring Plan

2/6/18



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Element XXIX: Table of Contents

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1. PURPOSE OF PROGRAM PLAN

The purpose of this Water Quality Monitoring Program Plan (WQMP or Plan) is to implement the requirements for sampling of sanitary sewer overflows (SSOs) greater than 50,000 gallons that reach surface waters. This plan conforms to the State Water Resources Control Board Waste Discharge Requirements Order No. 2006-0003-DWQ, Section D.7(v) and Monitoring and Reporting Program (MRP) Section D, Water Quality Monitoring Requirements issued by executive order number WQ 2013-0058- EXEC effective on September 9, 2013. This WQMP provides the City of Antioch (City) policies and procedures to assure consistent conformance to the regulatory requirements and to establish procedures for City staff and contractors in their responses to large releases of sanitary sewage that reach surface waters. This WQMP is consistent with and supplemental to the City of Antioch Overflow Emergency Response Plan, Element VI of its SSMP. Finally, this document will be used to coordinate training for the City's new employees and regular refresher training for existing employees.

Additionally, this Plan is also used as a guideline for monitoring and sampling requirements that may be imposed upon the City from citizen suits under the Clean Water Act (CWA) resulting in settlement agreements, stipulated orders or consent decrees that can require monitoring and sampling of sanitary sewer overflows of any kind or size. This Plan establishes procedures for the identification of sampling locations, protocols for the proper collection of samples, the chain of custody for sample collections, the handling of samples, the reporting and recordkeeping to assure the legal integrity of monitoring for compliance with regulatory requirements. The plan will also establish policies and procedures that will be used to assure proper coordination between the taking and testing of samples, as well as assure that samples taken will satisfy the local regulatory agency's Basin Plans and the unique character of the City's local service area and surface waters.

This Plan is intended to establish protocols for all sampling including when, where and how; establish the required water quality sample analyses that will be conducted; identify the access and safety requirements related to sampling considerations; and identify any local concerns that this monitoring plan should address. In addition, the Plan establishes the requirements for equipment calibration, notification requirements related to an overflow, recordkeeping requirements, staff training issues and requirements for the regular reviews and audits of the WQMP. Finally, all City forms used for water quality monitoring are included and available for use in any SSO incident.

2. DEFINITIONS

The following definitions and acronyms are used in this Program Plan:

BACTERIA Probaryotic microorganisms typically a few micrometers in length, with shapes from spheres to rods and spirals

CalOES State of California Office of Emergency Services

CALOSHA California Division of Occupational Safety and Health

CFR Code of Federal Regulations

CFS Cubic feet per second

CIWQS California Integrated Water Quality System

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CSRMA	California Sanitation Risk Management Association
CWA	Clean Water Act
DH2O	Distilled Water
DEET	N,N-Diethyl-meta-toluamide
DOHS	California Department of Health Services
E. Coli	Escherichia coli (bacteria)
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
Field QC	Field Quality Control
GPM	Gallons per minute
GWDR	General Waste Discharge Requirements or WDR
GIS	Geographic Information System
LIMS	Laboratory Information Management System
LRO	Legally Responsible Official
mg/l	Milligrams per liter
ml	Milliliter
MPN	Most probable number
MRP	Monitoring and Reporting Program
NH3	Ammonia
NH3-N	Ammoniacal Nitrogen
NPDES	National Pollution Discharge and Elimination System
OERP	Overflow Emergency Response Plan
OES	See CalOES
PPE	Personal Protective Equipment
ppm	Parts per million

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QA/QC	Quality Assurance/Quality Control
RWQCB	Regional Water Quality Control Board
SOP	Standard Operating procedure
SSC	Sewer Service Charge
SSMP	Sanitary Sewer Management Plan
SSO	Sanitary Sewer Overflow
SSO GWDR	Sanitary Sewer Overflow General Waste Discharge Requirements

SURFACE WATER
All waters whose surface is naturally exposed to the atmosphere; for example, rivers, lakes, reservoirs, ponds, streams, seas, estuaries, etc., and all springs, wells, or other collectors directly influenced by surface water.

SWRCB	State Water Resources Control Board
WQMP	Water Quality Monitoring Program Plan
WQ	Water Quality
WDR	Waste Discharge Requirements
VOC	Volatile Organic Compound

3. RESPONSIBILITY

The City shall designate responsibility for all WQMP roles to appropriate classifications in the City's organizational structure to assure conformance of all activities for the monitoring of SSOs greater than 50,000 gallons reaching surface waters (Category 1 SSO), to reduce potential liability, protect public health, and to assure those responsible for this Plan are trained in their roles and responsibilities for the performance of proper protocols. It is further recognized that the proper application of this Plan will assure that all monitoring can withstand regulatory or legal scrutiny of the State, Regional Board, or from the actions of a citizen lawsuit. These roles and responsibilities are intended to be compliant with WDR Sections D.13 (vi), G and Section C.5 and D of the September 9, 2013 MRP.

The following table contains the roles and responsibilities as assigned by the City to individual classifications or service contractors of the City:

Roles and Responsibility	**Responsible Classification**
Provide and document regular training on WQMP for all City classifications that have a role or responsibility in the WQMP and identified herein	Collections System Superintendent
Identification and assessment of potential impacts to	Collections System Superintendent

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local areas with surface waters that may require WQMP (i.e. aerial crossings, creeks, waterways, rivers, bays, estuaries, etc.)	
Certification of calibration of sampling equipment and maintenance of calibration records	Collections System Superintendent
Determination of specific sampling protocols and analytic methods to be used for the City -required testing	Collections System Superintendent
Quarterly completion of the monitoring and sampling kit checklist from Appendix E.	Collections System Superintendent or designee
Annual review of all standard operating procedures related to this WQMP especially the Sample Collection procedures	Collections System Superintendent
Decision to invoke a WQMP and direct the monitoring program to conclusion	Collections System Superintendent
Selection of sampling locations	Public Works Technician or designee
Coordination of field sampling	Public Works Technician or designee
Conduct field sampling per City protocols	Public Works Technician or designee
Authorization and direction for placement of public notifications and signage	Public Works Technician or designee
Photographs of sampling and signage placed to protect public health and safety	Public Works Technician or designee
Preparation of Chain of Custody for all samples taken including proper labeling	Public Works Technician or designee
Determination of spill travel time, if applicable.	Public Works Technician or designee
Review and evaluate lab results for termination of sampling and to determine the nature and impact of the release	Collections System Superintendent or designee
Decision to terminate sampling	Collections System Superintendent or designee
Preparation of detailed sampling location map	Collections System Superintendent or designee
Conduct sample analysis	ELAP-certified Contract Lab
Preparation of water quality sampling activities narrative for Technical Report	Collections System Superintendent
Review and Approval of Technical Report	Collections System Superintendent
Certification and placement of Technical report in the CIWQS spill reporting system.	Collections System Superintendent
Failure Analysis Investigation of all water quality monitoring from the SSO event to determine all necessary changes or modifications to the WQMP	Collections System Superintendent
Audits of the WQMP as required by City SSMP Element 10, Audit.	Collections System Superintendent
Management of Change responsibilities for the WQMP and all associated forms and documents required for use during an incident	Collections System Superintendent

It is recommended that this list of responsibilities be placed on a laminated card and kept in the Monitoring and Sampling Kit for easy access during an SSO sampling incident.

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4. AUTHORITY AND REFERENCES

The authority and/or requirements for the monitoring and sampling of sanitary sewer overflows are contained in the following regulations:

1. State Water Resources Control Board Waste Discharge Requirements Order No. 2006-0003-DWQ, Section D.7(v).
2. State Water Resources Control Board Monitoring and Reporting Program (MRP) Sections C.5 D, Executive Order number WQ 2013-0058-EXEC effective September 9, 2013
3. Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Organization et al.
4. Clean Water Act Sections 301(a), 304(h), and 501(a).
5. Code of Federal Regulations, Title 40, Part 136.

There are several applicable references that are available to assist with the Water Quality Monitoring Program as follows:

A. Basin Plan of the Regional Water Quality Control Board
B. Best Management Practices for Sanitary Sewer Overflow (SSO) Reduction Strategies, Central Valley Clean Water Associates and Bay Area Clean Water Agencies, December 2009
C. City Overflow Emergency Response Plans
D. Field Guide for Surface Water Sample and Data Collection, Air Program, USDA Forest Service, June 2001.
E. Standard Operating Procedures for Surface Water Quality Sampling, Arizona Department of Environmental Quality, Surface Water Section, September 2012.
F. Surface Water Sampling_AF.R3, Document Number SESDPROC-201-R3, Region 4, Environmental Protection Agency, Science and Ecosystem Support Division, Athens, Georgia, February 28, 2013.

5. IDENTIFICATION OF LOCAL SURFACE WATERS AND CHARACTERISTICS

An important element of any water quality monitoring program is the proper and thorough understanding of the service area and the various challenges the geography and sanitary sewer infrastructure of the service area present for the potential of wastewater reaching surface waters or storm water facilities. By evaluating the areas of concern in a service area such as lakes, rivers, dry creeks, aerial pipeline crossings over water ways and all storm water related infrastructure, the City can be better prepared to timely respond to any SSO reaching surface waters and to minimize the impacts of an SSO in or around local surface waters and storm water infrastructure.

A. Surface Waters of Concern

For the purposes of this Plan, surface waters are defined as all waters whose surface is naturally exposed to the atmosphere, for example, rivers, lakes, reservoirs, ponds, streams, seas, estuaries, etc., and all springs, wells, or other collectors directly influenced by surface water. In addition, the City will also identify and evaluate areas where collection system pipelines and force mains cross over or under waterways as these crossings can require additional resources and equipment to properly address any SSO from these collection system assets.

Surface waters of concern are those surface waters with the City's service area that may be impacted by a sanitary sewer overflow from the City's sanitary sewer collection system. Prior

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planning, review and evaluation of potential failure mechanisms can help minimize any potential impacts to surface waters or storm water infrastructure when and if the WQMP must be invoked.

Any review of these important areas of potential surface water contamination in advance of an SSO should allow the City to be better prepared to respond to an SSO with the proper equipment and a better understanding of the procedures that may need to be invoked during the SSO such as flow rate of a creek or stream, and potential areas of significant environmental concern such as shell fish beds or fish habitats. In addition, having all storm water infrastructure located on the collection system field maps will help the City's responders quickly determine if SSOs may flow into storm drains reach and impact surface waters.

The following are the surface waters of concern within the City's jurisdiction:

- Contra Costa Canal
- Lake Alhambra
- Markley Creek
- West Antioch Creek
- East Antioch Creek
- Antioch Municipal Reservoir
- Los Medanos Creek
- Sacramento/San Joaquin River

B. Background Monitoring

Background monitoring of surface waters in the City's service area is intended to provide a profile of the water quality with respects to the constituents measured on a semi-annual basis to occur in the dry season and as soon as possible after the first major rain event of each calendar year. This background data will serve as a reference point for determining the level, if any, of water quality impairment following an SSO impacting surface waters in the service area.

1. The Public Works Technician or designee will perform background monitoring of the surface waters of concern.

2. Background monitoring will measure the following constituents:
   - Total Coliform
   - Fecal Coliform
   - Ammonia

3. Samples will be analyzed in accordance with Sections 6.0 and 7.0.

4. Sample results will be retained in the City's files located Public Works files at the Corp Yard for 5 years or in accordance with the City's records retention policy, whichever is longer.

6. LAB SELECTION

A. Analytical Lab

Samples collected for SSO response and background monitoring purposes pursuant to Section 5.0 will be analyzed at the City's current ELAP-certified contract lab as identified below:

- McCampbell Analytical, Inc
  - 1534 Willow Pass Rd, Pittsburg, CA 94565

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- Telephone: (925)252-9262 or (877)252-9262
- Sample drop off times: Open 8:00 am - 9:00 pm

The City's contract lab is accredited through California's Department of Public Health Environmental Laboratory Accreditation Program (ELAP). ELAP provides evaluation and accreditation of environmental testing laboratories to ensure the quality of analytical data used for regulatory purposes to meet the requirements of the State's drinking water, wastewater, shellfish, food, and hazardous waste programs. The State agencies that monitor the environment use the analytical data from these accredited labs. The ELAP-accredited laboratories have demonstrated capability to analyze environmental samples using approved methods.

B. Getting Samples to the Lab

At all times, sample hold times identified below will be observed in accordance with Section 7.0. Once samples are collected, they will be transported to the City's current contract lab.

7. SAMPLING PARAMETERS

A. Required Sampling Parameters

The RWQCB Basin Plan and/or NPDES permit set the water quality standards against which one can judge the levels of impacts of an SSO on surface waters.

In accordance with the SWRCB Revised MRP WQ 2013-0058, the following parameters will be sampled:

1. Ammonia

Ammonia-N, is a key indicator of the extent of the gross pollution of the receiving water from a SSO. Untreated wastewater or partially-treated wastewater is generally high in ammonia-N (typical 20-30 mg/L). In comparison the natural background concentration in the surface water is low, typically, less than 0.5 mg/L. Therefore, the elevated concentration of ammonia of the surface water downstream or at the site of the SSO, as compared to that upstream of the site is a reasonable indication of the extent of gross contamination from the SSO.

2. Bacteriological Indicator as specified in the local Basin Plan

Total coliform and fecal coliform count are indicators of potential public health impacts of an SSO on the receiving waters. If the concentrations of these groups of bacteria are elevated above and beyond the natural background and/or above the RWQCB Basin Plan Water Quality Standards (objective), public notification and posting may be necessary.

It should be noted that there may be non-SSO-related causes of elevated bacteria in surface water, for example, animal sources or storm drain discharge. The upstream and/or other samples may reflect the extent of bacterial contamination from these other sources. Sometimes the extent of the SSO may be indistinguishable from the other natural sources beyond the City's control. This is particularly true when taking Source samples based on an estimated downstream location of the SSO plume (reference Section 7F).

Generally, if the concentrations of these groups of bacteria at the downstream or at the site of impact are within the range of the non-impacted site (i.e. upstream) or levels indicated in

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historical background monitoring levels, the water quality impacts of the SSO are considered insignificant.

The surface water quality objectives of these groups of bacteria for the Regional Water Quality Control Board having jurisdiction over the City of Antioch are shown in Tables 7.1.

Table 7.1: CVRWQCB Water Quality Objectives for Coliform Bacteria[a]

Beneficial Use	Fecal Coliform (MPN/100ml)	Total Coliform (MPN/100ml)
Water Contact Recreation	Geometric mean < 200 90th percentile < 400	NA

NOTES:

a. Based on a minimum of five consecutive samples equally spaced over a 30-day period.

Source: Water Quality Control Plan (Basin Plan) for the Central Valley Basin (Region 6) 2016

B. Sampling Parameters for City of Antioch

1. Ammonia
   - Discussion: See Section 7A
   - Sample Container: Plastic/glass
   - Sample Type: Grab
   - Sample Volume Required: 200 ml. minimum
   - Hold Time: 28 days
   - Preservative: Sulfuric acid
   - Analytical Method: Method 4500-XX R and C, Standard Methods for the Examination of Water or Wastewater, 21st Edition

2. Total Coliform/Fecal
   - Discussion: See Section 7A.2
   - Sample Container: Plastic (sterile)
   - Sample Type: Grab
   - Sample Volume Required: 100 ml. minimum
   - Hold Time: 8 hours
   - Preservative: None if waters are not chlorinated
   - Analytical Method: Method 9221 B, C and E, Standard Methods for the Examination of Water or Wastewater, 21st Edition

8. SAMPLING EQUIPMENT AND CALIBRATION

A. Sampling Equipment Used at the City of Antioch

The following are the sampling equipment used by the City

- Sampling pole with fixed container
- Sampling pole with removable container
- Sampling pail and rope
- Stream velocity meter

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- Combination temperature/pH meter
- Grab-n-Go Sample Kit containing, at a minimum:
    - Ice pack
    - Waterproof pen
    - Sample labels
    - Camera
    - Sample bottles
    - Distilled water for Sample Blanks
    - Appropriate PPE

9. Sampling Procedures

A. Sample Location and Identification Procedures:

Samples will be collected by the City Sewer Crew. The most precise and accurate analytical measurements are worthless and even detrimental if performed on a sample that was improperly collected and stored, or was contaminated in the process. The purpose of sampling and analysis is to provide data that can be used to interpret the quality or condition of the water under investigation.

Unfortunately, water quality characteristics are not spatially or temporally uniform from one effluent to another. A sampling program must recognize such variations and provide a basis for compensations for their effects. The sample must be:

1. Representative of the material being examined;
2. Uncontaminated by the sampling technique or container;
3. Of adequate size for all laboratory examinations;
4. Properly and completely identified;
5. Properly preserved, and
6. Delivered and analyzed within established holding times.

These six requirements are necessary for a proper assessment of water quality.

It is impossible to establish hard and fast rules concerning sampling locations. However, the following general guidelines should be applied whenever City personnel conduct surface water sampling:

1. The sampling location should be far enough upstream or downstream of confluences or point sources so that the surface water and SSO volume is well mixed. Natural turbulence can be used to provide a good mixture.
2. Samples should be collected at a location where the velocity is sufficient to prevent deposition of solids, and to the extent practical, should be in straight reach having uniform flow. All flow in the reach should be represented, so divided flow areas should be avoided and samples should be taken towards the middle of the reach where feasible.
3. Sampler must always stand downstream of the collection vessel, and sample “into the current”. Care must be taken to avoid introducing re-suspended sediment into the sample.

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B. Sample Types:

Grab samples are appropriate for the characterization of surface waters at a particular time and place, to provide information about minimum and maximum concentrations, to allow for the collection of variable sample volume.

Grab samples may be collected directly into the sample container, or a clean decontaminated intermediate container may be used if a wading sample is not possible or safe. If an intermediate container is used, when in the field, double rinse the sampling device (bucket, automatic sampler) with sample water prior to collecting the sample and be sure to discard rinse water downstream of where sample will be collected. If samples are collected in a bucket and distributed a consolidation collection container, swirl the contents of the bucket as it is being poured into the consolidation collection container to avoid settling of solids (and pour in back and forth pattern – *e.g.*, 1-2-3-3-2-1).

Grab Sample: A grab sample is defined as an individual sample collected at a given time. Grab samples represent only the condition that exists at the time the sample is collected (US EPA 1977).

Surface Grab Sample: A sample collected at the water surface (i.e. skimming) directly into the sample container or into an intermediate container such as a clean bucket. A single or discrete sample collected at a single location.

Field Blanks are used to evaluate the potential for contamination of a sample by site contaminants from a source not associated with the sample collected (e.g., airborne dust, etc.). Sterile, deionized water is taken into the field in a sealed container. This is the stock water. The stock water is then poured into the sample container. The containers and sample submission forms are labeled as “Field Blank“. The same template selected for the test samples should be used. Field blanks are subject to the same holding time limitations as samples. The appropriate FIELD QC box on the sample Chain of Custody form should be checked.

C. Decontamination Procedures

Removing or neutralizing contaminants from sampling equipment minimizes the likelihood of sample cross contamination, reduces or eliminates transfer of contaminants to clean areas, and prevents the mixing of incompatible substances.

Gross contamination can be removed by physical decontamination procedures. These abrasive and non-abrasive methods include the use of brushes, air and wet blasting, and high and low pressure water cleaning.

The decontamination procedures for the sample types and sampling equipment (other than sample bottles, which are provided to Sewer Staff in a “ready to be used” condition by the lab) used at the City of Antioch may be summarized as follows:

1. Physical removal
2. Tap water rinse

4. Air dry

D. Sample Labeling and Chain of Custody Procedures

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A sample is a physical evidence of a facility or the environment. An essential part of all enforcement investigations is that evidence gathered be properly documented. To accomplish this, the following sample identification and chain of custody procedures are established.

1. The method of sample identification depends on the type of measurement or analyses performed. When in-situ measurements are made, the data are recorded directly in Field Data Worksheets with identifying information, field observations, and remarks. Examples of in-situ measurements are:
    - Stream Flow Measurement

Samples other than in situ measurements must be identified by a sample label. These samples are removed from the sample location and transported to a laboratory for analyses. Before removal, however, a sample is often separated into portions depending upon the analyses to be performed. Each portion is preserved in accordance with applicable procedures and each sample container is identified by a sample label.

2. At a minimum, the following grab samples will be collected, in duplicate:
    - Field Blank: See Section 9.B for discussion.
    - Upstream: This sample will be collected far enough upstream of the SSO's point of entry into the surface water as to be free of contaminants from the SSO. Typically, 50-feet is sufficient, but this may vary on circumstances of the spill.
    - Source: Immediate vicinity where the SSO entered the surface water. This point will actually be downstream of the actual SSO entry point for SSO's that have stopped entering the surface water to be sampled. If the SSO has stopped, calculate the approximate downstream distance from the original SSO location by dividing the time since the SSO occurred by the estimated velocity. This is the approximate downstream distance from the SSO discharge point to the "source" sampling location.

○ See Section 9.F for information on determining velocity of the surface water in order to determine the Source sample location.

    - "Downstream" of SSO: This sample will be collected far enough downstream to be representative of the water quality of the surface water after adequate mixing of the surface water and the SSO have occurred. Typically, this location will be 50-feet downstream of the Source sample, but this may vary on the size and velocity of the surface water to be sampled.

3. Sample labels shall be completed for each sample, using waterproof ink. The information recorded on the sample tag/label includes:
    - Date: a six digit number indicating the year, month, day of collection
    - Time: a four-digit number indicating military time of collection (e.g., 0954)
    - Sample Location: sampling location description as either Upstream, Source, or Downstream
    - Samplers: each sampler is identified
    - Parameter/preservative: the analysis to be conducted for the sample /sample preservation
4. Photos or video of each sample location will be taken, properly labeled with date, time, and view direction and a map of the photo locations completed. Photos and videos shall

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include relevant landmarks to identify sampling locations and their surroundings.

Due to the evidentiary nature of samples collected during enforcement investigations, possession must be traceable from the time the samples are collected until they are analyzed. To maintain and document sample possession, a Surface Water Sample Chain of Custody Record (Attachment C) must be completed. A sample is under custody if:

- It is in your possession, or
- It is in your view, after being in your possession, or
- It was in your possession and under your control to prevent tampering, or
- It is in a designated secure area.

5. As few people as possible should handle samples. The person taking the samples is personally responsible for the care and custody of the samples collected until they are transferred or dispatched properly.
6. Samples are accompanied by a chain of custody record. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents sample custody transfer from the sampler, often through another person, to the analyst at the laboratory. The samples are typically transferred to the sample-receiving custodian at the laboratory.

E. Safety Considerations

Personal safety of staff engaged in any fieldwork activity (e.g., in transit, walking or hiking, and any field activities while at the sample site) is of primary importance. Staff should never place themselves in dangerous or risky situations. Any hazards that are known by field personnel should be communicated to other members of the field crew.

Fieldwork should be postponed if there is indication that engagement in the field activity could cause bodily harm. Working during lightning storms, in heavy vegetation or poison oak, near aggressive wildlife or domestic animals, traversing steep or rugged terrain, unstable slopes or creek banks, near swiftly moving water or potential flash flood conditions, or during snowy weather is not considered "normal risk". If any member of the field crew is uncomfortable with a reasonable self-determined hazardous field condition, it is that person's responsibility to bring this to the attention of the on site field supervisor or their supervisor. A "reasonable self-determined hazardous field condition" is defined as other than normal risk. Supervisors shall not dismiss any person's spoken concerns that field conditions are too hazardous to complete the work assignment.

The person taking the samples must have adequate protection, including protective clothing. They must wear gloves, as protection against chemical and/or bacteriological hazards, while they are sampling or handling samples that are known or suspected to be hazardous (e.g. visible solids or sheens, downstream from sewage spills, etc.), or if hands have open wounds. The type of gloves worn shall be determined by the sampling circumstance and type of pollutants expected – for instance longer gloves are needed when samples must be taken well below the surface.

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When in a boat or wading in a stream, a personal floatation device shall be worn at all times. Other protective measures shall be taken in accordance with City safety procedures.

Upon arrival at a sampling site, safety equipment such as signs, cones, lights, etc. shall be set out as appropriate. Vehicles shall be parked in locations and directions to minimize traffic disruption and avoid sample contamination. Photos should be ultimately taken of the placement of all safety equipment and signage

The following guidelines apply to all fieldwork by City staff.

- No sample or measurement is worth the risk of injury.
- All staff shall use proper personnel protective gear as appropriate for the incident (e.g., life preservers, gloves, goggles, etc.)
- Field sampling crews should consist of at least two members unless otherwise approved by a supervisor.
- Be conscious of the whereabouts of rattlesnakes, mountain lions, and other dangerous animals.
- Open body wounds are entry sites for infection; take the necessary precautions for self-protection.
- If there is storm activity in the work area, wait for safer conditions to develop or postpone the sampling.
- Do not sample at night without approval from your supervisor.
- Do not trespass on private property, or posted restricted public lands without prior permission and written approval from property owner or administrator.
- If strange or suspicious looking people are in the work area, either wait for them to leave or postpone the work to a later time. Do not force confrontations with strangers and back away from any confrontations with the public. Be courteous and understanding of public concerns of the situation.
- Take the necessary precautions against exposure to harmful weather conditions such as heat, wind, snow, cold, rain, etc.
- Carefully evaluate a given on-site situation to determine if the task can be performed safely.
- Wear protective footwear when entering streams.
- Do not enter the stream if the water is flowing too fast.

F. Stream Velocity Measurements

If sampling is performed after the SSO has stopped, the velocity of the impacted surface water must be determined to estimate SSO travel time and select an accurate Source sample location. One way to measure the SSO travel time is to use a velocity probe (such as a Global Water FP111-S Flow Probe) to determine the rate of flow in the water body. In cases where a water velocity probe is used, the manufacturer's instructions will be followed.

G. Grab-n-Go Sampling Kit

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The City maintains a Grab-n-Go sampling kit located at Corp Yard. The kit is inspected quarterly by the Senior Utility Worker, Water Quality Specialist or designee. Additionally, any City of Antioch employee utilizing the kit is responsible for decontaminating sampling equipment and field monitoring devices and replenishing the kit.

SSO Sample Collection Kit Inventory:

- Cooler
- Surface Water Sampling SOP (Attachment B)
- Ice Pack
- 9 Ammonia sample bottles, preserved (6 for samples (3 sets of duplicates), 2 for Field Blanks and 1 extra in the event of contamination, spillage of the preservative or other contingency)
- 9 Coliform sample bottles (6 for samples (3 sets of duplicates), 2 for Field Blanks and 1 extra in the event of contamination, or other contingency)
- Digital camera, with extra batteries
- Latex gloves
- Safety glasses/goggles
- Surface Water Sampling Worksheet (Attachment D)
- Sampling Pole
- Waterproof Pen
- Minimum of 20 blank sample bottle labels
- Chain of Custody form (Attachment C)
- Stream Velocity meter

H. Surface Water Maps

Maps of surface waters in the City of Antioch service area that may be impacted by an SSO are located in Attachment F.

I. Follow Up Sampling

1. Sampling will be repeated every 24 hours, or as directed by the RWQCB or the Santa Clara County Environmental Health Department, until such time as one of the following criteria have been met:
   - The Environmental Health Department or the RWQCB indicates follow up sampling is no longer required, or
   - Both the ammonia and bacteria levels downstream are approximately equal to or less than the upstream levels; or
   - The concentration of ammonia is at or below that of the upstream sample, or the un-ionized ammonia is below *0.16 mg/L as N*; and the concentration of fecal bacteria levels are below the applicable acute water quality objective listed in Tables 7.1 or 7.2.

J. Surface Water Sampling SOP

The Surface Water Sampling SOP, Attachment B, provides step-by-step procedures to collect samples and deliver them for analysis in accordance with Sections 6, 7 and 9.

10. NOTIFICATIONS OF REGULATORY AGENCIES

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Regulatory notification requirements are located in the City of Antioch Sanitary Sewer Overflow Emergency Response Plan section 11.0 (effective 11/2017).

11. TECHNICAL REPORT

The MRP requires that in the event of a 50,000 gal or greater overflow spilled to surface waters, the City must prepare and submit an SSO Technical Report that includes a description of all water quality sampling activities conducted, a location map of all water quality sampling points, and the analytical results and evaluation of the results, pursuant to Section B.5 of the MRP. In addition, this report must be submitted to the CIWQS Online SSO Database within 45 days of the end of the SSO and must be certified by the City's Legally Responsible Official.

12. RECORDKEEPING

All sampling related records associated with this WQMP should be contained in the appropriate SSO Incident file designated with a specific locator record number. These records shall include at least the following documents related to the WQMP:

- A narrative description of water quality sampling activities associated with the event.
- Timeline of the sampling activities until sampling is terminated.
- All surface water sampling worksheets.
- Computations of spill travel time in surface waters, if appropriate.
- Chain of Custody for all samples.
- Sampling Map of all sample locations.
- All photos or video showing sampling activities.
- Final analytical results from the certified laboratory conducting the sample analysis along with an Agency evaluation of the results to determine the nature and impact of the release.
- Failure analysis reviews of the WQMP including recommendations for changes and modifications.
- Calibration records for specific equipment used in the sampling processes.
- Notification documentation for all public and private agencies involved with or requiring monitoring related to final sample results.

The City shall maintain all records including records from service contractors associated with this WQMP as part of the file records for an SSO as required by the WDR and MRP. These records shall be maintained for a minimum period of five-years from the end date of the SSO unless required by regulatory enforcement action, request of the State or Regional Board or as support for claims litigation resulting from the SSO. All records associated with the SSO shall be destroyed upon reaching the end of the file retention period or as otherwise required by the Regional or State Board.

Samples of all City forms and records used in this WQMP are included as attachments.

13. TRAINING

Training will be provided in accordance with Table 13.1.

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Table 13.1 City of Antioch surface water sampling training program	
Who Is Trained To Collect Surface Water Samples?	Sewer Crew
Training Curriculum	at a minimum, training shall include: • The City of Antioch Water Quality Monitoring Plan • Sampling technique, including hands on practice • Sampling equipment calibration, use and decontamination procedures, including hands on practice • Sampling safety • Completion of the Sampling Equipment Calibration/Maintenance Log, Surface Water Sampling Report and Chain of Custody
Training Documentation	Attendees shall be required to sign-in to all training on the appropriate forms used by the City of Antioch.
Refresher Training Frequency	Annual
Who is Responsible for Ensuring Training Occurs?	Collections System Superintendent or designee
Required Training Records	Employee training sign in log
Who is Responsible for Maintaining Records?	Collections System Superintendent or designee

14. INTERNAL REVIEW AND UPDATE OF THE WQMP

The WQMP is a requirement of the WDR and MRP regulations and therefore the WQMP must be adopted by the City governing board when completed and thereafter at the same time as the new adoption of the SSMP every five years or when major changes to the SSMP are required. Internal reviews of the WQMP should be conducted at a minimum with City SSMP audits or with a failure analysis following a SSO event requiring the use of this WQMP. This latter evaluation should be used to determine if any procedures or program changes would improve the WQMP.

The internal review of the WQMP must include a thorough review of the then existing WQMP against actual performance by the agency staff and testing laboratory during and after the event. All documents associated with the water quality sampling should be reviewed and included in the SSO file and compared to the requirements in this Plan. Particular attention should be given to all dates and times associated with the monitoring, proper tests in support of the Regional Board Basin Plan, proper completion of the Chain of Custody, equipment calibration documentation of all equipment used for sampling and available photographs or video of the sampling processes, review and sign-offs by all responsible parties, review of the sampling locations map, final lab results and the certification report that the Technical Report was submitted within 45 calendar days of the end of the SSO to the CIWQS system.

In addition, the City should also conduct regular reviews of the WQMP along with the bi-annual SSMP Audit required by the WDR. The review should be undertaken to determine that all information in the Program is current, that all classification responsibilities have not changed, that all forms are still appropriate and that all contract relationships with testing laboratories, if not associated with the agency, are still current and available 24 hours per day and 7 days per week. The review should also include a review of the Regional Board Basin Plan to assure continuing conformance with the Basin Plan.

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This internal review should be conducted by senior management of the collection systems personnel, laboratory management and any outside contract laboratory services subsequent to any event if the WQMP has not had to be invoked during the preceding year.

Finally, a schedule and assignment of responsibility for completion of the recommended changes should be prepared along with additions to the SSMP Change Log for these changes and modifications of the WQMP.

CHANGE LOG

The new MRP, Section E.3 requires that all changes to the Sanitary Sewer Management Plan be recorded and documented using an SSMP Change Log indicating what section is being changed, a description of the changes, and the person or persons authorizing the changes. Because the WQMP is required by the WDR and MRP, it is also necessary that changes to the WQMP be included in the documentation of changes to the SSMP. Any changes resulting from Section 14 above should be added to the Change Log of the SSMP upon implementation and adoption of the changes as required by the WDR.

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Element XXXI: ATTACHMENT A
Water Quality Monitoring Plan Change Log

Element XXXII: Water Quality Monitoring Plan Change Log

Date	Section(s) Changed	Summary of Change	Approved (signature)

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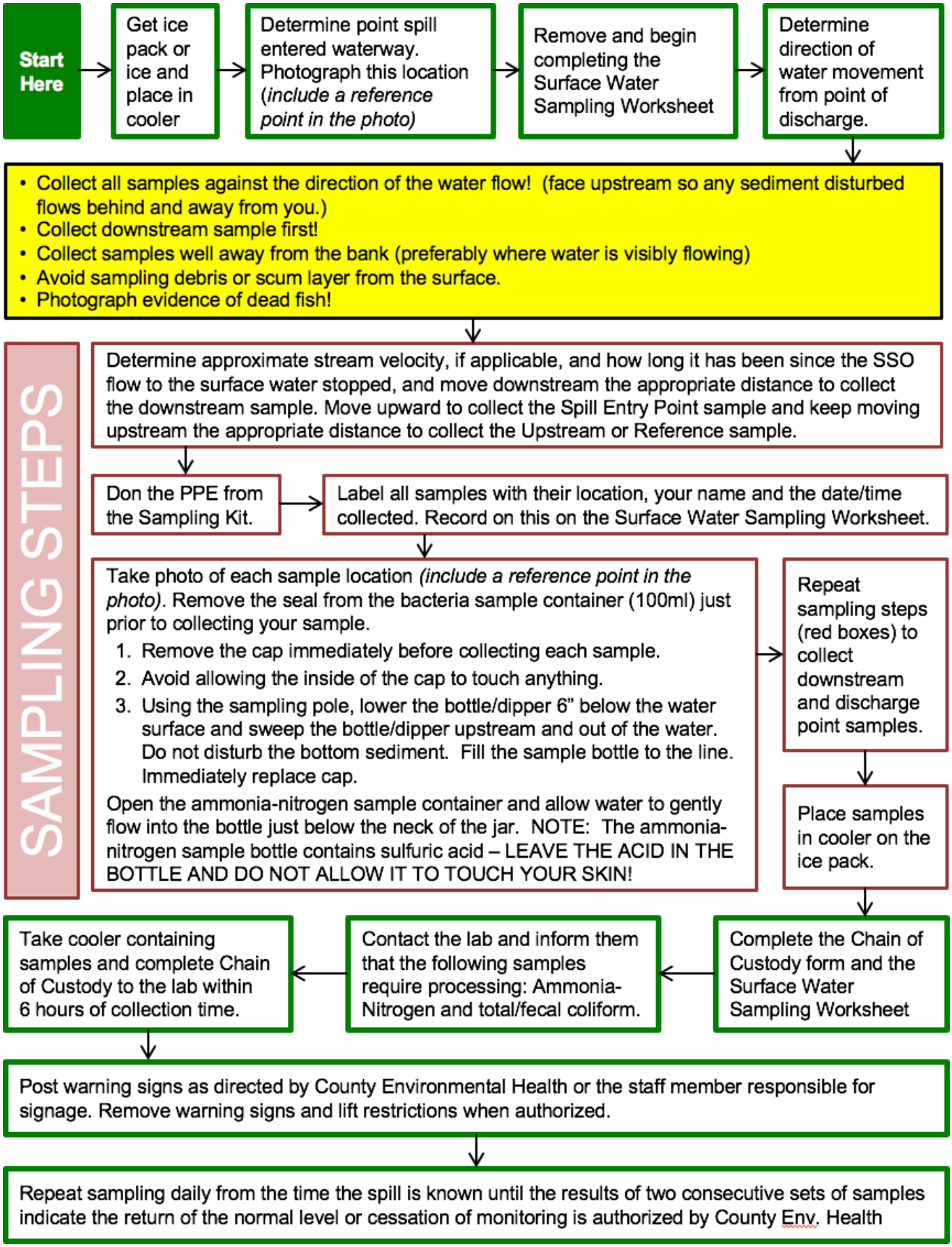
Element XXXIII: ATTACHMENT B
Surface Water Sampling SOP



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Surface Water Sampling Standard Operating Procedure

Element XXXIV: ATTACHMENT C
Sample Collection Chain of Custody Record

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Element XXXV: Surface Water Sample Collection Chain of Custody Record

Customer Name				--	**Hazardous Waste**	**PO#**	
Customer Address				--	**Unknown Material**	**WO#**	
Customer Telephone		**Mail Code**		**CONTRACT LAB INFORMATION**		**Turnaround Requirement**	
Program Name				Ship to:		□ Normal (21 days)	
Lab Program Coordinator		**Phone #**		Ship Date:		□ Rush: _____	
Sampled By				Courier:		□ Other:	

LIMS# (Issued by Lab)	SAMPLE COLLECTION INFORMATION						# Containers	Matrix*	Analysis Requested					QA/QC Requirements	
	Date	Time	Type: Composite	Type: Grab	Sample Location	Sample Label ID			Ammonia	Total and Fecal Coliform				☒	Lab Standard
														O	Special (see attached)
															Remarks/Notes
			--	☒	Upstream		2	A	☒	☒	--	--	--		
			--	☒	Entry Point		2	A	☒	☒	--	--	--		
			--	☒	Downstream		2	A	☒	☒	--	--	--		
			--	☒	Field Blank		2	O	--	--	--	--	--		Sterile dionized water

*Matrix: P = Potable Water, W = Wastewater, A = Ambient Water, G = Groundwater, S = Soil, B = Biosolids, I = Industrial, O = Other (specify in remarks)

Relinquished	Date	Time

Relinquished to	Date	Time

Transport/Shipping Information		
□ USPS	□ UPS	□ FedEx
Tracing #:		
□ Other:		

Sample Receiving Documentation

Container intact? ¨ Yes ¨ No	Correct container? ¨ Yes ¨ No	Field preserved? ¨ Yes ¨ No	Custody tape intact? □ Yes ¨ No
Cooled? ¨ Yes ¨ No	Temp. Blank? ¨ Yes ¨ No (°C)	Comments:	
Sample distribution: ¨ Lab bench □ Ice chest ¨ Walk-in cooler shelf #		Disposal Date:	Disposed by: (inits.)
C-O-C Distribution Date: By:	¨ Lab Admin File	□ Prog/proj Mgr. □ Lab Prog. Coord.	□ Delivery courier □ Pick-up courier

Element XXXVI: ATTACHMENT D
Surface Water Sampling Worksheet

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Surface Water Sampling Worksheet

Sample Date:	Sample Time: ☐AM ☐PM	Sample Location:	
Sampler(s)' Name(s):			
Sampler(s)' Signature(s):			

What is being sampled?
☐Stream ☐Pond ☐Lake ☐River ☐Other:

Weather at time of sampling: ☐Sunny ☐Overcast ☐Sprinkling ☐Raining ☐Snowing

Was the SSO actively entering the surface water during Sampling?
☐YES ☐NO
If no, complete A-D in the gray box to the right è

If the SSO was not actively entering the surface water during sampling:

A. Stream Velocity:_____CFS

B. How Long Has the SSO ***NOT*** Been Entering the Surface Water?
_____ minutes X 60sec/min =_____seconds

C. How Far Downstream Did You Travel To Collect The SOURCE Sample?
(A X C = Feet):_____feet

D. Explain why you travelled a different distance, if you did, to collect the source sample:

Sample Location	# of Samples*			Photo ID# of Sample Location	Visual Observations and/or Interferences
Upstream					
Source					
Downstream					
Field Blank					

* Minimum of 2 per location

FINISH CHECKLIST	NOTES / OBSERVATIONS
☐ **All Samples Labeled with:** ☐ Date: a six-digit number indicating the year, month, day of collection ☐ Time: a four-digit number indicating military time of collection. e.g. 0954 ☐ Sample Location: Upstream, Source, or Downstream ☐ Samplers: each sampler is identified ☐ Parameter/preservative: analysis to be conducted for sample/sample preservation ☐ **Chain of Custody Completed** ☐ **Samples on Ice in Cooler** ☐ **Pictures Taken of Each Sample Location and the Photo ID/# Noted Above** ☐ **All Sampling Equipment Collected**	

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Element XXXVII: ATTACHMENT E
Technical Report

Element XXXVIII: T echnical Report Outline

1. Introduction

Agency/system description

2. SSO Technical Report - Contents and Responses
    a. Causes and Circumstances of the SSO
        i. Detailed explanation of how and when SSO was discovered
        ii. Diagram indicating SSO "Cause point", appearance point, and final destination (use attachments, maps and diagrams as needed)
        iii. Detailed description of methodology employed and available data used to calculate the SSO volume and any volume recovered
        iv. Detailed description of the cause(s) of the SSO
        v. Copies of the original field crew records used to document the SSO (attachment)
        vi. Historical maintenance records for the lines involved in the cause of the SSO (attachment)

    b. Agency's Response to the SSO
        i. Chronological narrative description of actions taken by agency to terminate the SSO
        ii. Description of how the OERP was implemented to respond to and mitigate any impacts of the SSO
        iii. Final corrective action(s) completed and/or planned, including a schedule for actions not yet completed

    c. Water Quality Monitoring
        i. Description of all water quality sampling activities conducted, including analytical results and evaluation of the results
        ii. Detailed location map illustrating all water quality sampling points

3. Conclusions

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Element XXXIX: ATTACHMENT F SURFACE WATER MAPS

See Current Service Area Maps