Sanitary Sewer Management Plan

January 2020

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Resolution No: 2020-01
WDID# 3SSO10244

Legally Responsible Official Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage 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.

B. Buikema — 1-31-2020

Barbara Buikema, General Manager — Date
Legally Responsible Official

1-31-2020

Daryl Lauer, Collections Superintendent — Date
Legally Responsible Official

Table of Contents

Table of Tables

Table of Figures

1.0 Introduction

1.1. Sewer System Management Plan

This Sewer System Management Plan (SSMP) has been prepared by the Carmel Area Wastewater District (CAWD) 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 CAWD'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 a Sewer System Management Plan (SSMP). The SWRCB 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 CAWD's 2017 SSMP, in compliance with the GWDR and MRP revised requirements. CAWD's collection system is also regulated through a National Pollution Discharge Elimination System (NPDES) Permit No. CA00447996, Order Number R3-2014-0012 for the CAWD wastewater treatment plant.

The structure (section numbering and nomenclature) of sections this SSMP follows the GWDR Section D13. This SSMP is organized by the SWRCB outline of elements and contains the language taken from the GWDR in the first section of each element. The GWDR uses the term "Enrollee" to mean each individual municipal wastewater collection system that has completed and submitted the required application for coverage under the WDR. CAWD's Waste Discharger Identification number (WDID) in the California Integrated Water Quality System (CIWQS) is 3SSO10244.

1.2. Sanitary Sewer System Facilities

CAWD operates a sanitary sewer system that serves a population of approximately 17,000 in a 5.0 square mile service area. The sewer system serves 6401 residential connections, 376 commercial/industrial connections and 5 institutional customers (6782 lateral connections). The sewer system consists of 82.0 miles of gravity sewers (approximately 1875-line segments), approximately 1500 manholes, 4.0 miles of force mains, and seven (7) pump stations. The sewer lines range in size from four (4) inches to twenty-seven (27) inches in diameter. The property owner is fully responsible for installation, maintenance and repair of the private sewer lateral(s) from the building to the public mains.

Intro Figure 1 contains an overview map of the CAWD sanitary sewer service area.

Intro Table 1 provides the composition of the gravity sewer piping by size.

Intro Table 2 provides the gravity sewer system materials of construction

Intro Table 3 provides the installation age distribution of the CAWD collection system.

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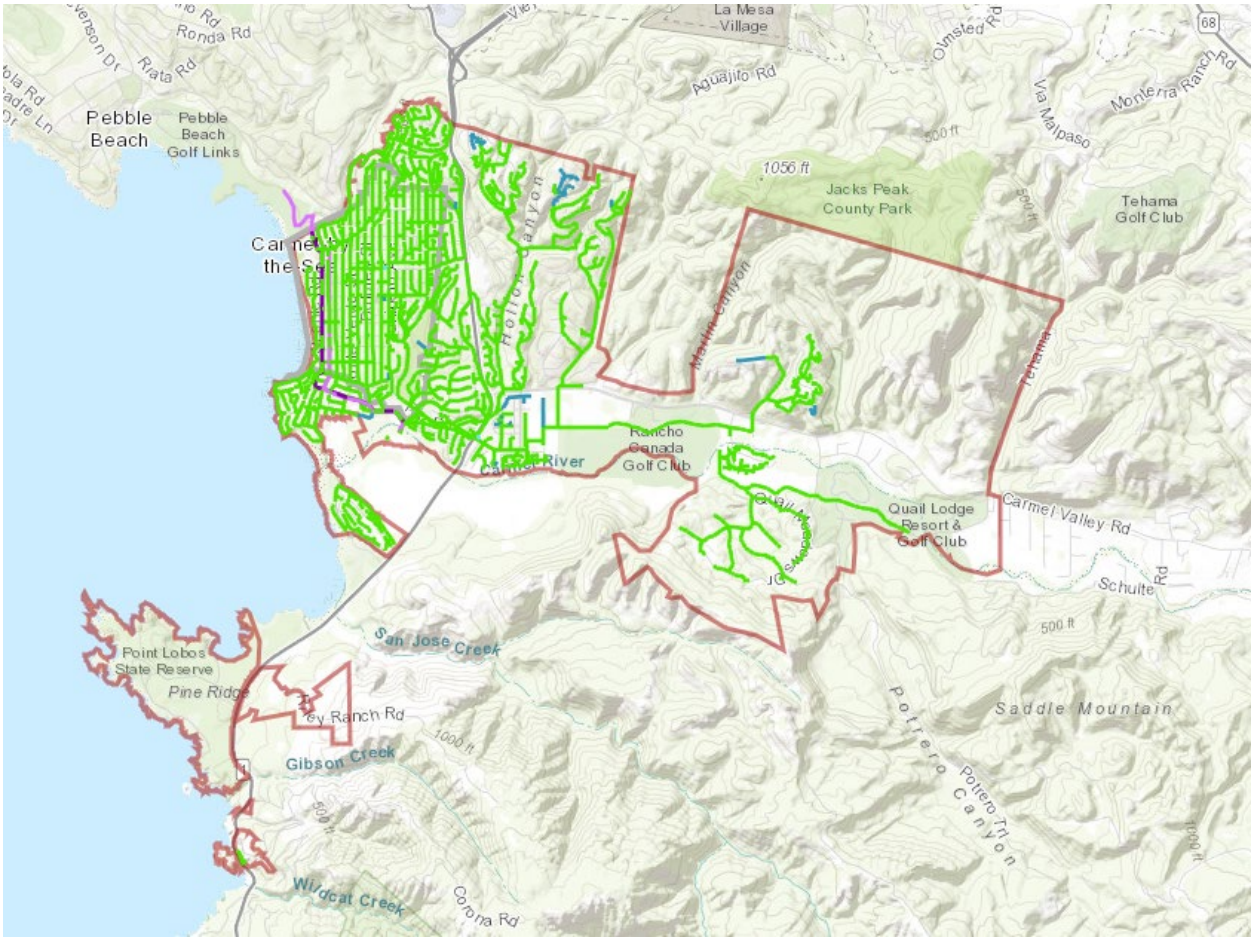
Intro Figure 1: CAWDCAWD Service Area Map



Intro Table 1: Gravity Sewer System Size Distribution

Diameter, inches	Number of Line Segments	Pipe Length, linear feet	Portion of Sewer System, %
4	9	16,779	5
6	1431	312,035	75
8	301	71,565	10
10	49	12,987	3
12	46	11,599	3
15	7	1,896	1
18	2	1,095	1
24	8	2,345	1
27	10	2,743	1

Diameter, inches	Number of Line Segments	Pipe Length, linear feet	Portion of Sewer System, %
Total	**1863**	**433,044**	**100**
Total, miles		**82.02**	

Source: CAWD Staff Infrastructure Spreadsheet September 2019

Intro Table 2: Gravity Sewer System Materials of Construction

Material	Number of Line Segments	Pipe Length, LF	Percent of Sewer System
ACP	13	4,033	1
CIP	18	2,966	1
DIP	16	6753	1
HDPE	12	17,439	4
PVC	417	88,882	21
Truss	34	9,039	2
Steel Pipe	2	2,125	1
VCP	1351	301,807	69
Total	**1,863**	**433,044**	**100.00**
Total, Miles		**82.02**	

Source: CAWD Staff Infrastructure Spreadsheet April 2019

Intro Table 3: Gravity Sewer System Inventory of Sewer Lines by Pipe Age

Age in Years	Construction Period	Linear Feet of Gravity Sewers	Miles of Gravity Sewer	Percent of System
0-15	2000 - current	8661	1.64	2
16 – 35	1980 – 1999	17320	3.28	4
36 – 55	1960 – 1979	43304	8.20	10
56 – 75	1940 – 1959	129913	24.60	30
76 – 95	1920 – 1939	190539	36.09	44
95 – 115	1900 – 1919	43304	8.20	10
>115	Before 1900	0	0	0
Total		433,044	82.00	100.00
Total, miles			**82.0**	100.00

Source: CAWD Staff Infrastructure Spreadsheet September 2019

1.3. 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.

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.

California Sanitation Risk Management Association (CSRMA)

Capital Improvement Plan (CIP): Refers to the document that identifies future capital improvements to CAWD's sanitary sewer system.

Cast Iron Pipe (CIP)

Central Coast Regional Water Quality Control Board (CCRWQCB) – see RWQCB below

Clean Water Act (CWA)

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 computerized maintenance management system that is used by CAWD to plan, dispatch, and record the work on its sanitary sewer system. ICOM and Mainsaver are the propriety softwares CAWD uses for workflow management for the collection system and pump stations.

Data Submitter (DS): Refers to a CAWD employee formally designated to enter data into the CIWQS system prior to LRO certification.

District: Refers to the CAWD

District Code (DC)

Division of Water Quality (DWQ): Refers to the State of California Division of Water Quality of the State Water Resources Control Board.

Ductile Iron Pipe (DIP)

California Department of Health Services (DOHS)

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.

First Responder: Refers to the field crew or the On-Call personnel that are CAWD's initial response to an SSO event or other sewer system emergency.

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.

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 CAWD's system that it uses to capture, store, analyze, and manage geospatial data associated with CAWD'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.

Grease Removal Device (GRD): Refers to grease traps and grease interceptors that are installed to remove FOG from the wastewater flow at food service establishments.

High-Density Polyethylene (HDPE)

Infiltration/Inflow (I/I): Refers to water that enters the sanitary sewer system from storm water and groundwater.

- Infiltration enters through defects in the sanitary sewer system after flowing through soil.
- Inflow enters the sanitary sewer without flowing through 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) designated by CAWD to be responsible for formal reporting and certifying of all reports submitted into the CIWQS system.

Manhole (MH): Refers to an engineered structure that is intended to provide access to a sanitary sewer for maintenance and inspection.

Manhole Assessment and Certification Program (MACP): Program for the coding of defects in manholes and sewer system appurtenances.

Mainline Sewer: Refers to CAWD publicly owned wastewater collection system piping that is not a private lateral connection to a user.

Monitoring, Measurement, and Plan Modifications (MMPM), SSMP Element IX

Monitoring and Reporting Program (MRP): State Water Resources Control Board WQ 2013-0058-EXEC effective September 9, 2013.

National Association of Sewer Service Companies (NASSCO)

National Pollution Discharge Elimination System Permit (NPDES) – R3-2014-0012

Notification of an SSO: Refers to the time at which CAWD 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 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.

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.

Office of Emergency Services (OES): Refers to the California State Office of Emergency Services.

Operations and Maintenance (O&M)

Overflow Emergency Response Plan (OERP)

Personal Protective Equipment (PPE)

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): The sewer pipeline from the plumbing of a building to a public sanitary sewer collection line, including portions that extend across public rights-of-way and the saddle, wye or other physical connection to the collection line. Private sewer laterals are privately owned and maintained.

Private Lateral Sewage Discharges (PLSD): Sewage discharges that are caused by blockages or other problems within a privately-owned sewer service lateral.

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

Public Works (PW)

Pump Station (PS): A facility that transmits and pumps sewage into the CAWD gravity sanitary sewer collection system.

Quality Control/Quality Control (QA/QC)

Regional Water Quality Control Board (CCRWQCB): Refers to the Central Coast 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 private sewer lateral 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 or Collection System: Refers to the sanitary sewer facilities that are owned and operated by CAWD.

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 sanitary sewer system

Sewer System Management Plan (SSMP)

Standard Operating Procedure (SOP)

Standard Specifications: Refers to the latest edition of the CAWD Design Standards and Standard Details for Construction.

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 Coast Regional Water Quality Control Board, although the agencies work closely together.

Steel Pipe

Supervisory Control and Data Acquisition (SCADA): Refers to the system that is employed by CAWD to monitor the performance of its pump stations and to notify the operating staff when there is an alarm condition that requires attention.

System Evaluation and Capacity Assurance Plan (SECAP) SSMP Element VIII

Truss Pipe - a thermoplastic composite pipe

Underground Services Alert (USA)

Untreated or Partially Treated Wastewater: Any volume of waste discharged from the sanitary sewer system upstream of a wastewater treatment plant headworks.

Vitrified Clay Pipe (VCP)

Waste Discharge Identification Number (WDID): A unique identification number for the certification and reporting of collection system related actions and overflows in the State of California CIWQS System. CAWD WDID is 3SSO10244

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) refers to an agency specific plan for the sampling, testing and reporting of overflows equal to or greater than 50,000 gallons used to assess the impacts of SSOs to surface waters.

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

1.4. 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. 2008-0002-EXEC, Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, February 20, 2008
- 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.
- Waste Discharge Requirements Order No. R3-2014-0012 for Carmel Area Wastewater Treatment Plant, NPDES Permit No. CA0047996

Element I: Goals

Goal: The goal of the 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 CAWD for the sanitary sewer collection system and SSMP are:

- Employ best practices to manage, operate and maintain all parts of the wastewater collection system
- Provide adequate capacity to convey peak wastewater flows
- Eliminate the occurrence of SSOs and reduce or minimize the impact of any which occur.
- Improve, fund and manage a Capital Improvement Plan consistent with the goals of eliminating SSOs.
- Comply with all applicable state and federal regulations, including the approved National Pollutant Discharge Elimination System (NPDES) permit and the California General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems.

I-2. References

None.

Element II: Organization

Organization: The SSMP must identify:

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

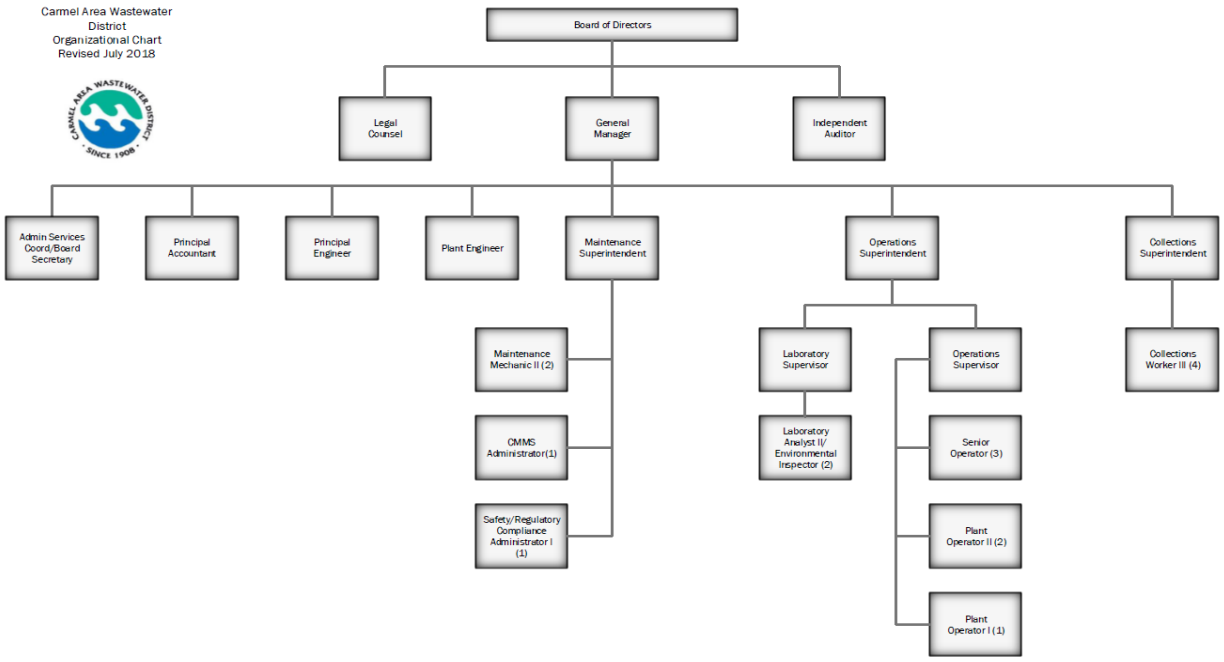
(b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and

(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 sanitary sewer collection system is operated and maintained by the Collections Division. The organization chart for the management, operation, and maintenance of CAWD's wastewater collection system is shown below.

Figure II – 1: CAWD Organization Chart



II-2. Authorized Representatives

The CAWD's *Legally Responsible Official(s)* (LRO) for wastewater collection system matters are identified below along with their roles and responsibilities for the collection system operations. They are the CAWD's legally responsible officials who are authorized to certify electronic spill reports and other required reports and submittals to the SWRCB, the RWQCB, the Office of Emergency Services (OES) and/or other regulatory agencies.

General Manager (LRO) – Under policy direction, plans, organizes, and provides administrative direction and oversight for all District functions and activities; provides policy guidance and program evaluation to the Board of Directors and management staff; encourages and facilitates provision of services to District customers; fosters cooperative working relationships with intergovernmental and regulatory agencies and various public and private groups; pursues appropriate avenues of economic and community development; and performs related work as required.

Collection Superintendent (LRO) – Directs, manages, supervises and coordinates the programs and activities of the collection system division within CAWD; to coordinate assigned activities with outside agencies; and to provide highly responsible and complex technical support to the General Manager.

Collection System Worker III (DS) – Under direct and general supervision of the Collections Superintendent, performs a performs a broad range of skilled and semi-skilled duties associated with the operation, maintenance and repair of wastewater facilities; inspects, maintains, and repairs lift stations; performs maintenance work at CAWD's wastewater treatment facility; and performs related work as required.

Principal Engineer – Under administrative direction of the General Manager performs a variety of engineering and non-engineering activities in the planning, design, and construction of wastewater collection and treatment facilities. Supervises the Capital Improvement Program projects of CAWD in addition to miscellaneous engineering projects and other work related to the wastewater treatment plant and collection system. Performs a variety of routine duties related to field inspections of construction projects on pipelines, pump stations, treatment facilities, and other District facilities; ensures compliance with District's standards and specifications; provides highly responsible and complex technical support to the General Manager; issues development and plumbing permits and processes annexations; performs field surveys; maintains District's engineering files, ensures compliance with District's standards and specifications; and performs other duties as required.

Plant Engineer – Under administrative direction of the General Manager performs a variety of engineering and non-engineering activities in the planning, design, and construction of wastewater treatment facilities. Supervises the Capital Improvement Program projects of CAWD in addition to miscellaneous engineering projects and other work related to the wastewater treatment plant. Performs a variety of routine duties related to field inspections of

construction projects on pipelines, pump stations, treatment facilities, and other District facilities; and complex technical support to the General Manager; performs field surveys; maintains District's engineering files, and performs other duties as required

Maintenance Superintendent – Under general direction, plans, organizes, directs and assists in a variety of facility, plant, and equipment maintenance activities for the District including mechanical, electrical, instrumentation, grounds, structures maintenance, repair, operation, construction and inspection tasks in connection with operating and maintaining facilities and properties associated with CAWD's wastewater treatment plant and collection system; and performs related work as required.

Safety and Regulatory Compliance Officer – Under general direction, develops, monitors, conducts, and administrates CAWD's safety, emergency preparedness, and environmental programs in compliance with federal, state, and local safety, health, and environmental regulations, as well as industry standards; promotes safety awareness through self-inspection programs; and performs other duties as assigned.

Lab Analyst I/Environmental Compliance Officer – Under general supervision, performs a variety of routine standardized chemical, biological, and bacteriological analysis on wastewater, reclaimed water, biosolids, and soil samples; performs a variety of tasks relative to conducting and interpreting standard laboratory analysis; performs sample collection activities; sets up testing procedures, records data, and analyzes results; assists with field investigations to determine and mitigate wastewater problems; performs the inspection of commercial discharge to the collection system; assists in implementing source control program; ensures that discharge is in compliance with local regulations and ordinances; and performs related work as required.

Lab Analyst II/Environmental Compliance Officer- Under general supervision, performs a variety of routine to complex standardized chemical, biological, and bacteriological analysis on wastewater, reclaimed water, biosolids, and soil samples; performs a variety of technical tasks relative to conducting and interpreting standard and complex laboratory analysis; coordinates or performs sample collection activities; sets up testing procedures, records data, and analyzes results; assists with field investigations to determine and mitigate wastewater problems; performs the inspection of commercial discharge to the collection system; provides guidance and recommendations to local business owners to ensure compliance with the District's pre-treatment ordinance; assists in coordinating and implementing a source control program; ensures that discharge is in compliance with local regulations and ordinances; and performs related work as required.

CMMS Administrator – Under general direction, provides highly complex and responsible administrative support to the Maintenance Superintendent, and various plant personnel in the areas of Computerized Maintenance Management System (CMMS) and Purchasing; coordinates special projects as assigned; provides scanning services as appropriate; and performs related work as required.

Laboratory Supervisor II – Environmental Inspector – Under general direction, plans, organizes, and provides direction and oversight for Environmental Services division of the District including water pollution control laboratory, pollution prevention, pre-treatment, and recycled water programs, functions, and activities; oversees Departmental reporting and serves as the primary contact for regulatory agencies; administers the National Pollutant Discharge Elimination System Program for the District; ensures that division operations and maintenance functions meet all applicable laws, regulations, and District policies; provides professional assistance to District management staff in areas of expertise; fosters cooperative working relationships with intergovernmental and regulatory agencies; and performs other duties as assigned.

Administrative Assistant – Under direction of the General Manager, this position is responsible for providing support to the administrative offices and District Board of Directors. Responsibilities include, but are not limited to analyzing and organizing documents into a records retrieval system; preparing letters and memos to meet administrative deadlines, demonstrating software skills in Word, Excel, PowerPoint and Access; and, operating standard desktop computers, fax machines, copiers and other office equipment. This position will assist in administrative functions related to the Board of Directors. Strong interpersonal skills and an ability to exercise sound judgment and work both independently and as a team member is required. Confidentiality on all matters is essential.

Service Contractors – CAWD currently uses an outside service contractor to provide root foaming services as needed.

II-3. Responsibility for SSMP Implementation and Maintenance

CAWD General Manager shall have the overall responsibility for implementing, assuring periodically auditing, and maintaining CAWD's SSMP. He/she may delegate these responsibilities to his/her staff.

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

Table II – 1: Responsible Officials in the Public Works Chain of Communication

Element	Element Name	Responsible CAWD Official	Phone	Email
	Introduction	Daryl Lauer	831-257-0434	lauer@cawd.org
1	Goals	Barbara Buikema	831-624-1248	buikema@cawd.org
2	Organization	Barbara Buikema	831-624-1248	buikema@cawd.org

Element	Element Name	Responsible CAWD Official	Phone	Email
3	Legal Authority	Barbara Buikema	831-624-1248	buikema@cawd.org
4	O & M Program; Appendices IV-1 to IV-5	Daryl Lauer	831-257-0434	lauer@cawd.org
5	Design and Performance Provisions	Rachel Lather	831-624-1248	lather@cawd.org
6	OERP	Daryl Lauer	831-257-0434	lauer@cawd.org
7	Fats, Oils and Grease (FOG) Control Program	Ray DeCampo Trevor Holland	831-624-1248	decampo@cawd.org
8	System Evaluation and Capacity Assurance Plan	Rachel Lather	831-624-1248	lather@cawd.org
9	Monitoring, Measurement and Program Modifications	Daryl Lauer	831-257-0434	lauer@cawd.org
10	Program Audits	Daryl Lauer	831-257-0434	lauer@cawd.org
11	Communications Program	Barbara Buikema	831-624-1248	buikema@cawd.org
App A	SSMP Council Adoption Documents	Barbara Buikema	831-624-1248	buikema@cawd.org
App B	SSMP Audit Reports	Daryl Lauer	831-257-0434	lauer@cawd.org
App C	SSMP Audit Checklist	Daryl Lauer	831-257-0434	lauer@cawd.org
App D	SSMP Change Log	Daryl Lauer	831-257-0434	lauer@cawd.org
App E	Overflow Emergency Response Plan	Daryl Lauer	831-257-0434	lauer@cawd.org
App F	Water Quality Monitoring Plan	Daryl Lauer	831-257-0434	lauer@cawd.org

II-4. SSO Reporting Chain of Communication

The SSO Reporting Chain of Communications follows the Organization Chart shown above in **Figure II – 1: CAWD Organization Chart**. The SSO Reporting process and responsibilities are described in summary in the Overflow Emergency Response Plan in Element VI and in the full OERP in Appendix E.

II-5. References

None

Element III: Legal Authority

Legal Authority: 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:

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

b. Require that sewers and connections be properly designed and constructed;

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

d. Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and

e. Enforce any violation of its sewer ordinances.

III-1. Municipal Code

The District Ordinances describes CAWD's current legal authority required for compliance with the GWDR. That authority is summarized in **Table III – 1** below.

Table III – 1: Summary of Legal Authorities

Requirement	Legal Authority Reference
Prevent illicit discharges into the wastewater collection system	**2019 Plumbing Ordinance 2019-01** 2.04 Violation Unlawful Section 3.0 – Use of Sewers Required
Limit the discharge of fats, oils, and grease and other debris that may cause blockages	**2019 Plumbing Ordinance 2019-01** Section 4.0 – Private Sewage Disposal and Pretreatment **CAWD Pretreatment Ordinance 91-03** 2.1.1 General Discharge Prohibitions
Require that sewers and connections be properly designed and constructed	**2019 Plumbing Ordinance:** Section 5.0 – Building Lateral and Connections **Standard Plans & Specifications Ordinance 2019-02** Volume I, Section 7 – Miscellaneous Sewer Requirements Volume II, Section 11 – Miscellaneous

Requirement	Legal Authority Reference
	Sewer Requirements Volume III, Section 2 – Design and Policy Standards for Private Laterals
Require proper installation, testing, and inspection of new and rehabilitated sewers	**2019 Plumbing Ordinance 2019-01** Section 6.0 – Public Sewer Construction **Standard Plans & Specifications Ordinance 2019-02**
Clearly define CAWD responsibility and policies	**2019 Plumbing Ordinance 2019-01** Section 1.0 – Definitions and Terms Section 2.0 – General Provisions Section 6.0 – Public Sewer Construction **Standard Plans & Specifications Ordinance 2019-02**
Control infiltration and inflow (I/I) from private service laterals	**2019 Plumbing Ordinance 2019-01** Section 5.04 – Use of Existing Lateral Sewers
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	**2019 Plumbing Ordinance 2019-01** Section 4.03 – Grease, Oil and Sand Interceptors **CAWD Pretreatment Ordinance 91-03** 4.4 – Pretreatment 4.7 – Grease Interceptors and Gravity Separating Devices
Authority to inspect grease producing facilities	**CAWD Pretreatment Ordinance 91-03** 5.2 – Inspection and Sampling 5.3 – Monitoring, Sampling and Records
Enforce any violation of its sewer ordinances	**2019 Plumbing Ordinance 2019-01** Section 11.0 – Enforcement **CAWD Pretreatment Ordinance 91-03** Section 6 – Enforcement **Administrative Penalties Ordinance 2019-03**

III-2. Agreements with Satellite Agencies

CAWD provides sewer treatment services to the Del Monte Forest development area which includes the Pebble Beach resorts and residences. The Pebble Beach Community Service District provides all sewer collection services within their district boundaries. Their collection system is independent of the CAWD collection system and managed independently of CAWD.

III-3. References

- Ordinance 2019-01 Uniform Plumbing Ordinance
- Ordinance 2019-02 New Standard Plans and Specifications
- Ordinance 2019-03 New Administrative Penalties Ordinance
- District Pretreatment Ordinance 91-03

Element IV: Operations and Maintenance Program

Operation and Maintenance Program. The 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 Preventative 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

e. Provide equipment and replacement part inventories, including identification of critical replacement parts.

IV 1. Collection System Mapping

CAWD maintains a map of its service area that is digitized and formatted into a GIS mapping system. The maps and associated database include background information on all District manholes (which are given a code identification number,) line segments (which are identified by the upstream manhole number,) and other items like pipe size, length, and year of construction/rehabilitation. These items are part of a Geographical Information System (GIS) tracking database. This system is linked to the other District databases that include information on service calls, repairs, rehabilitations, video inspections and images, and

permitting. Maps are updated by CAWD staff as facilities are constructed or modified. Map corrections are also submitted by Maintenance staff when discovered during routine maintenance. Engineering staff provides updated map books on a regular basis.

IV 2. Preventive Operation and Maintenance

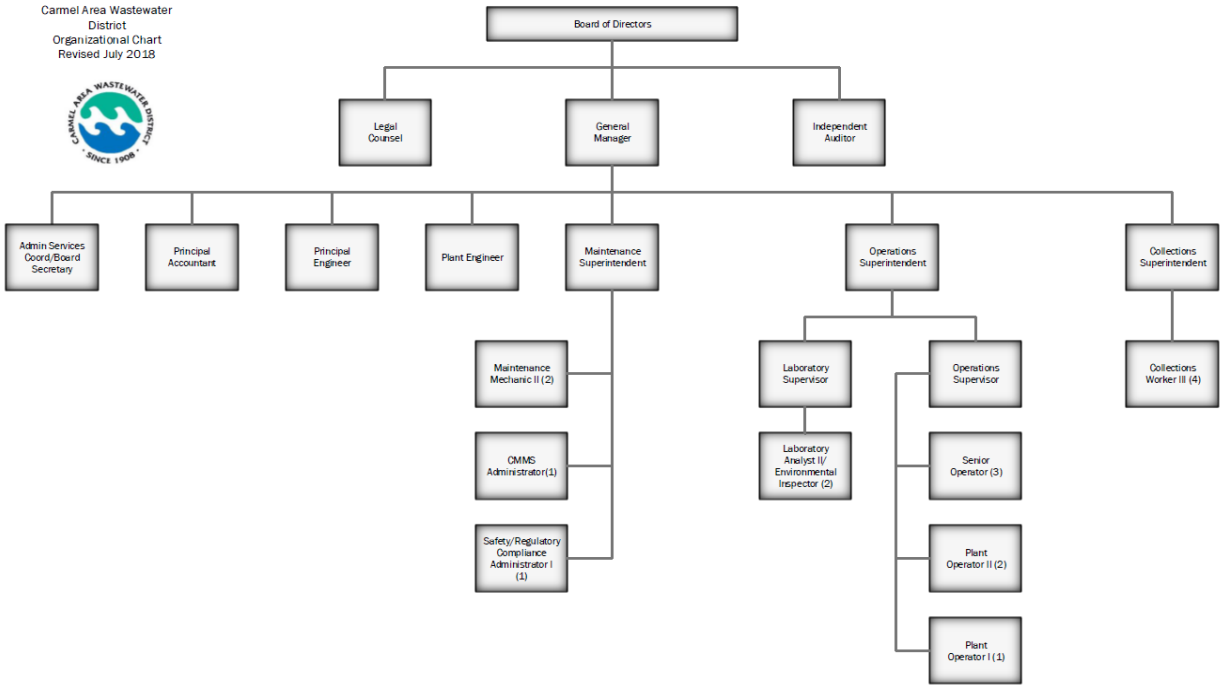
The elements of CAWD's sewer system O&M program include:

- Proactive, preventive, and corrective maintenance of gravity sewers;
- CCTV inspection program to determine the condition of the gravity sewers;
- Periodic inspection and preventive maintenance for the pump station and force main;
- Rehabilitation and replacement of sewers that are in poor condition; and
- Proper training for CAWD employees and contractors to assure proper operations and maintenance of the collection system facilities.

CAWD's Collections Division identified below in **Figure IV-1** CAWD **Organization Chart** are responsible for the normal maintenance and operations of the CAWD's sanitary sewer collection system. CAWD maintains its collection system with one Superintendent and four collection system workers. This group is typically split into two crews of two workers, but sometimes three person crews may be used in easement areas or in other special situations such as repairs, traffic control, etc. The Superintendent often acts as an additional (fifth) crew member. Collection System Maintenance crews utilize modern equipment including a combination hydroflush/vacuum truck, hydroflush truck, one rodding truck, a TV van, three pickups, and a flatbed dump truck. CAWD's primary cleaning activity is hydroflushing, due to the nature of the area and the fact that roots in hilly areas are a key contributing problem associated with sewer maintenance. The Collection System Maintenance crew provides emergency standby service on a continuous, twenty-four hour per day basis, so that all emergency calls can be handled with a thirty (30) minute response time goal.

The Maintenance Superintendent and the Maintenance Mechanics are responsible for the repairs to the pump stations. The Collection Crew operates and maintenances the pump stations. The Principal Engineer and the Plant Engineer are responsible for planning, design and construction of collections. Related improvements. CAWDs Laboratory is responsible for the pretreatment and FOG program administration and management.

Figure IV – 1: CAWD Organization Chart



IV–2.1. Gravity Sewer Maintenance

The collections staff maintains an average of 50,000 linear feet of pipe per month through a combination of CCTV, rodding, and/or hydroflushing activities. Cleaning is followed by CCTV spot checks to ensure that collections crews perform all cleaning activities properly and thoroughly. Collection staff notes the condition of every line segment they maintain on the line cleaning report form and schedule future line cleaning depending upon what they find along with the history of the line. Frequencies are generally on a 1 to 24-month basis, as follows:

High Frequency	up to 3 Months
Regular Frequency	6 to 24 Month

Collections staff are encouraged to include all observations about unusual or irregular items associated with District assets on their line cleaning report form. Collections staff is also encouraged to bring these items up in direct conversation with the Collections Superintendent, Engineering staff and the General Manager, particularly if the items may be significant or need attention or correction in the near term. Included in the line cleaning report is a section at the bottom of the form where field crews can record recommended future actions including rodding, hydroflushing, CCTV inspection, chemical root foaming, “fats, oils, and grease” (FOG) enforcement, proper “flushable” wipe disposal notice, repair and/or rehabilitation. This information is typically communicated to appropriate staff on a daily basis but can also be

queried from the data and reports produced as needed. The "work orders" distributed to the collection system workers are created by CAWD's CMMS program, ICOMM which provides routes based on maintenance need and condition. Routing maintenance is scheduled on a 6-month interval with work orders issued electronically to the collection workers. High frequency cleaning is done at a 3-month interval or less in areas with an increased potential for an SSO. Table IV-1 Schedule for High Frequency Line Cleaning and Table IV-2 Historical High Frequency Line Cleaning Results provide the background and history for this area of the cleaning program. The line schedules recognized under this category are continuously updated as Collection staff evaluates changing line conditions and updates the database. Also, lines in this category can be placed on a priority list to be repaired or rehabilitated and as each line segment condition is improved a line previously designated as a high frequency can be moved off this list once the work is completed. The current high frequency maintenance schedule only adds lines and very seldom remove line segments. Currently there are 63 pipe segments on the high frequency program totaling 15,668 linear feet. Or 3.6% of the CAWD collection system.

Table IV – 1: Schedule for High Frequency Line Cleaning

Frequency	Pipe Segments	Linear Feet	Annual Cleaning, Linear Feet	Annual Cleaning, miles
4 months	63	15668	47,004	10.85
8 months	63	15668	15,668	3.62
12 months	63	15668	15,668	3.62
Totals	63	15668	78,340	18.09

Table IV – 2: Historical High Frequency Line Cleaning Results

Calendar Year	Line Cleaning Results, linear feet	Line Cleaning Results, miles	Percent of System
2008	17,357	3.28	4.00
2009	15,753	2.98	3.64
2010	16,741	3.17	3.87
2011	19,369	3.66	4.47
2012	23,548	4.45	5.44
2013	17,361	3.28	4.01

Calendar Year	Line Cleaning Results, linear feet	Line Cleaning Results, miles	Percent of System
2014	34,712	6.57	8.02
2015	38,356	7.26	8.86
2016	39,980	7.57	9.23
2017	46,163	8.74	10.66
2018	42,375	8.02	9.79
2019	31,338	5.94	7.66
Average per Year	**28,588**	**5.41**	**7.24**

The historical regular line cleaning results by calendar year for the remainder of the collection system are shown in **Table IV – 3: Historical System Wide Cleaning Results**.

Table IV – 3: Historical System Wide Cleaning Results

Calendar Year	Line Cleaning Results, linear feet	Line Cleaning Results, miles	Percent of System
2008	629,666	119	145
2009	549,165	104	126
2010	959,252	181	221
2011	887,440	168	204
2012	664,443	125	153
2013	609,683	115	140
2014	622,368	117	140
2015	604,593	114	139
2016	628,831	119	145
2017	626,979	118	144
2018	604,171	114	147
2019	502,189	95	122
Average per Year	**657,398**	**124**	**151**
Return Frequency			**10 months**

The line cleaning crews will be required to evaluate cleaning results based upon the Standard Sewer Cleaning Results derived from the **Standard Measured of Observed Results for Collections System Line Cleaning** shown in **Figure IV-3** below. Staff places line segments on a higher or lower frequency schedule based upon past cleaning results, history of blockages, SSO events, and history of cleaning results, CCTV QA/QC inspections and professional judgment.

Figure IV – 2: Standard Measures of Observed Results for Collection System Line Cleaning

Category	None	Low	Medium	High
Debris / Grit	**Code: CL** No observable debris or grit	**Code: DL** Minor amount of debris 15 minutes or less to clean 1 Pass	**Code: DM** Less than 5 gallons of debris 15-30 minutes to clean 2-3 passes required Requires cleaning twice or less per year Only fine grit	**Code: DH** More than 5 gallons of debris More than 30 minutes to clean More than 4 passes required Requires cleaning four times per year Operator concern for future stoppage
Grease	**Code: CL** No observable grease	**Code: GL** Minor amounts of grease 15 minutes or less to clean 1 pass	**Code: GM** Small chunks / no "logs" 15-30 minutes to clean 2-3 passes required Requires cleaning twice or less per year	**Code: GH** Big chunks / "Logs" More than 30 minutes to clean More than 4 passes required Operator concern for future stoppage
Roots	**Code: CL** No observable roots	**Code: RL** Minor amounts of roots 15 minutes or less to clean 1 pass	**Code: RM** Thin / Stringy roots present No large "clumps" 15-30 minutes to clean 2-3 passes required	**Code: RH** Thick roots present Large "clumps" More than 30 minutes to clean More than 4 passes required Operator concern for future stoppage
Other	**Code: CL** No observable materials	**Code: OL** Specify material Minor amounts of material	**Code: OM** Specify material Less than 5 gallons of material	**Code: OH** Specify material More than 5 gallons of material Operator concern for future stoppage

Footnote: (a) Times shown are for typical manhole to manhole distance of 250 feet. Longer runs will require longer cleaning times. Judgement will need to be applied by the field crews for varying lengths and pipe diameters.

IV 2.1.1. Pipe and Manhole Condition Assessment

Condition assessment is performed daily by Collections staff. During line cleaning or other field activities staff perform visual observations of manholes and other facilities as part of their proactive and preventive maintenance responsibilities. Findings are documented on the manhole/structure inspection form and entered into ICOMM. The most significant assessment or inspection activity in terms of time and expense is the closed-circuit television (CCTV) inspection of District main lines and manholes. All 82 miles of main lines throughout CAWD were CCTV inspected over the seven-year period from 2007-2013 and are currently on a 10-

year return inspection cycle based upon the CCTV Return Frequency Flow Chart in Figure IV-5.

Figure IV – 3: CCTV Return Frequency Flow Chart

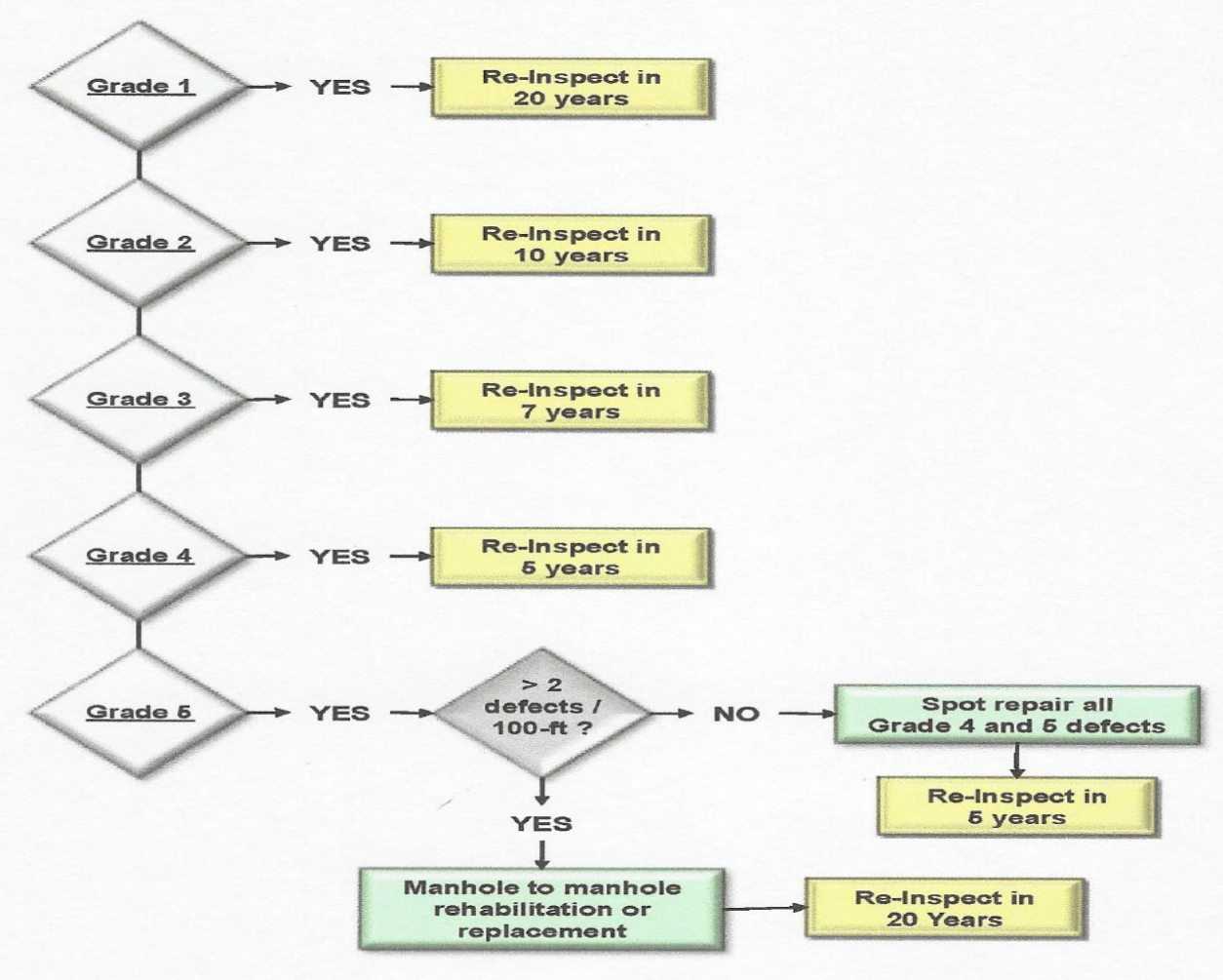


Table IV-4 Historical Condition Assessment by CCTV presents the CCTV performance results from 2008 to the present.

Table IV – 4: Historical Condition Assessment by CCTV

Calendar Year	CCTV Results, linear feet	CCTV Results, Miles	Percent of the System
2008	68,121	12.9	16
2009	70,634	13.3	16
2010	46,710	8.8	11

Calendar Year	CCTV Results, linear feet	CCTV Results, Miles	Percent of the System
2011	31,679	5.9	7
2012	43,930	8.3	10
2013	72,591	13.7	17
2014	62,181	11.7	14
2015	6,919	1.3	1
2016	38,137	7.2	8
2017	31,343	5.9	7
2018	30,123	5.7	7
2019	40,600	7.7	10
Average	**45,247**	**8.53**	**10**

Pipeline segments are rated using the National Association of Sewer Service Companies (NASSCO) CCTV condition assessment rating system. Staff is trained in application of the Pipeline Assessment & Certification Program (PACP). The recent CAWD Wastewater Collection System Asset Management Plan dated December 2018 uses the resulting condition assessments along with the likelihood of failure and consequences of failure to establish both pipeline maintenance requirements and capital renewal and replacement priorities.

IV-2.2. Pump Station

The CAWD operates 7 pump stations operated and maintained by the CAWD Operations Division. The CAWD Pump Station asset information is provided in **Table IV-5 Pump Station Locations and Asset Information** below. Each pump station is checked regularly, and the engine generators are exercised weekly. Monthly each of the engine generators are exercised and the wet wells are washed down and cleaned as needed. Records of all maintenance activities are maintained in the Mainsaver work order system and the Maintenance staff will begin conducting comprehensive pump station and force main condition assessments annually utilizing the checklist in **Supplement IV – 1 Pump Station/Force Main Condition Assessment Checklist**.

All pump stations include SCADA monitoring systems that automatically report alarms at the CAWD treatment plant if unusual conditions or alarms are registered 24/7. The Plant Engineer is continually working to upgrade and standardize SCADA reporting and to assure consistent station electronics and controls. In addition, the 2018 Asset Management Plan evaluated the conditions and risks associated with each of the stations and projected the

capital requirements for the future renewal and replacement of these important assets. CAWD has developed emergency response plans for each of the stations. Each station response plan is placed in the pump station and available at the CAWD Offices.

Table IV – 5: Pump Station Locations and Asset Information

Pump Station Name	Location	Construct Date	No. Pumps	Pump GPM	Pump Manu-facturer	Pump HP	Standby Generation-KW
Highlands	104 Highlands Dr	2005	2	109	Flygt	23	75
Calle La Cruz	Access @ 2737 Calle La Cruz	1953	2	421	Flygt	18	60
Ribera	1/4 mile past Calle PS on trail	1953	2	84	Flygt	2.3	60
Hacienda	Behind 178 Hacienda Carmel	1967	2	277	Flygt	5	35
8th & Scenic	West of the intersection of 8th and scenic	1949	2	136	Flygt	2.3	20
Bay & Scenic	Across from 26189 Scenic Dr.	1939	2	78	Flygt	10	50 Portable
Monte Verde & 16th	SE corner of Monte Verde & 16th	1939	2	187	Flygt	10	50 Portable

IV-2.3. Force Mains

CAWD maintains the seven (7) pump station force mains from the pump station to CAWD collection system. The force mains from the pump stations are identified and described in the **Table IV-6, Force Main Locations and Descriptions** below. The 2018 Asset Management Plan evaluated the condition and risk profile for each of the force mains and has developed a capital renewal and replacement program over the next fifteen years for these assets.

Force main alignments will be inspected on an annual basis along with the Pump Station Inspection and documented on the Checklist in Supplement IV-1. In addition, discharge manhole locations will be surveyed for possible damage and corrosion from the release of hydrogen sulfide when the force mains discharge to the gravity collection system.

Table IV – 6: Force Main Locations and Descriptions

Name of Pump Station Associated with Force Main	Force Main Asset Information			
	Year Constructed	Length (linear feet)	Size (inches)	Material Type*
Highlands	2005	15,312	4	HDPE
Calle La Cruz	1970	2685	6	DIP
Ribera	1953	174	4	CIP
Hacienda	1967	740	8	CIP
8th & Scenic	1949	179	4	CIP
Bay & Scenic	1939	1512	6	CIP
Monte Verde & 16th	1939	998	6	CIP
Total, Linear Feet		**21,600**		
Total, Miles		**4.09**		

IV-2.4. Collection System Siphons

CAWD does not have any sanitary sewer siphons in its collection system at the current time.

IV-2.5. Root Foaming

CAWD has utilized chemical root control service contractors to address root issues since 2013. The service contractors supplement CAWD staff cleaning efforts. CAWD chemically treats with foam about 80,000 feet of lines annually to control excessive roots on a three-year cycle for a total of 120,000 feet. The lines that receive this foaming treatment are determined by the field crews based on field observations and CCTV inspection work. Effectiveness of the root control treatment is enhanced by the strategic cleaning of the lines and cutting of roots about 4 to 6 weeks in advance of the treatment. This has been proven to increase effectiveness of the root foaming process. The root control treatment is done on a contract basis and accomplished every other year typically in June and July. This program has proven to be very effective, in that SSOs due to roots have been reduced in these areas where root control treatment has occurred. Table IV-7, Historical Chemical Root Control Performance provides the history of root foaming in the CAWD collection system since 2013.

Table IV – 7: Historical Chemical Root Control Performance

Calendar Year	Linear Feet	Miles	Percent of System
2013	5,544	1.05	1.28
2014	40,845	7.74	9.43
2015	0	0	0
2016	81,613	15.46	18.85
2017	0	0	0
2018	81,082	15.36	18.72

IV-2.6. Private Sewer Laterals

CAWD has no responsibility for the installation, maintenance, operation, or repair of the private sewer laterals (PSL) connected to CAWD mains. The private lateral extends from the building on the property to the main line. CAWD may voluntarily report private sewer lateral PLSDs into the State CIWQS database as they become aware of the overflows.

Effective October 1, 2019, CAWD requires private laterals to be CCTV inspected and repaired or replaced if found defective. The property owner receives a compliance certificate valid for 10 years if no lateral repairs or replacement are required or if the lateral is repaired but not replaced at that time. If the lateral is fully replaced, the property owner will receive a 30-year certificate of compliance. The triggers that the District is using to require the inspection includes the following:

- Excessive sewer spills from the private lateral
- Sale of the property
- Remodeling value greater than $50,000

The 2019-01 Uniform Plumbing Ordinance provides CAWD authority for this lateral inspection program.

IV-2.7. Rehabilitation and Replacement Program

CAWD began a sewer system rehabilitation plan in 1997, followed by an I/I Study by V&A Consulting Engineers. Since then two additional consultant studies were completed to evaluate collection system hydraulic capacity and prioritizes renewal and replacement. The December 2016 Technical Memorandum by West Yost Associates titled Collection System

Hydraulic Modeling Notebook documents the collection system facilities in the model and the manner in which they are modelled. The December 2018 Wastewater Collection System Asset Management Plan updated the earlier V&A Study, providing further evaluation of the conditions of the collection system and establishing the likelihood and consequences of failure resulting in a new prioritized fifteen year capital program for pipes, pump stations and force mains in the CAWD collection system.

Engineering staff uses the Technical Memorandum and the Asset Management Plan along with field condition assessment information to determine the priority in which main lines are rehabilitated and/or replaced. In addition, Collections staff also provides current field conditions and access constraints, which assist in the decision-making process. CAWD has a long-term Capital Improvement Plan to upgrade and rehabilitate all existing infrastructure within the collection system through 2030/31. The CIP provides a detailed outline of CAWD's capital improvement requirements for the next 10 years. Included in the 2019/20 CIP budget is an annual allocation between $2,700,000 and $1,500,000 for the presently identified projects for both pipelines, pump stations and continuing SCADA upgrades. CAWD staff reviews the history of SSOs, maintenance results and comments, and the pipeline risk profile to identify sewer lines to be replaced each year based upon priority of needs in the collection system. The long-range CIP is reviewed and updated on an annual basis by the Collection Superintendent, Principal Engineer and General Manager.

The projects currently identified are included in CAWD's Capital Improvement Program included in **Supplement IV-2**. The funds that support the Capital Improvement Program come from CAWD's sewer service charges, PBCSD sewer service charges for their prorated share of infrastructure.

IV-2.8. Training

CAWD is a member of the California Sanitation Risk Management Authority (CSRMA - a risk pool with 62 other sanitary and sanitation agencies. One of the services provided by CSRMA is an extensive set of on-line training modules which is actively utilized by the CAWD staff. Also, CSRMA provides periodic webinars on safety and collection system topics. Collection System and Engineering staff also participate in CWEA programs, other regional training opportunities (e.g. Sewer Smart) and vendor-sponsored training courses. CAWD provides staff with the opportunity to attend CWEA sponsored industry related conferences and educational opportunities.

In addition, Collection system workers also participate in bi-monthly tailgate safety trainings, as well as on-going, "on-the-job" training efforts. CAWD staff regularly trains on standard procedures or other special programs. These programs include traffic safety, bypass pumping, CPR/First Aid, and confined space entry.

CAWD has developed a list of training requirements for all sewer system employees. CAWD will conduct department training sessions for its collection system employees on both the SSMP and OERP including the WQMP annually including volume estimation and SSO start time determinations. This training includes field exercises in the estimation of SSO volumes (spill and recovered) and SSO containment responsibilities.

IV-2.9. Equipment and Replacement Parts

The list of the major equipment that CAWD uses in the operation and maintenance of its sewer system is included in **Supplement IV-3: Major Sewer System Equipment Inventory**.

CAWD has developed a Critical Replacement Parts Inventory that is included in **Supplement IV-4: Critical Sewer System Replacement Parts Inventory**. A comprehensive inventory of VCP, PVC and HDPE pipe, fittings and couplings is maintained in the CAWD storage yard to make emergency repairs expeditiously. Contractors may also be used to make routine and emergency repairs and line replacements, CAWD has agreements in place with contractors for these services if the need arises.

IV-2.10. Outreach to Sewer Service Contractors Working for Us

CAWD requires all service contractors to be aware of emergency response requirements for sanitary sewer overflows and provides necessary reporting information for all sewer related problems and emergency response requirements.

CAWD's standard service and construction contract language requires all contractors working in the sanitary sewer collection system to provide training for their employees on an equivalent emergency response plan of their own or one at least as comprehensive as the CAWD OERP.

IV-3. References

- Sewer System Condition Assessment Study, V&A Engineers, 1999
- Collection System Hydraulic Modeling Notebook, West Yost Associates, December 2016
- Wastewater Collection System Asset Management Plan, West Yost Associates, December 2018
- Ordinance 2019-01 New Uniform Plumbing Code

Supplement IV – 1: Pump Station/Force Main Condition Assessment Checklist

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	
Handrails 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 and 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	

Vales and Piping	
Valve operation	
Valve condition	
Pipe condition	
Pipe support	
Discharge Manhole Condition	
Other	
Comments	

Pump Station – Other	
Lighting	
Ventilation	
Support systems (air, water, etc.)	
Signage	
Employee facilities	
Sump pump	
Overhead crane	
Portable pump connections	
Portable pumps	
Comments	

Force Main Inspection	
Pipe Material	
Pipe Size	
Installation Date	
Pipe Length	
Critical Pipe Crossings (aerial, creek, railroad, etc.)	
Critical Environmental Conditions along the alignment (creeks, rivers, lakes, ponds,	
Valve operations conducted	
Valve condition	
Pipe condition tested	
Alignment Inspection Observations	
Access Points checked, if any	
Air Relief Valve Number/Conditions	
Discharge Manhole Number	
Discharge Manhole Condition	
Emergency Contingency Plan Current/updates Required	
Other	
Comments	

Checklist Completion Date: _____

Checklist Revise and Approval: _____ _____

Title Date

Authorization for Filing: _____ _____

Title Date

Checklist File Location: _____

Supplement IV – 2: CAWD Sewer Capital Improvement Program, $1,000

Project Title	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	Out Years
Rio Road CIPP Lining Project	1,340						
SCADA Replacement-All Pump Stations (Second Phase)	600						
Carmel Meadows Pipeline (Carry Over)	1,300	1,164					
Dewatering Pit at Treatment Plant (30% Treatment)							70
Hatton Canyon Pipeline Pipe Bursting		1,450					
Upper Rancho Canada Pipe Relocation	200	100	1,200				
Upsize Rancho Canada Subdivision Trunk Line							410
Bay/Scenic PS Rehabilitation		30	150	500			
Scenic Pipe Bursting			100	670			
Lincoln Ave. Pipe Bursting 4th to 10th				100	710		
Dolores Ave. Pipe Bursting 1st to 8th				100	665		
Monte Verde Area Pipe Bursting					100	2,100	
Mission, San Carlos & Junipero-Ocean to 2nd					100		825
Pipe Bursting West of Highway 1						100	2,300
Rio Road Bio-Swale Pipeline Replacement							800
Total	**2,270**	**2,744**	**1,450**	**1,370**	**1,575**	**2,200**	**4,405**

Supplement IV – 3: Major System Equipment Inventory

Equipment Number	Equipment Description	Date In Service
#4	Combination hydro/vacuum truck	2009
#35	Hydro Jet	2016
#14	Continuous rodder	1999
#30	CCTV van	2015
#8	4X4 utility truck	2008
#29	4X4 utility truck	2014
#17	4X4 utility truck	2007
#7	large dump truck	1991
#28	Flatbed dump truck	2014
EG2	50 KW Portable Generator	1999
EG1	50 KW Portable Generator	2005
	Portable Hydro easement machine	1998
	Bypass equipment	
	Pneumatic and mechanical plugs	
	Dry well sump pumps	

Supplement IV – 4: Critical Sewer System Replacement Parts Inventory

Description	Mfg	Part#
Spare lift station pump	Flygt	3085
Spare lift station pump	Flygt	3102
Spare lift station pump	Flygt	3127
Spare lift station pump	Flygt	3153
Spare lift station pump	Flygt	3152
Transducers		
Level Controllers	Hydroranger	
Level Control Floats		
Alarm system components		
Replacement mother boards/cellular cards		
Uninterrupted power supply units/batteries		
PLC input/output cards		
Pump quick release connectors		
Pump alarm MINICASS controllers		
Modems		
Valves – check and plug		
Breakers		
Switches		
Grinding/Communicator components		

Element V: Design and Performance Provisions

Design and Performance Provisions:

a. Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and

b. Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

V-1. Design Criteria for Installation, Rehabilitation and Repair

CAWD's Wastewater Collection System Sanitary Sewer Standard Plans and Specifications (Standards) dated May 17, 2019 provides the legal authority for the addition and renewal of sanitary sewer infrastructure including design standards for main sewers and pump stations. The Standards are divided into several Volumes as follows:

- Volume I – General Conditions
- Volume II – Sanitary Sewers
- Volume III – Design Policy and Standards
- Standards Plans

V-1.1. New Pipe and Appurtenances

CAWD has recently revised the CAWD standards in 2019 for both new construction and renewal and replacement work associated with the collection system infrastructure. These standards include design standards for pipes, manholes, laterals, materials and placement of pipes and manholes and pump stations into the CAWD collection system. These standards are regularly reviewed during biennial internal audits and modified as new and innovative construction techniques and materials are approved for use in CAWD.

Requests for modification or relief from CAWD standards can only be considered and ultimately approved by CAWD Manager or Board of Directors.

V-1.2. Pump Station

CAWD requires that all new or rehabilitated pump stations be designed by a registered engineer and approved by CAWD Engineer before construction and acceptance by CAWD

Board for maintenance. Section 4 – Pump Stations details all requirements for the design, construction and acceptance of public pump stations.

V-1.3. Private Sewer Systems and Private Laterals

All private sewer mains and private sewer laterals are required to be designed, installed, inspected and accepted per CAWD and Section 3 of the Standards.

V-2. Inspection and Testing Criteria

CAWD's Wastewater Collection System Inspection and Testing Criteria for pipelines are defined in Volume II, Section 7 – Testing of the Standard. All testing must be approved by CAWD prior to consideration for acceptance for operation and maintenance by CAWD Board of Directors.

V-3. References

- CAWD Sanitary Sewer Standard Plans and Specifications Ordinance 2019-02, effective May 17, 2019
- Ordinance 2019-01 New Uniform Plumbing Code

Element VI: Overflow Emergency Response Plan

Overflow Emergency Response Plan: 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. 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 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.

VI-1. Purpose

The purpose of CAWD Overflow Emergency Response Plan (OERP) is to support an orderly and effective response to Sanitary Sewer Overflows (SSOs). The OERP provides guidelines for CAWD personnel to follow in responding to, cleaning up, and reporting and record keeping of SSOs that may occur within CAWD'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. CAWD has also created separate Pump Station Emergency Response Plans for each of the seven (7) pump stations that are located at each station.

VI-2. Policy

CAWD'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. CAWD's goal is to respond to sewer system overflows as soon as possible following notification. CAWD will follow reporting procedures regarding sewer spills as set forth by the Central Coast Regional Water Quality Control Board (CCRWQCB), and the California State Water Resources Control Board (SWRCB).

VI-3. Goals

CAWD'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;
- 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.

VI-4. Full Overflow Emergency Response Plan

The full copy of CAWD Overflow Emergency Response Plan effective July 2019 can be found in Appendix D along with copies of all instructions and forms. Appendices referred to below and used to properly document an SSO event. All SSO sampling and testing shall be conducted per the CAWD specific Water Quality Monitoring Plan (WQMP) attached in Appendix F.

VI-5. 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-6. References

- Carmel Area Wastewater District Overflow Emergency Response Plan, July 2019
    - Appendix A: Service Call Form
    - Appendix B: Sanitary Sewer Reference Guide Pamphlet: Your Responsibilities as a Private property Owner
    - Appendix C: Door Hanger
    - Appendix D: Sanitary Sewer Overflow and Backup Response Workbook
- Carmel Area Wastewater District Water Quality Monitoring Plan, DKF Solutions Group. LLC., September 3, 2019

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

FOG Control Program: 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. Nature and Extent of FOG Problem

The development of a FOG control program is a two-step process. The first step is to determine the nature and extent of the FOG problems within CAWD's collection system. The second step is to select the elements of a FOG Control Program that would address the identified problems and problem areas. CAWD has evaluated its collection system and determined that a FOG Control Program is needed. Operations and maintenance staff have noted the tendency for grease buildup in specific sewer lines where restaurants are located.

Once a specific line is identified, the information is used for investigation and/or enforcement. CAWD's primary FOG control consists of regular and high frequency cleaning and maintenance as discussed in Element IV and an aggressive FSE inspection program conducted by the Pretreatment Program and the Lab Analyst/Environmental Inspector.

CAWD has identified 94 food service establishments (FSEs) in the service area as of the end of 2019. CAWD has proactively worked to reduce the impacts of FOG on the collection system through quarterly field inspections and assertive hands on coordination with FSEs. CAWD is working to reinstate an FSE permitting program and expects to have a rotating process for future permit renewals in place prior to the next biannual audit. Table VII-1 below provides the inspection and FSE enforcement activity since 2008.

Table VII – 1: Historical FSE Inspections and Enforcement Activity

Calendar Year	Inspections Conducted	Enforcement Activities	
		Compliance Letters	NOVs
2008	134	N/A	N/A
2009	226	N/A	N/A
2010	270	10	1
2011	265	8	0
2012	251	10	2
2013	212	5	1
2014	203	11	1
2015	195	12	1
2016	170	10	4
2017	250	14	6
2018	200	13	0
2019	132	10	0
Total	**2,508**	**103**	**16**
Annual Average	**209**	**10.33**	**1.78**

Table VII – 2 below lists the total number of FOG-related mainline SSOs by calendar year. As can be seen, CAWDs overall program has been exceptionally effective in limiting grease related SSO especially in the last ten years.

Table VII – 2: Historical FOG-Related SSOs

Calendar Year	Number
2008	1
2009	1
2010	0
2011	0
2012	0
2013	0
2014	0
2015	1
2016	1
2017	0
2018	0
2019	0
Total	**4**

VII-2. Response to GWDR Requirements

Requirement (a):

An implementation plan and schedule for a public education outreach program should promote proper disposal of FOG.

Response:

CAWD provides materials for use in residential situations which include informational brochures and informational flyers. Staff and Board members also present FOG materials and information at public events and fairs

CAWD has joined with other local agencies to conduct various educational programs. These agencies include the cities of Pacific Grove, Monterey and Salinas along with the Seaside County Sanitation District, the Marina Coast Water District, the Castroville Community Services District, the County of Monterey, the Pebble Beach Community Services District and California American Water. These outreach efforts include television, print and internet posting such as Facebook and at www.Clogbusters.org website. In addition, CAWD participates in advertisement in the local newspaper The Carmel Pine Cone. CAWD also participates in and provides funding for educational outreach performed by the Southern Monterey Bay Dischargers group.

Requirement (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.

Response:

The M1W wastewater treatment plant is a receiving facility for waste grease from both inside and outside of the CAWD service area. All approved haulers are informed about M1W FOG disposal policies and procedures.

Requirement (c):

The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG.

Response:

CAWD Ordinances provide the legal basis and authority (see Element 3) for CAWD's FOG Control Program especially Ordinances 2019-01 and 2019-03.

Requirement (d):

Requirements to install grease removal devices (such as traps or interceptors), design standards for the grease removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements.

Response:

CAWD Ordinance 91-03, addresses requirements for grease removal devices. In addition, CAWD adopted the 2019 Uniform Plumbing Code effective May 24, 2019 which also provides authority for grease removal devices.

Requirement (e):

Authority to inspect grease producing facilities, enforcement authorities, and determination of whether the collection system CAWD has sufficient staff to inspect and enforce the FOG ordinance.

Response:

The inspection and enforcement for FOG related problems are included in the CAWD Uniform Plumbing Ordinance 2019-01 and New Administrative Penalties Ordinance 2019-03 effective May 24, 2019 and are conducted by the Lab Analyst/Environmental Inspector.

Requirement (f) and (g):

Requirement (f) is an identification of sewer system sections subject to FOG blockages and the establishment of a cleaning maintenance schedule for each section, and Requirement (g) is the development and implementation of source control measures, for all sources of FOG discharged to the sewer system.

Response:

CAWD has identified and maintains many collection system lines on a high frequency line maintenance list. These lines have experienced grease accumulation in the past and are cleaned on varying frequencies based upon severity. The high frequency program currently lists approximately 2.97 miles of collection system lines (3.7% of the collection system) that are cleaned on one of the following frequencies as stated in **Table IV-2 High Frequency Lines**:

- Quarterly
- Every eight months
- Annually

District staff monitors areas that have been identified to have a history of grease related SSOs and blockages, based upon field experience and maintenance records. CAWD also investigates conditions in these areas in an effort to determine the origin of any FOG discharges. Actions in these investigations may include:

- Targeted inspections of FSEs upstream of a reported hotspot.
- Video inspections of main lines.
- Video inspections of laterals.
- Distribution of educational outreach materials.

Follow-up tasks may be required as a result of these inspections. If it is determined that an FSE is the source of the grease related SSO or blockage, then staff proceeds with the activities such as Inspections/Monitoring. If it is determined that the source is a residential property, then educational outreach materials may be distributed or targeted meetings with property owners and/or homeowners' associations may be scheduled.

VII-3. References

- Ordinance 91-03 Pretreatment Ordinance
- Ordinance 2019-01 New Uniform Plumbing Code
- Ordinance 2019-03 New Administrative Penalties Ordinance

Element VIII: System Evaluation and Capacity Assurance Plan

System Evaluation and Capacity Assurance Plan: 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 SSMP review and update requirements as described in Section D. 14.

VIII-1. System Evaluation – Collection System Capacity Evaluations

In April 1999, CAWD contracted with V&A Engineers for the development of a hydraulic model. The development efforts included dry and wet weather flow inputs, data and model assumptions. A more in-depth hydraulic model was created in December 2016, by West Yost Associates along with a full collection system asset management plan. The second model, which monitored flows for a complete year, utilized state of the art "real time" flow monitor devices and GPS coordinates gathered by Turf Image Company, a GPS survey contractor hired by CAWD in the Spring of 2016. These sets of data provided a more accurate modeling

for evaluation of pipeline capacities and restrictions. CAWD's capacity assurance efforts are based on its 1999 and 2016 collection system condition assessment and hydraulic notebook technical memorandum. Any deficiencies outlined in the study have been addressed or will be addressed in future capital improvement projects. The 2018 Asset Management Plan also evaluated the condition of all pump stations and force mains and developed a system wide renewal and replacement program based upon risk and consequence of failure criteria.

Developers are required to hire an independent engineer to conduct a hydraulic capacity study for residential developments of ten units or more, and for commercial developments of 10,000 square feet or more. This is also required for restaurants over 1000 square feet and for all Laundromats and industrial laundries. These studies are required to examine both existing downstream line capacity and capacity at projected build-out. These studies are kept on file by CAWD and are available for inspection.

CAWD uses flow data in conjunction with its capacity model to determine current sewer system capacity and adequacy. CAWD completed several capacity improvements in the 2000's as a result of its capacity problems found during the condition assessment study.

Finally, CAWD in late 2018 completed a WWTP Sea Level Rise Study evaluating mostly impacts to the CAWD treatment plant but it also included very limited impacts on the CAWD collection system in and around the treatment plant site.

VIII-2. Design Criteria

CAWD, through its Engineering Department, maintains the Sanitary Sewer Standard Plans and Specifications Volume III. The Standard Plans and Specifications govern the requirements, design, and the manner in which all work in connection with sewer construction within the jurisdiction of the CAWD is performed. The Standard Specifications are required by CAWD's Ordinance 2019-03, for use in both new installations and replacement of existing facilities. They are available online to contractors and citizens at no charge and were extensively updated in 2019.

VIII-3. Capacity Enhancement Measures - Capital Improvement Program

CAWD's Capital Improvement Program Budget including all capacity needs for pipelines, pump stations and force main improvements are included in Element IV, **Supplement IV-3**.

VIII-4. Schedule

The current schedule for CAWD's capital related capacity enhancement projects are included in the 2019/20 to 2030/31 Collection CIP presented in **Supplement IV-3**. This list will be revised, annually or as necessary, based upon future condition assessments and maintenance results.

VIII-5. References

- Sewer System Condition Assessment Study, V&A Engineers, 1999
- Carmel Areas Wastewater District Collection System Hydraulic Modelling Notebook, West Yost Associates, December 2016
- Wastewater Collection System Asset Management Plan, West Yost Associates, Inc. December 2018
- Carmel Area Wastewater District WWTP Sea Level Rise Study, Environmental Science Associates., December 5, 2018
- Carmel Area Wastewater District Standard Plans and Specifications, May 17, 2019

Element IX: Monitoring, Measurement, and Program Modifications

Monitoring, Measurement, and Program Modifications: The Enrollee shall:

a. Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;

b. Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;

c. Assess the success of the preventative maintenance program;

d. Update program elements, as appropriate, based on monitoring or performance evaluations; and

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

IX-1. Performance Measures

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

- Total number of SSOs
- SSOs by SWRCB Overflow Category
- SSO Rate per 100 miles compared to Region 3 and the State
- Number of SSOs by cause (roots, grease, debris, structural, capacity, pump station failure and other)
- Total annual volume of SSOs
- Total annual volume recovered
- Volume of sewage discharged to surface water
- Annual linear feet of root control performed
- Annual linear feet of CCTV performed
- Annual linear feet of System Wide Cleaning performed
- Annual linear feet of High Priority Cleaning performed
- Service calls received and responded to
- USA Mark outs completed annually

IX-2. Baseline Performance

CAWD has performance measures in place and staff evaluates its performance both monthly and annually following the end of the fiscal year with reports on the Board monthly meeting agenda.

IX-3. Mains, Pump Stations, and Force Mains

The baseline performance and SSO trends for gravity mains, pump stations, and force mains is shown on the following tables and figures by calendar year.

Figure IX – 1: Historical Line Cleaning

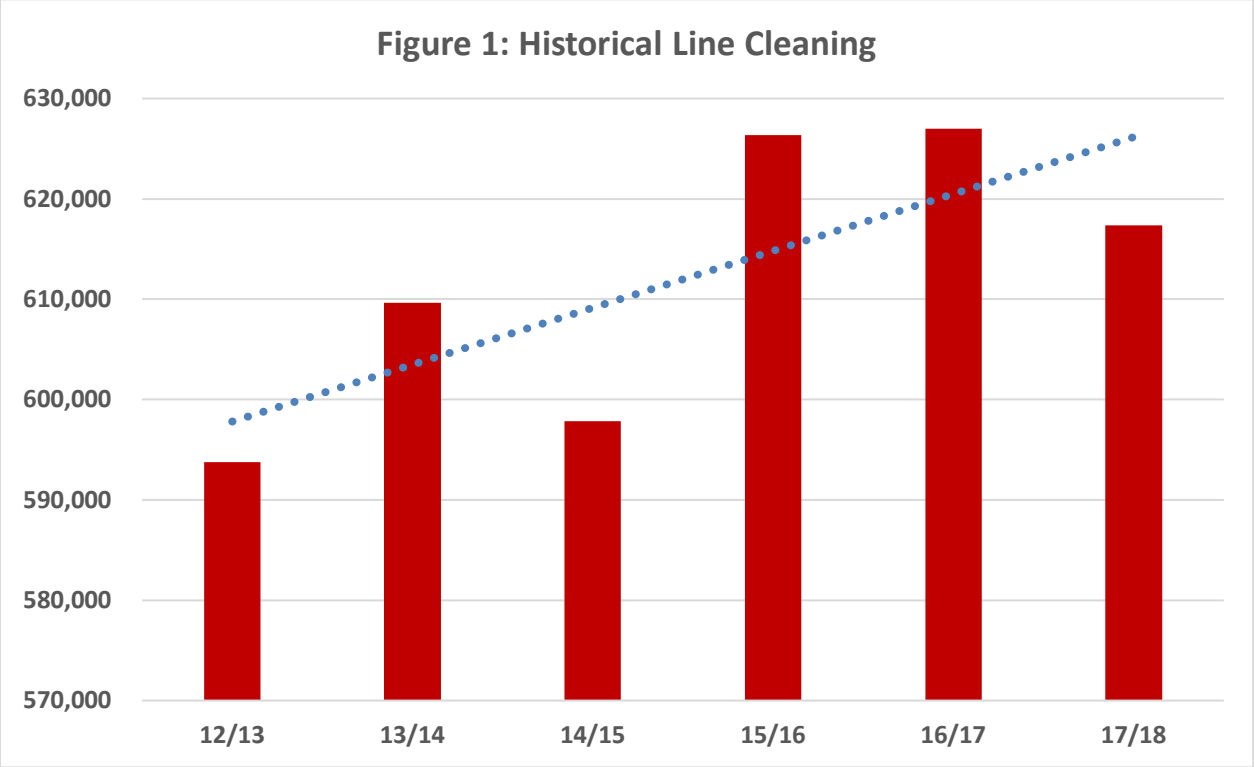


Figure IX – 2: High Frequency Cleaning

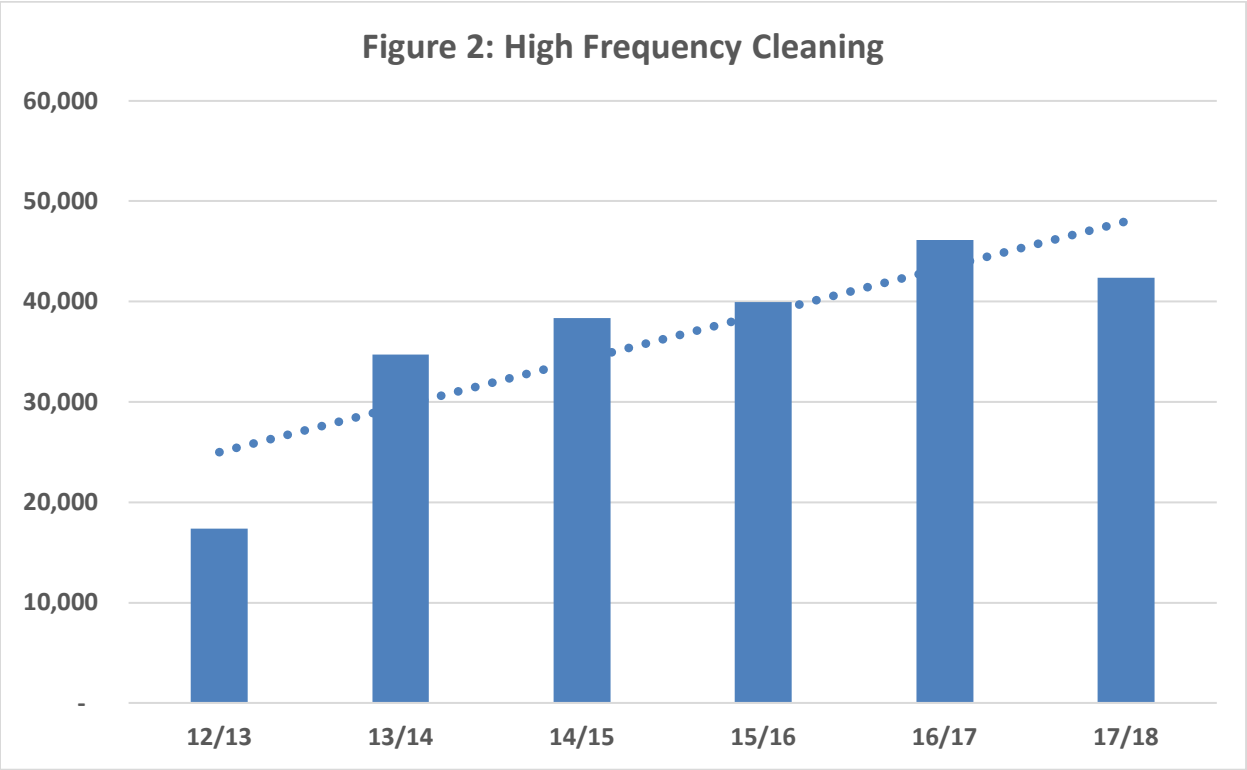


Figure IX – 3: Historical Line Cleaning by Type

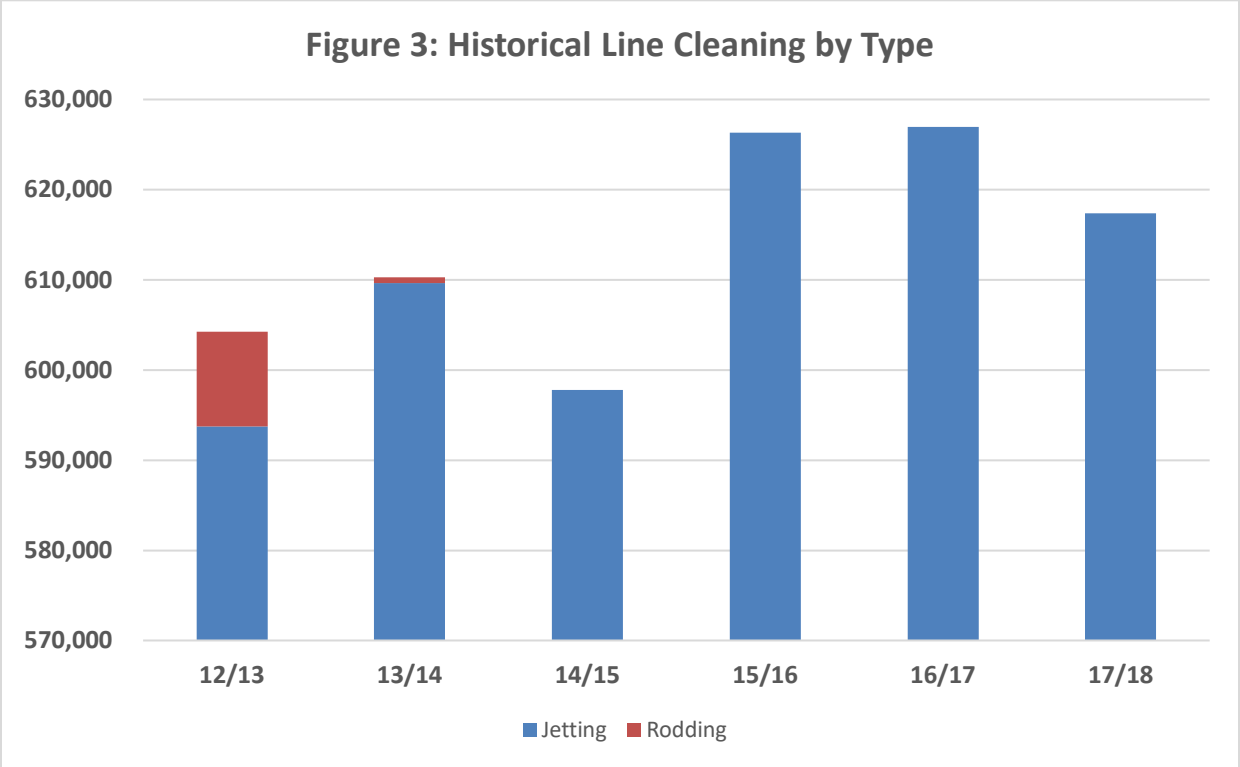


Figure IX – 4: Historical CCTV Assessment

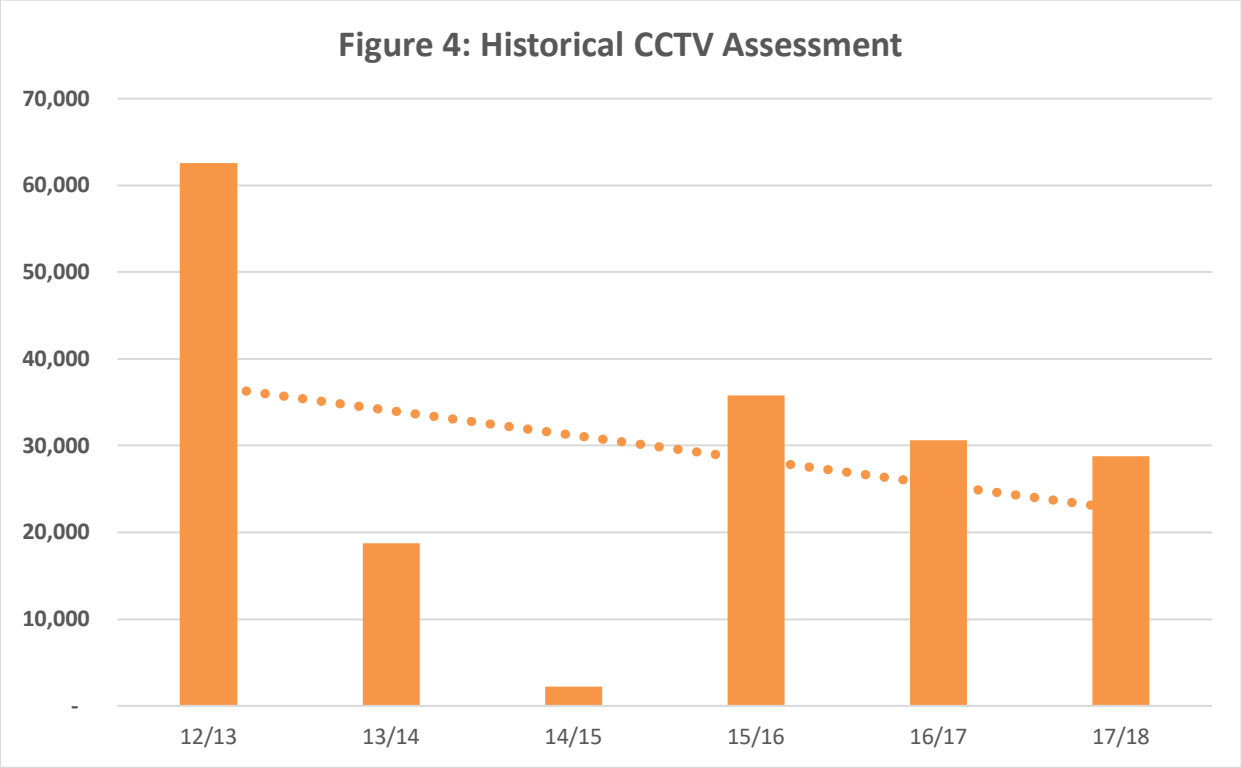


Figure IX – 5: Historical Fiscal Year Root Foaming

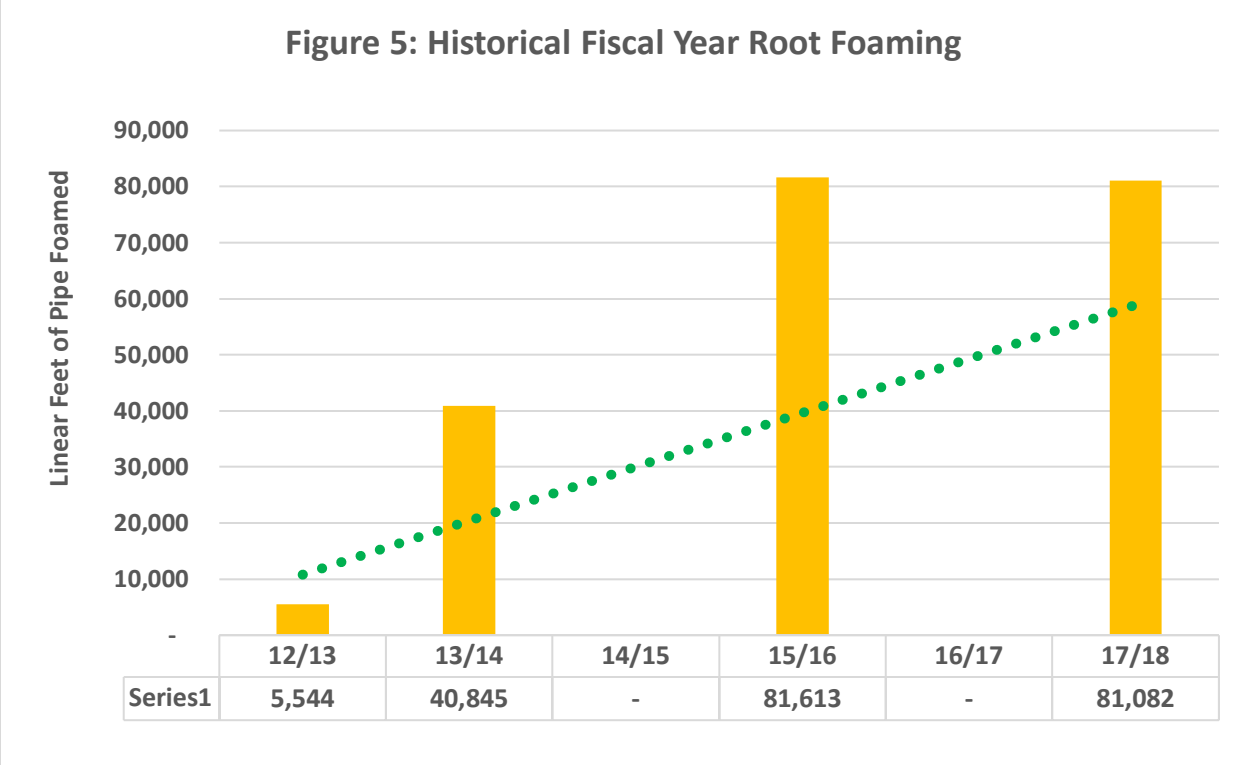


Figure IX – 6: Total SSOs by Calendar Year

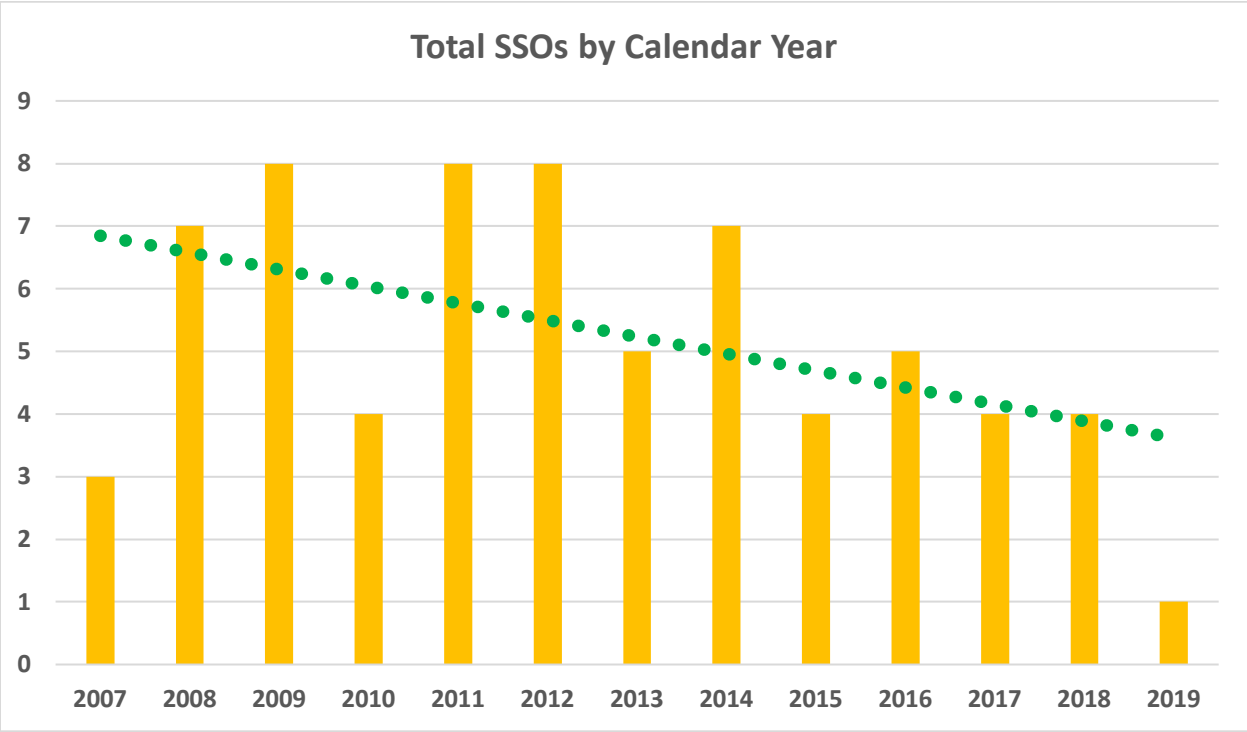


Table IX – 1: Overflows by SWRCB Category by Calendar Year

FY	Category 1	Category 2	Category 3	Total
2007	0	0	3	**3**
2008	1	0	6	**7**
2009	0	0	8	**8**
2010	0	0	4	**4**
2011	0	0	8	**8**
2012	1	0	7	**8**
2013	0	1	4	**5**
2014	1	0	6	**7**
2015	0	3	1	**4**
2016	0	0	5	**5**
2017	1	1	2	**4**
2018	0	0	4	**4**
2019	0	1	0	**1**
Total	**4**	**6**	**58**	**68**

Figure IX – 7: Overflows by Category

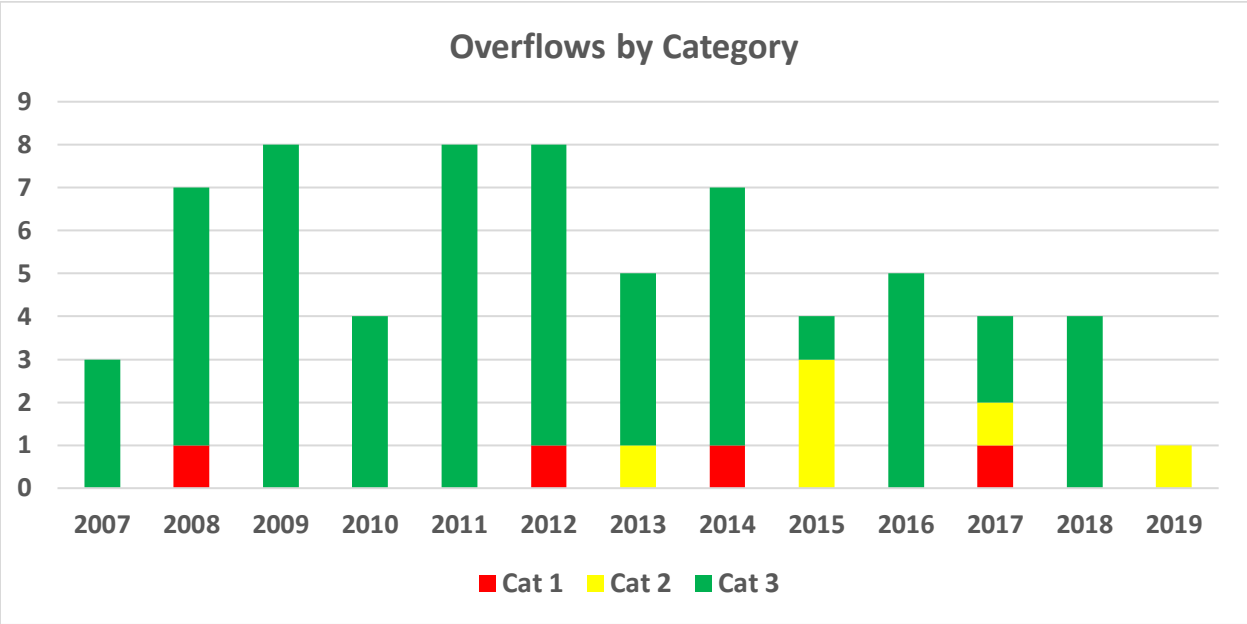


Table IX – 2: SSOs by Cause

CY	Debris	Grease	Roots	Capacity	Structural	Other	Total
2007	0	0	3	0	0	0	**3**
2008	1	1	4	1	0	0	**7**
2009	5	1	2	0	0	0	**8**
2010	1	0	2	0	1	0	**4**
2011	5	0	2	0	1	0	**8**
2012	6	0	2	0	0	0	**8**
2013	3	0	2	0	0	0	**5**
2014	1	0	3	0	0	3	**7**
2015	2	1	0	0	0	1	**4**
2016	1	1	3	0	0	0	**5**
2017	0	0	3	0	1	0	**4**
2018	2	0	0	0	1	1	**4**
2019	0	0	0	0	1	0	**1**
Total	**27**	**4**	**26**	**1**	**5**	**5**	**68**

Figure IX – 8: Trend in SSOs by Cause

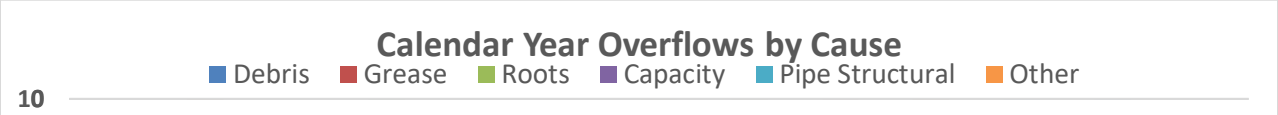


Figure IX – 9: Total SSOs by Category 2007 to 2019

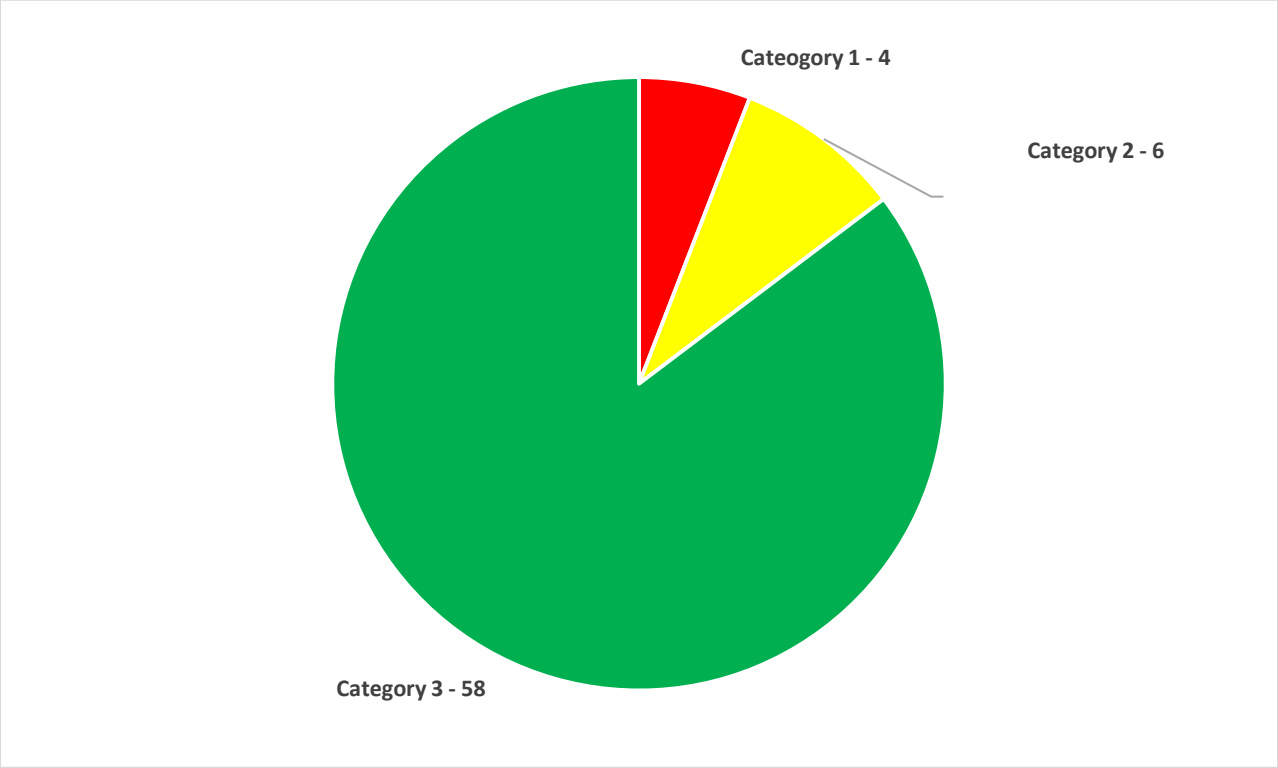


Table IX – 3: Annual Spilled Volume and Percentage Recovered and to Waters

Calendar Year	Total Volume Spilled, gallons	Volume Recovered, gallons	Total Volume to Surface Waters, gallons	Percentage Recovered	Percentage Reaching Waters
2007	480	0	0	4	82
2008	2,595	380	1,000	14	38
2009	1,835	640	0	34	0
2010	3,395	1,290	0	62	0
2011	2,450	0	0	0	0
2012	5,880	0	2,400	0	40
2013	3,765	85	0	2	0

Calendar Year	Total Volume Spilled, gallons	Volume Recovered, gallons	Total Volume to Surface Waters, gallons	Percentage Recovered	Percentage Reaching Waters
2014	6,488	1,255	4,500	19	69
2015	14,471	12,200	0	84	0
2016	1,600	0	0	0	0
2017	147,445	250	145,000	0	98
2018	1,001	100	0	9	0
2019	2008	0	0	0	0

Figure IX – 10: Total Spill Volume / Calendar Year, Gallons

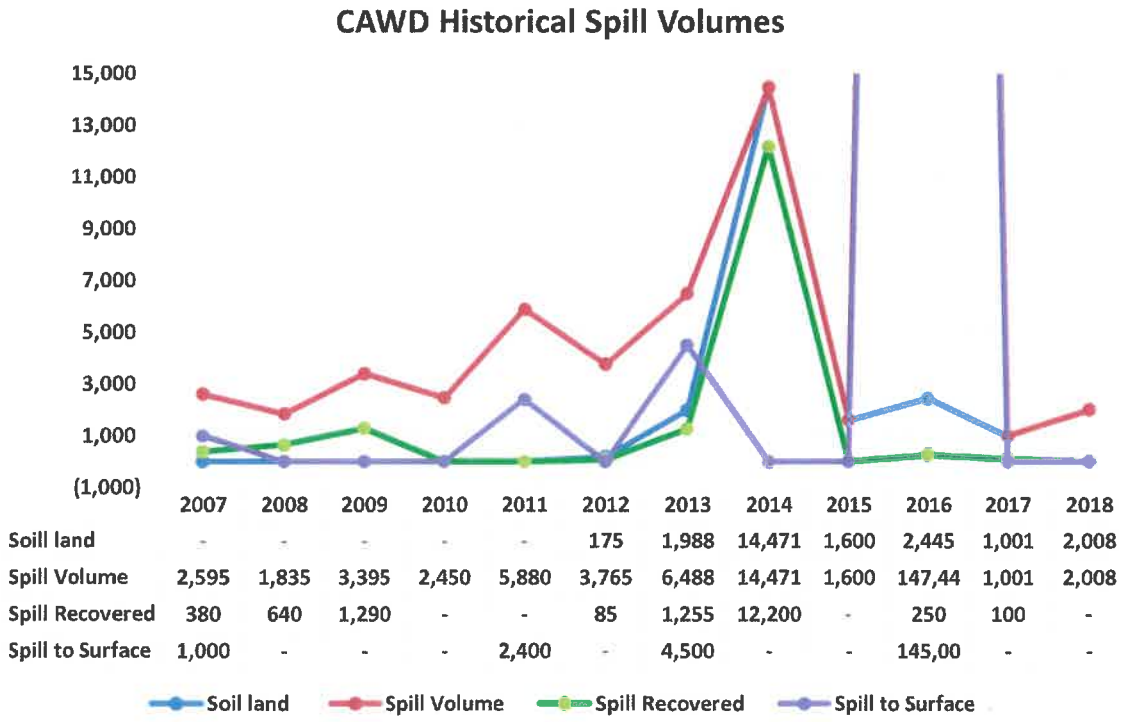


Figure IX – 11: Percentages of Spill Volume Recovered and to Waters

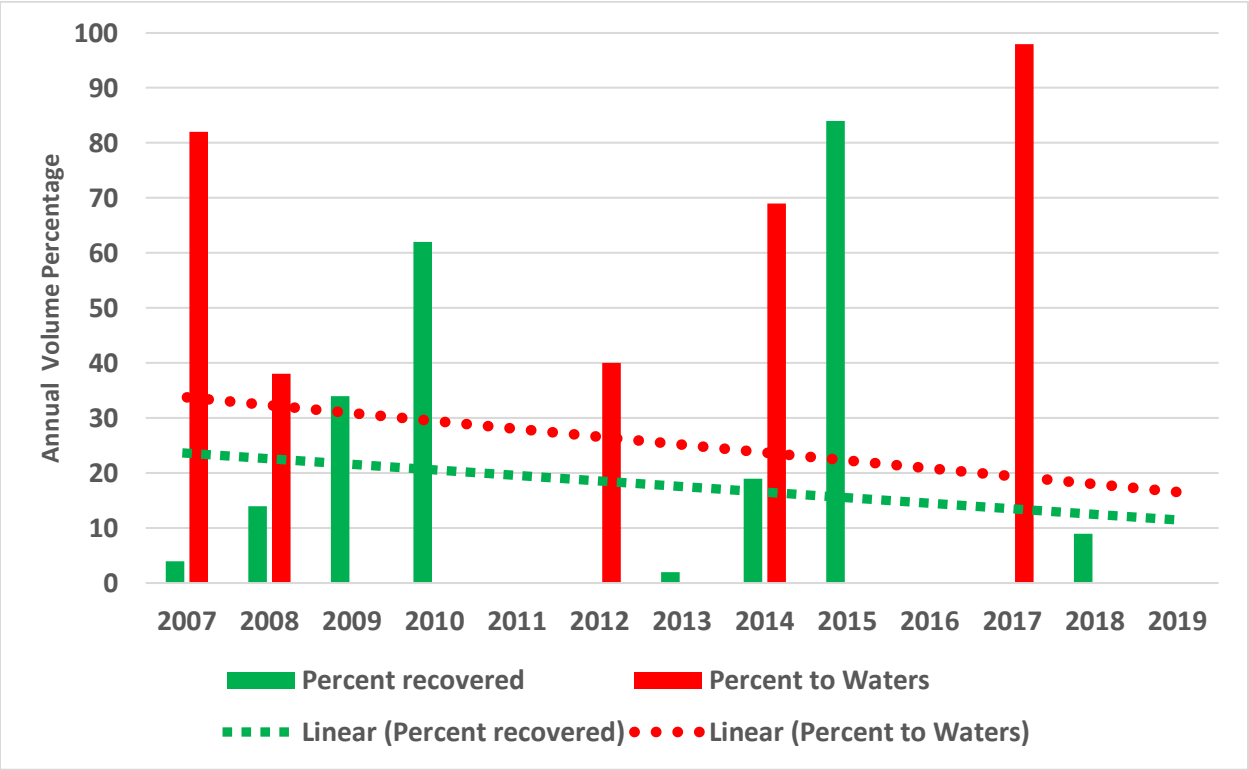
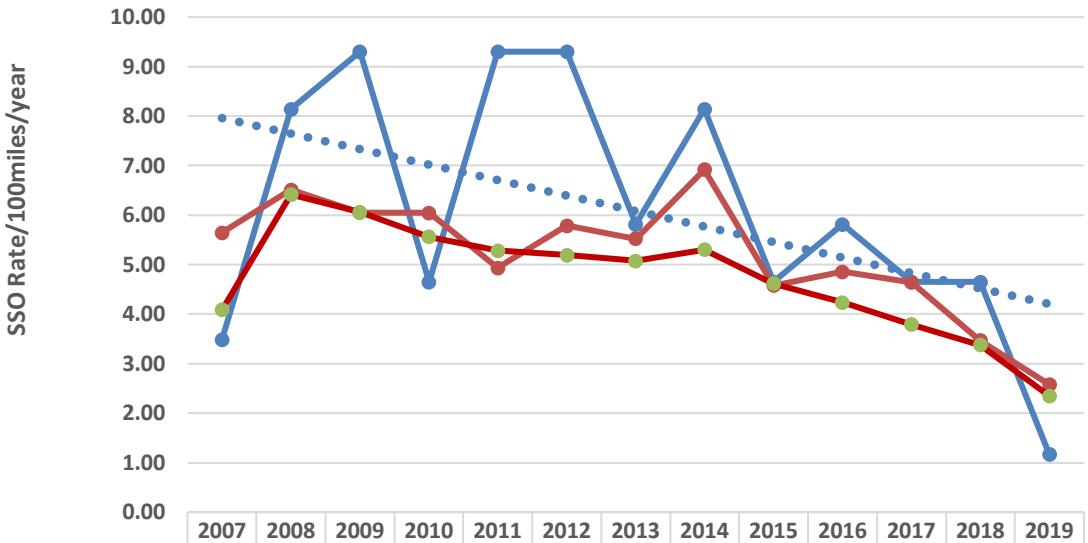


Figure IX – 12: Comparison of SSO Rate per 100 Miles per calendar year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
District	3.49	8.14	9.30	4.65	9.30	9.30	5.81	8.14	4.65	5.81	4.65	4.65	1.16
Region 3	5.65	6.51	6.05	6.04	4.93	5.79	5.52	6.92	4.58	4.85	4.64	3.47	2.58
State	4.09	6.42	6.06	5.56	5.29	5.19	5.08	5.30	4.62	4.23	3.79	3.38	2.35

IX-4. Performance Monitoring and Program Changes

CAWD will evaluate the performance of its wastewater collection system monthly and annually using the performance measures identified in this Element. CAWD will update the graphs and charts and perform analysis at the time of the evaluation and places an annual performance report in Appendix B of the SSMP and on the SSMP webpage following presentation to the Board of Directors in January of each year.

CAWD may use other performance measures in its evaluation. CAWD will prioritize its actions and initiate changes to this SSMP, its operations and maintenance practices, and any related programs based on the results of the performance evaluations. This will be done as part of the biannual self-audit (see Element X) or as needed for a more efficient and effective sanitary sewer collections program.

IX-5. References

The data used in this section were taken from:

- CIWQS SSO data through December 2019 for WDID 3SSO10244

Element X: SSMP Program Audits

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

X-1. Audits

CAWD will conduct internal audits of its implementation and compliance with the provisions of this SSMP every two years from the original adoption date of August 26, 2010 as required by the WDR. The audit will be conducted by a team consisting of CAWD Staff or may also include members from other divisions of CAWD, outside agencies, and/or consultants. During the SSMP audit, CAWD will conduct a record keeping audit of its SSO files to assure that that the files are complete, contain all required records and documents as stated in the MRP, OERP, WQMP, and that the files contain no extraneous or conflicting information.

The Sewer System Management Plan Audit Checklist (Supplement X-1) is used to guide the audit process and includes the GWDR requirements for each SSMP element and a sufficiency ranking system. The results of the internal audit, including the identification of any deficiencies and the steps taken or planned to correct them will be included in a separate LRO certified Audit Report. Upon completion of the audit report and certification by the LRO, CAWD will place the final Audit Report and Checklist in Appendix B, Sewer System Annual Audit Reports of this SSMP on a regular Board meeting agenda. Modifications and changes to the SSMP identified during the audit or between audits will be included in Appendix C, SSMP Change Log.

The audit can contain information about successes in implementing the most recent version of the SSMP and identify revisions that may be needed for a more effective sanitary sewer program. Information collected can be used in preparing the audit. Tables and figures or charts can be used to summarize information about performance indicators. An explanation of the SSMP development, and accomplishments in improving the sewer system should be included in the audit report.

X-2. SSMP Updates

The CAWD Board of Directors will recertify the SSMP and any changes at least every five years from original Board adoption date of August 26, 2010 or when substantial changes are

made in the SSMP. CAWD will determine the need to update its SSMP more frequently based on the results of the audits and the performance of its collection system using information from the Monitoring and Measuring Program Element IX. In the event CAWD decides that an update is warranted, the process and schedule to complete the update will be identified. CAWD will complete the update and take the revisions to the CAWD Board within one year of identifying the need for the update.

X-3. References

None.

Supplement X – 1: SSMP Audit Checklist

Carmel Area Wastewater District
SSMP Audit Checklist
Report Form

The purpose of the SSMP Audit is to evaluate the effectiveness of CAWD SSMP and to identify any needed for improvement. The information identified here will be used to inform the findings and necessary information to be evaluated during the biannual Internal Audit of the SSMP and the sanitary sewer program.

Directions: Please rank each item below utilizing the following sufficiency ranking system and add any comments to explain the ranking to the Discussion Section at the end of each SSMP Element:

- *Complies (C) – complies with all WDR objectives*
- *Substantially Complies (SC) – complies mostly with all WDR objectives*
- *Partially Complies (PC) – complies with basic WDR objectives*
- *Marginal Compliance (MC) – complies minimally with basic objectives of the WDR*
- *Does Not Comply – does not comply with WDR objectives*

Element 0 – Introduction/Executive Summary	
A.	
B.	
C.	
D.	
Element I – Goals	**Rating**
A. Are the goals stated in the SSMP still appropriate and accurate?	
Discussion:	

Element II – Organization	Rating
A. Is the List of CAWD Staff Responsible for SSMP Elements current?	
B. Is the Sanitary Sewer Overflow Responder List current?	
C. Is the CAWD Organization Chart current?	
D. Are the Staff position descriptions an accurate portrayal of staff roles and responsibilities?	
E. Is the Chain of Communication for Reporting and Responding to SSOs section/flow chart accurate and up to date?	
Discussion:	

Element III – Legal Authority	Rating
Does the SSMP contain current references to the CAWD Ordinances documenting the CAWD'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 CAWD?	
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 CAWD Sewer Ordinances, Regulations or standards?	
Discussion:	

Element IV – Operations & Maintenance	
Collection System Maps	**Rating**
A. Does the SSMP reference the current process and procedures for maintaining the CAWD's wastewater collection system maps?	
B. Are the 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	**Rating**
D. Does the SSMP 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 CAWD's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	
Scheduled Inspections and Condition Assessments	**Rating**
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	**Rating**
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	**Rating**
I. Does the SSMP document current training expectations and programs?	
Outreach to Plumbers and Building Contractors	**Rating**
J. Does the SSMP document outreach efforts to plumbers and building contractors?	
Discussion:	

Element V – Design and Performance Standards		Rating
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		Rating
A.	Does the CAWD's Sanitary Sewer Overflow Emergency Response Plan establish procedures for the emergency response, notification, and reporting of SSOs? Are the Pump Station Emergency Response Plans current?	
B.	Is CAWD staff and contractor personnel appropriately trained on the procedures of the Overflow Emergency Response Plan?	
C.	Considering SSO performance data, is the 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 certified by the LRO and been uploaded to the CIWQS data management system?	
G.	Is the WQMP up to date and current? Any sampling changes made to the RWQCB Beneficial Use requirements?	
Discussion:		

Element VII – Fats, Oils and Grease (FOG) Control Program		Rating
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 FOG Control Program?	
D.	Does the CAWD 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 containment and 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 CAWD OERP? Were regular items included in project meeting agendas to discuss sanitary sewer emergency response procedures and communications?	
Discussion:		

Element VIII – System Evaluation and Capacity Assurance Plan		Rating
A.	Does the 2018 Asset Management 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 CAWD'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 completed?	
Discussion:		

Element IX – Monitoring, Measurement and Program Modifications	Rating
A. Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?	
B. Is the CAWD able to sufficiently evaluate the effectiveness of the SSMP elements based on relevant information and historical performance results?	
C. Do the performance metrics properly support the Goals in Element 1?	
Discussion:	

Element X – SSMP Audits	Rating
A. Will the SSMP Audit be completed, reviewed and filed in Appendix B?	
B. Was the final Audit Report presented to the Board at a publicly noticed meeting?	
Discussion:	

Element XI – Community Outreach Program	Rating
A. Does the CAWD effectively communicate with the public and other agencies about the implementation of the SSMP and continue to address any feedback?	
B. Did the CAWD Board receive and review the Annual Sewer System Report?	
C. Was the annual report uploaded to the CAWD Sewer Section website and added to Appendix C?	
D. Did CAWD staff conduct and document meetings with satellite collection systems?	
E. Are all agreements with satellite systems current or are changes necessary to these agreements?	
Discussion:	

Change Log	Rating
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 **Date:** _____

Element XI: Communication Program

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

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

XI-1. Communication Program

CAWD's General Manager is responsible to coordinate all communications activities and for all materials on the CAWD webpage including the posting of the Board adopted SSMP and all cited critical supporting documents.

Information that can be provided upon request to interested parties includes: a copy of completed sections of the SSMP, brochures and materials regarding collection system operations and maintenance, FOG information, private lateral compliance requirements and certificates and contact information and/or opportunities for input into the development and implementation of the collection system operations.

The staff will annually provide the CAWD Board, at a regularly scheduled meeting, an annual collection system performance report that will be included in the minutes of that meeting and placed on the CAWD website. The performance information will include the performance measures listed in Section 9: Monitoring, Measurement, and Program Modifications and will be compiled following the end of the calendar year.

CAWD has an active communication program to inform the public about its SSMP, as well as other CAWD activities. CAWD publishes newsletters on various activities and mails the letters to every property owner in the service area. CAWD also has a web site www.cawd.org, to inform its customers about CAWD business, events, meetings, regulations, and programs. The SSMP is available for all to read and review through a link on the web site. Similarly, there are links to the current Board meeting agenda, including meeting minutes (archived for three years), and many of the components that comprise the SSMP such as the CAWD Ordinance and CAWD Standard Specifications and Details. All Board meetings are open to the public and the public is invited to comment on any business items, including the SSMP.

CAWD staff routinely informs customers and citizens in affected areas about future work activities. For example, pamphlets and letters are provided to residents of potentially affected properties prior to any sewer line repair or construction activities. The initial notice is provided two weeks in advance of work, and a second notice is given one to two days prior

to the work. The Principal Engineer and contractors provide notices in a similar manner by using door hangers prior to the repair or replacement of main lines. Field crews also make an effort to inform residents about line cleaning activities which may impact the resident's properties.

XI-2. Communication with Regional and Joint Wastewater Collection Systems

CAWD regularly communicates with local agencies in the Monterey Bay Area on matters affecting the operations and maintenance of the sanitary sewers, FOG issues and wastewater treatment issues. These issues are also raised during regular Board meetings conducted monthly. All meetings between the parties will be documented with a meeting agenda and meeting notes or minutes following each event.

CAWD also participates in and provides funding for educational outreach performed by the Southern Monterey Bay Dischargers group. This outreach includes radio messages, television spots, printed material and informational website (www.clogbusters.org) which provides the public with resources to prevent grease related sewer issues.

XI-3. References

None.

Appendices

Appendix A: Sewer System Management Plan Adoption Documents

RESOLUTION NO. 2010-23

A RESOLUTION APPROVING THE DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP) AND
AUTHORIZING THE GENERAL MANAGER TO CERTIFY THE PLAN
AS REQUIRED BY THE STATE WATER RESOURCES CONTROL BOARD

-oOo-

WHEREAS, the State Water Resources Control Board (SWRCB) oversees the quality of waters in the State of California and in May 2006, the SWRCB issued a General Waste Discharge Requirement (WDR) 2006-0003 – DWQ; and

WHEREAS, the purpose of the WDR is to minimize the number of sanitary sewer overflows (SSO) that occur in the sanitary sewer collection system; and

WHEREAS, the WDR set forth by the SWRCB establishes a uniform reporting method into a single database to measure and monitor the efforts of the agencies operating sanitary sewer systems in the state; and

WHEREAS, the WDR requires the District to have a Sewer System Management Plan (SSMP) and to certify the SSMP and the district SSMP has been presented to the Board this date.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the Carmel Area Wastewater District that it hereby approve the attached Carmel Area Wastewater District Sewer System Management Plan (SSMP) and authorizes the General Manager to certify the plan as required by the State Water Resources Control Board Order No. 2006-0003

PASSED AND ADOPTED by the Board of Directors of the Carmel Area Wastewater District at a regular meeting duly held on September 23, 2010, by the following vote:

AYES: BOARD MEMBERS: D'Ambrosio, Townsend, Kohn, Siegfried

NOES: BOARD MEMBERS: 0

ABSENT: BOARD MEMBERS: White

President of the Board

ATTEST:

Secretary of the Board

RESOLUTION NO. 2017 – 07

A RESOLUTION APPROVING THE DISTRICT SEWER SYSTEM MANAGEMENT PLAN (SSMP) AND AUTHORIZING THE GENERAL MANAGER TO CERTIFY THE PLAN AS REQUIRED BY THE STATE WATER RESOURCES CONTROL BOARD

-oOo-

WHEREAS, the Carmel Area Wastewater District owns a wastewater collection system, responsible for complying with regulatory requirements in operating and maintain a wastewater collection system; and

WHEREAS, the State Water Resources Control Board requires wastewater collection system owners to develop and maintain a Sewer System Management Plan; and

WHEREAS, the State Water Resources Control Board requires wastewater collection system owners to update their Sewer System Management Plan every five years; and

WHEREAS, the State Water Resources Control Board requires re-certification of Sewer System Management Plan by the Board of Directors when significant updates are made or at five year intervals; and

WHEREAS, on this date the Board of Directors has received an reviewed a report with conclusions from the District's Collection Superintendent.

NOW THEREFORE, BE IT RESOLVED by the Board of Directors of the Carmel Area Wastewater District, as follows that:

a) After considering written staff report and verbal testimony the Board certifies the Carmel Area Wastewater District Sewer System Management Plan – Five Year Update.

b) The Board authorizes the General Manager to update State Water Resources Control Board records documenting the completion of the five year update and certification of the Carmel Area Wastewater District Sewer System Management Plan.

PASSED AND ADOPTED by the Board of Directors of the Carmel Area Wastewater District at a regular meeting duly held on March 23, 2017 by the following vote:

AYES: BOARD MEMBERS: ***D'Ambrosio, Rachel, Siegfried, Townsend, White***

NOES: BOARD MEMBERS: ***None***

ABSENT: BOARD MEMBERS: ***None***

Ken White, Board President

ATTEST:

Irene Bryant, Secretary to the Board

Appendix B: Sewer System Management Audit Reports

Internal Audit Report – 2012

Carmel Area Wastewater District
Sewer System Management Plan (SSMP)

2012 SSMP Audit Report

The audit is submitted pursuant to the requirements included in the State Water Resources Control Board Order No. 2006-0003-DWQ and Central Coastal Regional Water Quality Control Board.

The purpose of the SSMP Audit is to evaluate the effectiveness of the Carmel Area Wastewater District's SSMP and to ensure that all elements within the SSMP are up to date and that they are being implemented and managed appropriately. The SSMP Audit is a critical process that promotes continuous improvement, ultimately resulting in the most effective and efficient collection system management plan possible. This process includes the examination of events, experiences, and data from the previous calendar year so that successes and challenges can be identified and correlated with strengths and weaknesses of District's SSMP. The District's SSMP Audit consists of two major components: Summary of Events and Audit Findings, and the SSMP Audit Checklist used to evaluate each SSMP element.

SUMMARY OF EVENTS AND AUDIT FINDINGS

Background and System Overview

Carmel Area Wastewater District is a special district dedicated to protecting public health and the environment by the cost-effective collection and treatment of wastewater and the return of clean water to the environment. The Carmel Area Wastewater District has been providing regional wastewater treatment services for over 100 years. The district oversees the management, operations and maintenance of a sanitary collection system that includes 83 miles of pipe ranging from 6 inch to 27 inch in diameter and 7 remote pump stations. The District Board consists of five representatives from each of these respective member entities.

Summary of Events

Since the SSMP's adoption in August 2010, the District has recently made both administrative and functional type changes to this document. The administrative type changes revolve around: organizational chart details, additional collection system information, inclusion of select mapping examples, etc. The functional type revisions include more substantive changes including: Capital Improvement Program details, regulatory and SSO Response Plans, etc. The current SSMP includes these changes.

The current SSMP contains an approved 5 year CIP from 2010, but an updated 5 year, and medium and long term CIPs will be included in the near future. Some of the key sewer system improvements are described below. In addition, large capital purchases or other events of significance are shown.

Sewer System Improvements and Events since 2010

The most notable projects and events performed from 2010-2012 include:

1. Highlands Force Main – Working with pump manufacture and design engineer's to rectify pump seal failure, changes have been made in the pumps seals and cooling fluid. Pump manufacture is bringing test equipment on site to better understand why pump seals are still failing. Project is on-going as of August 2012.

2. 2010 Sewer Repairs – Removed and replaced 270' of 6 inch sewer line and one manhole on Mission Fields Rd. New construction of convalescent homes "Carmel Cottages" adding 900' of PVC 8 inch sewer pipe and 5 manholes to the district. Both projects are completed.

3. Development and Implementation of a internet base website www.cawd.org to post updated information on districts activities, contact information, SSO reporting, district atlas, SSMP, budget information and any other information deemed relevant. On-line in 2011

4. New construction of private sewer system for Carmel Valley Athlete Club which tied into CAWD sewer system in August 2011. Project is completed.

5. New construction of private sewer system for Highlands Fire station which tied into CAWD Highlands force main in March 2012. Project is completed.

6. Closed Circuit Television Tractor and camera system – Purchase of a new 2012 ARIES PATHFINDER CCTV system was made in May 2012. In conjunction with the existing ARIES TR-2000 system. This will improve the ability to video small diameter sewer lines as well as increase the productivity of lines televised.

7. Replacement of four pumps, two in each station that have been in service for over 20 years. Installation at 8th & Scenic and Ribera pump stations of Flytt pumps model 3085 in February 2012.

Future Sewer System Improvements and Events

The most notable projects and events to be performed in the near future include:

1. Crespie Ln. Sewer Rehabilitation – Approximately 1000 feet of existing sewer line will be lined using (CIP). Construction is anticipated to begin in late-2012.

2. Wetwell Rehabilitation Project - $250,000 is allocated for the rehabilitation of 4 pump stations wetwells. The rehabilitation consists of applying an epoxy or similar coating to the concrete walls of the wetwells to prevent deterioration due to hydrogen sulfide gas. Construction is anticipated to begin in early-2013.

3. Sewer Pipeline and Manhole Rehabilitation Project – Rehabilitate 30 existing manholes at various locations and approximately 2055 feet of 27 inch and 1676 feet of 24 inch asbestos concrete sewer pipe, along the Carmel Valley Trunk Sewer, by coating interior walls with epoxy resin or equivalent. $175,000 has been allocated and the project is expected to begin in 2013.

CARMEL AREA WASTEWATER DISTRICT

Sanitary Sewer Management Plan
Audit Checklist

SSMP ELEMENT	SSMP CURRENT? YES	NO	N/A	DATE IMPLEMENTED
ABBREVIATIONS & DEFINITIONS	X			
EXECUTIVE SUMMARY	X			
1 GOALS	X			
2 ORGANIZATION	X			
Designate LRO	X			
Names and contact information for personnel	X			
Chain of communications for reporting SSOs	X			
3 LEGAL AUTHORITY	X			
Prevent illicit discharges to the wastewater collection system	X			
Require sewers and connections to be properly designed and constructed	X			
Ensure access for inspection, maintenance, and repairs	X			
Limit discharge of FOG and debris that may cause blockages	X			
Require the installation of FOG removal devices	X			
Ability to inspect FOG producing facilities	X			
Enforce violations of CAWD ordinances	X			
4 OVERFLOW EMERGENCY RESPONSE PLAN	X			
Procedures for the notification of primary respondents	X			
Procedures for the notification of regulatory agencies	X			
Program to ensure appropriate response to all SSOs	X			
Proper reporting of all SSOs	X			

CARMEL AREAWASTEWATER DISTRICT

Sanitary Sewer Management Plan
Audit Checklist

SSMP ELEMENT	SSMP CURRENT? YES	NO	N/A	DATE IMPLEMENTED
Procedure to ensure staff are aware of and follow SSO Response Plan	X			
Procedures to ensure staff are trained in the SSO Response Plan procedures	X			
Procedures to address emergency operations such as traffic and crowd control	X			
Program to prevent SSOs to surface waters	X			
Program to minimize or correct the impacts of any SSOs that occur	X			
Program of monitoring to determine the impacts of any SSOs that occur	X			
5 O&M PROGRAM	X			
Maintain current maps of the wastewater collection system	X			
Describe routine preventive maintenance program	X			
Document completed preventive maintenance using Share Point	X			
Rehabilitation and replacement plan that identifies and prioritizes wastewater collection system improvements	X			
Provide regular technical training for CAWD wastewater collection system staff	X			
Maintain equipment inventory	X			
Maintain critical spare part inventory	X			
6 FATS, OILS, AND GREASE CONTROL PROGRAM	X			
Public Outreach program that promotes the proper disposal of FOG	X			
Plan for the disposal of FOG generated within CAWD's service area	X			

CARMEL AREAWASTEWATER DISTRICT

Sanitary Sewer Management Plan
Audit Checklist

SSMP ELEMENT	SSMP CURRENT? YES	NO	N/A	DATE IMPLEMENTED
Demonstrate that CAWD has allocated adequate resources for FOG control	X			
Identification of wastewater collection system facilities that have FOG-related problems	X			
Program of preventative maintenance for wastewater collection system facilities that have FOG related problems	X			
7 DESIGN AND PERFORMANCE PLAN	X			
Design and construction standards for new wastewater collection system facilities	X			
Design and construction standards for repair and rehabilitation of existing wastewater collection system facilities	X			
Procedures for the inspection and acceptance of new wastewater collection system facilities	X			
Procedures for the inspection and acceptance of repaired and rehabilitated wastewater collection system facilities	X			
8 SYSTEM CAPACITY PLAN	X			
Identification of elements of the wastewater collection system that experience or contribute to SSOs caused by hydraulic deficiencies	X			
Established design criteria that provide adequate capacity	X			
Short-term CIP that address known hydraulic deficiencies	X			
Long-tern CIP that address known hydraulic deficiencies	X			
Procedures that provide for the analysis, evaluation, and prioritization of hydraulic deficiencies	X			

CARMEL AREA WASTEWATER DISTRICT

Sanitary Sewer Management Plan
Audit Checklist

SSMP ELEMENT	SSMP CURRENT? YES	NO	N/A	DATE IMPLEMENTED
The short- and long-term CIPs include schedules for the correction of each identified hydraulic deficiency	X			
9 MONITORING, MEASUREMENT AND PROGRAM MODIFICATONS	X			
Maintain relevant information to establish, evaluate, and prioritize SSMP activities	X			
Monitor implementation of the SSMP	X			
Measure, where appropriate, performance of the elements of the SSMP	X			
Assess success of the preventive maintenance program	X			
Update SSMP program elements based on monitoring or performance	X			
Identify and illustrate SSO trends	X			
10 SSMP PROGRAM AUDITS	X			
Conduct periodic audits	X			
Record the results of the audit in a report	X			
Record the changes mad and/or corrective actions taken	X			
11 COMMUNICATIONS PROGRAM	X			
Communicate with the public regarding the performance of the SSMP	X			
Communicate with the public regarding the performance of the wastewater collection system	X			

Carmel Area Wastewater District
Sanitary Sewer Management Plan Review
Causey Consulting
October 4, 2013

General Comments

A. Document should be written for the public and regulators without the requirement to search in other references for specific details that meet the WDR Section D13 requirements. In addition, the SSMP should be used for staff training and should therefore include forms, flow charts and documents used for the operations of the collection system.
B. Add WDR Element sections as the first section of each Element to assure that all are addressed in the SSMP. Suggest that each Section be separately identified (i.e. 2.1, 3.4. 6.7. etc.) and used in each Element – this will make it easy for a field inspector or regulator to know that the District has addressed the included information.
C. The SSMP should be written to make it easy for a field inspector to find all information required by Section D13 of the WDR - this might even eliminate an inspection if the inspector can determine in the office just how the District is complying with the regulations.
D. Add the Board adoption date, District WDID and NPDES Numbers on the front cover of the SSMP and on the website.
E. Update all collection system statistics throughout the document.
F. Delete all current appendices and simply list these documents as references early in the document.
G. Add figure and table numbers throughout the SSMP as part of the Table of Contents.
H. Add an explanation of the relationship between CAWD and the Pebble Beach Community Services District – including a description of agreements and other documents that define the relationship – we assume that PBCSD is a satellite system to the CAWD and does not use CAWD pipes to convey sewage to the treatment plant.
I. Place a complete copy of the revised SSMP including recommended appendices on the District website.
J. A new Log of Changes (see attached example) is now required in an appendix to track all changes made to the SSMP. The Log should include the Element and Section modified, a description of the modification, the date the change was effective and the person responsible for approving the change.
K. Recommend that the District develop a Management of Change Procedure that will establish responsibilities for the management and update to all copies, hard and electronic, of the SSMP and all reference documents referred to in the SSMP.
L. The new changes to the SSMP are major so adoption by the District Board should be done upon completion of the updates.
M. Remove all current appendices and simply reference these documents in the appropriate place in the SSMP and in the Executive Summary.
N. Add relevant collection system photos throughout the document.

Abbreviations and Definitions

1. Add the following acronyms to the Acronym Table
    a. SSS WDR
    b. CIWQS
    c. FLA
    d. FSE or FSF from ordinance
    e. POTW
    f. SWRCB
    g. OERP
    h. UPC

Executive Summary

1. Add to the current title "and System Overview"
2. Add map of the service area of the District without the map grids .
3. Add size of the service area in square miles – 5.5 sq. mi
4. Add population – 11,000 +/-.
5. Add numbers of parcels and EDUs. – Unknown at this time.
6. Add description of sewer lateral responsibilities of the District and the private property owner.
7. Add description of relationship with Pebble Beach Community Services District including a map of that service area.
8. Add tables of pipe lengths by both materials and pipe size either here or in Element 4. Add table of pipe lengths by installation decades in addition.
9. Add discussion of potential growth of the District service area in the next five years.
10. Add description of sewer lateral responsibilities for installation and operations and maintenance (Sec 3.5 Uniform Plumbing Ordinance only reference?).
11. Add reference to all documents that are used to support the collection system operations.

Element 1 – Goals

1. Review and determine if all goals are still appropriate.
2. Consider dropping bullet 6 and the last statement after the last bullet.
3. Bullet 7 - add "and sanitary sewer overflows".

Element 2 – Organization

1. This element requires significant expansion to answer the WDR requirements.
2. Add a Table of those classifications that are responsible for the management and implementation of each Element (see attached example).
3. Organization chart needs to add FOG and Engineering classifications that provide support to the collection system operations and capital programs.
4. The classification descriptions in this Element should include a statement of all that are the designated Legally Responsible Officials and Data Submitters for the District pursuant to the WDR – were these classification originally appointed by the Board of Directors?
5. Add a section overviewing the chain of communications for reporting SSOs.
6. Is the Principal Engineer responsible for Master Planning and Capital Program Development in Elements 5 and 6?

Element 3 – Legal Authority

1. Provide an opening paragraph describing and referring to the District Sewer Code and other ordinances or documents that provides the legal authority for District collection system operations.
2. Add a table that identifies the specific section(s) of the District Sewer Code or ordinances that answer the five (5) requirements in the WDR.
3. Remove Appendix B.

Element 4 – Overflow Emergency Response Plan (**renumber to Element 6**)

1. The current Element does not meet the minimal WDR requirements expected by the SWRCB Enforcement Office. At a minimum, this Element must answer the basic WDR requirements for an OERP Element to be considered responsive to the regulations. Simple reference to the District Sewage Overflow Response Plan (SORP) does not adequately answer the information requested in the Element Sections.
2. The SORP must be updated to include the original requirements of the WDR and the revisions to the MRP effective 9/9/13. This will need to be coordinated with DKF Solution who is currently working on revisions to the base SORP. At a minimum the following additions are required and should be included in this Element:
    a. Descriptions of the 3 categories of SSOs from the current 2 categories.
    b. Development and approval of a District Water Quality Monitoring Plan for sampling of SSOs greater than 50,000 gallons within 48 hours.
    c. Development and approval Technical Report outline and submittal requirements for SSOs greater than 50,000 gallons – generally directly from the MRP..
    d. Revisions of single notification to OES for Category 1 SSOs greater than 1000 gallons and not fully recovered. Elimination of OES notifications for category 2 and 3.
    e. Addition of enhanced recordkeeping.
    f. Elimination of certification requirements for private sewer lateral discharge reports.
    g. Modifications to SSO report amendments and re-certification.
    h. Requirements for maintaining the list of Legally Responsible Officials and Data Submitters on the CIWQS website.
    i. Submittal of electronic copy of SSMP if not available on District website.
3. We suggest that a general overview of the SORP be included in this Element including many of the forms and flow charts. DKF Solutions is working on this and will hopefully provide a front end to the SORP that can be directly incorporated into the CAWD SSMP.
4. Add information on training of staff and contractors at the end of this Element.
5. Add copies of all signage used to protect the public from contact with raw sewage during an SSO event (see attached example).
6. Add copies of all forms and flow charts used by the District in SSO response as appendices to this Element – these will need to be coordinated with the DKF Solutions revisions in the SORP.
7. Add information regarding the storm drainage system locations and mapping and how the District considers these in the containment and SSO management of an SSO. Does the District have storm drain features on its GIS mapping and is it available to District emergency response personnel?

Element 5 – Operations and Maintenance Program (**Revise to Element 4**)

1. This element must be completely rewritten to conform to the necessary WDR D13 required sections – not currently responsive to expectation of the SWRCB Enforcement Office. The Element should include a general description of the operations and maintenance of the collection system that explains for the public the general processes used for pipelines, manholes, pump stations and force mains operations. The District may consider adding the tables of pipe information by size, materials and age in this Element.
2. Reduce almost all pump station information – too much detail for the public – put basic information on the pump stations in a single table for the reader's information. Provide consistent information on each of the pump stations. The single page map with the pump station locations is a good visual for the document.
3. Remove all of the PS service areas plans.
4. Add map of the collection system including all pipelines and pump station locations (exclude the grid designations on the website map).
5. Provide a description of the collection system operations along with performance goals for the operations and maintenance of the collection system i.e. cleaning and CCTV frequencies to describe updated processes.
6. Revise Section 5.2, Mappingand describe the processes used to maintain the maps up to date and current.
7. Remove Procedure lists and replace with narrative describing the maintenance operations and basic performance goals used by the crews. Describe the crews levels used and depicted in the organization chart in Element 2.
8. Discuss hot spot cleaning, lateral responsibilities, root control, CCTV activities and condition assessment, pump station maintenance and force main inspection and testing procedures. How do crews evaluate cleaning results obtained? Are there standards for evaluation of the cleaning operations based upon materials removed or CCTV follow-up (see attached example)?
9. Are large diameter pipelines (15 inches and greater??) cleaned with the same frequency as smaller pipes? If not this Element should describe these alternative methods and frequencies.
10. Does CAWD have a QA/QC procedures for evaluating cleaning by collection system crews? If so please describe it in this Element.
11. Add table of anticipated capital rehabilitation and new installation projects and estimated annual expenditures for the next five-years to Section 5.6.
12. Add to Section 5-7, a requirement for contractor conformance with District requirements for discussion of SSOs and emergency response procedures during construction and pre-construction meetings.
13. Explain condition assessment and use of CCTV in deciding pipeline replacement – add estimated linear feet per year to be CCTVed and condition assessed. Include information also on condition assessment and decision on renewal and replacement for pump stations and force mains.
14. Reduce the list of replacement parts and equipment to long lead-time and critical equipment only.
15. Add copies of all forms used by staff for collection system operations and maintenance recordkeeping and be sure that the form contains a form number and date of latest version. These forms should appear as appendices to this Element for staff training or new employee orientation.
16. Describe pump station and force main SSO contingency plans currently in use by the District in this Element.

3

17. Are semiannual pump checks of each pump station documented? Telemetry records must be maintained and included in an SSO pump station incident report as newly required during a pump station related overflow. Add copies of the forms used.
18. Complaint resolution - new requirement that all contact be maintained including all resolutions - is a form used for this? If so add to this Element as an appendix.
19. Training
    a. Add annual training table by classification in this section with schedule of training frequency - be sure to include SSMP and OERP specific training annually or with any changes in regulations or as a result of an SSO failure analysis.
    b. Ad annual Table of Safety Tailgate Meeting topics - assure proper documentation is maintained for all training conducted.
    c. How are individual training and regular skill certification for employees maintained?
20. What is the annual staff training hours per employee per year goal? State in the SSMP.

Element 6 – Fats, Oils and Grease Program (**Revise to Element 7**)

1. Revise Title to "FOG Control Program"
2. Provide an overview and description of the FOG program including the number of FSEs and other industrial customers permitted and managed by the District.
3. Reformat the Element sections to follow the WDR requirements.
4. Simply reference the ordinance and remove as Appendix E – describe the program in this Element – provide table of specific ordinance sections that answer Section c legal authorities referring the reader to specific sections of the Uniform Plumbing Ordinance ore the Pretreatment Ordinance.
5. Add summary table or graph of historical FSE inspections and various enforcement actions for the past five years and goals for the next five years. This will provide the reader context for the FOG program.
6. Expand the FOG inspection section to include permitting overview, how FSEs are identified, what happens during an inspection, discussion of best management practices, documentation required of FSEs, maintenance records (4.7.5 Pretreatment Ord), etc.
7. SSMP states inspections are monthly – ordinance says at least yearly – are these things consistent? Are all FSEs (FSF) really inspected monthly?
8. Are FOG materials available at the District offices? If so, include in the Public Outreach Program Section.
9. Add information on the District website with referrals to other resources for FOG information like CalFOG or other agency programs.
10. Reference needs to be made to Standard Plans and Specifications Section R.
11. Include information on residential outreach in areas where FOG is a problem.
12. Add information and table of grease or waste haulers in the local area.

Element 7 - Design and Performance Provisions (**Revise to Element 5**)

1. This section needs expansion to cover the two sections that are required by the WDR.
2. Add general description of processes for design and performance of both public and private collection system facilities including relationship with local municipal development requirements. Much of this information can be taken from the master plan and/or annual District budget.
3. Include references to other standards used by the District for new and rehabilitated facilities.

4. Does the District have specific specifications for facility rehabilitation projects – pipes, manholes and pump stations? If so these should be identified in the table.
5. Remove Appendix C and D and refer specific sections in these documents only.
6. Add table of specific sections of the standards that deal with the various items in the sections of the WDR.

Element 8 – System Evaluation and Capacity Assurance Plan (**revise the title**)

1. Update and expand this section for the revisions to Capital Improvement Plan.
2. Expand description of the flow modeling done in 1999 – new model to be included with updated Master Plan?
3. Provide a description or table of projects completed in recent years.
4. Include a table of anticipated capital project expenditures for the next five years by title and type – take directly from the 13/14 budgets.
5. Describe any remaining capacity issues and how capacity is evaluated for new projects.
6. Add information on capacity evaluations of pump stations – were these done in 1999 or are they currently being evaluated in the revisions to the CIP.
7. Add discussion of how rehabilitation projects are prioritized and included in the CIP.

Element 9 – Monitoring, Measurement, and Program Modifications

1. Good list of performance measures – are there any maintenance metrics that should also be added to this Element section as the District has few SSOs to report
2. Copies of all annual performance evaluations should be attached in an appendix to the SSMP and must include narrative discussions of what is working and what needs to changed to enhance and assure that the goals of the SSMP are being met.
3. Annual performance reports, if done should be agenized for Board discussions and all reports should be placed on the District website as public information related to SSMP implementation effectiveness.
4. Add a section in this Element that provides historical trends in SSO for the last five years in table or graphical form. This will add context for the public of the performance of the District's collection system. We recommend that these measures be compared to state and regional measures from the States Annual Enforcement Report or from the CWIQS agency data report.

Element 10 – SSMP Program Audits

1. Update Section 10.2 with historical information.
2. 2012 SSMP Audit Report is a good start but needs specific discussion of each element and the progress made or changes needed to further implementation of the SSMP. Need to also include graphs of historical performance results as stated in this Element. Audit checklist needs to be revised to provide discussions of each of the Elements and Sections of the SSMP. (See attached sample we suggest be used in the future). The SWRCB Office of Enforcement has stated in recent presentations that they do not consider simple checklists with no discussion and without a narrative of the effectiveness of each Element to be responsive to the WDR regulations.
3. The Sample Audit Check List needs to be revised and added as Appendix 10-1 to this Element rather than at the end of the document. Need to add discussion of the effectiveness of the Element and any deficiencies found and what will be done to correct the deficiencies along with a schedule for corrections.

5

4. Suggest that the Audits be conducted in September and that they cover the period since the last audit rather than in May of the year. The WDR allows for biennial audits so unless the Regional Board requires an annual report, the District could choose to do the audits every two years.
5. The 2012 SSMP Audit Report does not address the effectiveness of each Element nor does it discuss deficiencies and follow-up actions to assure implementation of the SSMP. Finally it does not provide performance information of the performance metrics stated in Element 9. The SWRCB has stated that the Audit Checklist used in the 2012 report is not sufficient as an Audit without written comments and descriptions of the status of implementation. Several of the statements in the Audit Report regarding future actions do not appear in the current SSMP
6. Audits should also include statements regarding the review and update of all reference documents to assure that they are consistent with the SSMP provisions.

Element 11 - Communications Program

1. This Element should discuss goals for the next five years with regard to outreach and communications with the public on implementation of the SSMP.
2. Section 11.2 should be expanded to discuss the annual report to the Board and the placement of these annual reports on the District website. Additionally this section should also include information on the FOG outreach if not included in Element 7.
3. Section 11.2 also states that information is available at regular Board meeting – this is not fully responsive to the WDR unless some information is placed on the website and available other than at Board meetings.
4. Section 11.3 the document states that SSO reporting information is available at the District website – upon a cursory review of the Collection System page could not locate this information. Recommend the website and this section includes the link information to the SWRCB CIWQS Interactive Reporting site for the public. This should also include a brief description of what is available on the CIWQS site.
5. The section should also indicate the timing of the annual reports – we recommend that the District submit these reports no later than September of any year so that all statistics for the past fiscal year(s) can be addressed in comparison to the collection system budget.
6. This Element must also include a description of the communication processes and procedures with the Pebble Beach Community Service District that is satellite to the District system.
7. If PBCSD utilizes any CAWD pipes or facilities, are there agreements supporting these operating procedures and responsibilities. How does CAWD assure that PSCSD will not cause any problems in the District collection system?

Element 12 – SSMP Completion and Certification

1. Delete as not required by the WDR – place the adoption information on the front cover of the SSMP and a copy of the past (Resolution 210-24) and future adoption resolutions.

Recommended Appendices

A. SSMP Audit Form
B. SSMP Change Log
C. SSMP Annual Audit Reports
D. SSMP Board Adoption Resolutions

6

Appendix A

Carmel Area Wastewater District
Sewer System Management Plan
Audit Report Form
Covering the Period: _____

The purpose of the SSMP Audit is to evaluate the effectiveness of the Carmel Area Wastewater District's (District'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.**

		YES	NO
ELEMENT 1 - GOALS			
A.	Are the goals stated in the SSMP still appropriate and accurate?	☐	☐
Discussion:			
ELEMENT 2 - ORGANIZATION			
A.	Is the List of District 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 District 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 3 – LEGAL AUTHORITY			
Does the SSMP contain current references to the Carmel Area Wastewater District Sewer Code documenting the District'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 b the District?	☐	☐
D.	Limit discharges of fats, oils and grease?	☐	☐
E.	Enforce any violation of its sewer ordinances?	☐	☐
F.	Were any changes or modifications made in since the last audit to District Sewer Ordinances, Regulations or standards?	☐	☐
Discussion:			

7

ELEMENT 4 – OPERATIONS AND MAINTENANCE			
Collection System Maps			
A.	Does the SSMP reference the current process and procedures for maintaining the District's wastewater collection system maps?	☐	☐
B.	Are the District's collection system maps complete, current and sufficiently detailed? Are all operator maps up to date? Do maps include information and details on Stormwater facilities? Is Stormwater facility information current?	☐	☐
Prioritized Preventive Maintenance			
C.	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewers?	☐	☐
D.	Based upon information in the Annual Performance Report, are the District's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	☐	☐
Scheduled Inspections and Condition Assessments			
E.	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			
F.	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?	☐	☐
G.	Are contingency and replacement parts sufficient to respond to emergencies and properly conduct regular and emergency maintenance? Is long lead-time equipment identified?	☐	☐
H.	Has District staff received formal training on the Sanitary Sewer Management Plan? Are training sessions documented and attend sheet filed appropriately?		
Training			
H.	Does the SSMP document current training expectations and programs?	☐	☐
Outreach to Plumbers and Building Contractors			
I.	Does the SSMP document current outreach efforts to plumbers and building contractors?		
Discussion:			
ELEMENT 5- DESIGN AND PERFORMANCE STADARDS			
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 6 – OVERFLOW AND EMERGENCY RESPONSE PLAN			
A.	Does the District's Sanitary Sewer Overflow Emergency Response Plan (OERP) establish procedures for the emergency response, notification, and reporting of SSOs?	☐	☐
B.	Are District staff and contractor personnel appropriately trained on the procedures of the Sanitary Sewer Overflow Emergency Response Plan?	☐	☐
C.	Do collection system related project specifications include requirements for conformance of contractor OERP with District OERP? Are emergency response procedures for project related SSOs included on regular project meetings during the course of construction?	☐	☐
D.	Were formal failure analyses of major SSOs conducted and documented including identification of necessary changes to operations and emergency response procedures from the analysis?	☐	☐
E.	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?	☐	☐
Discussion:			

ELEMENT 7 – FATS, OILS AND GREASE (FOG) CONTROL PROGRAM			
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 District's FOG Control Program?	☐	☐
D.	Does the District 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	☐	☐
Discussion:			

ELEMENT 8- SYSTEM EVALUATION AND CAPADISTRICT ASSURANCE PLAN			
A.	Does the District Sanitary Sewer Master Plan evaluate hydraulic deficiencies in the system, establish sufficient design criteria and recommend both short and long term capital improvement projects for enhancement and improvement projects?	☐	☐
B.	Does the District's Capital Improvement Plan (CIP) establish a schedule of approximate completion dates for both short and long- term improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity accomplishment?	☐	☐
Discussion:			

ELEMENT 9- MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS			
A.	Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?	☐	☐
B.	Is the District able to sufficiently evaluate the effectiveness of the SSMP elements based on relevant information?	☐	☐
Discussion:			

ELEMENT 10 – SSMP AUDITS			
A.	Will the SSMP Audit be completed, reviewed and filed in Appendix C?	☐	☐
B.	Are all reference documents up to date with the SSMP?	☐	☐
C.	Was the Audit Report submitted to the Board of Directors and is the Audit Report available to the public on the District website?	☐	☐
D.	Does Appendix C include copies of all Audit Reports?	☐	☐
Discussion:			

ELEMENT 11 – COMMUNICATION PROGRAM			
A.	Does the District effectively communicate with the public and other agencies about the development and implementation of the SSMP and continue to address any feedback?	☐	☐
B.	Were regular discussions held and documented with the Pebble Beach Community Services District regarding collection system operations affecting CAWD? If so when were these discussion held?	☐	☐

Discussion:			
Change Log			
A.	Is the SSMP Change Log in Appendix B, current and up to date?	☐	☐
Discussion:			

Prepared By:_____ **Reviewed By: _____**

Approved for Filing:

_____

11

Carmel Area Wastewater District
Sanitary Sewer Management Plan
Change Log

Date	SSMP Element	Description of Change/Revision Made	Change Authorized By:

Table 0-1: List of City Staff Responsible for SSMP

SSMP Element	Responsible City Official	Phone	E-Mail
Element 1 - Goals	Valerie Fong, Utilities Director	(650) 329-2277	valerie.fong@cityofpaloalto.org
Element 2 - Organization	Javad Ghaffari, Water Gas Wastewater Operations Manager	(650) 496-6932	javad.ghaffari@cityofpaloalto.org
Element 3- Legal Authority	Kristen Struve, Watershed Program Manager	(650) 329-2421	kristen.sturve@cityofpaloalto.org
Element 4- Operation and Maintenance	Rui Silva, Acting Water Gas Wastewater Operations Supervisor	(650) 496-6917	@cityofpaloalto.org
Element 5- Design and Performance Standard	Ed Wu, Water Gas Wastewater Managing Engineer	(650) 556 4512	edward.wu@cityofpaloalto.org
Element 6- Sanitary Sewer Overflow Emergency Response Plan	Frank Alvarado, Water Gas Wastewater Operations Supervisor	(650) 496-6917	frank.alvarado@cityofpaloalto.org
Element 7- Fat, Oils and Grease Program	Kristen Struve, Watershed Program Manager	(650) 329-2421	kristen.sturve@cityofpaloalto.org
Element 8- System Evaluation and Capacity Management	Ed Wu, Water Gas Wastewater Managing Engineer	(650) 556 4512	edward.wu@cityofpaloalto.org
Element 9- Monitoring, Measurement, and Program Modifications	Javad Ghaffari, Water Gas Wastewater Operations Manager	(650) 496-6932	javad.ghaffari@cityofpaloalto.org
Element 10- Program Audits	Javad Ghaffari, Water Gas Wastewater Operations Manager	(650) 496-6932	javad.ghaffari@cityofpaloalto.org
Element 11- Communication Program	Utilities Communication Manager, Debbie Katz	(650) 329-2656	debbie.Katz@cityofpaloalto.org

Standard Measures of Observed Results

The standard measures of observed "results" for the cleaning of small diameter [a] (six- and eight-inch) sewers are:

Category	None	Low	Medium	High
Debris/Grit	Code: CL No observable debris or grit	Code: DL Minor amount of debris 15 minutes or less to clean 1 pass	Code: DM Less than 5 gallons of debris 15-30 minutes to clean 2-3 passes required Requires cleaning twice or less per year Only fine grit	Code: DH More than 5 gallons of debris More than 30 minutes to clean More than 4 passes required Requires cleaning four times per year Operator concern for future stoppage
Grease	Code: CL No observable grease	Code: GL Minor amounts of grease 15 minutes or less to clean 1pass	Code: GM Small chunks/no "logs" 15-30 minutes to clean 2-3 passes required Requires cleaning twice or less per year	Code: GH Big chunks/"logs" More than 30 minutes to clean More than 4 passes required Operator concern for future stoppage
Roots	Code: CL No observable roots	Code: RL Minor amounts of roots 15 minutes or less to clean 1 pass	Code: RM Thin/stringy roots present No large "clumps" 15-30 minutes to clean 2-3 passes required	Code: RH Thick roots present Large "clumps" More than 30 minutes to clean More than 4 passes required Operator concern for future stoppage
Other	Code: CL No observable materials	Code: OL Specify material Minor amounts of material	Code: OM Specify material Less than 5 gallons of material	Code: OH Specify material More than 5 gallons of material Operator concern for future stoppage

Footnote: (a) Times shown are for typical manhole to manhole distance of 250 feet. Longer runs will require longer cleaning times. Judgment will need to be applied by the field crews for varying lengths and pipe diameters.

DANGER

RAW SEWAGE

Keep Children and pets out of this area.

PELIGRO

AGUA CONTAMINADA

Mantenga niños y mascotas fuera de esta área.

For more information – Para más información
Contact: City of Palo Alto Utilities Department
(650) 329-2413

Internal Audit Report – 2017

Carmel Area Wastewater District
Sewer System Management Plan (SSMP)

2017 SSMP Audit Report

The audit is submitted pursuant to the requirements included in the State Water Resources Control Board Order No. 2006-0003-DWQ and Central Coastal Regional Water Quality Control Board.

The purpose of the SSMP Audit is to evaluate the effectiveness of the Carmel Area Wastewater District's SSMP and to ensure that all elements within the SSMP are up to date and that they are being implemented and managed appropriately. The SSMP Audit is a critical process that promotes continuous improvement, ultimately resulting in the most effective and efficient collection system management plan possible. This process includes the examination of events, experiences, and data from the previous calendar year so that successes and challenges can be identified and correlated with strengths and weaknesses of District's SSMP. The District's SSMP Audit consists of two major components: Summary of Events and Audit Findings, and the SSMP Audit Checklist used to evaluate each SSMP element.

SUMMARY OF EVENTS AND AUDIT FINDINGS

Background and System Overview

Carmel Area Wastewater District is a special district dedicated to protecting public health and the environment by the cost-effective collection and treatment of wastewater and the return of clean water to the environment. The Carmel Area Wastewater District has been providing regional wastewater treatment services for over 100 years. The district oversees the management, operations and maintenance of a sanitary collection system that includes 83 miles of pipe ranging from 6 inch to 27 inch in diameter with 7 remote District owned pump stations and 6 remote privately owned pump stations. The District Board consists of five representatives from each of these respective member entities.

Summary of Events

Since the SSMP's adoption in August 2010, the District has recently made both administrative and functional type changes to this document. The administrative type changes revolve around: organizational chart details, additional collection system information, inclusion of select mapping examples, etc. The functional type revisions include more substantive changes including: Capital Improvement Program details, regulatory and SSO Response Plans, etc. The current SSMP includes these changes.

The current SSMP contains an approved 5 year CIP from 2015, but an updated 5 year, and medium and long term CIPs will be included in the near future. Some of the key sewer system improvements are described below. In addition, large capital purchases or other events of significance are shown.

Sewer System Improvements and Events since 2012

The most notable projects and events performed from 2012-2017 include:

1. Highlands Force Main – Working with pump manufacture and design engineer's to rectify pump seal failure, changes have been made in the pumps seals and cooling fluid. Pump manufacture is bringing test equipment on site to better understand why pump seals are still failing. Project is on-going as of August 2012.

2. 2010 Sewer Repairs – Removed and replaced 270' of 6 inch sewer line and one manhole on Mission Fields Rd. New construction of convalescent homes "Carmel Cottages" adding 900' of PVC 8 inch sewer pipe and 5 manholes to the district. Both projects are completed.

3. Development and Implementation of an internet base website www.cawd.org to post updated information on districts activities, contact information, SSO reporting, district atlas, SSMP, budget information and any other information deemed relevant. On-line in 2011

4. New construction of private sewer systems for several homeowners in Carmel Highlands which tied into CAWD sewer system in August 2014. Project is completed.

5. New construction of private sewer system for Highlands Fire station which tied into CAWD Highlands force main in March 2012. Project is completed.

6. Closed Circuit Television Tractor and camera system – Purchase of a new 2015 ARIES IBAK CCTV system was made in May 2015. This will improve the ability to video small diameter sewer lines as well as increase the productivity of lines televised.

7. Replacement of four pumps, two in each station that have been in service for over 20 years. Installation at 8th & Scenic and Ribera pump stations of Flytt pumps model 3085 in February 2012.

8. Crespi Ln. Sewer Rehabilitation – Approximately 1000 feet of existing sewer line was lined using (CIP). Construction completed August 2013

9. Calle La Cruz Wet well Rehabilitation Project. The rehabilitation consisted of applying a treated mortar coating to the concrete walls of the wet well to prevent deterioration due to hydrogen sulfide gas. Construction completed October 2013

10. Manhole Rehabilitation Project – Rehabilitate 30 existing manholes at various locations along the Carmel Meadows easement and Carmel Valley trunk mains, by coating interior walls with treated mortar. Project completed on November 2013

11. Annual Spot Repair Program. Systematic repair of the worst damages throughout the Collection System. Contracts awarded to Golz Construction and Sharp Construction respectively. Various locations completed between 2014-2016

12. Replace 200 feet of pipe along Ocean Ave between Randal Rd. and Carpenter St. This segment had two overflows within a short amount of time as well as several others over the years. Completed in January 2015

13. Purchase of new Camel hydrojet truck. Acquired to replace the old Camel truck that reached the end of service life and to relieve the bulky Vaccon combo unit from daily operations. August 2016

14. Replace dozens of manhole frames and lids throughout Hatton Canyon and various other needed locations during 2016.

Future Sewer System Improvements and Events

The most notable projects and events to be performed in the near future include:

1. Replacement of the pipeline on San Carlos St. between Ocean Ave. and 6th St.

2. Replacement of the pipeline on Rio Rd. from Oliver Dr. to Atherton Dr.

3. Replacement of the pipelines on the East and West sides of Carpenter St. between Valley View Ave. and 6th St. with one single line. Will be performed in segments due to the system layout in the area.

4. Hatton Canyon utility roadway improvements and pipeline replacement.

5 . Carmel Meadows easement pipeline repairs.

6. Canada Housing Project sewer installation. Will include pipeline upgrade for trunk main between Rio Rd. and Via Mallorca

Internal Audit Report – October, 2019

Carmel Area Wastewater District
Sewer System Management Plan
Internal Audit Report
October 2019
WDID: 3SSO10244

Prepared By:
Causey Consulting
Walnut Creek, California 94598

SEWER SYSTEM MANAGEMENT PLAN CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage 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

Daryl Lauer, Collections Superintendent
Legally Responsible Official

Acronym Listing Used in The Audit Report

CAWD	Carmel Area Wastewater District
CCTV	Closed Circuit Television
CIP	Capital Improvement Program
CIWQS	California Integrated Water Quality System
CMMS	Computerized Maintenance Management System
DS	Data Submitter
FEMA	Federal Emergency Management Agency
FOG	Fats, Oils and Grease
FSE	Food Services Establishment
GIS	Geographic Information System
GWDR	See WDR
ICOM	Carmel Area Wastewater District's Collection System Database
I/I	Infiltration/Inflow
LRO	Legally Responsible Official
MRP	Monitoring and Reporting Program
NPDES	National Pollution Discharge Elimination System
O&M	Operations and Maintenance
OERP	Overflow Emergency Response Plan
PBSCD	Pebble Beach Community Services District
PLC	Program Logic Controller
PS/FM	Pump Station/Force Main
RWQCB	Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
SMBDG	Southern Monterey Bay Dischargers Group

SOP	Standard Operating Procedure
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SSORP	Sanitary Sewer Overflow Response Plan
SWRCB	State Water Resources Control Board
USA	Underground Service Alert
WDID	Waste Discharge Identification Number 3SSO10244
WDR	Sanitary Sewer Waste Discharge Requirements
WQMP	Water Quality Monitoring Plan

1. SSMP Internal Audit

This internal audit reviews the Carmel Area Wastewater District (CAWD) March 2017 Sewer System Management Plan (SSMP). The District Board had originally adopted the District SSMP on August 26, 2010 in compliance with the State Water Resources Control Board (SWRCB) Order No. 2006-0003-DWQ General Sanitary Sewer Waste Discharge Requirements (WDR). This is the fourth audit that has been prepared by or for the District since the 2010 Board adoption.

The audit evaluates the documentation and implementation since the 2017 Audit Report and 2017 SSMP revision. The audit is intended to comply with the SWRCB WDR, for agencies that own or operate more than one mile of sanitary sewer collection systems discharging to a publicly owned treatment plant. In addition, it also evaluates compliance with the September 2013 Monitoring and Reporting Program (MRP) revised overflow event categories and recordkeeping requirements . The internal audit assesses the current state of compliance with WDR and the MRP provisions including effectiveness of program implementation, identifies opportunities for improvement or "deficiencies" found and recommends corrective actions to remedy these deficiencies.

2. Sewer System Background and Overview

CAWD is a special district dedicated to the protection of public health and the environment by the cost-effective collection and treatment of wastewater and the return of clean water to the environment. CAWD has been providing regional wastewater treatment services for over 100 years. The district oversees the management, operations and maintenance of a sanitary sewer collection system that includes 83 miles of pipe ranging from 6 inch to 27 inch in diameter, 7 District owned pump stations and 6 remote privately owned pump stations. The District Board consists of five members elected at large from the service area.

3. Internal Audit Program

Causey Consulting performed this internal audit on behalf of CAWD through evaluation of SSMP documentation provided, publicly available data sources such as the CAWD website and the California Integrated Water Quality System (CIWQS) database, and meetings and conversations with CAWD staff involved in the implementation of the SSMP and the District sanitary sewer system program. The following table lists the participants interviewed during the audit according to the Interview Schedule in Attachment 2.

Table 1: Participants in the SSMP Internal Audit

Participant	Classification	Agency
Barbara Buikema	General Manager	CAWD
Rachel Lather	Principal Engineer	CAWD
Daryl Lauer	Collection Superintendent	CAWD
Andrew Millington	Field Cleaning Crew	CAWD
Robert Bowman	Field Cleaning Crew	CAWD
Barry I. Blevins	Field Cleaning Crew	CAWD

Mark Napier	Field Cleaning Crew	CAWD
Ray de Ocampo	Pretreatment Coordinator	CAWD
Trevor Wirdner-Holland	Environmental Compliance Inspector	CAWD
Fanny Mui	Environmental Compliance Inspector	CAWD
Patrick Treanor	Plant Engineer	CAWD
Chris Foley	Maintenance Superintendent	CAWD

4. Audit Timeline and Schedule

This internal audit work was authorized pursuant to an agreement between CAWD and Causey Consulting dated May 6, 2019. Internal audits of an agency SSMP must be conducted every two years from the original adoption date of the SSMP by the CAWD governing board. This Audit Report covers the period from May 2017 to May 2019. The audit included a review of the 2017 SSMP revision and Audit Report, all appendices and other ancillary documents provided by the District Staff. The audit began with a document request (see attachment 3 below) for relevant documents supporting the SSMP and completion of the Audit Checklist in Attachment 2. The purpose of the Audit Checklist is to inform the interviews and to establish areas that require evaluation during the audit.

A kick-off meeting with the project sponsors was conducted on July 22, 2019 to assure a complete understanding of the project scope, issues to be evaluated and schedule for the audit and presentation of historical operations and overflow graphs and charts. That was followed by field interviews of the staff positions identified in Section 3 above on September 27 as summarized in the Interview Schedule in Attachment 1. The purpose of the interviews was to gather information on the current operations and procedures of the District and to further determine staff understanding and compliance with the WDR and the 2013 MRP. Finally, a review of a sample of the CAWD overflow record keeping supporting certified reports in CIWQS was also conducted and a summary of findings was provided to the Collections Superintendent. The record keeping summary identified areas for improvement in overflow event documentation.

5. Historical Sanitary Sewer Overflow Performance Results

Section 5A: Historical Maintenance Results

The following graphs provides historical summary information from CAWD's Annual Collection System Reports presented to the CAWD Board describing fiscal year collection system operations and maintenance performance results. These graphs provide a long term picture of the Districts O&M program and the effectiveness of the maturing sanitary sewer program described in the District SSMP.

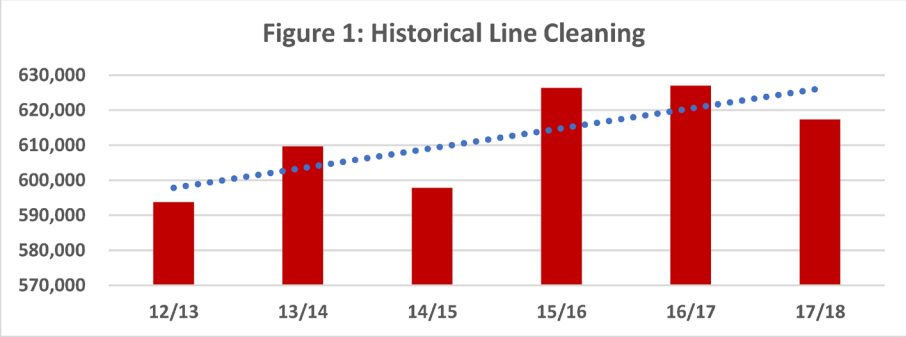


Figure 1: Historical Line Cleaning
630,000
620,000
610,000
600,000
590,000
580,000
570,000
12/13
13/14
14/15
15/16
16/17
17/18

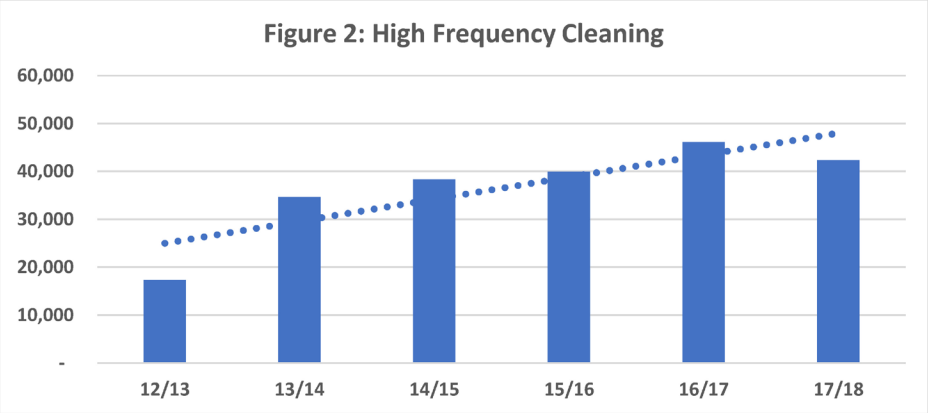


Figure 2: High Frequency Cleaning
60,000
50,000
40,000
30,000
20,000
10,000
-
12/13
13/14
14/15
15/16
16/17
17/18

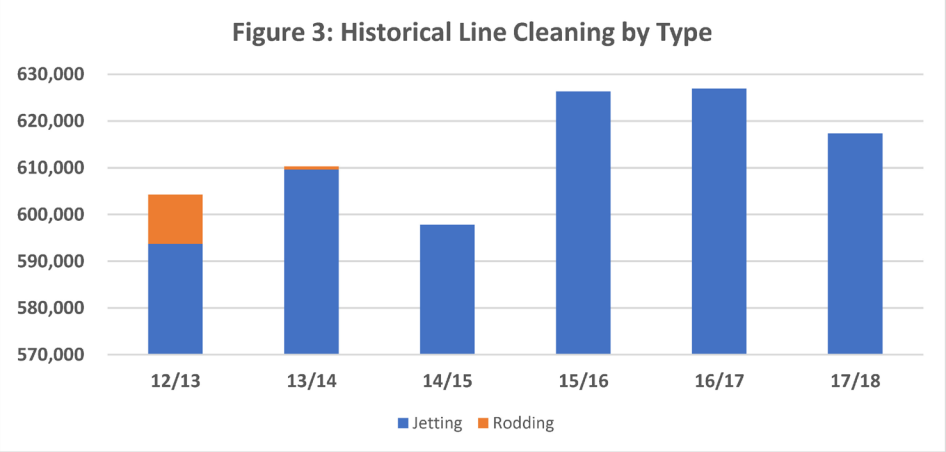


Figure 3: Historical Line Cleaning by Type
630,000
620,000
610,000
600,000
590,000
580,000
570,000
12/13
13/14
14/15
15/16
16/17
17/18
Jetting
Rodding

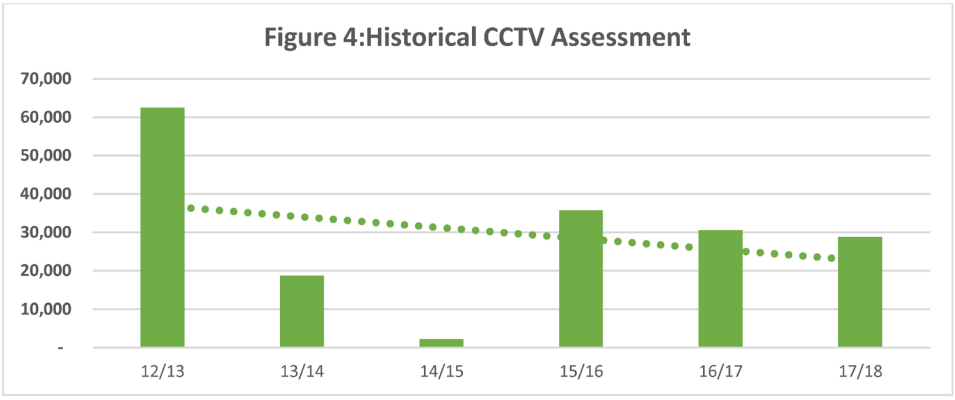


Figure 4:Historical CCTV Assessment
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
12/13
13/14
14/15
15/16
16/17
17/18

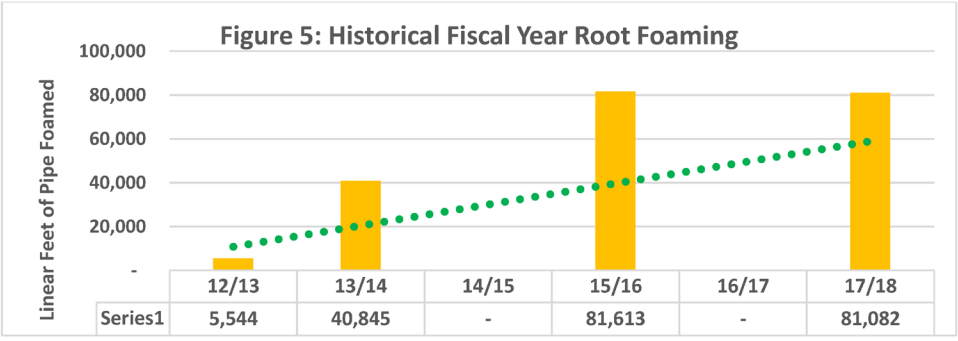


Figure 5: Historical Fiscal Year Root Foaming
Linear Feet of Pipe Foamed
100,000
80,000
60,000
40,000
20,000
-
12/13 13/14 14/15 15/16 16/17 17/18
Series1 5,544 40,845 - 81,613 - 81,082

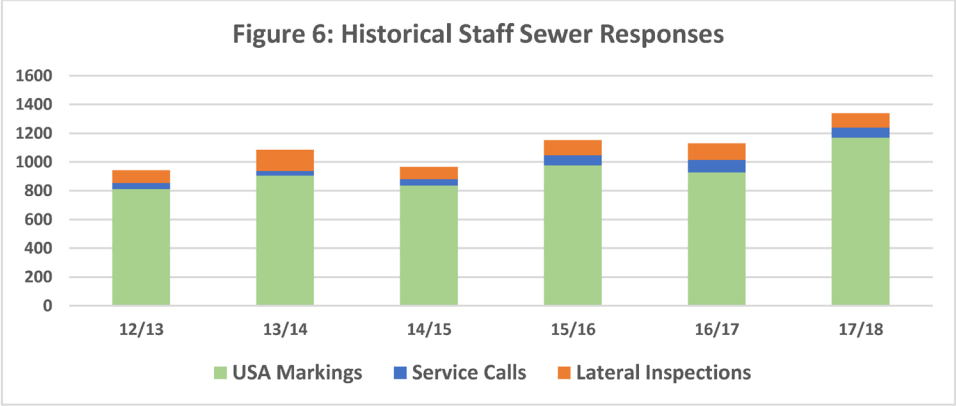


Figure 6: Historical Staff Sewer Responses
1600
1400
1200
1000
800
600
400
200
0
12/13
13/14
14/15
15/16
16/17
17/18
USA Markings
Service Calls
Lateral Inspections

Section 5B: Historical Overflow Results

The following graphs provide historical results of sanitary sewer overflow activity from the CAWD collection system since record keeping in the State CIWQS System was instituted by the State of California in 2007. The data is taken directly from CIWQS and includes all CAWD certified data through June 30, 2019.

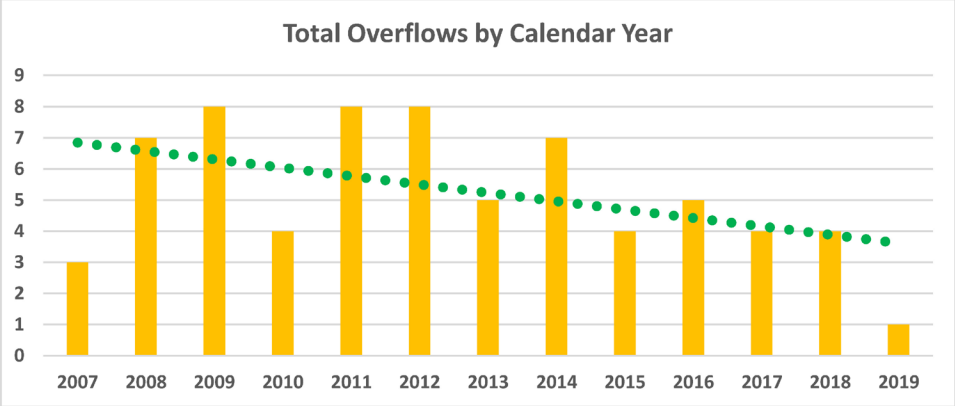


Figure 7: Sanitary Sewer Overflows by Fiscal Year

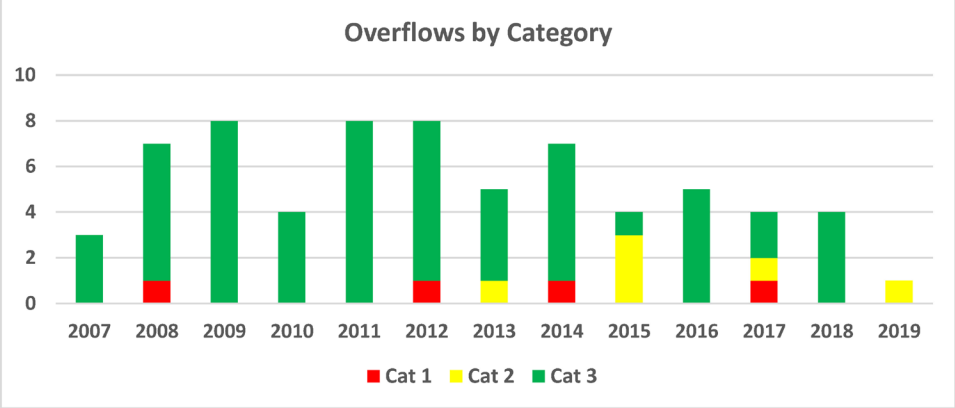


Figure 8: Sanitary Sewer Overflows by Overflow Category by Fiscal Year

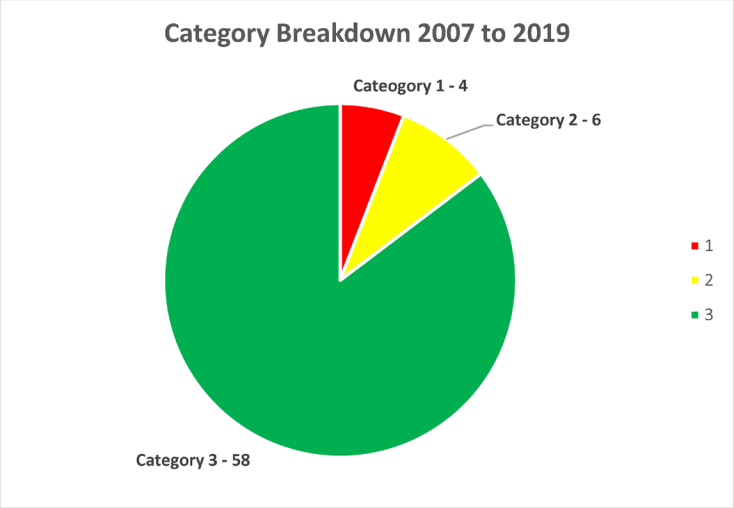
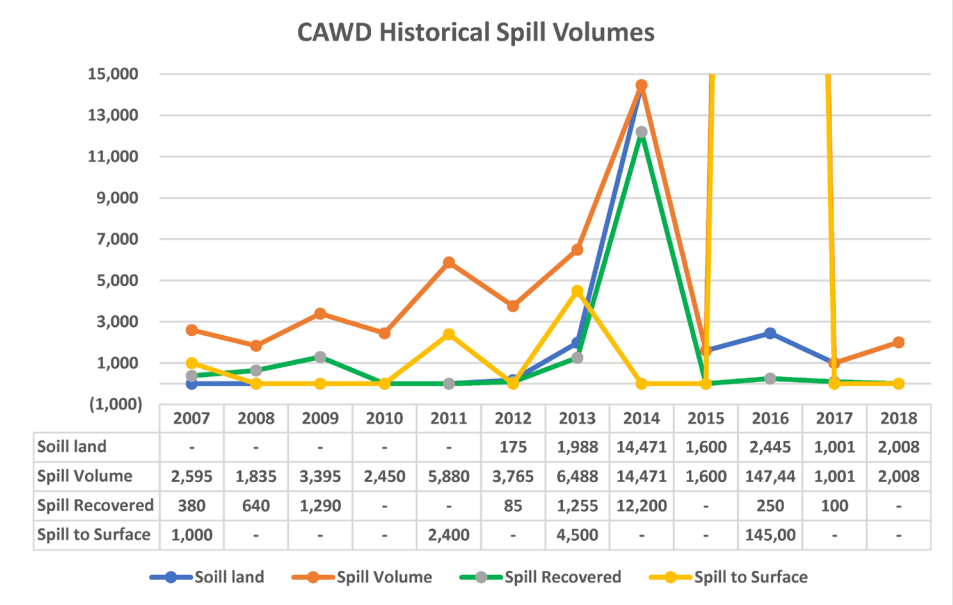


Figure 9: Historical Summary of SSOs by Category Since Inception of Reporting



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Soill land	-	-	-	-	-	175	1,988	14,471	1,600	2,445	1,001	2,008
Spill Volume	2,595	1,835	3,395	2,450	5,880	3,765	6,488	14,471	1,600	147,44	1,001	2,008
Spill Recovered	380	640	1,290	-	-	85	1,255	12,200	-	250	100	-
Spill to Surface	1,000	-	-	-	2,400	-	4,500	-	-	145,00	-	-

Figure 10: Annual Overflow Volumes by Fiscal Year

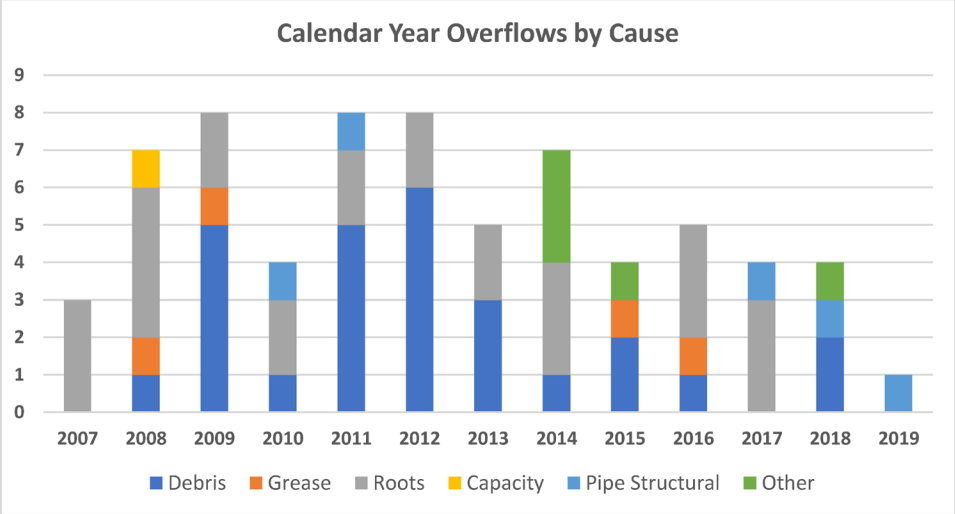
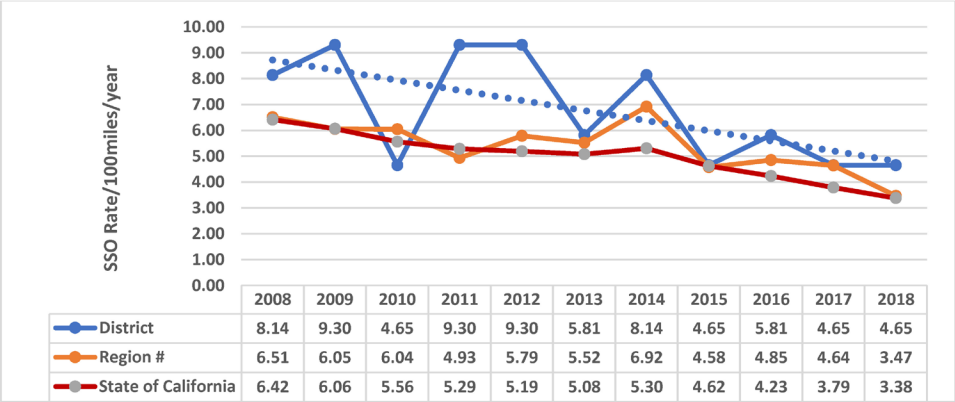


Figure 11: Sanitary Sewer Overflows. Causes by Fiscal Year



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
District	8.14	9.30	4.65	9.30	9.30	5.81	8.14	4.65	5.81	4.65	4.65
Region #	6.51	6.05	6.04	4.93	5.79	5.52	6.92	4.58	4.85	4.64	3.47
State of California	6.42	6.06	5.56	5.29	5.19	5.08	5.30	4.62	4.23	3.79	3.38

Figure 12: Comparison of District SSO Rate/100 miles/Year to Region 8/State

6. Sewer Program and SSMP Effectiveness

The WDR requires that an agency regularly review and evaluate the effectiveness and implementation of the sewer programs and the SSMP. The historical performance results in Section 5 above clearly document an agency that has continued to improve its cleaning and high frequency operations resulting in reduction trends in both overflow numbers (Figure 7) and spilled volumes (Figure 10). In addition, CAWD's SSO Rate per 100 miles per year has also seen a substantial reduction from 9 to the rate at the end of 2018 of 5 (Figure 11). This rate while slightly above the State and Region 3 rates (Figure 12) is considered excellent as CAWD is a small agency with no lateral responsibilities and is compared to much larger agencies with and without lateral responsibilities. In addition, since the initiation of State reporting in CIWQS, CAWD has reduced SSOs from 8 per year to 4 per year and of those approximately 85 % were

category 3 (Figure 8) and less than 1000 gallons not to waters of the State. The trend since 2007 continues to be downward and positive. As to volumes (see Figure 10), CAWD during the audit period had volumes between 1000 and 2000 gallons less than 0.000005 % of the total flows to the treatment plant from the service area. It is apparent that overflow volumes are hugely impacted by wet weather.

From an operations and maintenance perspective, CAWD has increased both its line cleaning and root foaming which has assisted with the trend in the reduction of SSOs over the reporting period and a leveling of the numbers of overflows and volumes during the audit period. In addition, the increase in the root foaming program has positively impacted that cause of overflows. There still appears to be work needed to assure that debris does not cause SSOs as it is still the single largest causes in SSOs. The enhanced cleaning should show improvement over time as seen during the audit period.

The audit interviews also have revealed a very collegial and cooperative working relationship among the collection systems employees and other CAWD functions. The collections staff clearly enjoy their work, have a strong work commitment and are all certified by professional associations. CAWD is a strong advocate of both employee training and professional advancement and recognition by the industry through employee collections certification.

From a management perspective, CAWD has been proactive during the audit period in establishing and upgrading policies directly impacting the operations of the collection system – updated design standards and a lateral inspection program. The Board has also provided upgraded and innovative tools and equipment for collections operations. From a capital standpoint, a recognition of the need for improved renewal and replacement will clearly impact the collections operations. The project for PLC and SCADA improvements at the pump stations and the enhanced recognition of the need for additional funding of pipeline replacements will be positive enhancements to the sewer program

The areas of concern identified relate to the trend in CCTV and pipeline condition assessment and the future increase in lateral responsibilities for the staff. While CAWD has purchased new CCTV equipment, they must now define a program for regular pipe condition assessments assisting in establishing pipe replacement priorities for the future as well as modifications to cleaning procedures based upon actual CCTV observations. This effort should also be used to establish quality control of crew cleaning activities and future training needs for the field crews leading to additional reductions in number of spills and volumes. These later concerns also suggest a need to evaluate staffing and performance expectations especially in light of the new lateral program and its unknown associated workload.

Overall CAWD has been very effective in the implementation of the sewer collection system program at the Board and all staff levels. The Board receives regular and annual program evaluations which is unusual in the industry. However, the SSMP document while generally compliant, is very brief and does not contain specific descriptions of sewer program requirements directly responsive to all WDR Section D13 sub elements. In addition, the appendices to the document contains many documents that can either be hyperlinked from the District webpage or eliminated completely. Finally, the SSMP and the SSMP webpage do not contain adoption documents by the CAWD Board, all SSMP appendices or specific critical supporting references from the SSMP as required by the 2013 MRP (Section 8(iv)).

7. SSMP Findings

The purpose of the SSMP Audit is to evaluate the effectiveness of the District's SSMP and sanitary sewer programs to identify the strengths and any areas for possible improvement or enhancement. The information identified in this section will be used to inform the revisions to a new SSMP The following findings and recommendations are broken into two categories, General and Element Specific.

7A: General Findings and Recommendations

The following general findings apply to the SSMP as a whole and also provides references to the specific sections of the WDR or MRP for the finding and recommendation. In addition, the findings also included a review of available critical supporting documents from the SSMP on the CAWD website.

General Findings	General Recommendations
F1. SSMP follows the old RWQCB2 format and not follow the WDR Section D13. Format.	R1. Revise SSMP format to follow WDR Section D13.
F2. SSMP does not contain LRO certification language and LRO signature as required by WDR Section J.	R2. Add LRO certification to the SSMP.
F3. The District webpage does not include all critical supporting documents and Board proof of approval (MRP Section 8(iv) .	R3. Place entire SSMP on webpage or submit an electronic copy, critical supporting documents and proof of Board approval to SWRCB as required by MRP Section 8(iv).
F4. Abbreviations and Definitions incomplete.	R4. Revise listing with all acronyms used in the SSMP
F5. Add reference section to the end of each Element/Chapter.	R5. New reference sections at the end of each Element will assist with reference management following Board approval.
F6. References are included hardcopy directly in appendices.	R6. Utilize hyperlinks in the SSMP and on the District SSMP webpage to streamline the SSMP.
F7. The use of "all" should be used cautiously especially is cannot generally comply - see goals	R7. Be careful to only state those goals that are attainable or stretch goals that do not expand District liability.
F8. SSMP does not include subsection numbering.	R8. Add subsection numbering for ease of tracking in SSMP Change Log.
F9. CIWQS list a single LRO only.	R9. District must have 24/7/365 coverage by an LRO – consider adding at least one additional LRO – no limit to the number designated by CAWD.
F10. Table of Contents does not include figures, tables or appendices.	R10. Expand the table of contents; add table, figures and appendices to the TOC.
F11. SSMP attachments not available on webpage except by email to District.	R11. Hyperlink all attachments from SSMP and on District webpage.
F12. SSMP uses "hot spots" throughout.	R12. Revise to high maintenance to reduce potential liability.

7B: Specific Element Findings and Recommendations

Each of the March 2017 SSMP Elements in the attached table were ranked against the WDR Section D13. requirements utilizing the following sufficiency ranking system and considering both the findings and the associated recommendations:

- *Complies (C) – complies with all WDR objectives*
- *Substantially Complies (SC) – complies mostly with all WDR objectives*
- *Partially Complies (PC) – complies with basic WDR objectives*
- *Marginal Compliance (MC) – complies minimally with basic objectives of the WDR*
- *Does Not Comply – does not comply with WDR objectives*

The specific findings and recommendations below follow the SSMP Elements stated in the WDR Section D13. The 2012 SSMP revisions did not follow the WDR format outline as stated .

SSMP Element	Sufficiency Ranking	Finding	Recommendations
Cover Page	C	F13. Does not include original or revision adoption dates or WDID. F14. NPDS acronym incorrect	R13. Add original and revision approval dates by District Board and CIWQS WDID. R14. Correct to NPDES
Introduction	PC	F15. No reference to the 2013 MRP. F16. No statement of the District NPDES permit requirements.	R15. Add MRP and NPDES reference information and hyperlink from webpage. R16. Hyperlink NPDES, WDR and MRP requirements
District Overview	PC	F17. Demographic and asset data does not conform with CIWQS Questionnaire data. F18. Table of Age of Mains does not agree with 2019 CIWQS Questionnaire operational performance information. F19. Add growth areas annexed to District since 2017 F19. Missing gravity pipe by size and material; no tables of PS/FM assets – 7 each. F20. No satellite information.	R17. Bring all demographic data current to match CIWQS and current asset information. R18. Add tables of pipe size, material, pump stations and force main asset information matching CIWQS operational performance data. R19. Add narrative regarding Pebble Beach as a satellite agency and use of District facilities.
I. Goals	C	F21. Fifth bullet is troubling by saying "all" F22.CIP does not include short and long range capital	R20. Remove the word all. R21. Revise CIP to add both short and long term programs. R22. CIP must also include statements of both replacement and

		needs for both capacity and rehabilitation.	capacity improvements not just those "eliminating SSOs".
II. Organization	PC	F23. Org chart outdated. F24. Org chart and narrative does not include service contractors as required. F25. Table 2.1 outdated missing appendices lists and title changes.. F26. Job descriptions not required by the WDR. F27. Staff responsibilities table does not include all required information. F28. Missing chain of communications for reporting SSOs (WDR Section D13, (ii)(c).	R23. Revise org chart consistent with current Collection system positions – revise and expand narratives and add LRO and DS designated positions. R24. Remove all job descriptions. R25. Update Change Log for Staff title changes and roles. R26. Add flow chart of chain of communications for SSO reporting from revised OERP. R27. Add any long term service contractors used. R28. Add email addresses to contacts listing.
III. Legal Authority	NC	F29. Current section is not responsive to specific sub Element in WDR Section D13 (iii). F30. Ordinance 91-06 not available in SSMP or on website F31. No discussion of satellite agency agreements. F32. Pretreatment ordinance old and outdated. F33. Element does not include recent ordinance revisions. F34. No description of the lateral program.	R29. Revise per WDR D13. Format outline to Element III. R30. Add table of authorities for all Element subsections. R31. Add section of satellite agreement information. R32. Revise pretreatment ordinance. R33. Add information on administrative penalties and uniform plumbing ordinance and any other changes since 2017 revisions. R34. Hyperlink District ordinance from SSMP and webpage. R35. Add description of new lateral program to this Element.
IV.O&M Program	PC	F35. Should be Element 4 not Chapter 8. F36. Title of Chapter is Measures and Activities not WDR D13 title. F37. No reference to storm water system as required by WDR Section D13 (ii) (a). F38. Resources and budget not required by the WDR. F39. Cleaning frequency not consistent with CIWQS – 114 miles vs. 77 miles; pump stations listed as 100 not 7. F40. No discussion of pump station or force main O&M or condition assessment F41. Sewer Rehab Section outdated. CIP outdated since new Asset Plan completed in Dec 2018..	R36. Revise to Element 4 and Operations and Maintenance Program. R37. Add discussion of availability of current storm water assets in the service area by City or County – add layer to GIS. R38. Remove District budget information. R39. Revise Collection Questionnaire in CIWQS to be consistent with actual District infrastructure. R40. Add discussion of PS/FM O&M and condition assessment from 2018 Asset Management Plan. R41. Revise CIP with new Master Plan results for both short/long term projects. R42. Add tables of historical line, high frequency, CCTV and root control maintenance by year similar

		F42. No historical cleaning or CCTV information for both regular and high frequency in the SSMP but provided in monthly and annual reports to the Board. F43. PS/FM assessments in 2018 not discussed. F44. No table of replacement parts and equipment list dated. F45. Training section provides limited discussion of training. F46. Specific training records not required in the SSMP. F47. Training states "standard procedures" without description.	to above and add to annual Board report. R43. Expand training section to include regular training on regulations, SSMP, OERP and WQMP including regular field exercises and describe District SOPs. R44. Update and include separate tables of equipment and replacement parts. R45. Expand training to include annual SSMP, OERP and WQMP training and regular emergency response field exercises especially for spill and recovered volume estimation methods.
V. Design	PC	F48. No reference to revised 2019 Construction Standards. F49. No pump station or force main standards or inspection and testing statements.	R46. Revise narratives for new standards approval. R47. Add pump station design and testing requirements.
VI. OERP	PC	F50. References 2013 OERP; no reference to 2019 revision. F51. Notification information is dated. F52. No discussion of Pump Station Contingency Plans. F53. No discussion of WQMP as required by MRP Section D for SSOs > 50,000 gallons.	R48. Add separate appendices for 2019 OERP and update narratives R49. Add list and brief description of pump station contingency plans. R50. Provide brief summary of OERP and reference to new appendix. R51. Add references to WQMP and add 2019 plan to new appendix. R52. Consider use of SSO Checklist for overflow file documentation. R53. Assure complete SSO event documentation consistent with OERP.
VII. FOG Program	C	F54. Should be Element 7 not Chapter 6. F55. Hot spot term concerning may lead to liability. F56. Participation in SMBDG very positive. F57. Good FOG web page and hyperlink to ClogBusters.	R54. Revise per WDR D13. Format outline. R55. Change "hot spot" to high frequency throughout SSMP – possible liability issue. R56. Add hyperlink reference to District webpage in SSMP.

VIII. SHECAP	PC	F58. Should be Element 8 not Chapter 10. F59. Narrative information outdated – new Sewer Master Plan Dec 2018. F60. No description of Asset Management Plan. F61. No description of the 2016 flow model. F62. No discussion of capacity projects needed both short and long term. No capital capacity projects listing for the future. F63. No discussion of climate change or resiliency impacts on sewer system assets. F64. Change Log not updated for completed studies and Element should have been revised as these are "significant" revisions.	R57. Revise per WDR D13. Format outline. R58. Revise with 2016 flow model and Dec 2018 evaluation information. R59. Identify short and long term capacity related projects from master plans and add to Element 4 CIP Program. R60. Add discussion of impacts from climate change and resiliency and consider need for sea level rise evaluation. R61. Add new studies to change log.
IX. Monitoring, Measurement and Modification	C	F65. Should be Element 8.. F. Good specific performance metrics being tracked monthly and annually and provided to Board. F66. Board presented an annual sewer collection system report. F67. Excellent and very informative Annual Report presented to Board.	R62. Revise per WDR D13. Format outline. R63. Consider expanding annual report to include comparison to RWQCB3 and State SSO rates per 100 miles per year and spill volume as a percentage of annual flow treated
X. SSMP Audit	C	F68. Should be Element 10. F69. Narrative very dated as several audit reports have been completed since 2013. F70. No list of completed audit reports in the Change Log. F71. Audit Checklist no longer appropriate or responsive.	R64. Revise per WDR D13. Format outline. R65. Consider adding Audit reports to new SSMP appendix upon approval by Board on public agenda. R66. Expand audit requirements to state from original adoption date of 8/26/10. R67. Update the audit checklist to provide a ranking system for all sub elements (See Attachment 4).
XI. Communications	C	F72. Should be Element 11 not Chapter 13. F73. No complete SSMP on webpage as stated – attachments must be requested by email.. F74. New position titles required.	R68. Revise per WDR D13. Format outline. R69. Add complete SSMP, Appendices and all critical supporting documents to SSMP webpage or transmit electronically to SWRCB per MRP Section 8(iv).

CAWD Internal Audit Report 17 October 2019

		F75. No discussion of regular collection system reporting both monthly and annually to Board . F76. Missing statements of regular SSMP update requirement every 5 years or when significant changes s made like new CIP program. F77. Monthly and annual collection system reports included on Board agendas. F78. Historical Board agendas only available for three years.	R70. Expand availability of Board agendas on the District website. R71. Expand narratives to state requirement for consideration and approval of SSMP every five years from original adoption date or when significant changes are made i.e. position changes, major studies, etc.
XII. Appendices	C	F79. Too many miscellaneous attachments. F80. All critical supporting documents can be available by hyperlink or by hyperlink from the SSMP webpage. F81. Attachments only available upon request – MRP requires must be available – hyperlinks are acceptable. F82. No copies of recent plan updates either in the document or on the website.	R72. Either reduce attachments or simply hyperlink from the SSMP and from the SSMP webpage. R73. Limit the appendices to just four or five for SSMP adoption documents, change log, OERP, WQMP, approved audit reports and performance metrics.
Change Log	PC	F83. Only change 2017 model – no other changes during the audit period. 2018 Collection System Asset Management Plan not in the Change Log. F84. No changes from the updated 2017 SSMP in the Log. F85. Change log not updated for position changes since 2017.	R74. Changes should be updated in SSMP and on Log at least annually especially after significant studies are completed. Log is considered an indication of program implementation.
SSMP Adoption Documents	NC	F86. No adoption documents included in SSMP or hyperlinked from SSMP webpage.	R75. Add copies of all Board SSMP adoption actions to appendices as required by WDR Section 8(iv). R76. Consider adoption by resolution of the Board.
OERP and WQMP	PC	F87. OERP dates to 2013 but revised in July 2019 F88. WQMP completed in September 2019.	R77. Include separate appendices for these two documents that allows them to be in the SSMP but carried separately in emergency response vehicles.

Previous Audit Reports	PC	F89. Previous reports did not identify "deficiencies or needed improvements in the collection system program nor establish schedule for completion. F90. Audit Reports not attached to Appendices or on the District webpage.	R78. Assure Audit Reports include list of any deficiencies found and actions to improve sewer program. Track these items in future audit reports until completed.

8. District Sewer System Strengths

The following District sanitary sewer system program strengths were identified during the internal audit and from the interviews of District staff:

- Dedicated and cohesive District staff – "best crew ever" "great culture"
- Staff provides great customer service and very strong focus on customer service
- Very knowledgeable and committed collections personnel
- Long term staff is well trained, very professional and work very well together
- Public perception of District very strong
- Strong Board and management support for staff
- District hires "great" people
- Hiring of new Principal Engineer dedicated to the collection system support.
- All collections system workers certified by CWEA
- Completion of the District collection system hydraulic model and capacity study
- Excellent asset management program with almost all sewer system assets.
- Completion of the 2018 Asset Management Plan
- Regular future planning completed.
- Regular monthly and annual performance reports presented to the Board.
- Excellent District funding/financial programs
- Standard Plans and Specification updated/approved for first time in 30 years
- New Uniform Plumbing ordinance adopted.
- Private Sewer Lateral Inspection requirements adopted.
- Contractor permit issuance process significantly improved
- Receipt of FEMA grant for Hatton Canyon improvements and access
- Strong commitment from District to quality staff training
- Availability of new equipment by District Board
- Improvements to pump station PLC and SCADA
- Robust on-call program
- Broad asset information available to staff in the field
- Strong FSE inspection program with strong customer compliance
- No formal enforcement actions or litigation against the sewer program.

9. Current and Future Challenges/Deficiencies Facing CAWD

a. Age of collections infrastructure
b. Not adequate linear asset renewal and replacement
c. Reactive nature of pipe system replacement during audit term
d. Potential for staff expansion for new lateral program

e. Staffing levels may require evaluation
f. Hatton Canyon accessibility challenges to be resolved
g. Lack of historical commitment to CCTV/condition assessment of sewer assets
h. Hillside trestle pipeline issues
i. Staff retention and recruitment
j. Stronger SSO volume estimation training
k. Highlands pump station/force main issues
l. Support for ICOM system/replacement
m. Sea level rise potentially impacting plant, pipelines and pump stations
n. Drought impacts on collection system
o. Old and outdated pretreatment ordinance requires revision and possible rewriting.
p. FSE permitting program is weak and needs improvement
q. Need stronger FSE education and training program
r. Need for enhancement of the FOG program webpage
s. Challenges of future growth impacts in the service area and with new utility possibilities.
t. Need for improvements in permitting referrals from the City and especially the County
u. No commitment by Pebble Beach to FSE or I/I programs
v. Lateral inspection program coordination and approvals
w. Evaluation of possible potable water system operations and management
x. Infiltration/Inflow concerns from the Pebble Beach System.

10. Conclusions

CAWD has a progressive, broad and generally effective sanitary sewer program operated by dedicated and professional staff strongly supported by the District Board and management. Many very positive things are happening at CAWD. However, a larger commitment to condition assessment and replacement prioritization must be pursued. The SSMP must also be expanded to assure complete descriptions of the sewer program for the public and regulators. Finally, the Collections webpage should be updated and expanded to include the critical supporting documents to the SSMP, Board adoption documents and the internal audit reports.

11. Recommendations/Audit Action Items

The following recommendations should be implemented as soon as possible including the evaluation and/or implementation of the earlier recommendations in this Internal Audit Report.

A. Update and expand the SSMP following the WDR Section D13 format and the recommendations in Section 7 herein.

B. Use hyperlinks for SSMP attachments and do not include hardcopies in the SSMP.

C. Develop a comprehensive asset condition assessment and prioritization program for both all linear assets utilizing CCTV, etc. and lift stations.

D. Update the District Collections webpage or establish a separate SSMP webpage with hyperlinks to all SSMP critical supporting documents, Board adoption documents and Internal Audit Reports.

E. Track/Evaluate the current and future staffing impacts from the new lateral inspection and CCTV program additions and potential potable water system.

F. Develop strong FSE permitting and inspection program.

G. Establish a pipeline replacement prioritization program and procedures based upon condition assessment and other factors from the maintenance program.

H. Evaluate District impacts from sea level rise and climate change on District collection system infrastructures and assets.

I. Develop process and transition plan for the replacement of the District CMMS software.

J. Work with the City of Carmel and Monterey County to improve planning and building permit referrals to CAWD. Consider regular joint meetings to collaborate, exchange and train on needs of all three agencies for building permitting and planning compliance.

K. Work with Pebble Beach Community District to assure proper understanding of the impacts of I/I on both agencies.

L. Enhance the record keeping documentation for CAWD certified reports in CIWQS. Consider using a SSO Checklist for each event to assure a complete and well documented file of the event approved and certified by the LRO.

Attachments

Attachment 1: SSMP Interview Schedule

		9/27/2019	Location
GM	45 min	7 a.m.	3945 Rio Road
Field Crew - without Daryl (Cleaning, CCTV and Pump Crew)	1 hour	8 a.m.	Plant Lunch Room
Patrick T (Project/CIP)	1 hour	9 a.m.	Plant Lunch Room
Chris (SCADA)	1 hour	10 a.m.	Plant Lunch Room
Ray de Ocampo (FSE/Pretreatment Coordinator)	1 hour	11 a.m.	Plant Lunch Room
Lab Personnel - Fanny & Trevor (FSE/Pretreatment Inspectors)	1 hour	1 p.m.	Plant Lunch Room
Daryl L (Overall Collections & CMMS)	2 hour	2 - 3:30 p.m.	Plant/Daryl's Office

Attachment 2: Audit Checklist

Appendix A

Carmel Area Wastewater District
Sewer System Management Plan
Audit Report Form
Covering the Period: 2017 and 2018

The purpose of the SSMP Audit is to evaluate the effectiveness of the Carmel Area Wastewater District's (District'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.**

		YES	NO
ELEMENT 1 - GOALS			
A.	Are the goals stated in the SSMP still appropriate and accurate?	☑	☐
Discussion:	Any changes desired here> Any new comments to add? Evaluate based upon performance results for last five years and especially audit period.		
ELEMENT 2 - ORGANIZATION			
A.	Is the List of District Staff Responsible for SSMP, Table 2-1 current?	☐	☑
B.	Is the Sanitary Sewer Overflow Responder List current?	☐	☑
C.	Is Attachment 4.1 of the SSMP, the District Organization Chart, current?	☐	☑
D.	Are the position descriptions an accurate portrayal of staff responsibilities?	☑	☐
E.	Is Attachment 5.1 in the Chain of Communication for Reporting and Responding to SSOs section accurate and up-to-date?	☐	☑
Discussion:	This should be element 2; Add Intro, SSMP Change Log to Table 2.1; add email addresses; add service contractors; add Org chart to the element; add flow chart of communications from OERP; reformat Table 2.1; eliminate class descriptions in favor of short descriptions from definition section.		
ELEMENT 3 – LEGAL AUTHORITY			
Does the SSMP contain current references to the Carmel Area Wastewater District Sewer Code documenting the District'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 District?	☐	☑
D.	Limit discharges of fats, oils and grease?	☑	☐
E.	Enforce any violation of its sewer ordinances?	☑	☐
F.	Were any changes or modifications made in since the last audit to District Sewer Ordinances, Regulations or standards?	☐	☑
Discussion:	This is Element 7 should be 3 and needs to be revised; expand especially section A for other than I/I; add table of legal authorities; hyperlink ordinances from SSMP website; add discussion of satellite agencies?? PBCSD? others?		

ELEMENT 4 – OPERATIONS AND MAINTENANCE			
Collection System Maps			
A.	Does the SSMP reference the current process and procedures for maintaining the District's wastewater collection system maps?	☑	☐
B.	Are the District's collection system maps complete, current and sufficiently detailed? Are all operator maps up to date? Do maps include information and details on Stormwater facilities? Is Stormwater facility information current?	☐	☑
Prioritized Preventive Maintenance			
C.	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewers?	☑	☐
D.	Based upon information in the Annual Performance Report, are the District's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	☐	☑
Scheduled Inspections and Condition Assessments			
E.	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			
F.	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?	☐	☑
G.	Are contingency and replacement parts sufficient to respond to emergencies and properly conduct regular and emergency maintenance? Is long lead-time equipment identified?	☑	☑
H.	Has District staff received formal training on the Sanitary Sewer Management Plan? Are training sessions documented and attend sheet filed appropriately?	☑	☐
Training			
H.	Does the SSMP document current training expectations and programs?	☑	☑
Outreach to Plumbers and Building Contractors			
I.	Does the SSMP document current outreach efforts to plumbers and building contractors?	☑	☐
Discussion: Should be Element 4 not 8; Must include discussions of storm maps; are maps in trucks - both; drop resources/budget not required; don't use hot spot - High frequency; update ICOMM information; add processes for add/remove high frequency list explain program of maintenance - not consistent with annual reports break hot from regular; as large diameter pipe maintenance, pump stations and force main maintenance descriptions; expand training narrative to include regulations, OERP, WQMP and field exercises regularly; updated CIP for future needed; add historical tables of result update equipment and replacement parts tables; remove rodding?; consider use of cleaning results table; table of root foaming results please; CCTV not 10 year cycle now 15 about; update rehab section from 2018 AM Plan; add PS/FM info;			
ELEMENT 5- DESIGN AND PERFORMANCE STADARDS			
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:

This should be Element 5; new design standards approved 5/24/19; revise all narratives for changed revisions; add changes to Log?; hyperlink from SSMP webpage as reference to Element 5.

ELEMENT 6 – OVERFLOW AND EMERGENCY RESPONSE PLAN			
A.	Does the District's Sanitary Sewer Overflow Emergency Response Plan (OERP) establish procedures for the emergency response, notification, and reporting of SSOs?	☑	☐
B.	Are District staff and contractor personnel appropriately trained on the procedures of the Sanitary Sewer Overflow Emergency Response Plan?	☐	☑
C.	Do collection system related project specifications include requirements for conformance of contractor OERP with District OERP? Are emergency response procedures for project related SSOs included on regular project meetings during the course of construction?	☑	☐
D.	Were formal failure analyses of major SSOs conducted and documented including identification of necessary changes to operations and emergency response procedures from the analysis?	☐	☑
E.	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?	☑	☐

Discussion:

This should be element 6 not 5; no debrief failure analysis conducted; what metrics are tracked regularly; how are contractors trained or certified to have been trained by contractors; CAWD require OERP at least as strong as CAWD; no OERP training since 2013?; no field exercises?; documentation; no OERP attached to SSMP; see attached summary of findings from record keeping audit; - much missing from OERP procedures; revise OERP for several changes by District and SSO office; use all SSO forms or remove from the OERP; update equipment listing in 7.6; please provide copy of WQMP if existing; SSO Report form different?; were field exercises conducted and documented; add WDID;current record keeping documentation available?

ELEMENT 7 – FATS, OILS AND GREASE (FOG) CONTROL PROGRAM			
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 District's FOG Control Program?	☑	☐
D.	Does the District 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	☑	☐

Discussion:

This should be Element 7; change hot spots to high frequency; add numbers of FSEs; add history of enforcement actions table; expend enforcement section; need to interview FSE inspectors; need historical FSE enforcement statistics and follow-up requirements.

ELEMENT 8- SYSTEM EVALUATION AND DISTRICT ASSURANCE PLAN			
A.	Does the District Sanitary Sewer Master Plan evaluate hydraulic deficiencies in the system, establish sufficient design criteria and recommend both short and long term capital improvement projects for enhancement and improvement projects?	☑	☐
B.	Does the District's Capital Improvement Plan (CIP) establish a schedule of approximate completion dates for both short and long- term improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity accomplishment?	☐	☑
Discussion: This should be Element 8; master plan is dated; 2016 model developed and completed; no discussion of model capacity findings or issues identified in narrative; status for future needed; CIP program status; need capacity projects identified; add both short and long term projects; ; add reference to the December 2018 Asset Management Plan and evaluate CIP implementation schedule.			

ELEMENT 9- MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS			
A.	Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?	☑	☐
B.	Is the District able to sufficiently evaluate the effectiveness of the SSMP elements based on relevant information?	☑	☐
Discussion: This should be Element 9 but is 11; Monthly reports completed; historical charts or graphs included in annual report; consider adding comparison stats to State and Region SSO rate per 100 miles per year and trend lines to reports; add graph of SSO causes per year to determine if need for root program; add CCTV performance by year also; what changes were made as a result of the reports - why not in Change Log.			

ELEMENT 10 – SSMP AUDITS			
A.	Will the SSMP Audit be completed, reviewed and filed in Appendix C?	☑	☐
B.	Are all reference documents up to date with the SSMP?	☐	☑
C.	Was the Audit Report submitted to the Board of Directors and is the Audit Report available to the public on the District website?	☐	☑
D.	Does Appendix C include copies of all Audit Reports?	☐	☑
Discussion: Last audit dated February 2017 covered 10/13 to 2/17; add date presented to Board; no real effectiveness evaluation or description of changes in SSMP or OERP included; did this report go to Board?; are audits being conducted biannually as required?; attach to SSMP as required			

ELEMENT 11 – COMMUNICATION PROGRAM			
A.	Does the District effectively communicate with the public and other agencies about the development and implementation of the SSMP and continue to address any feedback?	☑	☐
B.	Were regular discussions held and documented with the Pebble Beach Community Services District regarding collection system operations affecting CAWD? If so when were these discussion held?	☐	☑

Discussion:	This should be Element 11 not 13; SSMP references not available at SSMP webpage - were they sent o SWRCB? If not hyperlink; quarterly reports really semi annual; agenda only available back two/three years - why?;		
Change Log			
A.	Is the SSMP Change Log in Appendix B, current and up to date?	☐	☑
Discussion:			

Prepared By: P. Causey **Reviewed By:** R. Lather

Approved for Filing:

11/9/19

Attachment 3: Document Request

Carmel Area Wastewater District
SSMP Support Services Project
Document Request
Causey Consulting
July 8, 2019

Please provide the following documents that will be used for both the SSMP Internal Audit and the revisions to the District SSMP. When providing each of the following, please include the listed reference number for ease of tracking the responses.

1. SSMP with all appendices – WORD format
2. Current SSM Change Log
3. Most recent SSMP Audit Report
4. Infrastructure Tables – see EXCEL file with 11 separate spreadsheets to be filled in and returned
5. All enforcement actions, settlement agreements against the collection system
6. Current sewer collection system SOPs
7. Current organization chart including service contractors
8. Operations forms used in the collection system
9. Current complete OERP – date completed (Page 12 SSMP)
10. Emergency Operations Plan (Page 12 SSMP)
11. Current WQMP (see MRP Section D)
12. Current FSEs, list of FSE enforcement actions past five years
13. Historical performance metrics/results at least five years – Annual Performance Reports for last three years)
14. Hot spot listing (high maintenance listing)
15. Current sewer master plan
16. Current CIP (short and long term)
17. Most current sewer rate study

18. Samples of several Monthly Condition Department Reports

19. Annual Performance Reports – 5 years

20. Newsletters issued during audit period

21. Copies of all CIWQS SSO District supporting files for the following overflow events:

    a. 933147
    b. 838951
    c. 845922
    d. 855287

Attachment 4: SSMP Audit Checklist

Carmel Area Wastewater District
SSMP Audit Checklist
Report Form

The purpose of the SSMP Audit is to evaluate the effectiveness of the CAWD SSMP and to identify any needed for improvement. The information identified here will be used to inform the findings and necessary information to be evaluated during the biannual Internal Audit of the CAWD SSMP.

Directions: Please rank each item below utilizing the following sufficiency ranking system and add any comments to explain the ranking to the Comment Section of each SSMP Element:

- *Complies (C) – complies with all WDR objectives*
- *Substantially Complies (SC) – complies mostly with all WDR objectives*
- *Partially Complies (PC) – complies with basic WDR objectives*
- *Marginal Compliance (MC) – complies minimally with basic objectives of the WDR*
- *Does Not Comply – does not comply with WDR objectives*

Element 0 – Introduction/Executive Summary	
A.	
B.	
C.	
D.	
Element I – Goals	**Rating**
A. Are the goals stated in the SSMP still appropriate and accurate?	
Discussion:	
Element II – Organization	**Rating**
A. Is the List of Staff Responsible for SSMP Elements current?	
B. Is the Sanitary Sewer Overflow Responder List current?	
C. Is the Organization Chart current?	

D. Are the Staff position descriptions an accurate portrayal of staff responsibilities?	
E. Is the Chain of Communication for Reporting and Responding to SSOs section/flow chart accurate and up to date?	
Discussion:	

Element III – Legal Authority	**Rating**
Does the SSMP contain current references to the Gilroy Municipal Code documenting CAWDs 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 CAWD?	
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 Sewer Ordinances, Regulations or standards?	
Discussion:	

Element IV – Operations & Maintenance	
Collection System Maps	**Rating**
A. Does the SSMP reference the current process and procedures for maintaining CAWD's wastewater collection system maps?	
B. Are the wastewater collection system maps complete, current and sufficiently detailed?	
C. Are storm drainage facilities of the City and County 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	**Rating**

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 CAWDs preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	
Scheduled Inspections and Condition Assessments	**Rating**
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	**Rating**
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	**Rating**
I. Does the SSMP document current training expectations and programs?	
Outreach to Plumbers and Building Contractors	**Rating**
J. Does the SSMP document current outreach efforts to plumbers and building contractors?	
Discussion:	
Element V – Design and Performance Standards	**Rating**
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	**Rating**
A. Does the CAWD Sanitary Sewer Overflow Emergency Response Plan establish procedures for the emergency response, notification, and reporting of SSOs?	
B. Are 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	**Rating**
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 CAWD FOG Control Program?	
D. Does CAWD 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 CAWD 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	**Rating**
A. Does the CAWD Sewer System 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 CAWD 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 completed?	
Discussion:	

Element IX – Monitoring, Measurement and Program Modifications	**Rating**
A. Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?	
B. Is CAWD able to sufficiently evaluate the effectiveness of the SSMP elements based on relevant information?	

C. Do the performance metrics properly support the Goals in Element 1?	
Discussion:	

Element X – SSMP Audits	**Rating**
A. Will the SSMP Audit be completed, reviewed and filed in Appendix B?	
B. Was the final Audit Report presented to the governing body at a publicly noticed meeting?	
Discussion:	

Element XI – Community Program	**Rating**
A. Does CAWD effectively communicate with the public and other agencies about the implementation of the SSMP and continue to address any feedback?	
B. Did the CAWD Board receive and review the Annual Sewer System Report?	
Was the annual report uploaded to the CAWD Sewer Section website and added to Appendix C?	
C. Did staff conduct and document meetings with the Pebble Beach Community Services District's satellite collection systems?	
D. Are all agreements with satellite systems current or are changes necessary to these agreements?	
Discussion:	

Change Log	**Rating**
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 **Date:** _____

Appendix C: Sewer System Management Plan Change Log

Carmel Area Wastewater District
SSMP Changes Log

Date	SSMP Element #	Description of Change/Revision Made	Person Authorizing Change

Appendix D: Overflow Emergency Response Plan (OERP)

Carmel Area Wastewater District

Overflow Emergency Response Plan

Effective Date: _____

Revised Date: _____

Approved by: _____

Signature: _____

Date: _____

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

Carmel Area Wastewater District: Overflow Emergency Response Plan

Table of Contents

Sanitary Sewer Overflow Emergency Response Plan (OERP)

Sanitary Sewer Overflow Emergency Response Plan

1. Purpose

The purpose of the Carmel Area Wastewater District's Overflow Emergency Response Plan (OERP) is to support an orderly and effective response to Sanitary Sewer Overflows (SSOs). The OERP provides guidelines for District personnel to follow in responding to, cleaning up, and reporting SSOs that may occur within the District's service area. 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 District'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 District's goal is to respond to sewer system overflows as soon as possible following notification. The District will follow reporting procedures in regards to sewer spills as set forth by the Central Coast Regional Water Quality Control Board (CCRWQCB) 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.

FOG – Fats, 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.

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 District 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.

MAJOR SPILL: A spill of whatever size that, based on a reasonable assessment of the spill size, location, and potential impacts, is deemed to pose an imminent and substantial endangerment to public health or the environment.

NOTIFICATION OF AN SSO: Refers to the time at which the District 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.

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: Discharges of untreated or partially treated wastewater of **any volume** resulting from an enrollee's sanitary sewer system failure or flow condition that:

- Reach surface water and/or reach a drainage channel tributary to a surface water; or
- Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).

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

5. Goals

The District'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;
- 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.

6. SSO Detection and Notification

ref. SWRCB Order No. 2006-0003-DWQ D.13vi(a)

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

The District operates seven wastewater lift stations. In the event of any pump failure, the high-level sensor activates the SCADA alarm system and the District 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 bypassed around the station into the sanitary sewer system.

6.1 PUBLIC OBSERVATION

Public observation is the most common way that the District is notified of blockages and spills. Contact numbers and information for reporting sewer spills and backups are in the phone book and on the District's website: http://www.cawd.org. The District's telephone number for reporting sewer problems is (831) 624-1248.

Normal Work Hours
Calls are received at the main district office. The main office will notify a collections crew via phone and will send an email to the collections crew with caller information (name, address, phone, nature of complaint).

After Hours
After hours the main district number will give the caller instructions to call 911. 911 dispatch will notify the standby employee.

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

If the overflow/backup is not in the District's service area they provide the customer with the contact information for the responsible agency, and then notify that agency.

If the overflow/backup is in the District's service area, the collections crew (during business hours) or standby employee (after hours) will respond to the address of the complaint and do an investigation. If the complaint is not an SSO, the crew members' findings and actions taken, if any, are logged into the District Computerized Maintenance Management System (CMMS) using a field laptop if available. If a field laptop is not available, the information will be entered into the CMMS when the employee returns to the District.

If the complaint is an SSO, the crew member will complete the Sanitary Sewer Overflow/Backup Response Workbook and then enter the findings and actions taken into the District's CMMS.

6.2 DISTRICT STAFF OBSERVATION

District staff conducts periodic inspections of its sewer system facilities as part of their routine activities. Any problems noted with the sewer system facilities are reported to appropriate District staff 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/plumber causes or witnesses a Sanitary Sewer Overflow. If the contractor/plumber causes or witnesses an SSO they should:

1. Immediately notify the District.
2. Protect storm drains.
3. Protect the public.
4. Provide Information to the District Collections Crew such as start time, appearance point, suspected cause, weather conditions, etc.
5. Direct ALL media and public relations requests to the District General Manager.

6.4 NO OBSERVATION

If there are no witnesses or no call was received for an SSO, the District staff will contact nearby residences or business owners in the vicinity of the SSO, in an attempt to obtain information that brackets a given start time that the SSO began. This information will be collected and placed with records for the specific SSO.

7. SSO Response Procedures

ref. SWRCB Order No. 2006-0003-DWQ D.13vi(b)

7.1 Sewer Overflow/Backup Response Summary

The District will respond to SSOs as soon as feasible following notification of an overflow/backup or unauthorized discharge.

If it is not possible that the overflow/backup is due to a failure in the District-owned/maintained sewer lines the Collections Crew performs the following:

- Follows the instructions in the Sanitary Sewer Overflow/Backup Response Workbook.
- If the customer is not home the Collections Crew completes the Door Hanger and leaves it on the customer's door.
- If the customer is home the Collections Crew:
    - Explains that the blockage is in the customer's lateral and the District does not have legal authority to maintain or perform work on privately owned laterals.
    - Recommends to the customer that they hire a contractor to clear their line.
    - Gives the customer the Sewer Spill Reference Guide pamphlet.

If it is possible that the overflow/backup is due to a failure in the District-owned/maintained sewer lines the Collections Crew:

- Follows the instructions in the Sanitary Sewer Overflow/Backup Workbook.
- Notifies Supervisor of the incident.
- Relieves blockage and cleans impacted areas.
- Forwards the completed Sanitary Sewer Overflow Workbook to the Collections Superintendent.

The Collections Superintendent performs required regulatory reporting in accordance with the Sanitary Sewer Overflow/Backup Workbook's Regulatory Reporting section.

If the overflow has impacted private property, the Collections Crew:

- Follows the instructions in the Sanitary Sewer Overflow/Backup Workbook.
- Provides the customer with forms and information as indicated in the Sanitary Sewer Overflow/Backup Workbook.
- Forwards the completed Sanitary Sewer Overflow/Backup Workbook to the Collections Superintendent.

The Collections Superintendent notifies the General Manager of incident.

The General Manager or designee:

- Reviews incident reports, claim form and other incident information and forwards, as appropriate, to:

  Carl Warren and Co.
  Attention: Alan Dialon
  Address: 2300 Clayton Road, Concord, CA 94520
  Telephone: (855) 763-5898
  Email: csrmaclaims@carlwarren.com

- Communicates with claimant as appropriate.
- Communicates with Carl Warren and Co. to adjust and administer the claim to closure.

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 Collections Superintendent 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).

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 District 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.

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.
- Take photos of overflowing manhole(s)/cleanout(s).
- 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.
- 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 procedures refer to the Sanitary Sewer Overflow/Backup Response Workbook.

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:

- 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 procedures refer to the Sanitary Sewer Overflow/Backup Response Workbook.

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 other assistance is required, immediately contact the Collections Superintendent. For procedures refer to the Sanitary Sewer Overflow/Backup Response Workbook.

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 and plastic mats*
- *SSO Sampling Kits*
- *Portable Lights*

Standard operating procedures for equipment that may be necessary in the event of a sanitary sewer overflow or backup can be found in the Collections office and at the stations.

8. Recovery and Cleanup

ref. SWRCB Order No. 2006-0003-DWQ D.13vi(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 Flow and Volume of Spilled Sewage

To estimate the flow rate, crew members will use the SSCSC Manhole Overflow Gauge if the same style of manhole cover is observed overflowing. A variety of approaches exist for estimating the volume of a sanitary sewer spill. Crew members should use the method most appropriate to the sewer overflow in question and reference the Sanitary Sewer Overflow/Backup Response Workbook which provides three (3) methods:

- Eyeball Estimation Method
- Duration and Flow Rate Calculation Method
- Area/Volume Method

In addition, wherever and whenever 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 District staff, a cleanup contractor will be used.

Private Property
District 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 District system failure, the property owner can call out a water damage restoration contractor to complete the cleanup and restoration. In both cases, property owners may pick up District claim forms from the Administration Offices.

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. Additionally, the Collections Superintendent will use their 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 or the Collections Superintendent.

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 area and warning signs, once posted, will be checked 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.

When contact with the local media is deemed necessary, the District General Manager or their designee will provide the media with all revelvant information.

9. Water Quality

ref. SWRCB Order No. 2006-0003-DWQ D.13vi(f)

9.1 Waters of the State

The following US Bodies of Water are in the District's service area:

- Pacific Ocean
- Carmel Lagoon
- Carmel River

9.2 Water Quality Sampling and Testing

Water quality sampling and testing will be performed for Category 1 SSOs whenever there is a major spill to determine the extent and impact of the SSO. The water quality sampling procedures must be implemented within 48 hours and include the following:

- The first responders will collect samples as soon as possible after the discovery and mitigation of the SSO event.
- The water quality samples will be collected from upstream of the spill, from the spill area, and downstream of the spill in flowing water (e.g. creeks). The water quality samples will be collected near the point of entry of the spilled sewage. The samples shall then be brought to the District Lab and Monterey Analytical.

9.3 Water Quality Monitoring Plan

The District Water Quality Monitoring Plan will be implemented immediately upon discovery of any Category 1 SSO whenever there is a major spill in order to assess impacts from SSOs to surface waters. The SSO Water Quality Monitoring Program will:

1. Contain protocols for water quality monitoring.
2. Account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, legal right to access, etc.)
3. Require water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory.
4. Require monitoring instruments and devices used to implement the SSO Water Quality Monitoring Program to be properly maintained and calibrated, including any records to document maintenance and calibration, as necessary, to ensure their continued accuracy.
5. Within 48 hours of the District becoming aware of the SSO, require water quality sampling for fecal coliform, E. Coli, biochemical oxygen demand (BOD), and ammonia.
6. Observe proper chain of custody procedures.
7. If the District's current standard operating procedures (SOP's) cannot fully mitigate an SSO and if it is determined that the SSO may pose an imminent and substantial endangerment to public health or the environment, the District shall consult a qualified biologist, health care specialist or equivalent professional to assist.

9.4 SSO Technical Report

The District will submit an SSO Technical Report to the CIWQS Online SSO Database within 45 calendar days of the SSO end date for any major SSO spilled to surface waters. The Collections Superintendent will supervise the preparation of this report and will certify this report. This report, which does not preclude the Water Boards from requiring more detailed analyses if requested, shall include at a minimum, the following:

<u>Causes and Circumstances of the SSO:</u>

- Complete and detailed explanation of how and when the SSO was discovered.
- Diagram showing the SSO failure point, appearance point(s), and final destination(s).
- Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.

- Detailed description of the cause(s) of the SSO.
- Copies of original field crew records used to document the SSO.
- Historical maintenance records for the failure location.

District's Response to SSO:

- Chronological narrative description of all actions taken by the District to terminate the spill.
- Explanation of how the SSMP Overflow Emergency Response Plan was implemented to respond to and mitigate the SSO.
- Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.

Water Quality Monitoring:

- Description of all water quality sampling activities conducted including analytical results and evaluation of the results.
- Detailed location map illustrating all water quality sampling points.

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

It is the policy of the District 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:

- District staff will offer a District claim form irrespective of fault whenever it is possible that the sanitary sewer backup may have resulted from an apparent blockage in the District-owned sewer lines or whenever a District customer requests a claim form. The claim may later be rejected if subsequent investigations into the cause of the loss indicate the District was not at fault.
- It is the responsibility of the Collections Crew to gather information regarding the incident and notify the Collections Superintendent or his/her designee.
- It is the responsibility of the General Manager or their 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 D.13vi(c)

In accordance with the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (SSS GWDRs), the Carmel Area Wastewater District 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 after field crew SSO response operations have been completed. The date, time, location, and direction of photographs taken will be documented.
- 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.

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 District 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 District 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 District 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 District will submit certified report within 30 calendar days of the end of month in which SSO the occurred. • SSO Technical Report: The District 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 District 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 District 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 District 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 District 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. • Collection system telemetry records if relied upon to document and/or estimate SSO Volume.	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 Collections Superintendent will notify SWRCB by phone and will fax or e-mail all required information to the RWQCB office at (510) 622-2460 in accordance with the time schedules identified above. In such an event, the District 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 District 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.

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 District 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

All complaint records will be maintained for a minimum of five years whether or not they result in an SSO. Hardcopy files (field notes, SSO/Backup Response Workbook) are kept in the Collections Superintendent office and all SSO data is also entered in to the District's CMMS.

12. Post SSO Event Debriefing

ref. SWRCB Order No. 2006-0003-DWQ D.13vi(d)

Every SSO event is an opportunity to evaluate the District 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.

13. Failure Analysis Investigation

ref. SWRCB Order No. 2006-0003-DWQ D.13vi(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 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 System Failure Analysis Form (in Sanitary Sewer Overflow/Backup Response Workbook) will be used to document the investigation.

14. SSO Response Training

ref. SWRCB Order No. 2006-0003-DWQ D.13vi(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 District 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 District will document all training.

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

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

The District 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 electronic testing, interviews and observations. The District 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

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

14.4 Contractors Working On District Sewer Facilities

All construction contractors working on District 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.

15. Authority

This OERP is written in accordance with the following:

- 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 No. WQ 2013-0058-EXEC effective September 9, 2013

16. Appendices

- Appendix A: Service Call Form
- Appendix B: Private Lateral Sewage Discharge Information (Pamphlet)
- Appendix C: Door Hanger
- Appendix D: Sanitary Sewer Overflow/Backup Response Workbook

APPENDIX A:
Service Call Form

Carmel, CA
Service Call

WORK ORDER:

ASSIGNED TO: STATUS: Requested

DATE ISSUED:
DATE COMPLETED:

DISPATCH

CALLER | ADDRESS | TELEPHONE (HOME BUS. CELL)

CALL RECEIVED BY | CALL DATE AND TIME

NATURE OF CALL
☐ ODOR ☐ SSO ☐ BACK UP ☐ LIFT STATION ☐ NOISE ☐ ALARM ☐ STOPPAGE ☐ OTHER*

CALL DESCRIPTION

LOCATION OF PROBLEM

REPORTED BY
☐ HOMEOWNER ☐ ALARM ☐ BUSINESS ☐ TENANT ☐ PUBLIC AGENCY ☐ OTHER

REFERRED TO | BY | DISPATCH DATE AND TIME

FIELD REPORT - OBSERVATIONS

RESPONDER NAME PHONE | ARRIVAL DATE AND TIME | WEATHER ○ Dry ○ Light Rain ○ Heavy Rain

Asset

LOCATION	PROBLEM	CAUSE	SSO
☐ MAIN	☐ BLOCKAGE ☐ NOISE	☐ GREASE ☐ CAPACITY	WAS THERE AN SSO? ○ YES ○ NO
☐ PRIVATE LATERAL	☐ ALARM ☐ OTHER	☐ GRIT ☐ ROCKS	
☐ NOTHING FOUND	☐ ODOR	☐ RAGS ☐ VANDALISM	IF YES, ESTIMATE IN GALS
☐ LIFT STATION	☐ SUBSIDENCE	☐ ROOTS ☐ WEATHER	
☐ OTHER	☐ POWER FAILURE	☐ PIPE BROKEN ☐ POWER	SSO REACHED WATER BODY? ○ YES ○ NO
☐ DISTRICT LATERAL	☐ ELECTRICAL	☐ PIPE SAG ☐ OTHER	

OBSERVATION REMARKS

WORK PERFORMED

ACTIVITIES

☐ EMERGENCY
☐ TEMPORARY REPAIRS
☐ PERMANENT REPAIRS
☐ EXCAVATION
☐ CLEAN UP
☐ OWNER RESPONSIBILITY
☐ CHEMICALS APPLIED
☐ HYDRO-CLEAN
☐ TV INSPECTION
☐ REFERRAL
☐ OTHER AGENCY

REMARKS:

RECOMMENDATIONS

ACTIVITIES REQUESTED
☐ INSPECT ☐ CLEAN ☐ REPAIR

FOLLOW UP PRIORITY
◉ ROUTINE ○ EMERGENCY

REMARKS:

CONCLUSION

CALLER NOTIFIED BY ☐ PHONE ☐ IN PERSON ☐ EMAIL ☐ LETTER ☐ NONE ☐ OTHER

EXPLAIN WHY NONE OR OTHER

NOTIFIED BY | DATE | LETTER OF APPRECIATION REQ? ○ YES ○ NO | LETTER SENT DATE

REFERRED TO | BY | DATE

REMARKS

Carmel, CA
Service Call

	WORK ORDER:
ASSIGNED TO: STATUS: Requested	DATE ISSUED: DATE COMPLETED:

Labor

Operators	StartDate	OT Hours	DT Hours	RegularHou	Total Time	Cost
					Sum = 0	Sum = 0

Equipment

Equipment	StartDate	RegularHours	Cost
			Sum = 0

Materials

Materials	Description	Unit Cost	QTY	PO	Cost
					Sum = 0

Services

Services Provider List	Date	Description	Unit Cost	QTY	PO	Cost
						Sum = 0

APPENDIX B:
Private Lateral Sewage Discharge Information

APPENDIX C:
Door Hanger

Carmel Area Wastewater District

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
- ☐ Your sanitary sewer lateral, which is your responsibility to maintain.

If you require assistance to clear your portion of the lateral you can search for "Sewer Contractors" or "Plumbing Drains & Sewer Cleaning". If you plan to hire a contractor, we recommend getting estimates from more than one company.

District representative notes: _____

_____

_____

District representative:

_____

For questions or comments, please call

Carmel Area Wastewater District
(831) 624-1248

Carmel Area Wastewater District

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
- ☐ Your sanitary sewer lateral, which is your responsibility to maintain.

If you require assistance to clear your portion of the lateral you can search for "Sewer Contractors" or "Plumbing Drains & Sewer Cleaning". If you plan to hire a contractor, we recommend getting estimates from more than one company.

District representative notes: _____

_____

_____

District representative:

_____

For questions or comments, please call

Carmel Area Wastewater District
(831) 624-1248

APPENDIX D:
Sanitary Sewer Overflow/Backup Response Workbook

Carmel Area Wastewater District Overflow Emergency Response Plan

Sanitary Sewer Overflow/Backup Response Workbook

- ❑ If this is a Category 1 SSO greater than or equal to 1,000 gallons, **immediately contact CalOES** at (800) 852-7550 within 2 hours.
- ❑ **Refer to the Regulatory Reporting Guide** for additional reporting requirements.
- ❑ **If there is a backup into a residence/business:** General Manager (831) 624-1248
- ❑ **For Water Sample Analysis:** District Lab and Monterey Analytical, 4 Justin Court, Monterey, CA 93940 (831) 375-6227
- ❑ **For Restoration/Remediation**:
  - California Premier Restoration (831) 275-2103
  - Property Restoration Services (831) 375-4777

Don't forget to take photos!

- ❑ **For any media inquiries/requests:** General Manager (831) 624-1248

Collections Crew:	Print Name: _____
❑ Follow the instructions on the Overflow/Backup Response Flowchart and complete forms in this workbook as indicated. ❑ Complete the chain of custody record (to the right) and deliver this workbook to the Collections System Superintendent.	Initial: _____ Date: _____ Time: _____

Collections Superintendent:	Print Name: _____
❑ Review the SSO Event Checklist and the forms in this booklet. Contact the Collections Crew for additional information if necessary. ❑ Confirm that all required regulatory notifications have been made. ❑ If this was a Sewer Backup, complete the Backup Forms Checklist (E-1). ❑ Complete the Collection System Failure Analysis Form. ❑ Enter data into CIWQS. ❑ Complete the Chain of Custody record (right) and file this booklet	Initial: _____ Date: _____ Time: _____

Carmel Area Wastewater District Overflow Emergency Response Plan

SSO Event Checklist

Date of SSO: _____ SSO Location/Name: _____

CIWQS Event ID #: _____ Category? ☐ 1 ☐ 2 ☐3 OES#: _____

Property Damage? ☐ Yes ☐ No Service Request #: _____

- ☐ Effort made to contain and return a portion/all to the sanitary sewer
- ☐ Pictures/video taken of overflow
- ☐ Pictures taken of affected/unaffected area
- ☐ If property damage, start that process
- ☐ Pictures taken of containment efforts
- ☐ If Cat 1 > 1000 gals:
  OES Control #_____
- ☐ Impacted waters identified?
- ☐ No impacted waters?
- ☐ SSO Report Form Complete (includes fields for all required fields in CIWQS, and a sketch of SSO)
- ☐ Volume Estimation Worksheet(s) done
- ☐ Start Time Determination Form done
- ☐ Initial review of forms is complete (ensure consistency with dates, times, volumes, and other data)
- ☐ Review of photos and videos (label/date)
- ☐ Start Folder for all documentation for this SSO event. Put everything in it (SR, Field Reports, Worksheets/Forms, follow-up work orders, notes, pics, drawings, etc. CIWQS print outs and emails)
- ☐ Failure Analysis
  - ○ TV to determine cause
  - ○ Review Asset History
- ☐ Determine next steps to prevent recurrence
- ☐ Document findings and next steps on SSO Report
- ☐ Submit Draft in CIWQS w/in 3 business days (for Categories 1 and 2 only)
- ☐ Print CIWQS Draft hard copy and email
- ☐ Review CIWQS, SSO Report, Worksheets, CMMS, and any other documentation to ensure data is consistent (e.g. dates, times, volumes, cause, follow-up action, etc.
- ☐ Attach photos, forms etc. to CIWQS
- ☐ Submit Ready to Certify in CIWQS (with sufficient time for LRO review)
- ☐ Print CIWQS Ready to Certify and email
- ☐ Hand folder to LRO
- ☐ LRO review folder and CIWQS verify accurate and consistent data
- ☐ Certify in CIWQS (within 15 calendar days for Categories 1 & 2, 30 days after the month for Category 3)
- ☐ Print Certified CIWQS and email
- ☐ Any changes? Change in CIWQS and hard copies and explain changes, print our current version
- ☐ Move completed folder to SSO Binder
- ☐ For 50, 000 gallons or larger
- ☐ Follow Water Quality Monitoring and Sampling procedures
- ☐ Map of where samples were taken
- ☐ Sampling results
- ☐ Write Technical Report
- ☐ Attach to CIWQS
- ☐ Add to SSO Folder/Binder
- ☐ If any changes are made to SSMP
- ☐ Update SSMP and link on CIWQS to SSMP
- ☐ Add change to SSMP Change Log
- ☐ If change is substantive, re-certify SSMP

INSERT TAB:
Regulatory Reporting

Carmel Area Wastewater District Overflow Emergency Response Plan

Regulatory Reporting Guide A-1

Deadline	Category 1 SSO	Category 2 SSO	Category 3 SSO
2 hours after awareness of SSO	If the spill is greater than or equal to 1,000 gallons, call CalOES.	-	-
As soon as possible	If SSO impacts private property that may be a failure of the sewer main and/or if a claim for damages may be submitted against the District, notify the General Manager.		
48 Hours after awareness of SSO	If 50,000 gal or more were not recovered, begin water quality sampling.	-	-
3 Business 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 date.	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 CIWQS. Update as needed until 120 days after SSO end date.
45 days after SSO end date	If 50,000 gal or more were not recovered, submit SSO Technical Report in CIWQS.	-	-

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 SSO, including all the discharge points associated with the SSO event.

Category	Definition
1	Discharges of untreated or partially treated wastewater of any volume resulting from an enrollee's sanitary sewer system failure or flow condition that: - Reach surface water and/or reach a drainage channel tributary to a surface water; or - Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).
2	Discharges of untreated or partially treated wastewater of 1,000 gallons or greater resulting from an enrollee's sanitary sewer system failure or flow condition that do not reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.
3	All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.
Private Lateral Sewage Discharge (PLSD)	Discharges of untreated or partially treated wastewater resulting from blockages or other problems **within a privately-owned sewer lateral** connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be **voluntarily** reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.

Carmel Area Wastewater District Overflow Emergency Response Plan

Regulatory Reporting Contacts and Authorization A-2

Authorized Personnel:

All Collections Crew members are authorized to perform regulatory reporting of SSOs. The District's Legally Responsible Officials (LROs) are authorized to electronically sign and certify SSO reports in CIWQS. The District's LROs are:

- Collections Superintendent
- General Manager

Contact	Telephone/Email
CAL OES	**(800) 852-7550**
General Manager	**(831) 624-1248**
District Lab and Monterey Analytical (Water Quality Sample Analysis)	**4 Justin Ct, Monterey, CA 93940 (831) 375-6227**
Central Coast Regional Water Quality Control Board	**Phone: (805) 549-3147 Fax: (805) 543-0397**
State Water Resources Control Board Armando Martinez	**916) 341-5586 Armando.Martinez@waterboards.ca.gov**

Carmel Area Wastewater District Overflow Emergency Response Plan

Regulatory Reporting Checklist A-3

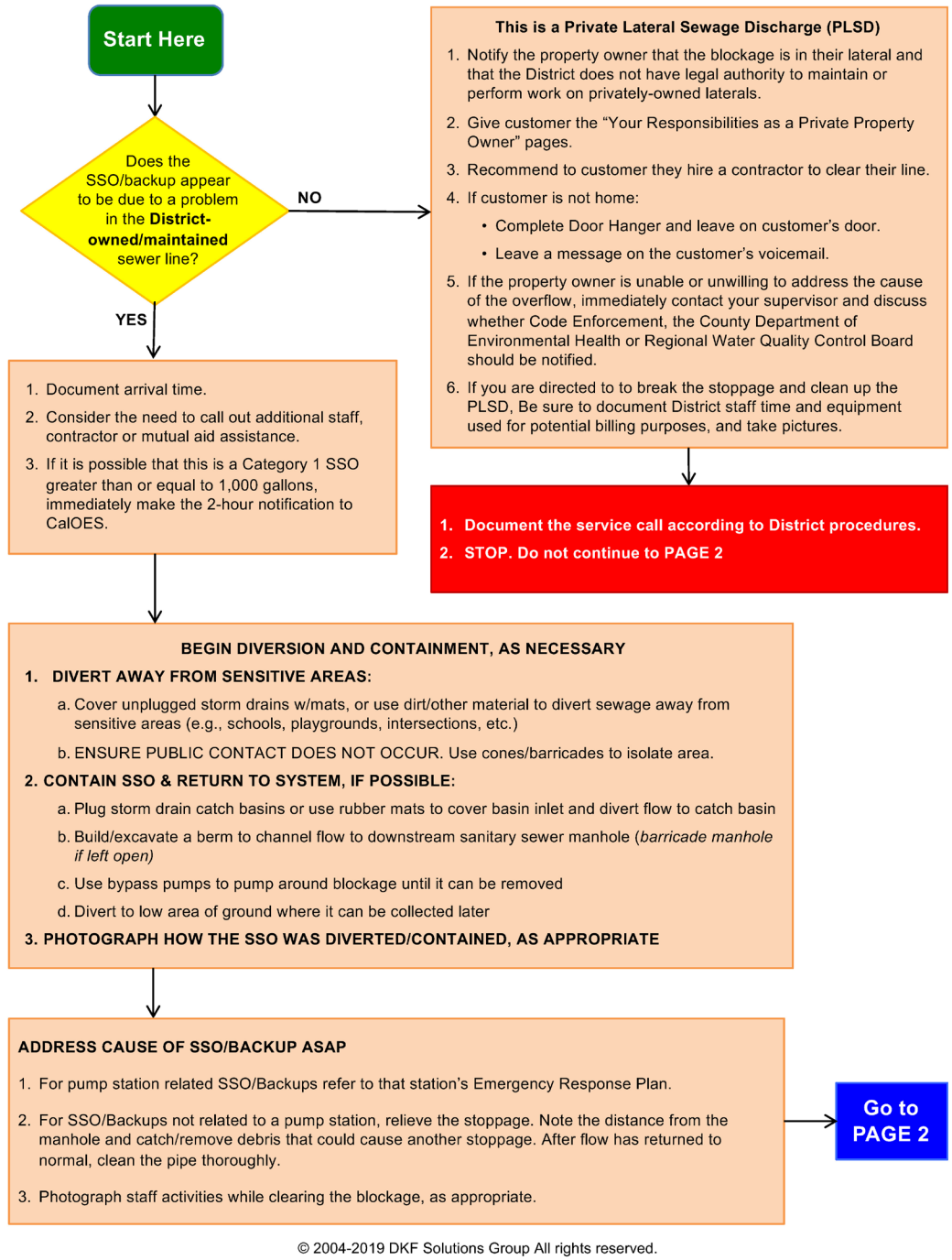
NOTIFICATIONS	
CAL OES (800) 852-7550	
Notification Date/Time:	
Name of Who You Spoke To:	
OES Control Number:	
Monterey County Health Department	
Notification Date/Time:	
Name of Who You Spoke To: Left Message: ☐	
District Lab and Monterey Analytical	
Notification Date/Time:	
Name of Who You Spoke To: Left Message: ☐	
District General Manager	
Notification Date/Time:	
Name of Who You Spoke To: Left Message: ☐	

INSERT TAB:
Flowchart

Carmel Area Wastewater District Overflow Emergency Response Plan

Overflow/Backup Response Flowchart

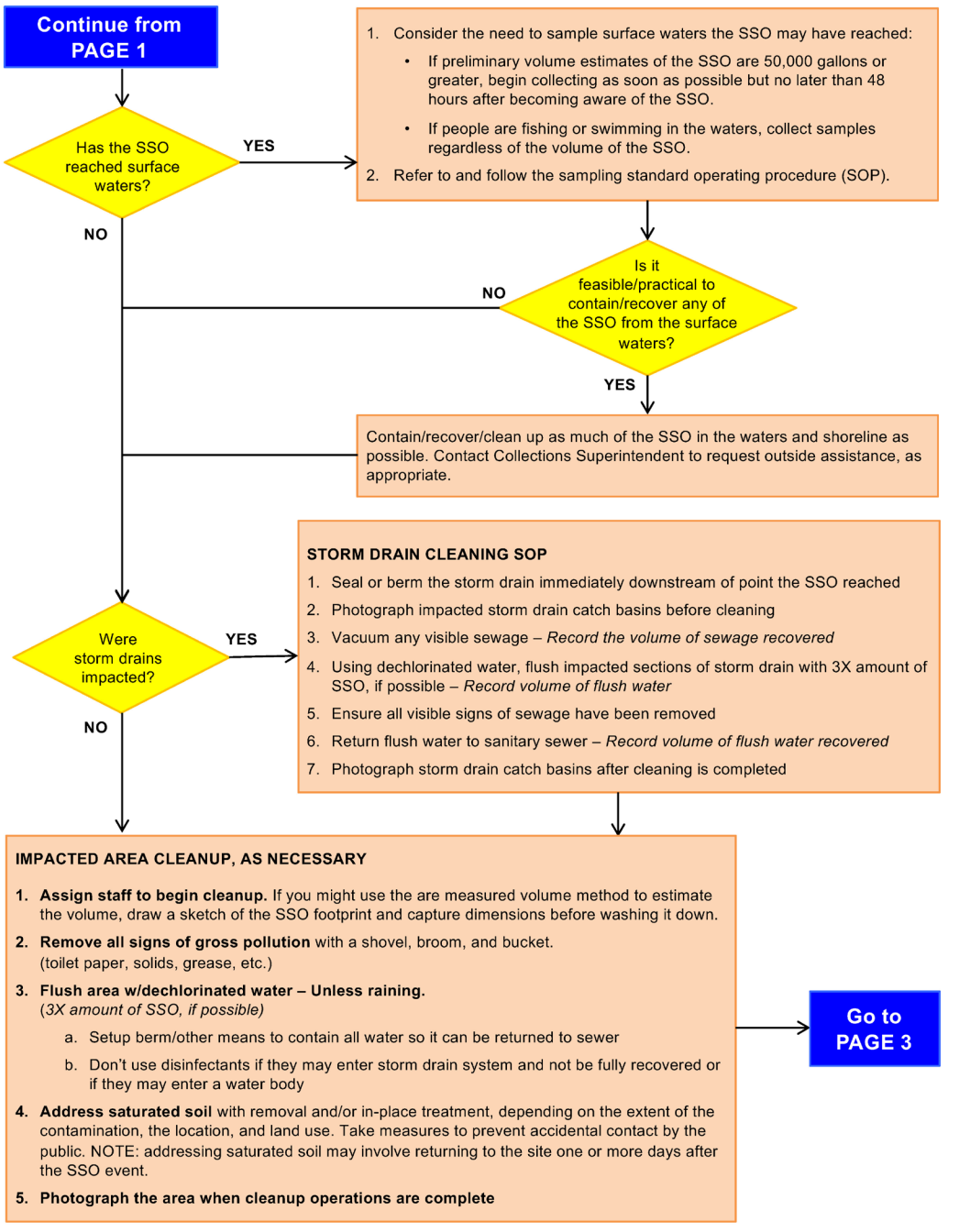
B-1: Page 1



Carmel Area Wastewater District Overflow Emergency Response Plan

Overflow/Backup Response Flowchart

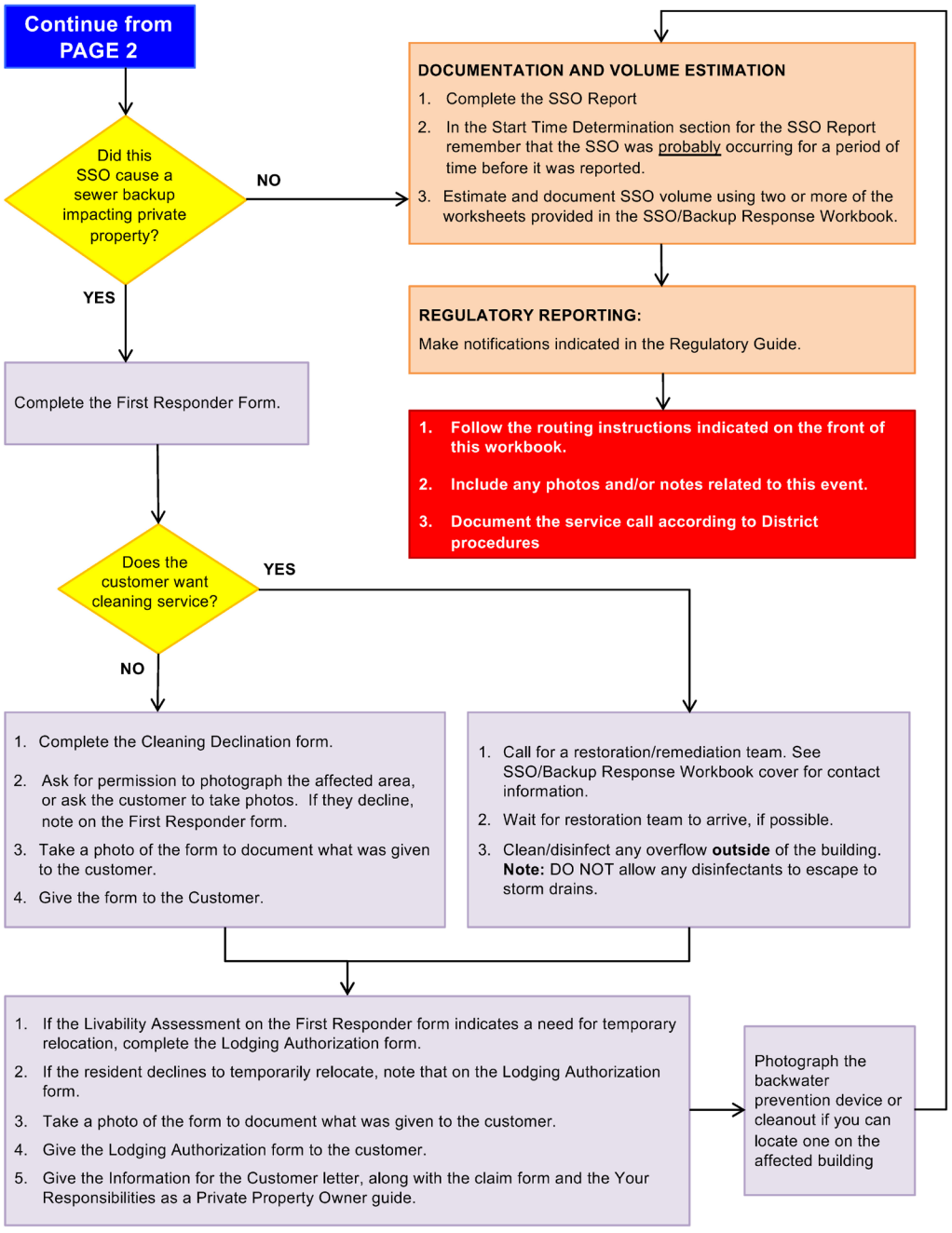
B-1: Page 2



Carmel Area Wastewater District Overflow Emergency Response Plan

Overflow/Backup Response Flowchart

B-1: Page 3



INSERT TAB:
SSO Report

Carmel Area Wastewater District Overflow Emergency Response Plan

Sanitary Sewer Overflow Field Report C-1: Page 1

PHYSICAL LOCATION DETAILS		
Spill location name		
Latitude of spill location		
Longitude of spill location		
Address of spill		
Cross Street:		
City	Carmel, CA	
County		
Location description		
Regional Water Quality Control Board		
VOLUMES BY DESTINATION	**Volume Spilled (Gallons)**	**Volume Recovered (Gallons)**
2.a/2.b Estimated spill volume that reached a separate storm drain that flows to a surface body of water? (If not all recovered, this is a Category 1)		
2.c/2d Estimated spill volume that directly reached a drainage channel that flows to a surface water body? (Any volume spilled is a Category 1)		
2.e/2.f Estimated spill volume discharged directly to a surface water body? (Any volume spilled is a Category 1)		
2.g/2.h Estimated spill volume discharged to land? (Includes discharges directly to land, and discharges to a storm drain system or drainage channel that flows to a storm water infiltration/retention structure, field, or other non-surface water location. Also, includes backups to building structures).		
Total Volume Spilled (Verify this matches the table in between 2.h and 3 in CIWQS)		

Carmel Area Wastewater District Overflow Emergency Response Plan

Sanitary Sewer Overflow Field Report

C-1: Page 2

DATE/TIME DETERMINATIONS		
	DATE	**TIME**
Start of SSO (Use Start Time Determination/Notes Below)		
Agency Notified		
Collection System Operator Dispatched		
Collection System Operator Arrived		
End of SSO		
End of Spill Response		

Start Time Determination/Notes

Caller Interview: Where did you see sewage spill from?

☐ Manhole ☐ Inside Building ☐ Vent/Clean Out ☐ Catch Basin ☐ Wet Well/Lift Station

☐ Other: _____

Comments: _____

_____

Last Time Caller Observed **NO Spill** occurring: _____ AM / PM Date _____ /_____ /_____

Comments: _____

_____

If the volume of the SSO and rate of flow are known, divide volume by rate of flow to get duration of SSO event.

_____Gallons ÷ _____GPM = Minutes (SSO Duration).

Subtract the Duration from the SSO End Date/Time to establish the SSO Start Date/Time.

Other Efforts to Determine Start Time: _____

_____

Other Comments Regarding Spill Start Time: _____

_____

Estimated SSO Start Time: _____ AM / PM Date: _____ / _____ / _____

SSO End Time: _____ AM / PM Date: _____ / _____ / _____

Carmel Area Wastewater District Overflow Emergency Response Plan

Sanitary Sewer Overflow Field Report C-1: Page 3

SSO FIELD REPORT
Spill location description:
Number of appearance points:
Spill appearance points: (Circle all that apply) Backflow Prevention Device Force Main Gravity Sewer Inside Building/Structure Lateral Clean Out (Private / Public) Lower Lateral (Private / Public) Manhole Pressure Sewer Pump Station Upper Lateral (Private / Public) Other Sewer System Structure Other (specify):
Spill appearance point explanation. (Enter information here if “Other” or multiple appearance points were selected):
Discharge to drainage channel and/or surface water?
Discharge to storm drainpipe not captured and returned to Sanitary Sewer System?
Private lateral spill? Name of responsible party (if lateral):
Final spill destination: (Circle all that apply) Final spill destination. (Circle all that apply). Beach Building/Structure Combined Storm Drain Drainage Channel Other (Specify Below) Paved Surface Separate Storm Drain Street/Curb and Gutter Surface Water Unpaved Surface
Explanation of final spill destination. (Enter information if “Other” was selected.

Carmel Area Wastewater District Overflow Emergency Response Plan

Sanitary Sewer Overflow Field Report C-1: Page 4

SSO FIELD REPORT
Spill cause: (Circle One) Air Relief Valve (ARV)/Blow Off Valve (BOV) Failure Construction Diversion Failure CS Maintenance Caused Spill/Damage Damage by Others Not Related to CS Construction/Maintenance (Specify Below) Debris from Construction Debris from Lateral Debris-General Debris-Rags Debris Wipes/Non-Dispersible Flow Exceeded Capacity (Separate CS Only) Grease Deposition (FOG) Inappropriate Discharge to CS Natural Disaster Operator Error Other (Specify Below) Pipe Structural Problem/Failure Pipe Structural Problem/Failure – Installation Pump Station Failure – Controls Pump Station Failure – Mechanical Pump Station Failure – Power Rainfall Exceeded Design, I and I (Separate CS Only) Root Intrusion Siphon Failure Surcharged Pipe (Combined CS Only) Vandalism
Spill cause explanation: (Required if Spill Cause is “Other”)
If rainfall is cause, circle size of storm: 1 year 2 year 5 year 10 year 50 year 100 year >100 year Unknown

Carmel Area Wastewater District Overflow Emergency Response Plan

Sanitary Sewer Overflow Field Report

C-1: Page 5

SSO FIELD REPORT			
Asset Details			
Pipe:	Diameter:	Material:	Length:
Structure:	Pipe Age:		Structure Age:
Description of Terrain at spill (circle): Flat Mixed Steep			
Where did failure occur? Air Relief Valve (ARV)/Blow Off Valve (BOV) Failure Force Main Gravity Mainline Lower Lateral (Public) Manhole Other (Specify Below) Pump Station Failure – Controls Pump Station Failure – Mechanical Pump Station Failure – Power Siphon Upper Lateral (Public)			
Explanation of where failure occurred: (Required if Where Failure Occurred is "Other")			

Was spill associated with a storm event?	YES	NO
Diameter of sewer pipe at the point of blockage or failure:		inches
Material of sewer pipe at the point of blockage or failure:		
Estimated age of sewer asset at the point of blockage or failure (if applicable):		years

Spill Response Activities. (Circle all that apply) Cleaned-Up Mitigated Effects of Spill Contained All or Portion of Spill Inspected sewer using CCTV to determine cause Restored Flow Returned All or Portion to Sanitary Sewer System Property Owner Notified Other Enforcement Agency Other (Specify):
Explanation of spill response activities: (Required if spill response activities is "Other"):
Spill Response Completion Date/Time:

Carmel Area Wastewater District Overflow Emergency Response Plan

Sanitary Sewer Overflow Field Report

SSO FIELD REPORT		
Spill corrective action taken: (Circle all that apply) Added Sewer to Preventive Maintenance Program Adjusted Schedule/Method of Preventive Maintenance Enforcement Action Against FOG Source Inspected Sewer Using CCTV to Determine Cause Other (Specify Below) Plan Rehabilitation or Replacement of Sewer Repaired Facilities or Replaced Defect		
Explanation of corrective action taken: (Required if spill corrective action is “Other”)		
Is there an ongoing investigation?	YES	NO
Health warnings posted?	YES	NO
Were any fish killed?	YES	NO
Did spill result in beach closure?	YES	NO
Name of Impacted Beach(es): (Enter N/A if none)		
Name of impacted surface waters:		

Carmel Area Wastewater District Overflow Emergency Response Plan

Sanitary Sewer Overflow Field Report

SSO FIELD REPORT
Water quality samples analyzed for: (Circle all that apply) Dissolved Oxygen Other Chemical Indicators(s) – Specify Below Biological Indicator(s) – Specify Below No Water Quality Samples Taken Not Applicable to the Spill Other (Specify Below)
Explanation of water quality samples analyzed for: (Required if water quality samples analyzed for is "Other chemical indicator(s)", "Biological indicator(s)", or "Other")
Water quality sample results reported to: (Circle all that apply) County Health Agency Regional Water Quality Control Board Other (Specify below) No Water Quality Samples Taken Not Applicable to this Spill
Explanation of water quality sample results reported to: (Required if water quality sample results reported to is “Other”)
Method and explanation of volume estimation methods used: (Circle all that apply) Eyeball Estimate Measured Volume Duration and Flow Rate Other (Explain):

INSERT TAB:
Volume Estimation

Carmel Area Wastewater District Overflow Emergency Response Plan

Volume Estimation Computations & Examples

Miscellaneous Computations & Examples

To convert inches to feet (NOTE: for the purposes of this worksheet, the unit of measurement will be in feet for formula examples)	Divide the inches by 12 or use the chart on the right. **Example 1:** 27" ÷ 12 = 2.25' **Example 2:** 1¾" = ?' 1" (0.08') + ¾" (0.06') = 0.14'
Volume of one cubic foot	7.48 gallons of liquid
Area: Two-dimensional measurement represented in square feet (SQ/FT or ft^2)	Square/rectangle: Area = Length x Width Circle: Area = $\pi \times r^2$ (where $\pi \approx 3.14$ and r = radius = ½ diameter) Triangle: Area = ½ (Base x Height)
Volume: Three-dimensional measurement represented in cubic feet (CU/FT or ft^3)	Rectangle/square footprint: Volume = Length x Width x Depth Circle footprint (cylinder): Volume = $\pi \times r^2$ x Depth (where $\pi \approx 3.14$ and r = radius = ½ diameter) Triangle footprint: Volume = ½ (Base x Height) x Depth
Depth: Wet Stain on Concrete or asphalt surface	If the depth is not measurable because it is only a wet stain, use 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") These were determined to be a reasonable depth to use on the respective surfaces through a process of trial and error. One gallon of water was poured onto both asphalt and concrete surfaces. Once the area was determined as accurately as possible, different depths were used to determine the volume of the wetted footprint until the formula produced a result that (closely) matched the one gallon spilled. This process was repeated several times.
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. Use that number in your formula to determine volume.

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'

Carmel Area Wastewater District Overflow Emergency Response Plan

Volume Estimation: Eyeball Estimation Method (for ≤100 gallons) D-2

STEP 1: Position yourself so that you have a vantage point where you can see the entire SSO.

STEP 2: Imagine one or more buckets or barrels of water tipped over. Depending on the size of the SSO, select a bucket or barrel size as a frame of reference. It may be necessary to use more than one bucket/barrel size.

STEP 3: Estimate how many of each size bucket or barrel it would take to make an equivalent spill. Enter those numbers in Column A of the row in the table below that corresponds to the bucket/barrel sizes you are using as a frame of reference.

STEP 4: Multiply the number in Column A by the multiplier in Column B. Enter the result in Column C.

	A	B	C
Size of bucket(s) or barrel(s)	**How many of this size?**	**Multiplier**	**Estimated SSO Volume (gallons)**
1 gallon water jug		x 1 gallons	
5 gallon bucket		x 5 gallons	
32 gallon trash can		x 32 gallons	
55 gallon drum		x 55 gallons	
Other: _____ gallons		x _____ gallons	
Estimated Total SSO Volume:			

STEP 5: Is rainfall a factor in the SSO? ☐Yes ☐No

If yes, what volume of the observed spill volume do you estimate is rainfall? _____ gallons

If yes, describe how you determined the amount of rainfall in the observed spill?

STEP 6: Calculate the estimated SSO volume by subtracting the rainfall from the SSO volume:

_____ gallons – _____ gallons = _____ gallons

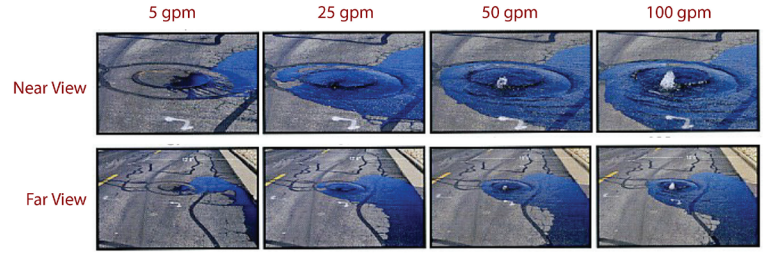
Estimated SSO Volume — Rainfall — **Total Estimated SSO Volume**

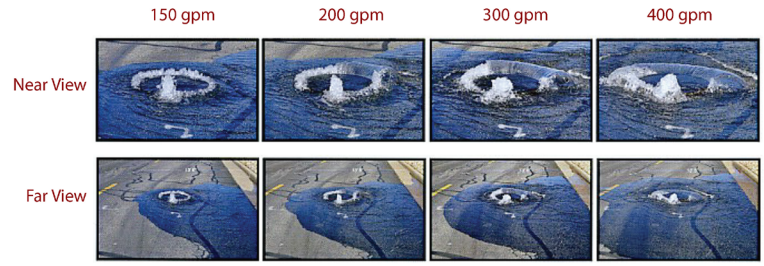
Carmel Area Wastewater District Overflow Emergency Response Plan

Volume Estimation: Duration and Flow Rate Comparison Method D-3

Compare the SSO to reference images below to estimate flow rate of the current overflow. **NOTE: If the manhole cover in your picture has vent holes or more than one pry hole, do not use these pictures for comparison.**

Describe which reference photo(s) were used and any additional factors that influenced applying the reference photo data to the actual SSO:





SSCSC Manhole Overflow Gauge: CWEA Southern Section Collections Systems Committee
Overflow Simulation courtesy of Eastern Municipal Water District

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

Start Date and Time	1.
End Date and Time	2.
SSO Event Total Time Elapsed (subtract Line 1 from Line 2. Show in minutes.)	3.
Average Flow Rate GPM (Account for diurnal flow pattern)	4.
Total Volume Estimated Using Duration and Flow Method (Line 3 x Line 4)	5.

Carmel Area Wastewater District Overflow Emergency Response Plan

Volume Estimation: Area/Volume Method

D-4: Page 1

SSO Date:_____ Location: _____

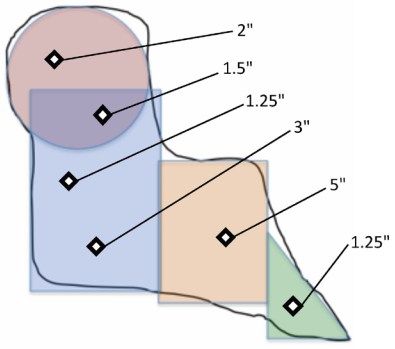
STEP 1: Describe spill area surface: ☐ Asphalt ☐ Concrete ☐ Dirt ☐ Landscape ☐ Inside Building

☐ Other: _____

STEP 2: Draw/sketch the outline (footprint) of the spill. Then break the footprint down into recognizable shapes. See example below.

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.
3. Determine the volume of each shape. (note: in this example, after the volume of the cirle is determined, multiply it by approximately 65% so that the overlap area won't be counted twice.
4. If the spill is of varying depths, take several measurements at different depths and find the average. If the spill affects a dry unimproved area such as a field or dirt parking lot, determine the aread of the wetted ground in the same manner as you would on a hard surface. Using a round-point shovel, dig down into the soil until you find dry soil. Do this in several locations within the wetted area and measure the depth of the wet soil. Average the measurement/thicknes of the wet soil and determine the average depth of the wet soil.

Example (right): 2" + 1.5" + 1.25" + 3" + 5" + 1.25" = 14.0"
14.0" ÷ 6 measurements = 2.33"
Average Depth = 2.33" (0.194')



Carmel Area Wastewater District Overflow Emergency Response Plan

Volume Estimation: Area/Volume Method

STEP 3: Calculate the area of the footprint by completing the table below for each shape 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 previous page.

Rectangles	Length	X	Width	X	% Not Overlapping*	=	Area
	ft	X	ft	X	%	=	ft^2
	ft	X	ft	X	%	=	ft^2
	ft	X	ft	X	%	=	ft^2

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

Circles	π	X	Radius	X	Radius	X	% Not Overlapping*	=	Area
	3.14	X	ft	X	ft	X	%	=	ft^2
	3.14	X	ft	X	ft	X	%	=	ft^2
	3.14	X	ft	X	ft	X	%	=	ft^2

Total Spill Area (sum of all three tables above): _____ ft^2

STEP 4: Measure the depth of the spill.

If 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

STEP 5: 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 4.
Convert from cubic feet to gallons by multiplying by 7.48.

_____ ft^2 x _____ ft = _____ ft^3 x 7.48 gal = _____ gallons

spill area (Step 3) | average depth (Step 4) | spill volume in feet | **Total estimated volume**

Carmel Area Wastewater District Overflow Emergency Response Plan

Drawing Worksheet D-5

INSERT TAB:
Backup Forms

Carmel Area Wastewater District Overflow Emergency Response Plan

Backup Forms Checklist (Backup Only) E-1

Complete this form only if there is a backup into a residence or business.

Instructions to Field Crew:

1. Take photo of each form before giving it to the customer for documentation.
2. Tear forms listed below out of this workbook and hand to customer. *Leave the First Responder Form in this workbook, do not give to Customer.*
3. Check each item that was provided to the customer.
4. Have customer sign below.

Forms/Documents:

- ☐ Form E-3: Declination of Cleaning Services
- ☐ Form E-4: Lodging Authorization
- ☐ Form E-5: Customer Information Letter
- ☐ Form E-6: Your Responsibilities as a Private Property Owner

Forms Provided to: _____
Customer Name

_____
Customer Signature

_____
Date

Check here if customer declines to sign: ☐

Forms Provided by: _____ _____
Employee Name Initial

Instruction to Collections Superintendent:

Send photos, including the photos of the documents given to the customer, and a copy of the First Responder form to the General Manager.

Carmel Area Wastewater District Overflow Emergency Response Plan

First Responder Form (Backup Only) E-2: Page 1

Complete this form only if there is a backup into a residence or business.

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

PERSON COMPLETING THIS FORM: Name: _____ Title: _____	PHONE: DATE: TIME:
TIME STAFF ARRIVED ON-SITE:	
DOES THE CUSTOMER WANT THE DISTRICT TO CALL FOR CLEANING SERVICE? ☐ Yes ☐ No If no, give the customer the Cleaning Declination Form and have them sign here: _____ If customer called a cleaning contractor, provide name and contact number:	
RESIDENT NAME: ☐ Owner ☐ Renter ADDRESS: PHONE:	IF RENT, PROPERTY MANAGER(S): OWNER: ADDRESS: PHONE:
# OF PEOPLE LIVING AT RESIDENCE:	

Approximate Age of Home:	# of Bathrooms:	# of Rooms Affected:
Numbers of Photographs or Videos Taken: ☐ Photographs ☐ Video ☐ Customer did not provide or allow photographs	Where are photos/video stored?	

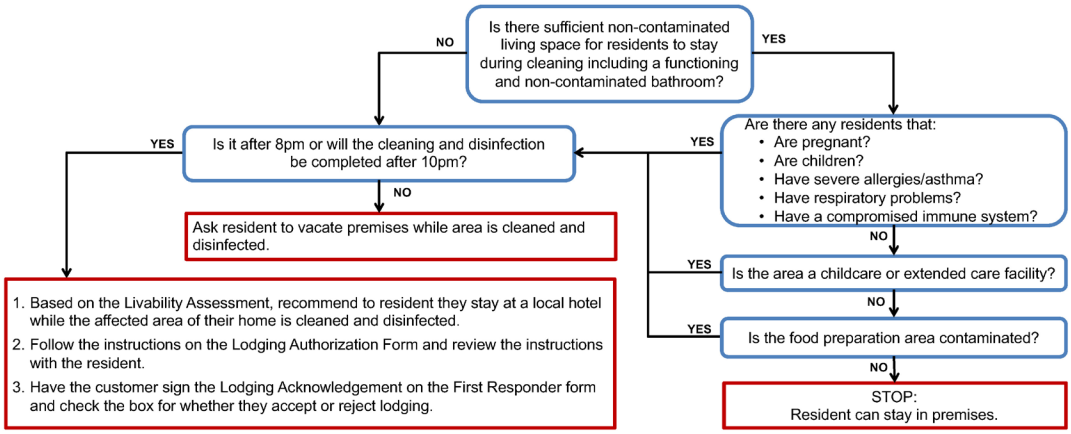
Is nearest upstream manhole visibly higher than the drain/fixture that overflowed? ☐ Yes ☐ No	
Does property have a Property Line Cleanout or BPD?	☐ Cleanout ☐ BPD ☐ Neither ☐ Unknown
If yes, was the Property Line Cleanout/BPD operational at the time of the overflow?	☐ Yes ☐ No ☐ Unknown
Have there ever 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 ☐ Unknown

GO TO Page 2

Carmel Area Wastewater District Overflow Emergency Response Plan

First Responder Form (Backup Only) E-2: Page 2

LIVABILITY ASESSMENT

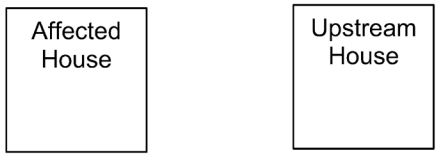


Temporary lodging was offered by the District and either (check one): ☐ Accepted ☐ Rejected

SANITARY SEWER LINE BLOCKAGE LOCATION

PLEASE CHECK THE BOXES THAT DESCRIBE YOUR OBSERVATIONS:	
Customer Cleanout Was: ☐ Non-Existent ☐ Full ☐ Empty	Agency Owned/Maintained Cleanout was: ☐ Non-Existent ☐ Full ☐ Empty

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



Recommended Follow-Up Action(s):

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

Carmel Area Wastewater District Overflow Emergency Response Plan

Declination of Cleaning Services (Backup Only) E-3

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: **and/or additional materials:**

☐ Tile ☐ Wood Flooring ☐ Area Rugs ☐ Towels
☐ Linoleum ☐ Carpet ☐ Clothing ☐ Other (specify):
☐ Other (specify):

This Form Completed By: Name: **Date:**

(Write legibly) Title: **Time:**

CUSTOMER, please read the following and sign below. I/We acknowledge that Carmel Area Wastewater District (*District)* 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 District assistance, and that the District will not accept responsibility for work performed by persons other than those engaged by the District. The District will also not accept responsibility for any charges related to this incident that are not usual and customary.

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 services.
- Seek immediate attention if you become injured or ill.

Carmel Area Wastewater District Overflow Emergency Response Plan

Lodging Authorization (Backup Only) E-4

INSTRUCTIONS TO EMPLOYEE:

1. Complete this form if the Livability Assessment on the First Responder Form indicates a need for temporary relocation and the customer accepts the offer.
2. Notify the Collections Superintendent who will make arrangements via telephone and pay for the hotel with a credit card.
3. Complete the voucher as instructed by the Collections Superintendent.
4. Take a photo of the form for records and then give it to the customer.
5. Have the customer sign the First Responder Form to indicate if they accept or reject the offer of temporary relocation.

INSTRUCTIONS TO RESIDENT:

Carmel Area Wastewater District recommends that you temporarily relocate to one of the hotels listed below 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) night's lodging at one of the hotels listed below.
2. The authorization is good for **room and tax ONLY**. Phone, food, mini-bar and other incidental charges will be your responsibility.
3. Additional nights and/or other allowances/incidentals may be discussed by contacting the District Collections Superintendent at (831) 257-0434.

VOUCHER

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

Customer's Name: _____

Field Supervisor's Name: _____ Phone Number: _____

☐ Carmel Mission Inn
3665 Rio Rd, Carmel-By-The-Sea, CA 93923
(800) 348-9090

☐ Monterey Marriott
350 Calle Principal, Monterey, CA 93940-2416
(844) 631-0595

☐ Monterey Embassy Suites
1441 Canyon Del Rey Blvd, Seaside, CA 93955
(831) 393-1115

Carmel Area Wastewater District Overflow Emergency Response Plan

Customer Information Letter (Backup Only) E-5 (English)

Dear Property Owner:

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

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

To discuss this matter, contact the District Collections Superintendent at (831) 257-0434. To submit a claim for damages, complete the Claim Form and contact the District General Manager's Office at (831) 624-1248.

Sincerely,
The Carmel Area Wastewater District

What you need to do now:

- 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) until cleanup has been completed.
- Turn off any 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 done, contact your plumber or contractor and inform them of this incident.

Carmel Area Wastewater District Overflow Emergency Response Plan

Customer Information Letter (Backup Only) E-5 (Spanish)

Estimado Propietario:

Reconocemos que los incidentes de la red de alcantarillado pueden ser estresantes y requieren una respuesta inmediata, mientras que todos los hechos relacionados con la forma en que ocurrió el incidente aún son desconocidos. Tenga la seguridad de que haremos todo lo posible para evitar que este tipo de evento ocurra en primer lugar. Sin embargo, ocasionalmente las raíces de los árboles u otros residuos en las líneas de alcantarillado causan una copia de seguridad en los hogares inmediatamente antes del bloqueo. En este momento el Distrito está investigando la causa de este incidente.

Si se determina que el Distrito es responsable del incidente, nos comprometemos a limpiar y restaurar su propiedad, ya proteger la salud de las personas afectadas durante el proceso de remediación.

El contratista de limpieza proporcionado por el Distrito ha sido seleccionado debido a su adhesión a los protocolos establecidos que están diseñados para garantizar a todas las partes servicios de limpieza exhaustivos, rentables y rápidos. También tiene derecho a seleccionar su propio contratista de limpieza, pero el Distrito no garantiza el pago de los honorarios / gastos incurridos y se reserva el derecho de disputar los honorarios / gastos que se consideren no habituales y habituales.

Para discutir este asunto, comuníquese con el Superintendente de Colecciones del Distrito al (831) 257-0434. Para presentar un reclamo por daños, complete el Formulario de reclamo y comuníquese con la Oficina del Gerente General del Distrito al (831) 624-1248.

Sinceramente,
The Carmel Area Wastewater District

Lo que necesitas hacer ahora:

- Minimice el impacto de la pérdida respondiendo rápidamente a la situación.
- No intente limpiar el área usted mismo, deje que la empresa de limpieza y restauración se encargue de esto.
- Mantenga a las personas y las mascotas alejadas de las áreas afectadas hasta que se haya completado la limpieza.
- Apague cualquier aparato que use agua.
- Apague los sistemas de calefacción / aire acondicionado.
- No retire elementos del área: la empresa de limpieza y restauración se encargará de esto.
- Si ha realizado trabajos de plomería recientemente, comuníquese con su plomero o contratista e infórmele de este incidente.

Carmel Area Wastewater District Overflow Emergency Response Plan

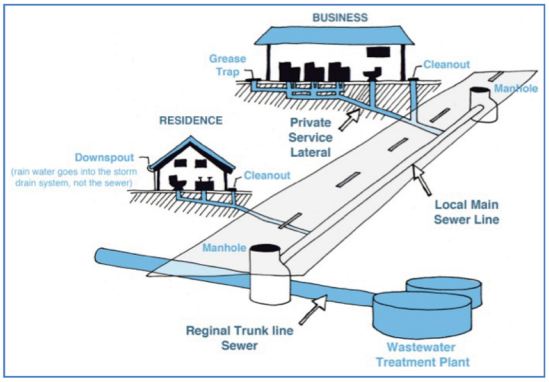
Your Responsibilities as a Private Property Owner (Backup Only) E-6: Page 1

How a Sewer System Works

A property owner's sewer pipes are called ***service laterals*** and are connected to larger local main and regional trunk lines. Service laterals run from the connection at the home to the connection with the public sewer. These laterals are the responsibility of the property owner and must be maintained by the property owner.

How do sewage spills happen?

Sewage spills occur when the wastewater in underground pipes overflows through a manhole, cleanout, or broken pipe. Most spills are relatively small and can be stopped and cleaned up quickly, but left unattended they can cause health hazards, damage to homes and businesses, and threaten the environment, local waterways, and beaches. Common causes of sewage spills include grease build-up, tree roots, broken/cracked pipes, missing or broken cleanout caps, undersized sewers, and groundwater/rainwater entering the sewer system through pipe defects and illegal connections.



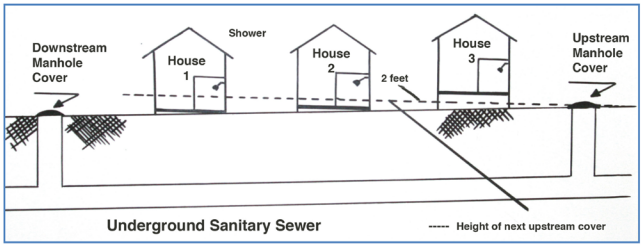
Prevent most sewage backups with a Backflow Prevention Device

This type of device can help prevent sewage backups into homes and businesses. If you don't already have a Backflow Prevention Device, contact a professional plumber or contractor to install one as soon as possible.

Is my home required to have a backflow prevention device?

Section 710.1 of the Uniform Plumbing Code (U.P.C.) states: *"Drainage piping serving fixtures which have flood level rims located below the elevation of the next upstream manhole cover or private sewer serving such drainage piping **shall** be protected from backflow of sewage by installing an approved type of backwater valve."* The intent of Section 710.1 is to protect the building interior from mainline sewer overflows or surcharges.

Additionally, U.P.C. 710.6 states: *"Backwater valves **shall** be located where they will be accessible for inspection and repair at all times and, unless continuously exposed, shall be enclosed in a masonry pit fitted with an adequately sized removable cover."*



Carmel Area Wastewater District Overflow Emergency Response Plan

Your Responsibilities as a Private Property Owner (Backup Only) E-6: Page 2

Spill cleanup inside the home:

For large clean ups, a professional cleaning firm should be contacted to clean up impacted areas, If you hire a contractor, it is recommended to get estimates from more than one company. Sometimes, homeowner's insurance will pay for the necessary cleaning due to sewer backups. Not all policies have this coverage, so check with your agent.

If you decide to clean up a small spill inside your home, protect yourself from contamination by observing the following safety measures. Those persons whose resistance to infection is compromised should not attempt this type of clean up.

Seek immediate attention if you become injured or ill during or after the cleanup process.

Other Tips:

- Keep children and pets out of the affected area.
- Turn off heating/air conditioning systems
- Wear rubber boots, rubber gloves, and goggles during cleanup.
- Discard items that cannot be washed and disinfected (such as: mattresses, rugs, cosmetics, 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 the 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 clothes worn during cleanup in hot water & detergent (wash apart from uncontaminated clothes).
- Wash clothes contaminated with sewage in hot water and detergent. Consider using a Laundromat until your onsite wastewater system has been professionally inspected and serviced.

Spill cleanup outside the home:

- Keep children and pets out of the affected area until cleanup has been completed.
- Wear rubber boots, rubber gloves, and goggles during cleanup of affected area.
- Clean up sewage solids (fecal material) and place in properly functioning toilet or double bag and place in garbage container.
- On hard surfaces areas such as asphalt or concrete, it is safe to use a 2% bleach solution, or ½ cup of bleach to 5 gallons of water, but don't allow it to reach a storm drain as the bleach can harm the environment.
- After cleanup, wash hands with soap and water. Use water that has been boiled for 1 minute (allow 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 clothes worn during cleanup in hot water and detergent (wash apart from uncontaminated clothes).
- Wash clothes contaminated with sewage in hot water and detergent. Consider using a laundromat until your onsite wastewater system has been professionally inspected and serviced.

INSERT TAB:
Failure Analysis

Carmel Area Wastewater District Overflow Emergency Response Plan

Collection System Failure Analysis

F-1: Page 1

OFFICE USE ONLY

Incident Report #		Prepared By	
SSO/Backup Information			
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			

Go to Side B

Carmel Area Wastewater District Overflow Emergency Response Plan

Collection System Failure Analysis

F-1: Page 2

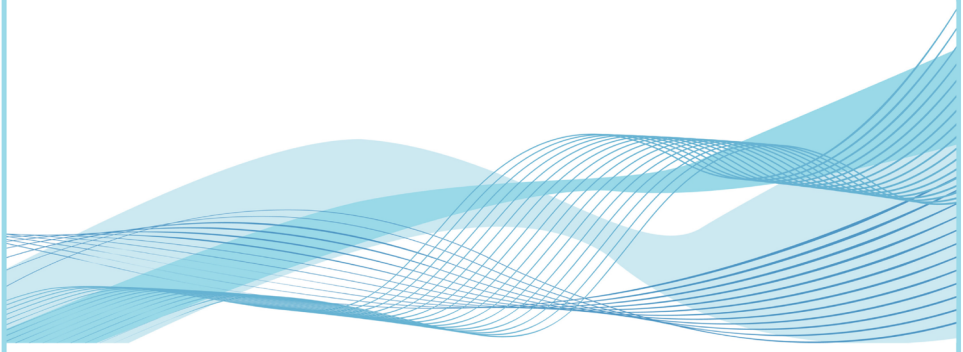
Recommendations					
✓	Type	Specific Actions	Who is Responsible?	Completion Deadline	Who Will Verify Completion?
	No Changes or Repairs Required	n/a	n/a	n/a	n/a
	Repair(s)				
	Construction				
	Capital Improvement(s)				
	Change(s) to Maintenance Procedures				
	Change(s) to Overflow Response Procedures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

Appendix E: CAWD Water Quality Monitoring Plan

CARMEL AREA WASTEWATER DISTRICT

Water Quality Monitoring Plan

September 3, 2019



Prepared by:

DKF Solutions Group, LLC

TABLE OF CONTENTS

1.0 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 CAWD of Carmel Area Wastewater District (CAWD) policies and procedures to assure consistent conformance to the regulatory requirements and to establish procedures for CAWD staff and contractors in their responses to large releases of sanitary sewage that reach surface waters. This WQMP is consistent with and supplemental to CAWD of Carmel Area Wastewater District Overflow Emergency Response Plan, Element VI of its SSMP. Finally, this document will be used to coordinate training for CAWD'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 CAWD 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 CAWD'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 CAWD forms used for water quality monitoring are included and available for use in any SSO incident.

2.0 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
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
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

3.0 RESPONSIBILITY

CAWD shall designate responsibility for all WQMP roles to appropriate classifications in CAWD'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 CAWD to individual classifications or service contractors of CAWD:

ROLES AND RESPONSIBILITY	RESPONSIBLE CLASSIFICATION
Provide and document regular training on WQMP for all CAWD classifications that have a role or responsibility in the WQMP and identified herein	Collections Superintendent or designee
Identification and assessment of potential impacts to local areas with surface waters that may require WQMP (i.e. aerial crossings, creeks, waterways, rivers, bays, estuaries, etc.)	Collections Superintendent or designee
Certification of calibration of sampling equipment and maintenance of calibration records	Lab Supervisor or designee

ROLES AND RESPONSIBILITY	RESPONSIBLE CLASSIFICATION
Determination of specific sampling protocols and analytic methods to be used for CAWD -required testing	Lab Supervisor or designee
Quarterly completion of the monitoring and sampling kit inventory for completeness.	Lab Supervisor or designee
Annual review of all standard operating procedures related to this WQMP especially the Sample Collection procedures	Collections Superintendent or designee
Decision to invoke a WQMP and direct the monitoring program to conclusion	Collections Superintendent or designee
Selection of sampling locations	Collections Superintendent or designee
Coordination of field sampling	Collections Superintendent or designee
Conduct field sampling per CAWD protocols	Collections Superintendent or designee
Authorization and direction for placement of public notifications and signage	Collections Superintendent or designee
Photographs of sampling and signage placed to protect public health and safety	Collections Superintendent or designee
Preparation of Chain of Custody for all samples taken including proper labeling	Collections Superintendent or designee
Determination of spill travel time, if applicable.	Collections Superintendent or designee
Review and evaluate lab results for termination of sampling and to determine the nature and impact of the release	Lab Supervisor or designee
Decision to terminate sampling	Collections Superintendent or designee
Preparation of detailed sampling location map	Collections Superintendent or designee
Conduct sample analysis	Lab Supervisor or designee
Preparation of water quality sampling activities narrative for Technical Report	Collections Superintendent or designee
Review and Approval of Technical Report	Collections Superintendent, Principal Engineer or designee

ROLES AND RESPONSIBILITY	RESPONSIBLE CLASSIFICATION
Certification and placement of Technical report in the CIWQS spill reporting system.	Collections Superintendent or designee
Failure Analysis Investigation of all water quality monitoring from the SSO event to determine all necessary changes or modifications to the WQMP	Collections Superintendent, Principal Engineer or designee
Audits of the WQMP as required by CAWD SSMP Element 10, Audit.	Collections Superintendent, Principal Engineer or designee
Management of Change responsibilities for the WQMP and all associated forms and documents required for use during an incident	Collections Superintendent or designee

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.

4.0 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 Central Coast Regional Water Quality Control Board
B. Water Quality Control Plan Ocean Waters Of California, State Water Resources Control Board
C. Best Management Practices for Sanitary Sewer Overflow (SSO) Reduction Strategies, Central Valley Clean Water Associates and Bay Area Clean Water Agencies, December 2009
D. CAWD Overflow Emergency Response Plans

E. Field Guide for Surface Water Sample and Data Collection, Air Program, USDA Forest Service, June 2001.

F. Standard Operating Procedures for Surface Water Quality Sampling, Arizona Department of Environmental Quality, Surface Water Section, September 2012.

G. 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.

5.0 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, CAWD 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.

5.1 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, CAWD 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 CAWD's service area that may be impacted by a sanitary sewer overflow from CAWD's sanitary sewer collection system. Prior 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 CAWD 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 CAWD's responders quickly determine if SSOs may flow into storm drains to reach and impact surface waters.

The following are the surface waters of concern within CAWD's jurisdiction:

- Pacific Ocean

- Carmel Bay
- Carmel River/ Lagoon
- Hatton Creek (seasonal)
- Pescadero Creek (seasonal)

6.0 LAB SELECTION

6.1 Analytical Lab

Samples collected for SSO response and background monitoring purposes pursuant to Section 5.0 will be analyzed either at CAWD's ELAP-certified lab at the Carmel Area Wastewater District Wastewater Treatment Plant or the current ELAP-certified contract lab (Monterey Bay Analytical as of 2019). Either 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.

6.2 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 lab at the Carmel Area Wastewater District Wastewater Treatment Plant and either processed there or arrangements will be made to get them to CAWD's current contract lab.

7.0 SAMPLING PARAMETERS

7.1 Required Sampling Parameters

The RWQCB Basin Plan and/or NPDES permit and/or the SWRCB's current Water Quality Control Plan for the Ocean Waters of California 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:

7.1.1 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.

7.1.2 Bacteriological Indicator as specified in the local Basin Plan and Ocean Plan

Total coliform, fecal coliform and enterococci 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 CAWD'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 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 Central Coast Regional Water Quality Control Board and the State Water Resources Control Board's California Ocean Plan are shown in Table 7.1 and 7.2.

Table 7.1: Water Quality Objectives from the Central Coast RWQCB Basin Plan for Coliform Bacteria

BENEFICIAL USE	FECAL COLIFORM (MPN/100ML)	TOTAL COLIFORM (MPN/100ML)
Water Quality Objective: Contact Water Recreation	Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml.	N/A

BENEFICIAL USE	FECAL COLIFORM (MPN/100ML)	TOTAL COLIFORM (MPN/100ML)
Water Quality Objective: Non-Contact Water Recreation	Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 2000/100 ml, nor shall more than ten percent of samples collected during any 30-day period exceed 4000/100 ml.	N/A

Table 7.2: Water Quality Objectives per the SWRCB California Ocean Plan (2012): Objectives for Bacteria

STATE WATER BOARD WATER-CONTACT STANDARDS
Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board (i.e., waters designated as REC-1), but including all kelp* beds, the following bacterial objectives shall be maintained throughout the water column: i. 30-day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each site: • Total coliform density shall not exceed 1,000 per 100 mL; • Fecal coliform density shall not exceed 200 per 100 mL; and • Enterococcus density shall not exceed 35 per 100 mL. Single Sample Maximum: Total coliform density shall not exceed 10,000 per 100 mL; i. Fecal coliform density shall not exceed 400 per 100 mL; ii. Enterococcus density shall not exceed 104 per 100 mL; and iii. Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/total coliform ratio exceeds 0.1. The “Initial* Dilution Zone” of wastewater outfalls shall be excluded from designation as "kelp* beds” for purposes of bacterial standards, and Regional Boards should recommend extension of such exclusion zone where warranted to the State Water Board (for consideration under Chapter III. J.). Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp* beds for purposes of bacterial standards.

Additionally, the California Ocean Plan imposes the following limits for ammonia, expressed as nitrogen:

- 6 month median: 600 ug/L
- Daily maximum: 2400 ug/L

- Instantaneous maximum: 6000 ug/L

7.2 Sampling Parameters for Carmel Area Wastewater District

7.2.1 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

7.2.2 Total Coliform/Fecal/Enterococcus

- 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

8.0 SAMPLING EQUIPMENT AND CALIBRATION

8.1 Sampling Equipment Used at the Carmel Area Wastewater District

The following are the sampling equipment used by CAWD

- Sampling pole with fixed container
- Sampling pole with removable container
- Sampling pail and rope
- Stream velocity meter
- Grab-n-Go Sample Kit containing, at a minimum:
  - Ice pack

- Waterproof pen
- Sample labels
- Sample bottles
- Deionized water for Sample Blanks
- Appropriate PPE

9.0 SAMPLING PROCEDURES

9.1 Sample Location and Identification Procedures:

Samples will be collected by CAWD Sewer Crew or lab personnel. 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 CAWD 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.

9.2 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.

9.3 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 CAWD may be summarized as follows:

1. Physical removal
2. Tap water rinse
3. Air dry

9.4 Sample Labeling and Chain of Custody Procedures

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.

9.4.1 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:

- pH
- Temperature
- Dissolved Oxygen
- 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.

9.4.2 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.

9.4.3 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

9.4.4 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 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.

9.4.5 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.

9.4.6 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.

9.5 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.

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 CAWD 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 CAWD 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 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.

9.6 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.

9.7 Grab-n-Go Sampling Kit

CAWD maintains a Grab-n-Go sampling kit located at Carmel Area Wastewater District Wastewater Treatment Plant. The kit is inspected quarterly by CAWD lab personnel. Additionally, any CAWD 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)
- 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

9.8 Surface Water Maps

Maps of surface waters in the Carmel Area Wastewater District service area that may be impacted by an SSO are located in Attachment F.

9.9 Follow Up Sampling

Sampling will be repeated every 24 hours, or as directed by the RWQCB or the Monterey 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 water quality objectives as described in Tables 7.1 or 7.2 are met.

9.10 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.

10.0 NOTIFICATIONS OF REGULATORY AGENCIES

Regulatory notification requirements are located in the Carmel Area Wastewater District Sanitary Sewer Overflow Emergency Response Plan (effective 8/19).

11.0 TECHNICAL REPORT

The MRP requires that in the event of a 50,000 gal or greater overflow spilled to surface waters, CAWD 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 CAWD's Legally Responsible Official.

12.0 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.

CAWD 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 CAWD forms and records used in this WQMP are included as attachments.

13.0 TRAINING

Training will be provided in accordance with Table 13.1.

Table 13.1 CAWD of Carmel Area Wastewater District surface water sampling training program

CAWD OF CARMEL AREA WASTEWATER DISTRICT SURFACE WATER SAMPLING TRAINING PROGRAM	
Who Is Trained To Collect Surface Water Samples?	Sewer Crew
Training Curriculum	At a minimum, training shall include: • The Carmel Area Wastewater District 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 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 Carmel Area Wastewater District.
Refresher Training Frequency	Annual
Who is Responsible for Ensuring Training Occurs?	Collections Superintendent or designee
Required Training Records	Employee training sign in log
Who is Responsible for Maintaining Records?	Collections Superintendent or designee

14.0 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 CAWD's 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 CAWD 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, CAWD should also conduct regular reviews of the WQMP at least annually or 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.

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 or once per year 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

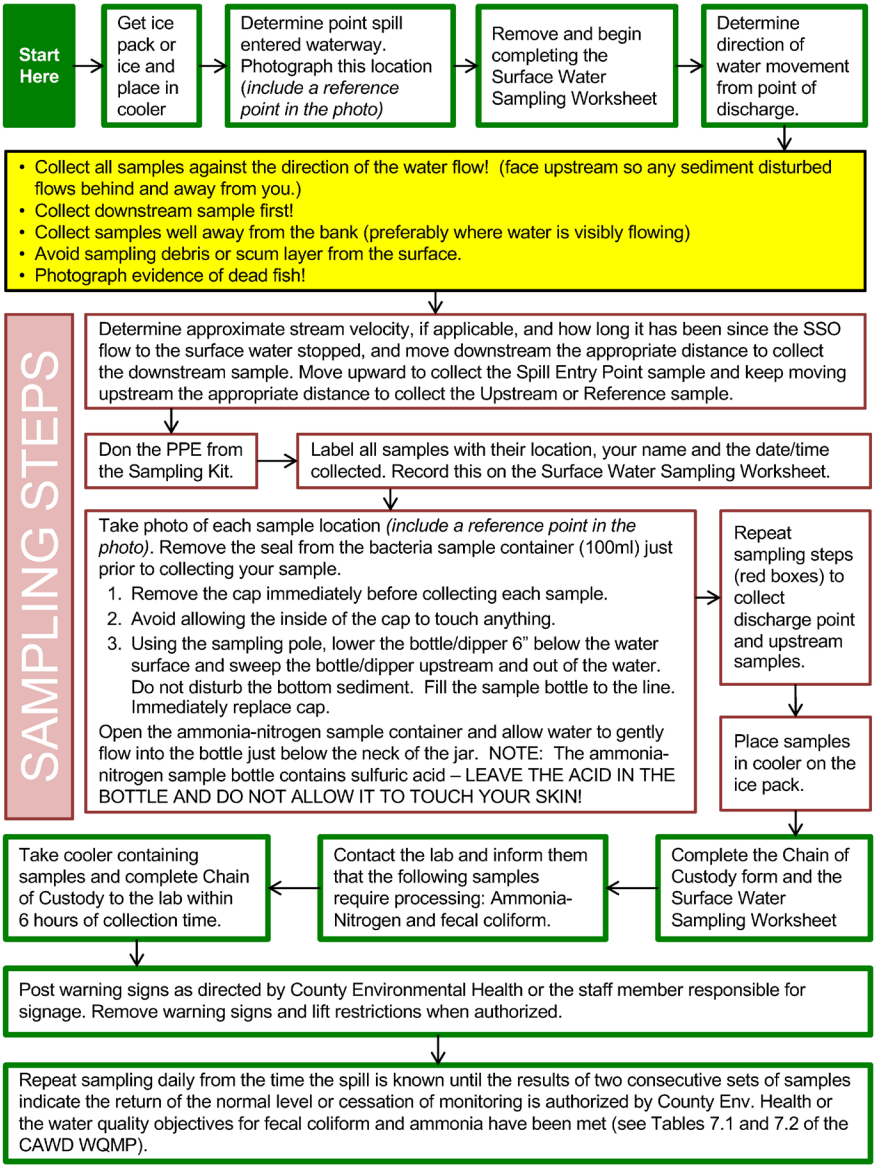
The new MRP, Section E.3 requires that all changes to the Sanitary Sewer Management Plan be recorded and documented using an SSMP Change Log indicating what section is being change, a description of the changes, and the person or persons authorizing the changes. Because the WQMP is required by the WDR 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.

15.0 ATTACHMENTS

A: WATER QUALITY MONITORING PLAN CHANGE LOG

Date	Section(s) Changed	Summary of Change	Approved (signature)

B: SURFACE WATER SAMPLING STANDARD OPERATING PROCEDURE



C: SAMPLE COLLECTION CHAIN OF CUSTODY RECORD

Customer Name	Carmel Area Wastewater District	☐	**Hazardous Waste**	**PO#**	
Customer Address	3945 Rio Rd, Carmel, CA 93922	☐	**Unknown Material**	**WO#**	
Customer Telephone	(831) 624-1248 **Mail Code**		**CONTRACT LAB INFORMATION**	**Turnaround Requirement**	
SSO Location 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	Fecal Coliform				☒ Lab Standard / ☐ Special (see attached)	Remarks/Notes
			☐	☒	Upstream		2	A	☒	☒	☐	☐	☐		
			☐	☒	Entry Point		2	A	☒	☒	☐	☐	☐		
			☐	☒	Downstream		2	A	☒	☒	☐	☐	☐		
			☐	☒	Field Blank		2	O	☒	☒	☐	☐	☐		Sterile deionized 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 courier Date: By:	☐ Lab Admin File	☐ Prog/proj Mgr. ☐ Lab Prog. Coord.	☐ Delivery courier ☐ Pick-up

D: 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 ➔

If the SSO was not actively entering the surface water during sampling:

A. Stream VeloCAWD: _____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*			

* Collect duplicate bacteria samples at each location

FINISH CHECKLIST

- ☐ **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**

NOTES / OBSERVATIONS

E: TECHNICAL REPORT

TECHNICAL 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

F: SURFACE WATER MAPS