



NOVATO SANITARY DISTRICT SEWER SYSTEM MANAGEMENT PLAN (SSMP)

WDID# 2SSO10162

**Initially Adopted August 11, 2008
by
District Board Resolution No. 2989**

**Prepared to meet SSMP requirements of the San Francisco Bay
Regional Water Quality Control Board (SFRWQCB) and the State
Water Resources Control Board (SWRCB) Statewide SSO GWDR**

**Novato Sanitary District
Annual Sewer System Management Plan (SSMP)
Revision History**

This SSMP has been revised. The justifications for the revisions are included. A copy of the revision page has been placed into the SSMP document behind the cover page in of the document.

REVISION HISTORY

<u>REVISION NO.</u>	<u>DATE</u>	<u>REASON</u>
0	August 11, 2008	Initial Adoption by District Board Resolution No. 2989
1	March 10, 2010	Revised to reflect changes for 2009
2	March 10, 2011	Revised to reflect changes for 2010
3	June 6, 2011	Revised Figure 2-4 to reflect removal of SFRWQCB as a “2-hour reporting agency”.
4	March 26, 2012	Revised for 2011 updates.
5	October 10, 2012	Minor updates to Sections 6 and 11.
6	August 2013	Revised to reflect 2012-13 changes
7	March 2014	Revised to reflect 2013-14 changes
8	March 2016	Revised to reflect 2015-16 changes

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NOVATO SANITARY DISTRICT

SEWER SYSTEM MANAGEMENT PLAN (SSMP)

INTRODUCTION

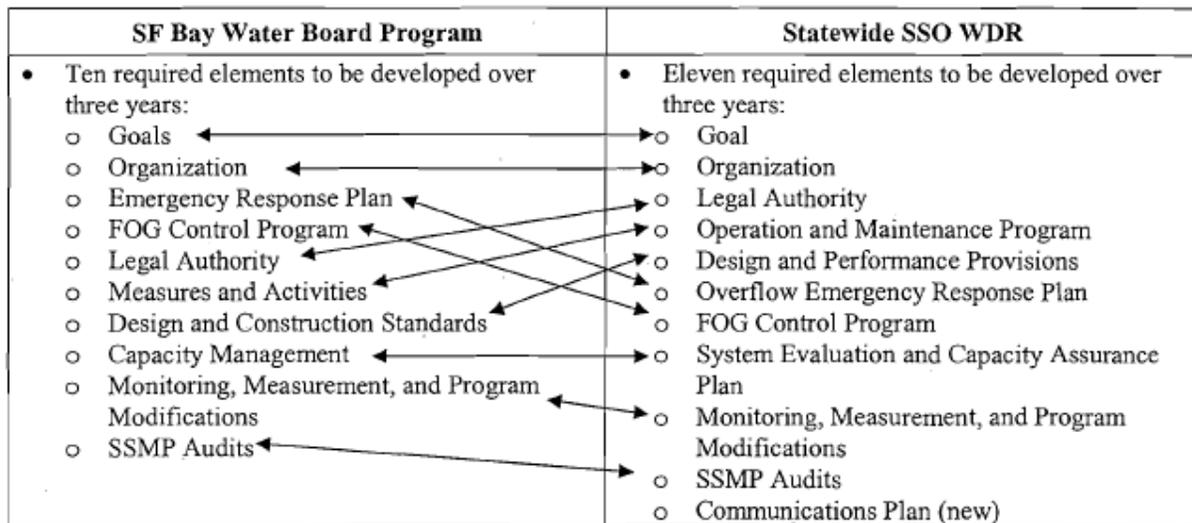
SSMP BACKGROUND

By letter dated July 7, 2005, and pursuant to Section 13267 of the California Water Code, the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) notified the Novato Sanitary District (District) to prepare a Sewer System Management Plan (SSMP). This SFRWQCB letter requires the District to prepare its SSMP following the guidelines in the SSMP Development Guide prepared by the SFRWQCB in cooperation with the Bay Area Clean Water Agencies (BACWA). The District must also comply with SFRWQCB sanitary sewer overflow (SSO) electronic reporting requirements issued in November 2004, and further clarified in May 2008.

In addition, at its meeting on May 2, 2006, the State Water Resources Control Board (SWRCB) enacted Order No. 2006-0003 “Statewide General Waste Discharge Requirements for Sanitary Sewer Systems”. This Order (commonly referred to as the “SSO GWDR” or “GWDR”) affects all public wastewater collection system agencies in California with greater than one mile of sewers. The SWRCB action applies to the District, and mandates the development of an SSMP and the reporting of SSOs using an electronic reporting system. The SWRCB SSMP requirements are similar to those of the SFRWQCB but differ in organization and some details. By letter dated September 29, 2006, the SFRWQCB developed relationships between the different elements of the SFRWQCB SSMP program and those mandated by the SWRCB’s GWDR. These relationships are excerpted from the September 29, 2006 SFRWQCB letter and presented in Figure 1.

Figure I-1: Relationships* of SSMP elements of the SFRWQCB program & SWRCB GWDR

5. Sewer System Management Program - Elements



←→ Double-head arrows indicate comparable sections

*Excerpted from SFRWQCB letter dated September 29, 2006.

While this SSMP meets the requirements of the SFRWQCB, the content is also generally designed to meet the requirements of the SWRCB GWDR. Accordingly, the general organization of this document is consistent with the SFRWQCB guidelines, but the contents address both the SFRWQCB and SWRCB GWDR requirements, and include the following sections:

- Section One: Goals (also complies with SWRCB GWDR element No. 1)
- Section Two: Organization (also complies with SWRCB GWDR element No. 2)
- Section Three: Emergency Response Plan (also complies with SWRCB GWDR element No. 6)
- Section Four: Fats, Oils and Grease (FOG) Control Program (also complies with SWRCB GWDR element no. 7)
- Section Five: Legal Authority (also complies with SWRCB GWDR element No. 3)
- Section Six: Measures and Activities (also complies with SWRCB GWDR element No. 4)
- Section Seven: Design and Construction Standards (also complies with SWRCB GWDR element No. 5)
- Section Eight: Capacity Management (also complies with SWRCB GWDR element No. 8)
- Section Nine: Monitoring, Measurement, and Program Modifications (also complies with SWRCB GWDR element No. 9)
- Section Ten: SSMP Audits (also complies with SWRCB GWDR element No. 10)
- Section Eleven: Communication Program (is exclusive to SWRCB GWDR).

DISTRICT OVERVIEW

The Novato Sanitary District (District) was formed on October 5, 1925 as the Marin County Sanitary District #6 to safeguard public health, and protect and enhance the environment of the community of Novato, California.

The enabling legislation for the formation of the District, as well as the District's legal authority resides in the Sanitary District Act of 1923, Chapter 1, Division 6, comprising Sections 6400 through 6830 of the Health and Safety Code of the State of California.

In February 1978, the District was renamed the Novato Sanitary District to affirm its commitment to the City of Novato (incorporated 1960), and the Novato community as a whole. Today, the purpose of the District is to provide wastewater collection, treatment, and disposal services for the entire Novato community. In addition, the District is also responsible for refuse disposal, recycling, and green-waste collection through its franchise collection entity, currently Novato Disposal Service.

Recently, the District (in conjunction with the North Marin Water District), also initiated a recycled water program whereby a portion of the District's secondary effluent is imparted a high level of additional treatment to meet California Title 22 recycled water standards for golf course and landscape irrigation. In 2011, this program was expanded, and the construction of new facilities was initiated at the site of the District's Novato Treatment Plant to provide additional recycled water production capability.

WASTEWATER SYSTEM OVERVIEW

The District owns and operates a wastewater collection system, a municipal wastewater treatment plants, and a combined effluent discharge outfall. The wastewater treatment plant (WWTP) is the Novato Treatment Plant (NTP), which is currently designed for an average dry weather flow of 7.05 MGD. This plant was significantly upgraded and placed into service in 2010. Also, in 2010 the District entered into an agreement with Veolia Water to operate the district's treatment facilities on a contract basis.

The District's wastewater collection system collects and transports wastewater flows to the WWTP through a series of gravity sewers and interceptors, pump stations, and force mains. The combined collections and conveyance systems include a total of about 225 miles of sewers with about 200 miles of gravity sewer lines ranging from 4-inch to 54-inch diameter, about 25 miles of force mains, 5 main pump stations, and 33 lift stations. The pump stations vary in capacity from about 50 gpm to about 5 MGD, and individual pumps range from 3 hp to 90 hp.

LIST OF ABBREVIATIONS

AMS	Asset Management System
BACWA	Bay Area Clean Water Agencies
BSF/BWF	Base Sanitary Flow/Base Wastewater Flow
CCTV	Closed Circuit Television
CDFG	California Department of Fish and Game
CIP	Capital Improvement Plan or Program
CIWQS	California Integrated Water Quality System
CMMS	Computerized Maintenance Management System
CSMP	Collection System Master Plan
FOG	Fats, Oils and Grease
FSE	Food Service Establishment
gpm	gallons per minute
gpd	gallons per day
GIS	Geographic Information System
GWDR	General Waste Discharge Requirements
GWI	Groundwater Infiltration
hp	Horsepower
ICOM3	The District's computerized collection infrastructure management system
ICFM	Ignacio Conveyance Force Main
ITPS	Ignacio Transfer Pump Station
I/I	Infiltration and Inflow
MGD	Million Gallons per Day
NPDES	National Pollution Discharge Elimination System
NSD	Novato Sanitary District (District)
NTP	Novato Treatment Plant
OERP	Overflow Emergency Response Plan
OES/EMA	State Office of Emergency Services/Emergency Management Agency
OSHA	Occupational Safety and Health Administration
RDI/I	Rainfall-Dependent Infiltration and Inflow
SCBA	Self Contained Breathing Apparatus
SFRWQCB	San Francisco Regional Water Quality Control Board
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board
WDR	Waste Discharge Requirements
WWTP	Waste-Water Treatment Plant

NOVATO SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP)
SECTION ONE - GOALS

1.1 Regulatory Requirements

1.1.1 SFRWQCB

SSMP Element 1: Each wastewater collection system agency shall, at a minimum, develop goals for the Sewer System Management Plan as follows:

- *To properly manage, operate, and maintain all parts of the wastewater collection system*
- *To provide adequate capacity to convey peak flows*
- *To minimize the frequency of SSOs*
- *To mitigate the impact of SSOs*

1.1.2. SWRCB GWDR

GWDR SSMP Element No. 1: 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.

1.2 GOALS OF THE DISTRICT'S SSMP

Consistent with its purpose, the District is committed to a policy of sound, cost effective asset management and to a process of continuous improvement in operational reliability & flexibility, for its sanitary sewer system. Accordingly, the District is dedicated to achieving the following goals for its sanitary sewer system management plan (SSMP):

- To properly manage, operate and maintain all parts of the wastewater collection system it owns and controls in a safe, sound, and cost-effective manner
- To provide adequate capacity to convey base and peak wastewater flows in its system
- To minimize the frequency of occurrence of Sewer System Overflows (SSOs) in its system
- To mitigate the impacts of any SSOs that may occur in its system
- Evaluate and analyze both current and potential maintenance practices and performance in an on-going effort to operate efficiently and to effectively reduce SSOs.

This SSMP document provides a summary of: (a) the District's objectives, plans, practices, and procedures to meet these goals, and (b) its activities and core documents as they relate to each of the elements required to be addressed in the SSMP.

NOVATO SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP)
SECTION TWO – ORGANIZATION

2.1 Regulatory Requirements

2.1.1 SFRWQCB

SSMP Element 2: Each Wastewater collection agency shall, as a minimum, provide information regarding organization:

- *Identify agency staff responsible for implementing, managing, and updating the SSMP*
- *Identify chain of communication for responding to SSOs*
- *Identify chain of communication for reporting SSOs*

2.1.2. SWRCB GWDR

GWDR SSMP Element No. 2 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)).

2.2 Organizational Structure

2.2.1. General: The District’s organizational structure is designed to adapt to the community’s needs as well as changing regulatory needs and priorities, while being able to respond effectively to critical situations. Given the relatively small size of its organization (currently, a total staff of 22, and about 20 fulltime employees), the District attempts to employ a relatively flexible staffing structure. An Organizational chart reflecting the District’s current staffing structure is provided as Figure 2-1.

2.2.2 Board of Directors: Five member governing body of the District. Members are elected at-large from the community, over staggered two year periods; each member serves a four term.

2.2.3 General Manager-Chief Engineer (GM-CE): Appointed by, and reports directly, to the Board of Directors. The GM-CE conducts the day-to-day business of the District.

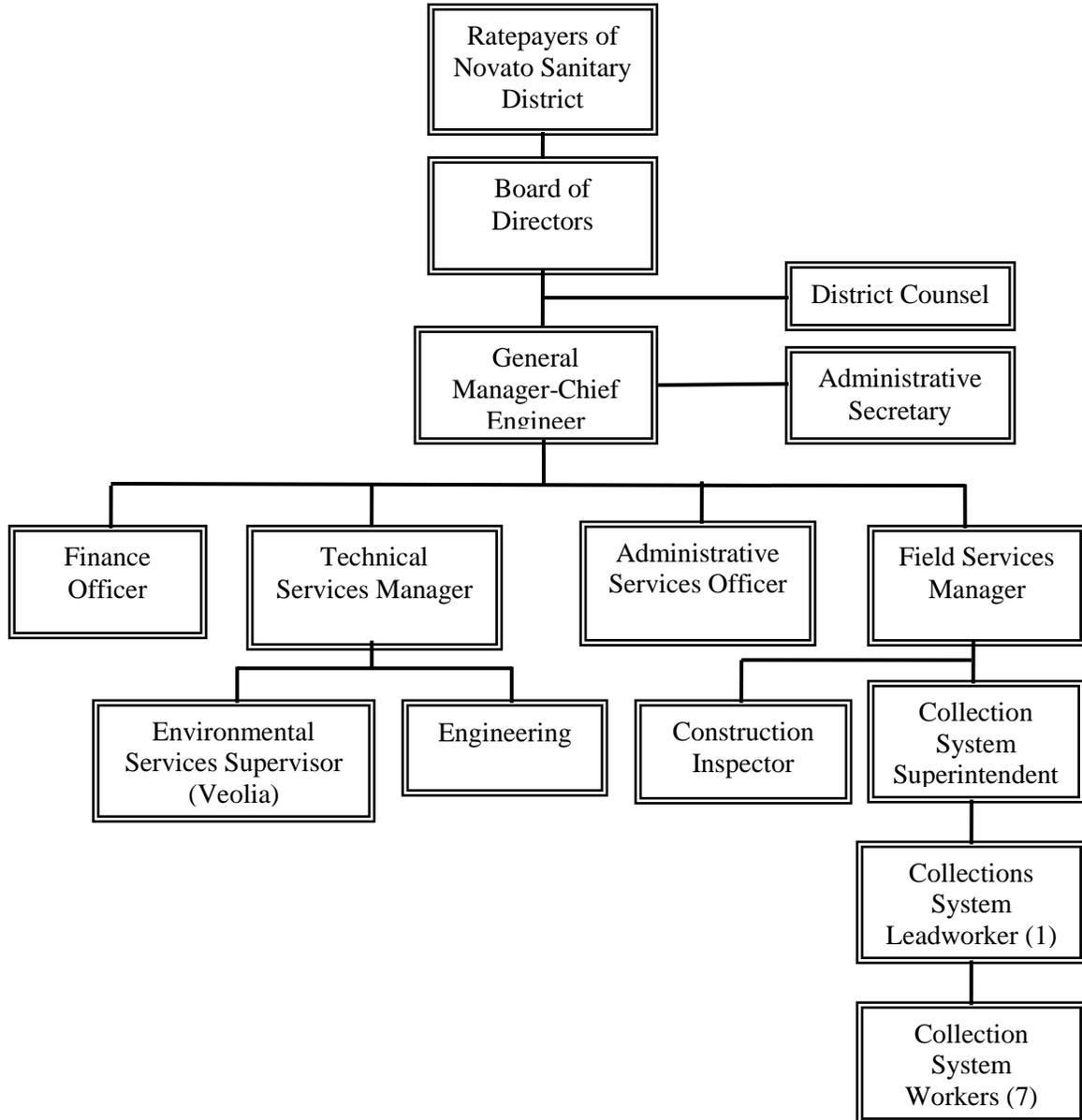


Figure 2-1: Organizational Chart

2.2.4 Departments: The District is broadly organized into the Administrative Services, the Field Services, and Technical Services departments which report directly to the GM-CE.

2.2.5 Technical Services Manager: Manages the Technical Services Department including Engineering and Environmental Services sections. Is hired by and reports directly to the GM-CE.

2.2.6 Field Services Manager (FSM): Manages the Field Services Department including Collections Systems, Reclamation and Construction. Is hired by and reports directly to the GM-CE.

2.2.7 Collections Systems Superintendent: Supervises the Collections Systems section. Reports directly to the FSM.

2.3 Description of General Responsibilities

2.3.1 General: As mentioned above, the District adopts a flexible staffing structure to respond effectively to SSOs and critical situations. A description of the District's current staffing structure as it relates to the roles of various staff, and reporting and response requirements from an SSO/SSMP perspective is outlined below.

2.3.2 Board of Directors: Establish policies and provide needed resources to meet all public health and environmental laws and regulations in a safe, effective and efficient manner. Attend emergency meetings if required.

2.3.2 General Manager-Chief Engineer (GM-CE): Responsible for all District day-to-day operations and activities, including reporting to regulatory agencies and other external organizations, including the updating and auditing of this SSMP. Interpret policy provided by District Board, plan District strategy, lead staff, prepare and submit the District budget (including the Capital Improvements Program or CIP budget) to the District Board, allocate resources, authorize outside contractors to perform services, and act as the District's public information officer.

In the event of an SSO or other critical situation:

- a. Receive information from various staff in the field and office
- b. Make resources available to respond to situation
- c. Provide timely reports and information updates to the District Board
- d. Arrange emergency meetings if required
- e. Verify that all regulatory reporting requirements are met

The GM-CE is a designated legally responsible officer (LRO) for purposes of SSO reporting.

2.3.3. Technical Services Manager (TSM): May act on behalf of the GM-CE in his/her absence. Prepare CIP program, expenditure projections, and budget and submit to GM-CE. Manage preparation of wastewater collection system studies and planning documents by outside consultants or District staff; manage implementation of CIP projects; document new and rehabilitated assets, and coordinate development, implementation, and updating of the SSMP.

In the event of an SSO or other critical situation:

- a. Receive information from various staff in the field and office, and make immediate reports to GM-CE
- b. Provide field assistance in coordinating District response
- c. Attend emergency meetings as directed by the GM-CE
- d. Assist the GM-CE in verifying that all reporting requirements are met

The TSM is a designated legally responsible officer (LRO) for purposes of SSO reporting.

2.3.4 Field Services Manager: May act on behalf of the GM-CE in his/her absence. Serves as the District's resident engineer; coordinates capital improvement, maintenance and special engineering projects with consulting engineers and construction contractors and other public agencies. In terms of collections and pump stations operation, can serve as a back-up to the Collection System Superintendent.

In the event of an SSO or other critical situation:

- a. Receive information from various staff in the field and office, and make immediate reports to GM-CE
- b. Provide field assistance in coordinating District response
- c. Attend emergency meetings as directed by the GM-CE
- d. Assist the GM-CE in verifying that all reporting requirements are met

The FSM is a designated legally responsible officer (LRO) for purposes of SSO reporting

2.3.5 Collections Systems Superintendent (CSS): Provide direct supervision to Collections System Department. Manage field operations and maintenance activities for the collection system including line cleaning, televising, inventory and evaluation of the collection system and recordkeeping of all maintenance activities into the District's collection system computerized maintenance management system. Provide periodic as well as timely updates to the FSM, and the GM-CE. Assist in preparing and implementing contingency plans. Prepare and implement contingency plans. Train and supervise collections system crew consisting of Leadworker and Collection System workers.

In the event of an SSO or other critical situation:

- a. Investigate SSOs with immediate reporting to FSM.-Provide immediate reporting to regulatory agencies, GM-CE and FSM
- b. Lead emergency response to stop the SSO or mitigate its impacts
- c. Handle all follow-on reporting requirements with regulatory agencies
- d. Attend emergency meetings as directed by the FSM
- e. Verify that all reporting requirements are met

2.3.5 Collection System Staff: include a Collection Systems Leadworker and seven Collections Systems Workers. Staff field operations and maintenance activities for the collection system including line cleaning, televising, and recordkeeping of maintenance activities for the District's collection system computerized maintenance management system. Perform preventive maintenance activities in the collection system. Receive notification and respond to sewer blockages and stoppages.

In the event of an SSO or critical situation:

- a. Receive notification of SSOs or critical situations in collection system
- b. Mobilize and respond to such notification
- c. Deploy sewer cleaning equipment, by-pass pumps, portable generators, confined space equipment (if required), etc. as required by training, or as directed
- d. Under the direction of the FSM, CSS, or Collections Leadworker, perform all required activities to stop, mitigate, or eliminate the situation

The CSS is a designated legally responsible officer (LRO) for purposes of SSO reporting.

2.3.6 Staff Engineer: Assist in preparation of wastewater collection system studies and planning documents by outside consultants. Review adequacy of planning, design, and construction of developer initiated sewer lines prior to transfer to District ownership. Generate permits for construction of private sewer lines within the District boundaries. Review video from televising of District lines for QA/QC purposes. Prepare/review as-built documentation for new and rehabilitated assets. Work as required on applicable regulatory permits and support all aspects of SSMP program. Maintain and prepare updates to the District's construction standards, and District Infrastructure Mapping and Asset Inventory.

2.3.7 Construction Inspector: Inspect spot repair type work in the collection system to ensure that rehabilitated work meets District standards. Work with field crews to provide construction related direction during emergencies when outside construction contractors are involved. Works with staff engineer to review adequacy of planning and design of developer initiated projects and inspects construction of such projects for adequacy against District construction standards before transfer to District ownership. Provide construction inspection of private sewer lines within the District boundaries to verify that all work is performed according to District standards.

2.3.8 Information Systems Specialist: Maintain the District's collections system computerized maintenance management system to ensure that system functions adequately. Assist Collection System Superintendent in modifying and/or generating new data entry forms and formats for the system. Review and upgrade system software and hardware as required.

2.4 Authorized Representative

The General Manager-Chief Engineer is the District's authorized representative to the California Integrated Water Quality System (CIWQS) to certify SSO reports. The GM-CE has authorized the Collection System Superintendent, the Technical Services Manager and the Field Services Manager to prepare and submit electronic reports.

2.5 Responsibility for SSMP Implementation

The General Manager- Chief Engineer is responsible for overseeing the overall implementation of the SSMP. Various individuals within the District's organization are responsible for implementing one or more of the SSMP sections. Table 2-1 summarizes the responsibilities for SSMP implementation by section.

2.6 Chain of Communication for Responding to SSOs

The chain of communication for responding to an SSO is shown in Figure 2-2. Detailed information on the District's overflow response procedure can be found in Section 3: Overflow Emergency Response Plan and in the District's full Overflow Emergency Response Plan herein.

2.7 Chain of Communication for Reporting SSOs

The chain for reporting SSOs to the various regulatory agencies is shown in Figure 2-3. Detailed information on SSO reporting can be found in Section 3: Overflow Emergency Response Plan and in the District’s full Overflow Emergency Response Plan herein.

2.8 District Phone Lists

The District has a land-line as well as cellular based communications systems. In addition, as discussed in later sections, the Collections System staff also has a Federal Communications Commission (FCC) licensed two-way radio communications system. The District’s landline and cellular systems phone lists are presented as Tables 2-2 through 2-6 herein.

Table 2-1: Responsibility for SSMP Implementation by Section

SSMP SECTION NO.	SSMP SECTION NAME	RESPONSIBLE PERSONS(S)
Section One	Goals	General Manager-Chief Engineer
Section Two	Organization	General Manager-Chief Engineer
Section Three	Overflow Emergency Response Plan	Collection System Superintendent
Section Four	Fats, Oils and Grease (FOG) Control Program	Collection System Superintendent, Technical Services Manager, Environmental Services Supervisor
Section Five	Legal Authority	General Manager-Chief Engineer
Section Six	Measures and Activities	, Collection System Superintendent, Field Services Manager
Section Seven	Design and Construction Standards	General Manager-Chief Engineer, Technical Services Manager, Field Services Manager, Staff Engineer, Construction Inspector
Section Eight	Capacity Management	General Manager-Chief Engineer, Technical Services Manager, Staff Engineer
Section Nine	Monitoring, Measurement, and Program Modifications	General Manager-Chief Engineer, Technical Services Manager, Staff Engineer, Information Systems Specialist
Section Ten	SSMP Audits	General Manager-Chief Engineer, Technical Services Manager, Collections System Superintendent
Section Eleven	Communications Program	General Manager-Chief Engineer

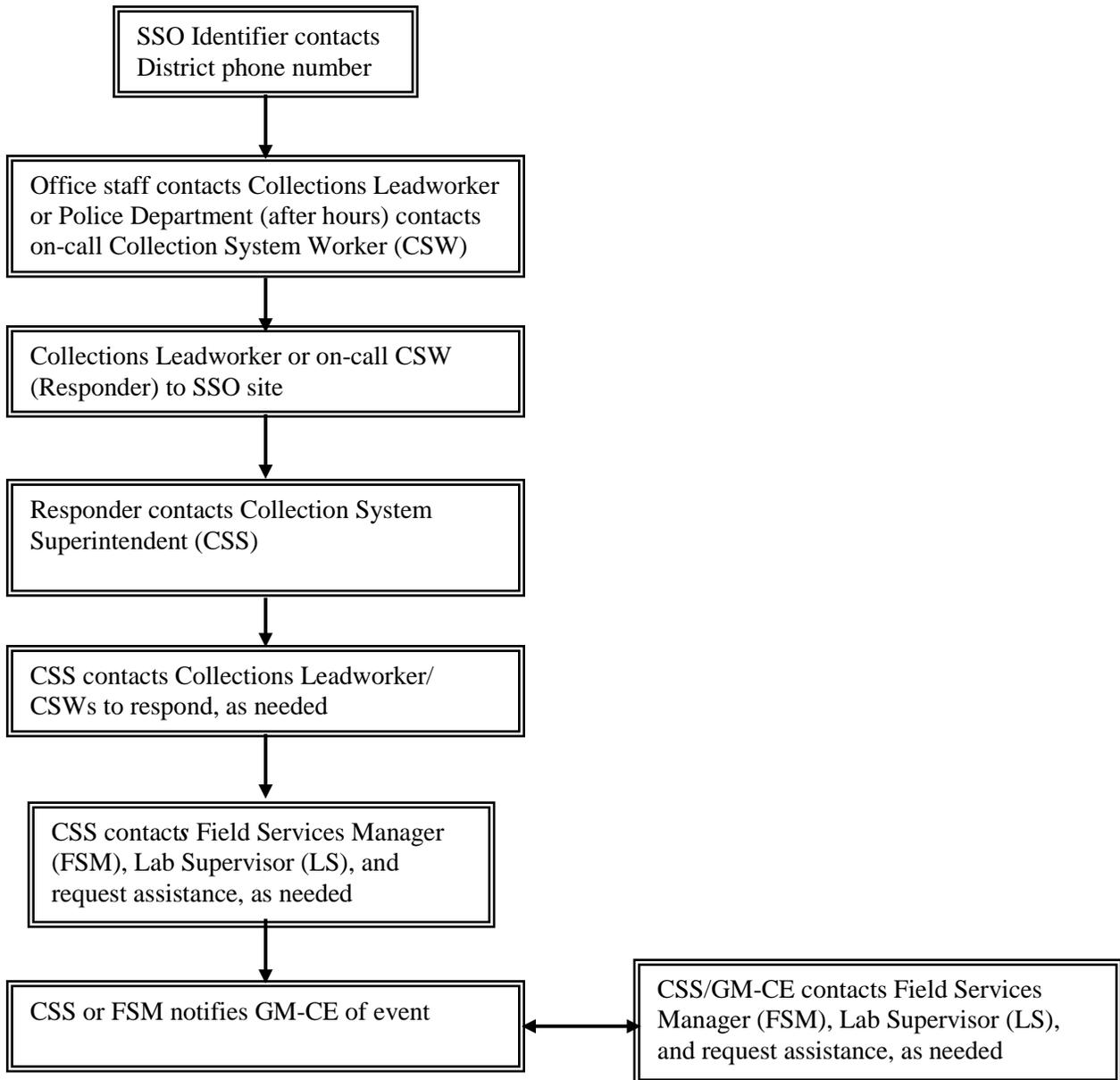


Figure 2-2: NSD Chain of Communication for Responding to SSOs

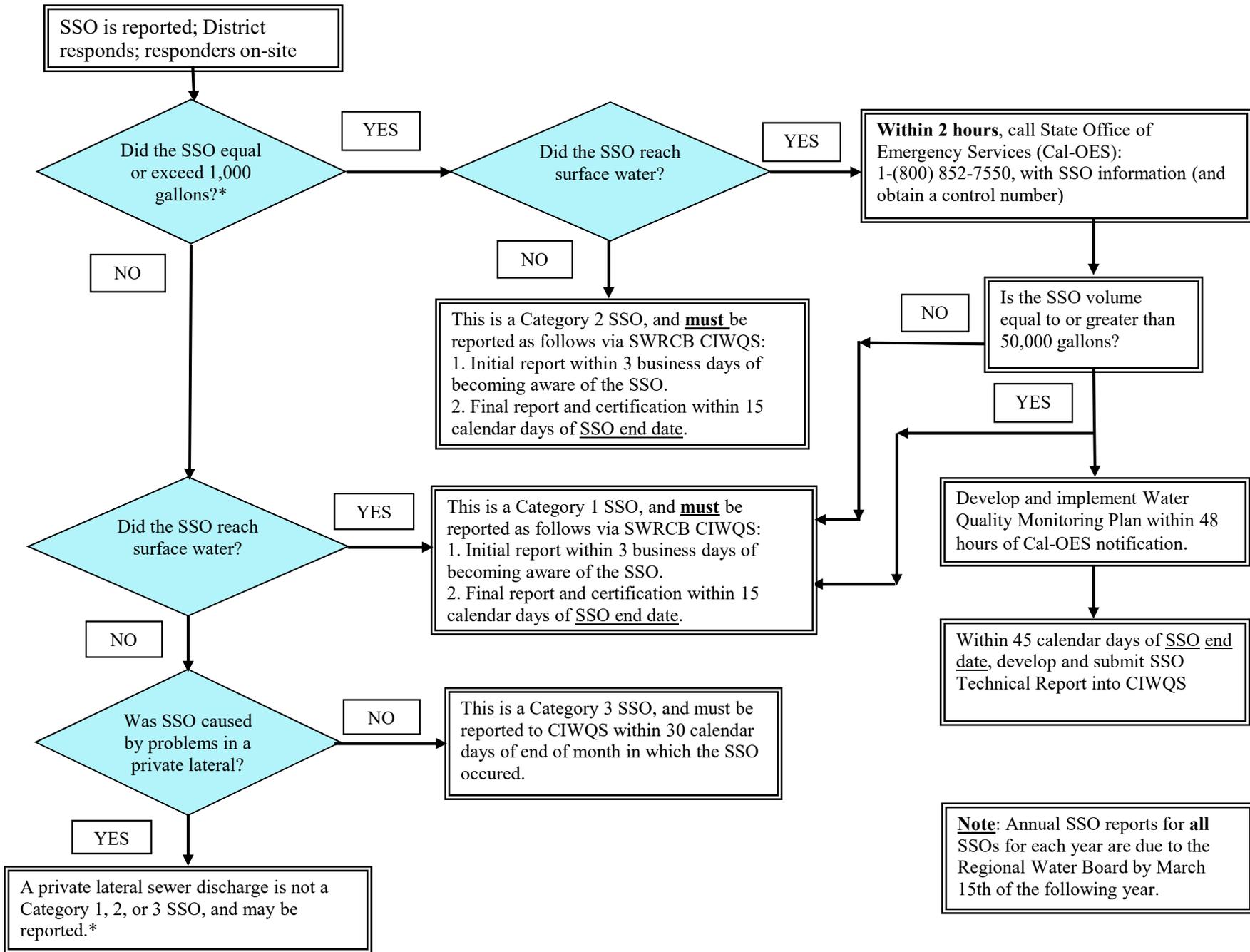


Figure 2-3: NSD SSO Reporting Responsibilities

*The SSO-WDR strongly encourages (but does not require) Cal-OES notification of private lateral discharges greater than 1,000 gallons.

Table 2.2: Novato Sanitary District Phone List - Main Number: (415) 892-1694

Ext	Name	Ext	Name
106	Sandeep Karkal, General Manager- Chief Engineer	112	Laura Creamer, Finance Officer
108	Bill Northcroft, Staff Engineer	130	Library (small conference room)
113	Board Room	119	Liz Falejczyk, Environmental Services Supr.(Veolia)
114	Craig Deasy, Senior Engineer	109	Robin Merrill, Info Systems Spec
101	Julie Swoboda, Admin. Secretary	111	Erik Brown, Technical Services Manager
103	June Brown, Admin Services Specialist	107	Steve Krautheim, Field Services Manager
		124	Dasse de Iongh, Collection System Supr.
121	Kevin Craig, Construction Inspector		

**Table 2.3: Novato Sanitary District Cell Phone List
(Admin and Engineering)**

Name/Title	Cell Number
Bill Northcroft, Staff Engineer	415.798.4056
Craig Deasy, Senior Engineer	415.798.0423
Julie Swoboda, Administrative Secretary	415.798.1999
Robin Merrill, Information Systems Specialist	415.798.0395
Sandeep Karkal, General Manager-Chief Engineer	415.798.6034
Erik Brown, Technical Services Manager	707.291.2502

**Table 2.4: Novato Sanitary District Cell Phone List
(Collection System)**

Name/Title	Cell Number
Dasse DeLongh, Collection System Supervisor	415.798.4054
Javier Vega, Collections Leadworker	415.798.4059
Aaron Hendricks, Collection System Worker I	415.798-0460
Larry Foged, Collection System Worker II	415.748.8563
Bob Stiles, Collection System Worker I	415.748.4009
PJ Sirragusa, Collection System Worker I	415.798.4069
Joe Moreno, Collection System Worker I	415.798.0394
Collections pager	415.838.0125

Table 2.5: Novato Sanitary District Cell Phone List (Field Services)

Name/Title	Cell Number
Steve Krautheim, Field Services Manager	415.798.4053
Kevin Craig, Construction Inspector	415.990.7360
Mike Chirco, Temp Elect Tech	415.798.0464

NOVATO SANITARY DISTRICT
SECTION THREE
OVERFLOW EMERGENCY RESPONSE PLAN

3.1 Regulatory Requirements

3.1.1 SFRWQCB

SSMP Element 1: Each wastewater collection system agency shall develop an overflow emergency response plan with the following elements:

- *Notification: - Provide SSO notification procedures.*
- *Response – Develop and implement a plan to respond to SSOs*
- *Reporting – Develop procedures to report and notify SSOs per SSO Monitoring and Reporting Program*
- *Impact Mitigation – Develop steps to contain wastewater, to prevent overflows from reaching surface waters and to minimize or correct any adverse impact from SSOs.*

3.1.2. SWRCB GWDR

*GWDR SSMP Element No. 6: **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) 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.*

3.2 General

The District is a member of the California Sanitation Risk Management Agency (CSRMA), a joint powers authority comprised of approximately 60 sanitary sewerage agencies, sanitation and sanitary districts across California. The District participates in the Pooled Liability Program (PLP) established by CSRMA. The PLP serves to provide the insurance that covers the District's liabilities arising from any backups, spills, or SSOs attributed to its collection system.

Based on the nature of its business, a major goal of CSRMA's PLP is to minimize its members exposure to liabilities arising from backups, stoppages, SSOs, etc. in their collection systems. Accordingly, CSRMA has acquired extensive expertise and experience in developing overflow response plans that meet the dual needs of meeting all applicable regulatory requirements, while satisfying stringent insurance underwriting standards.

The District has utilized this experience and expertise, and worked with CSRMA to develop a comprehensive backup and overflow emergency response plan tailored specifically to the District's needs. A copy of this plan entitled Sanitary Sewer Backup and Overflow Response Plan is provided as Attachment 3A.

Another primary tool that the District utilizes in tracking progress in the notification and response chain for incidents in its collection system is the Sewer Service Call Form (see Attachment 3B). This form consists of several parts, with each part setting up a step-by-step level of notification and response from initial notification to final closeout for an individual incident.

The procedures outlined in the Overflow Response Plan and the documentation capabilities of the Sewer Service Call Form provide a basis for the overall Overflow Emergency Response Plan.

3.3 Overflow Notification/Service Calls

The District's offices are open Monday through Friday, 8:00 a.m. to 4:30 p.m. All service calls during business hours are received by the Administrative Services staff, and logged into Sewer Service Call Forms. Each call is assigned a Service Call Form which then stays with that particular incident for the duration of the incident.

The Sewer Service Call Form records the District's initial documentation of notification of any incident in its collection system in Part A of the form. This basic notification information is immediately relayed directly to the Collection System Superintendent (or the Collections Lead Worker or Field Services Manager, in his absence), who initiates the appropriate mobilization/response procedures in accordance with the Overflow Emergency Response Plan.

After hours, the District utilizes the Novato Police Department (NPD) to take emergency calls. After hour callers to the District's main phone line are notified to call the NPD directly to ensure

a timely response. The NPD then relays the message to the on-call collection system worker (CSW) by cellular telephone and pager, along with a contact number for acquiring additional information. This capability for the caller to be able to talk to a live person 24 hours per day adds the positive benefits of human interaction, significantly reducing the possibility of a missed call or misunderstanding about the nature of a problem. Further, in 2011, the District also modified its telephone system so that any messages left on its main (general) voice mail box after hours are relayed via e-mail to the Collection System Superintendent, the Field Services Manager, and the General Manager-Chief Engineer.

The District utilizes a rotating on-call system to have at least one collections system worker available and on-call to respond to after-hours calls from the NPD. Upon notification by the NPD, the on-call CSW makes a determination about the emergency, and, as necessary, notifies the Collections Systems Superintendent (CSS), who can direct other CSW(s) to respond to the incident in addition to the on-call worker. The CSS is furnished with a District truck and cell phone, and all CSWs are furnished an individual cell phone. The cell phones are backed up by pagers for the CSS, and the on-call CSW. The District also utilizes a Federal Communication Commission (FCC) licensed two-way radio network that serves as a further back-up communications system. In addition to the cell phone and on-call pager, the on-call worker is furnished with an on-call response vehicle.

3.4 Overflow Response

The District's overflow emergency response plan identifies and provides details of several standard policies and procedures that the District is required to follow in the event of a backup, spill, or sanitary sewer overflow (SSO) attributed to its collection system. As discussed earlier, the District is required to follow these procedures not only from the perspective of compliance with all state mandated requirements, but also to be in compliance of standards established by its risk manager. Included in this plan are policies and procedures for handling service calls, spill notifications and SSOs in the District's collection system, and the timely, appropriate and adequate response to these incidents.

These policies and procedures are reviewed periodically and updated as required to reflect best management practices. Issues addressed include systems for overflow mitigation, emergency response, clean-up, spill recovery, internal and external resources, and rehabilitation of any damage to property including dwellings and buildings. They also include provisions for notification of and reporting to regulatory agencies and the public, and testing for contamination when necessary. A brief discussion of these policies and procedures is provided below.

The Sewer Service Call Form (see attachment 3B) provides the District's initial documentation of notification of any incident in its collection system in Part A of the form. The procedures listed in TAB 4 (location 4A through 4K) and TAB 5 (Location 5A through 5J) of the Sanitary Sewer Overflow and Backup response Plan (Attachment 3A) provides further detailed

information on overflow notification, overflow response, and overflow reporting (including reporting to regulatory agencies and internal reporting) actions. Additional procedures provide details on the handling of overflows into homes/businesses and associated claims.

3.5 Overflow Reporting Policy

The District defines an overflow as any event that can be attributed to its collection system and which results in the escape of untreated sewage from its collection system onto public or private property. All reports of events including backups, blockages, spills, overflows, etc., are investigated as to cause and needed corrective action to prevent future incidents.

3.5.1 Regulatory Notification, Reporting, and Certification

For regulatory notification, reporting, and certification purposes, the District is mandated to follow the most current State Water Resources Control Board (SWRCB) requirements and/or SFRWQCB requirements. Currently, these requirements mandate that SSOs fall into one of three categories:

Category 1 SSO: Discharges of untreated or partially treated wastewater of any volume resulting from an enrollee's sanitary sewer system failure or flow condition that: (1) Reach surface water and/or reach a drainage channel tributary to a surface water; or (2) Reach a municipal separate storm sewer system 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 municipal separate storm sewer system is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or ground water infiltration basin (e.g. infiltration pit, percolation pond).

Category 2 SSO: 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 municipal separate storm sewer system unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.

Category 3 SSO: All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition

The SWRCB's current notification and reporting requirements (SWRCB Order no. WQ2013-0058-EXEC), effective September 9, 2013, mandates notification, certification, and reporting procedures in the event of a collection system event. A brief description is provided below. A graphical representation is also provided as Figure 2.3 in Section 2 earlier.

Category 1 Event:

- A. For a Category 1 event greater than or equal to 1,000 gallons:
1. Within 2 hours, call:
 - California Emergency Management Agency (Cal EMA):(800) 852-7550 (and obtain a notification control number)
 - Marin County Environmental Health Services
 2. Report as follows via SWRCB CIWQS:
 - Submit a Draft Report as soon as possible but no later than 3 business days after becoming aware of the spill.
 - A final report must be completed and certified by the LRO within 15 calendar days of the conclusion of SSO response and remediation.
- B. For a Category 1 event less than 1,000 gallons:
1. Report as follows via SWRCB CIWQS:
 - Submit a Draft Report as soon as possible but no later than 3 business days after becoming aware of the spill.
 - A final report must be completed and certified by the LRO within 15 calendar days of the conclusion of SSO response and remediation.
- C. For a Category 1 event in which 50,000 or greater is spilled into surface waters:
1. Notification and Reporting per Section A, above.
 2. Within 48 Hours after initial SSO Notification, conduct water quality sampling
 - Water quality results are required to be uploaded to CIWQS
 3. SSO Technical Report: Certify within 45 Calendar Days after the end date of the event.

Category 2 Event:

- A. Submit a Draft Report as soon as possible but no later than 3 business days after becoming aware of the spill.
- B. A final report must be completed and certified by the LRO within 15 calendar days of the conclusion of SSO response and remediation.

Category 3 Event:

- A. Submit Certified Report within 30 calendar days of the end of the month in which the SSO occurred.

General Reporting:

- A. “No Spill” Monthly Certification: Certify that no SSOs occurred within 30 calendar days of the end of the month in which no SSOs occurred.
- B. Collection System Questionnaire: Update and Certify every 12 months.

3.5.2 Internal Reporting

In addition to the required communication and reporting carried out during the course of an incident (see Section Two), the Collection System Superintendent prepares a report on every SSO. The Overflow Report (OR) is based on the information related to the SSO which is succinctly documented on the internal sewer service call forms. The OR includes recommended actions and documents dates of actions taken to correct the condition that caused the backup, spill, or SSO.

Each month, the Collection System Superintendent summarizes all ORs into a summary monthly report. After internal review (typically by the FSM), this summary report is provided to Veolia Water (which operates the District's treatment facilities). Veolia Water's Project Manager then compiles the ORs summary into the NPDES permit required monthly self-monitoring report (SMR). The SMRs are reviewed by the GM-CE prior to transmittal to the San Francisco Bay Regional Water Quality Control Board (SFRWQCB). A summary of all collection system events is also provided in the District's annual monitoring report.

In addition to the SMR, the GM-CE ensures that basic SSO information is reported to appropriate regulators in accordance within time frames established by the regulatory agencies. SSO information is also reported monthly to the District Board of Directors. Abnormal incidents are reported concurrently with the course of the incident to the Board President, or a member of the Board's Operations Committee.

**ATTACHMENT 3A:
SANITARY SEWER BACKUP AND OVERFLOW RESPONSE PLAN**

Novato Sanitary 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

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

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Sanitary Sewer Overflow Emergency Response Plan

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

1. Purpose

The purpose of the Novato Sanitary 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 San Francisco Regional Water Quality Control Board (*SFRWQCB*) and the California State Water Resources Control Board (*SWRCB*).

3. Definitions As Used In This OERP

CALIFORNIA INTEGRATED WATER QUALITY SYSTEM (CIWQS): Refers to the State Water Resources Control Board online electronic reporting system that is used to report SSOs, certify completion of the SSMP, and provide information on the sanitary sewer system.

FROG – Fats, Roots, Oils, and Grease: Refers to fats, oils, and grease typically associated with food preparation and cooking activities that can cause blockages in the sanitary sewer system.

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.

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

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

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

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

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

SANITARY SEWER SYSTEM: Any publicly-owned system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant headworks used to collect and convey wastewater to the publicly owned treatment facility. Temporary storage and conveyance facilities (such as vaults, temporary piping, construction trenches, wet wells, impoundments, tanks, etc.) are considered to be part of the sanitary sewer system, and discharges into these temporary storage facilities are not considered to be SSOs.

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

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

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

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

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

General Waste Discharge Requirement (GWDR)

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

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

The Sewer System Management Plan and critical supporting documents are available to the public at www.cawd.org.

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 VI(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 38 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.novatosan.com>. **To report sewer problems in the District, customers call (415) 892-1694. After hours the main number directs the caller to call Police Dispatch at (415) 897-1122.**

When a report of a sewer spill or backup is made the call is routed to the Collections System Superintendent. If unavailable, the call is routed to the Collections System Leadworker.

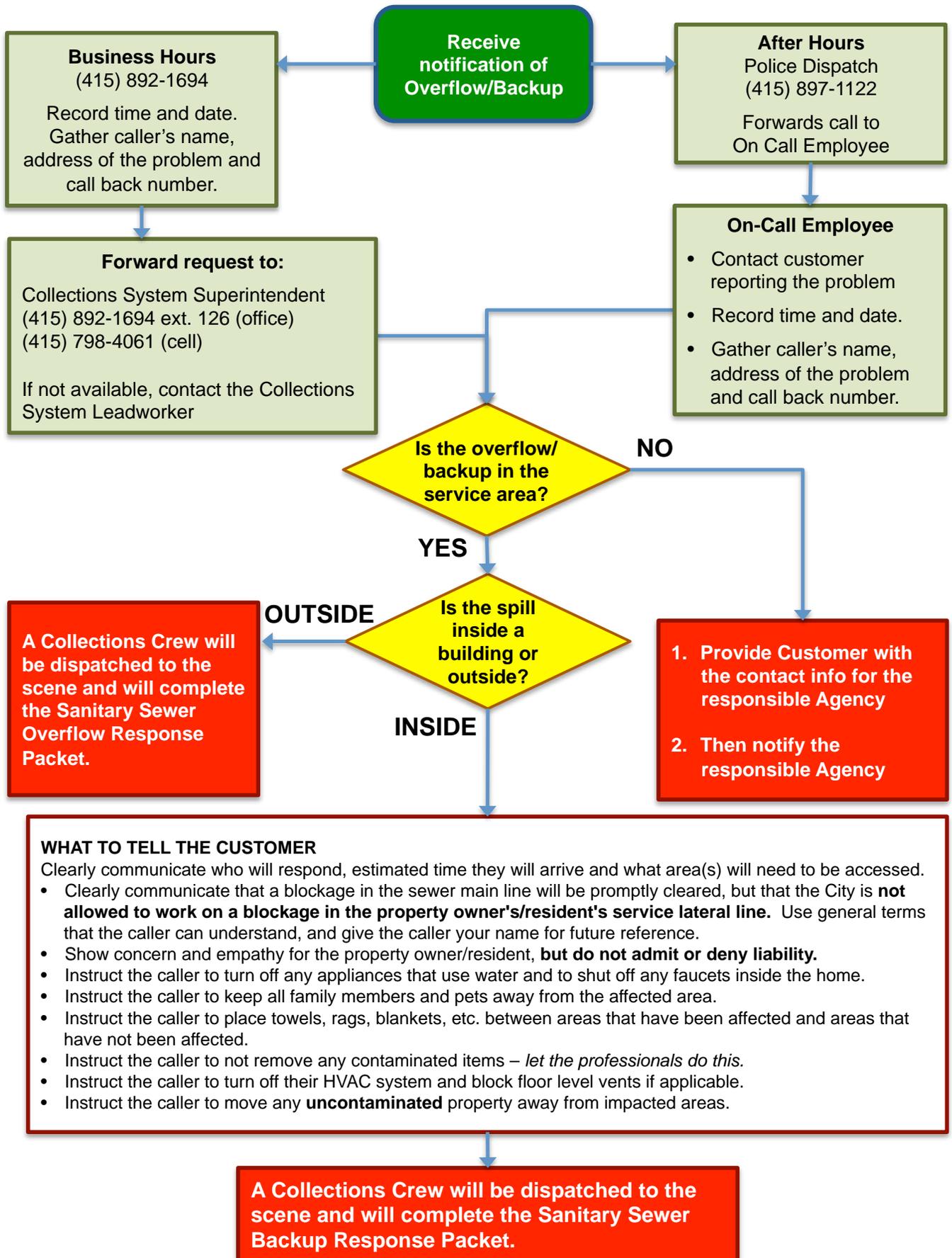
Whoever initially takes the call at the front desk will complete the service call form, regardless of complaint type. This form is routed to Collections System Superintendent or Collections System Leadworker. They will complete the form based on the results of the service call. The Collections System Superintendent or Collections System Leadworker will file the form in the Completed Service Call Binder.

The information collected includes:

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

The following (Fig. 6.1) is an overview of receiving a sewage overflow or backup report (*see next page*):

Fig. 6.1: Overview of Receiving a Sewage Overflow or Backup Report Procedure



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 causes or witnesses a Sanitary Sewer Overflow. If the contractor causes or witnesses an SSO they will:

1. Immediately notify the District by calling 911
2. Protect storm drains
3. Protect the public
4. Provide Information to the District Collections Crew such as start time, appearance point(s), suspected cause, weather conditions, etc.
5. Direct all media and public relations requests to the District Manager/Engineer

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

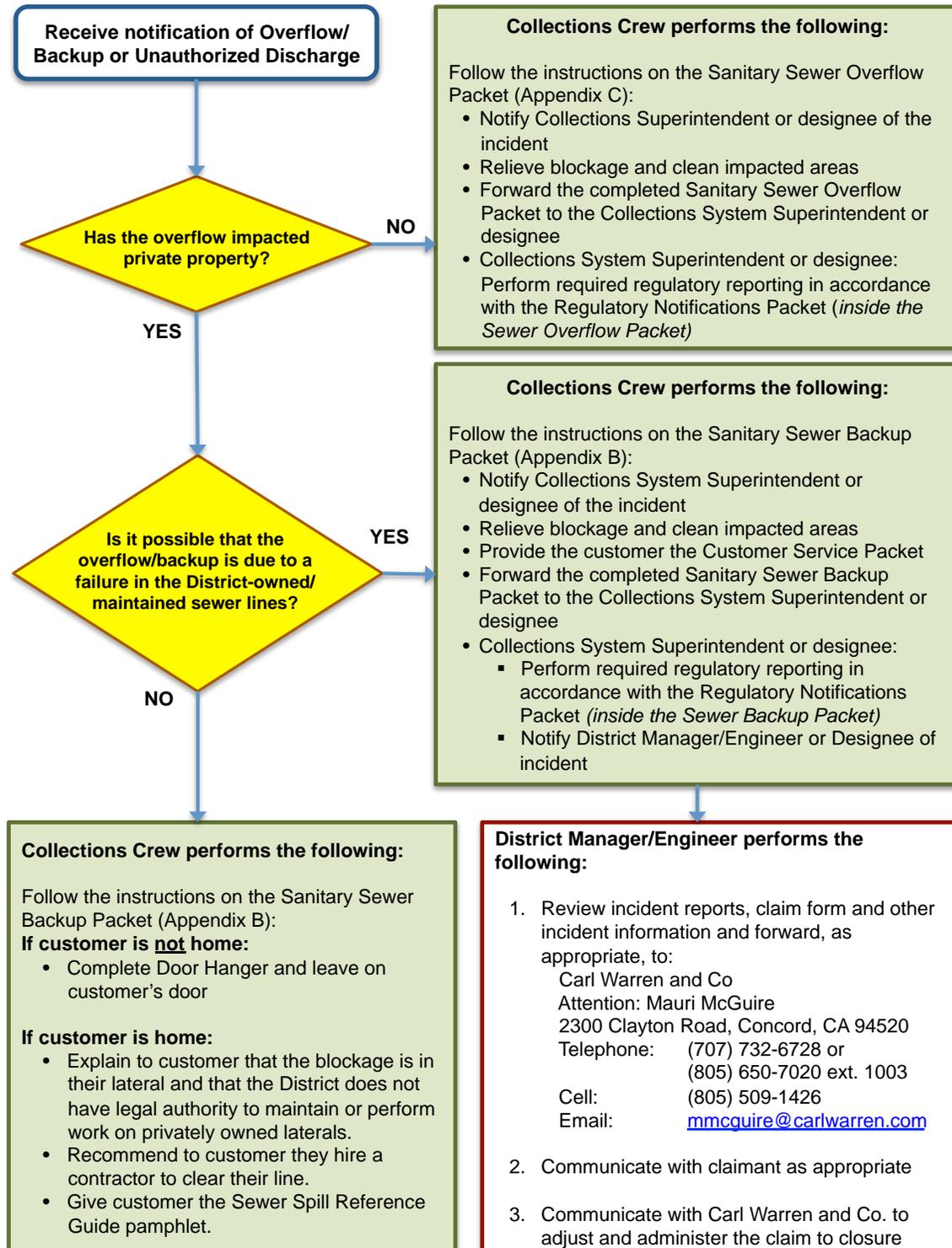
7. SSO Response Procedures

ref. SWRCB Order No. 2006-0003-DWQ Element 6(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. The following (Figure 7.1) is an overview of the response activities.

Figure 7.1 Overview of SSO/Backup Response



7.2 First Responder Priorities

The first responder's priorities are:

- To call in a second responder for any potential SSO call-out.
- 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 System Superintendent of any SSO.
- To return the spilled sewage to the sewer system.
- To restore the area to its original condition (or as close as possible).
- To photograph and document affected and unaffected areas from a spill.

7.3 Safety

The first responder is responsible for following safety procedures at all times. Special safety precautions must be observed when performing sewer work. There may be times when 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. This includes use of gas monitoring detectors for air quality in manholes and traffic controls at the site.

7.4 Initial Response

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

The first responder will:

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

7.6 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 detailed procedures refer to Appendix C: Sanitary Sewer Overflow Packet.

7.5 Restore Flow

Using the appropriate cleaning equipment, set up downstream of the blockage and hydro-clean upstream from a clear manhole. Attempt to remove the blockage from the system and observe the flows to ensure that the blockage does not reoccur downstream. If the blockage cannot be cleared within a reasonable time from arrival, or sewer requires construction repairs to restore flow, then initiate containment and/or bypass pumping. If assistance is required, immediately contact other employees, contractors, and equipment suppliers. For detailed procedures refer to Appendix C: Sanitary Sewer Overflow Packet.

7.6 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.
- *Hand Rods* – Equipment used in easements and locations inaccessible by vehicles.
- *Plugs, Sandbags, Plastic Mats*
- *Portable Lights*
- *SSO Sampling Kit*

The standard operating procedures for all equipment is located on that piece of equipment as well as on the District server.

8. Recovery and Cleanup

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

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

8.1 Estimate the Volume of Spilled Sewage

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

8.2 Recovery of Spilled Sewage

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

8.3 Clean-up and Disinfection

Clean up and disinfection procedures will be implemented to reduce the potential for human health issues and adverse environmental impacts that are associated with an SSO event. The procedures described are for dry weather conditions and will be modified as required for wet weather conditions. Where cleanup is beyond the capabilities of 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. If the District is responsible for the discharge, the Collection System Superintendent or designee will call in an approved water damage restoration company. In all other cases, affected property owners can call a water damage restoration company to complete the cleanup and restoration. In both cases, District claim forms may be issued if requested by the property owners.

Hard Surface Areas

Remove all signs of sewage solids and sewage-related material either by protected hand or with the use of rakes and brooms, then 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. Crews will take reasonable steps to contain and vacuum up the wastewater, allow area to dry, and repeat the process if additional cleaning is required.

Landscaped and Unimproved Natural Vegetation

Collect all signs of sewage solids and sewage-related material either by protected hand or with the use of rakes and brooms. Wash down the affected area with clean water until the water runs clear. The flushing volume will be approximately three times the estimated volume of the spill. Either contain or vacuum up the wash water so that none is released. Allow the area to dry. Repeat the process if additional cleaning is required.

Natural Waterways

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

Wet Weather Modifications

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

8.4 Public Notification

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

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

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

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

9. Water Quality

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

9.1 Water Quality Sampling and Testing

Water quality sampling and testing is required whenever spilled sewage enters a water body and is performed 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 District Collections Staff should collect water samples as soon as possible after the discovery and mitigation of the SSO event.
- The water quality samples should be collected from upstream of the spill, from the spill area, and downstream of the spill in flowing water (e.g. creeks). The water quality samples should be collected near the point of entry of the spilled sewage.
- The samples shall then be brought to the Novato Sanitary District Laboratory or other approved laboratory facility.

9.2 Water Quality Monitoring Plan

The District Water Quality Monitoring Plan will be implemented immediately upon discovery of any Category 1 SSO of 50,000 gallons or more 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, access restrictions, 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 ammonia and total and fecal coliform.
6. Observe proper chain of custody procedures.

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 SSO in which 50,000 gallons or greater are spilled to surface waters. The Collections System Superintendent will supervise the preparation of this report and certify it. This report, which does not preclude the Water Boards from requiring more detailed analyses if requested, shall include at a minimum, the following:

Causes and Circumstances of the SSO:

- 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 System Superintendent or his/her designee.
- It is the responsibility of the District Manager/Engineer to review all claims and to oversee the adjustment and administration of the claim to closure.

11. Notification, Reporting, Monitoring and Recordkeeping Requirements

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

In accordance with the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (SSS GWDRs), the Novato Sanitary 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 Requirements Table

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	<ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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 System 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

Records will be maintained for a minimum of five years.

12. Post SSO Event Debriefing

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

Every SSO event is an opportunity to evaluate the 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 Element 6(d)

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

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

- Reviewing and completing the Sanitary Sewer Overflow Report (in Appendices B and C) 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(es).
- Review 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 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 Overflow Follow Up Form will be used to document the investigation.

14. SSO Response Training

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

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

14.1 Initial and Annual Refresher Training

All 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, force main failure, pump station 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 and 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. See Appendix E: Contractor Orientation.

15. 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

16. References

- Sanitary Sewer Overflow and Backup Response Field Guide, 2013, DKF Solutions Group, LLC
- Appendix A: Regulatory Notifications Packet
- Appendix B: Sanitary Sewer Backup Packet
- Appendix C: Sanitary Sewer Overflow Packet
- Appendix D: Field Sampling Kit
- Appendix E: Contractor Orientation

Appendix A
REGULATORY NOTIFICATIONS PACKET

Regulatory Notifications Packet

Instructions:

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

Contents:

<u>Form</u>	<u>Page Number</u>
Regulatory Reporting Guide	A-1
Reporting Checklist: Category 1	-2a
Reporting Checklist: Categories 2 and 3	-2b
RWQCB Notification Fax.....	-3

Print on 6"x9" envelope

**Regulatory Notifications Packet
Regulatory Reporting Guide**

**A-1
Side A**

Reporting Instructions				
Deadline	See reverse side for contact information and definitions of the categories of spills of untreated or partially treated wastewater from publically owned sanitary sewer system			Spill from Private Lateral
	Category 1	Category 2	Category 3	
2 hours after awareness of SSO	<ul style="list-style-type: none"> If the spill is greater than or equal to 1,000 gallons, call CalOES at (800) 852-7550 Notify Marin County Environmental Health 	Notify Marin County Environmental Health ⁺	Notify Marin County Environmental Health ⁺	-
4 hours after awareness	If this incident includes a sewer backup into a home or business, contact Carl Warren and Co.			
48 Hours after awareness of SSO	If 50,000 gal or more were not recovered, begin water quality sampling and initiate impact assessment	-	-	-
3 Days after awareness of SSO	Submit Draft Spill Report in the CIWQS* database	Submit Draft Spill Report in the CIWQS* database	-	-
15 Days after response conclusion	Certify Spill Report in CIWQS*. Update as needed until 120 days after SSO end time	Certify Spill Report in the CIWQS* database. Update as needed until 120 days after SSO end time	-	-
30 Days after end of calendar month in which SSO occurred	-	-	Certify Spill Report in the CIWQS* database. Update as needed until 120 days after SSO end time	-
45 days after SSO end time	If 50,000 gal or more were not recovered, submit SSO Technical Report using CIWQS*	-	-	-

⁺ Unless volume/impact is minimal

^{*} In the event that the CIWQS online SSO database is not available, do the following until the CIWQS online SSO database becomes available: (See contact information on Side B)

1. Make required notifications to the San Francisco Regional Water Quality Control Board (SFRWQCB office) using A-3, and
2. Notify the State Water Resources Control Board (SWRCB) by phone or email

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

**Regulatory Notifications Packet
Regulatory Reporting Guide**

**A-1
Side B**

Contact Information

Contact	Telephone/Email
CalOES:	(800) 852-7550
Carl Warren and Co.	(707) 732-6728
Marin County Environmental Health Department:	Rebecca Ng Email: Rng@co.marin.ca.us Telephone: (415) 499-6907 Fax: (415) 507-4120
San Francisco Regional Water Quality Control Board (SFRWQCB):	Phone: (510) 622-2300 Fax: (510) 622-2460
State Water Resources Control Board (SWRCB):	
Russell Norman, P.E.	(916) 323-5598 Russell.Norman@waterboards.ca.gov
Victor Lopez, Water Resources Control Engineer	(916) 323-5511 Victor.Lopez@waterboards.ca.gov

Authorized Personnel

The following are authorized to perform regulatory reporting:

Title	Contact	Check if LRO*
Collections System Superintendent	(415) 892-1694 Ext. 126	✓
Field Services Superintendent	(415) 892-1694 Ext. 107	✓
Deputy Director	(415) 892-1694 Ext. 106	
District Manager	(415) 892-1694 Ext. 111	✓

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

Definitions of SSO Categories

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

Category	Definition
Category 1:	Discharge of untreated or partially treated wastewater of any volume resulting from a sanitary sewer system failure or flow condition that either: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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

**Regulatory Notifications Packet
Category 1 SSO Reporting Checklist**

A-2a

Use this Checklist for Category 1 SSOs only

STEP 1: Receive call from crew.

STEP 2: 2-hour Notification: If the SSO is greater than or equal to 1,000 gallons, notify CalOES within 2 hours of the time the agency was notified of the SSO.

- Notify CalOES** at (800) 852-7550:
 - o Date Called: _____
 - o Time called: _____ : _____ AM PM
 - o CalOES Control number: _____
 - o District personnel who called CalOES:

<i>Name</i>	_____
<i>Title</i>	_____
 - o Individual they spoke to at CalOES: _____
- Notify Marin County Environmental Health. See RN-1 Side B for contact information.

STEP 3: 4-hour Notification

If this incident includes a sewer backup into a home or business, contact Carl Warren and Co. within four hours of the time the District was notified of the SSO.

- Notify Carl Warren and Co. at (707) 732-6728

STEP 4: Within 48-Hours after awareness of SSO

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

STEP 5: Within 3 Days after awareness of SSO

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

STEP 5: Within 15 Days after response conclusion

- LRO must certify the Spill Report using the CIWQS online reporting database. Amendments to the Spill Report may be made for up to 120 days following the conclusion of the SSO Response.

STEP 6: Within 45 Days after SSO end time

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

This form completed by: _____
Name
Title
Date

This form completed by: _____
Name
Title
Date

**Regulatory Notifications Packet
Category 2 & 3 SSO Reporting Checklist**

A-2b

Use this Checklist for Category 2 and 3 SSOs only

STEP 1: Receive call from crew.

STEP 2: 4-hour Notification

If this incident includes a sewer backup into a home or business, contact Carl Warren and Co. within four hours of the time the District was notified of the SSO.

- Notify Carl Warren and Co. at (707) 732-6728

STEP 3: Submit Draft Spill Report (Category 2 only)

- Submit a Draft Spill Report using the CIWQS online reporting database within 3 days after awareness of Category 2 SSO.
- Notify Marin County Environmental Health for all SSOs to land. See RN-1 Side B for contact information.

STEP 4: Certify Spill Report

- Certify the Spill Report using the CIWQS online reporting database:
 - Category 2 SSO: Within 15 days after the conclusion of the response
 - Category 3 SSO: Within 30 days after the end of the calendar month in which the SSO occurred
- Updates to the Spill Report may be made for up to 120 days following the conclusion of the SSO Response.

This form completed by: _____
Name Title Date

This form completed by: _____
Name Title Date

**Regulatory Notifications Packet
Regional Water Quality Control Board Notification Fax**

A-3

NOTE TO Novato San Staff: Only use this form in the event that the CIWQS online SSO database is not available

FAX TO: San Francisco Regional Water Quality Control Board
Fax Number: (510) 622-2460

Date: _____
Pages: _____

FROM: Novato Sanitary District
Telephone: (415) 892-1694
Fax: (415) 898-2279

Address of SSO: _____ City: _____

County: _____ Date/Time: _____

SSO Start Time: _____ SSO Stop Time: _____

Volume of SSO: _____ Volume Recovered: _____

Final Disposition: _____

Affected Water Body: _____

Samples Collected? YES NO

Taken to: _____

Crew Members: _____

<u>Agencies Notified</u>	<u>Number(s)</u>			<u>Contact</u>	<u>Time</u>	<u>Date</u>
CalOES	(800) 852-7550	YES	NO	_____	_____	_____
M.C.E.H.S	(415) 499-6907	YES	NO	_____	_____	_____
CIQWS		YES	NO	_____	_____	_____
OTHER:	_____					

Appendix B

SANITARY SEWER BACKUP RESPONSE PACKET

**Sanitary Sewer Backup Response Packet
Table of Contents**

<u>Form</u>	<u>Form Number</u>
Instructions and Chain of Custody	packet envelope
Backup Response Flowchart.....	B-1
Bubbled Toilets Letter	-2
Declination of Cleaning Services (3-copy NCR)	-3
First Responder Form.....	-4
Lodging Authorization Form (3-copy NCR).....	-5
Rejection of Lodging/Relocation Recommendation (3-copy NCR)	-6
Service Call Form.....	-7
Overflow Follow-Up Form.....	-8
Sewer Overflow Report	-9
Start Time Determination Form	-10
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Claims Submittal Checklist.....	-12
Customer Service Packet	
Instructions	packet envelope
Customer Information	CS-1
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Sewer Spill Reference Guide	pamphlet
Regulatory Notifications Packet	
Instructions	envelope
Regulatory Reporting Guide	A-1
Category 1 SSO Reporting Checklist	-2a
Category 2 & 3 SSO Reporting Checklist.....	-2b
Door Hanger.....	n/a

For pre-assembled packets contact DKF Solutions Group at (707) 373-9709 or losscontrol@sbcglobal.net

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



If this is a Category 1 SSO greater than or equal to 1,000 gallons contact the Collections System Superintendent, Collections System Leadworker or District Manager/Engineer to make the 2-hour notification to CalOES

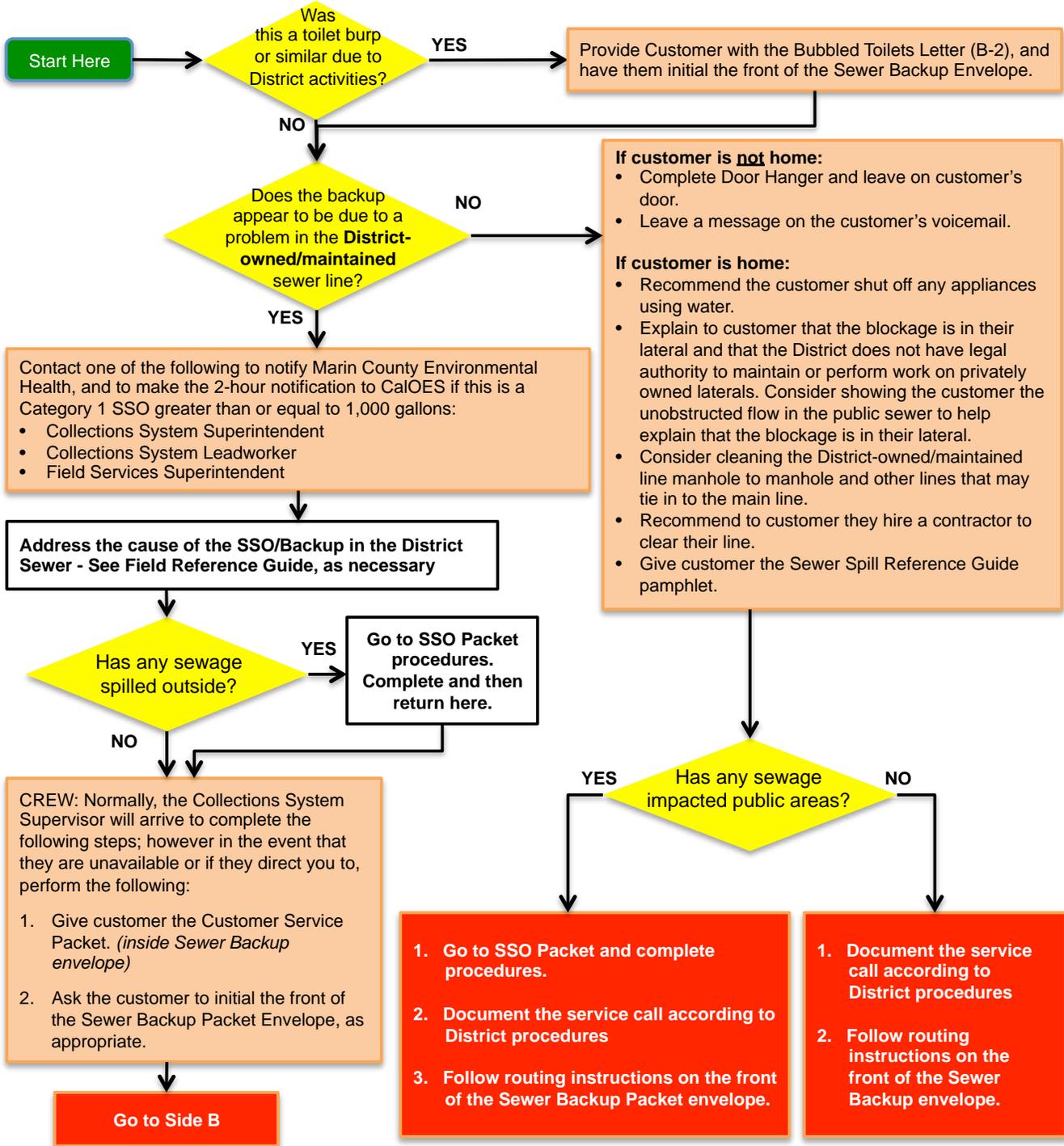
Notifications Trigger:	Contact Immediately:	Telephone:
For all Category 1 SSOs greater than or equal to 1,000 gallons	Collections System Superintendent	(415) 798-4061
	Collections System Leadworker	(415) 798-4054
	District Manager/Engineer	(415) 892-1694 ext. 111
For all backups into/onto private property possibly due to problems in the public sewer	Carl Warren & Co.	(707) 732-6728 or (805) 650-7020 ext. 1003
For cleaning services <i>(Crew only contact if instructed to do so)</i>	Paul Davis Restoration	(707) 782-1999
	Restoration Management	(800) 400-5058
	PuroClean	(800) 775-7876
For any media requests	District Manager/Engineer or Deputy District Manager/Engineer	(415) 892-1694 e Don't forget photos!

<p>Collections Crew:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Follow the instructions on the Sewer Backup Response Flowchart (B-1). Note: If multiple dwelling units are affected, use one packet per unit and check here: <input type="checkbox"/> <input type="checkbox"/> If indicated on the flowchart, give the customer the Bubbled Toilets Letter and/or the Customer Service Packet and have them initial here: <i>Customer acknowledges receipt of Bubbled Toilets Letter:</i> _____ <i>Customer acknowledges receipt of Customer Service Packet:</i> _____ <input type="checkbox"/> Place completed forms in this envelope, complete the Chain of Custody record (right) and forward this packet to the Collections System Superintendent. 	<p>Print Name: _____</p> <p>Initial: _____</p> <p>Date: _____</p> <p>Time: _____</p>
---	--

<p>Collections System Superintendent:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Review the enclosed forms. <input type="checkbox"/> Complete the Regulatory Notifications Packet. <input type="checkbox"/> Complete the Claims Submittal Checklist. <input type="checkbox"/> Complete the Chain of Custody record (right) and forward this packet to the District Manager/Engineer. 	<p>Print Name: _____</p> <p>Initial: _____</p> <p>Date: _____</p> <p>Time: _____</p>
--	--

<p>District Manager/Engineer:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Refer to the Claims Submittal Checklist.
--

Sanitary Sewer Backup Response Packet
Backup Response Flowchart



MEDIA AND PUBLIC RELATIONS GUIDELINES:

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

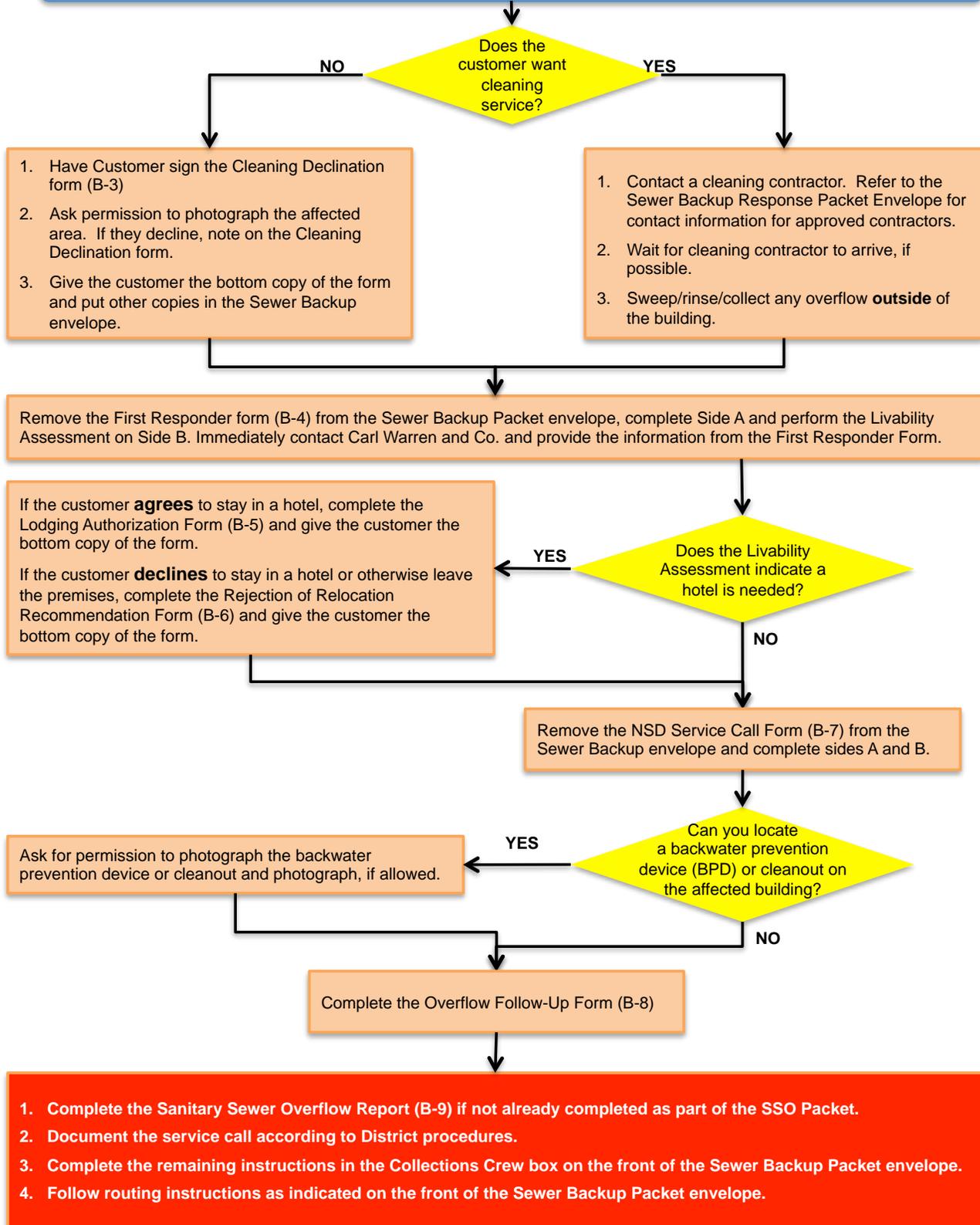
- Giving out the wrong information,
- Making accusations against customers, businesses or other agencies
- Speculating about the situation you are responding to
- Providing incorrect facts about a company or other agency

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

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

Sanitary Sewer Backup Response Packet
Backup Response Flowchart

CREW: Normally the Collections System Superintendent will arrive to complete the following steps; however in the event that they are unavailable or if they direct you, perform the following:



**Sanitary Sewer Backup Response Packet
Bubbled Toilets Letter**

Dear Novato Sanitary District Customer,

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

1. Is this a health risk?

The water that came out of your toilet is potable water from the toilet bowl. Unless your toilet was in use when this occurred, this water is no different than that encountered while cleaning your toilet.

2. What is the District doing in the street?

In order to insure reliable sewer service, the District inspects, cleans, and repairs its sewer system on a continuous basis.

3. How does sewer cleaning cause my toilet to bubble?

Typical industry cleaning equipment uses high-pressure water to clean sewers. The first step is to use the high-pressure water jets to propel the hose and cleaning nozzle upstream as far as 800 feet. During this process, air within the main pipe is displaced and sometimes goes up the private lateral pipe and releases through the toilet. This can also happen during the cleaning phase, when high-pressure water is pulled downstream to the cleaning truck.

4. What causes the air to come from my toilet?

Over the years, District crews have found that the bubbling of toilets have many causes, some of which are:

- Obstructed vent pipes;
- Vent pipes that are positioned too far from the toilet;
- Lateral pipes that may be in use as the crew is cleaning (e.g. draining washing machine, draining bathtub, etc.);
- Lateral pipes that may have obstructions that are causing them to hold water (e.g. roots, grease, etc.).

5. What does District staff do, once informed of a bubbling toilet?

Once notified of a bubbling toilet, the crew leader explains to the customer what has happened, and checks to see if there is a clean-out in the customer's yard. The crew leader then makes notes and completes paperwork instructing the District's Construction Inspector to send a Backflow Prevention Device (BPD) installation letter to the homeowner. It is the owner's responsibility to install a BPD once the problem has been identified.

6. What can I do to prevent my toilet from bubbling?

When a sewer begins to drain slowly, it may be a sign that it needs to be cleaned or repaired. Trees and shrubs may have root structures that are entering the lateral pipe. The homeowner needs to make sure to have a clean-out for accessing the line. It is the homeowner's responsibility to keep the sewer lateral pipe in good working condition.

It is always a good idea to keep the toilet lid down when not in use, and not install carpets in the bathroom unless they can be easily removed and cleaned. For more information please call the District office at (415) 892-1694.

Sincerely,

Novato Sanitary District

Estimado Cliente de la Novato Sanitary District:

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

1. ¿Es riesgo de salud esto?

El agua que salió de su inodoro es agua potable de la taza del inodoro. Menos que su inodoro estaba en uso cuando esto ocurrió, esa agua no es diferente de aquella encontrada mientras que limpia su inodoro.

2. ¿Qué está haciendo la Distrito en la calle?

Para asegurar servicio de alcantarilla confiable, la Distrito inspecciona, limpia, and repara su Sistema de alcantarillado en una forma continua.

3. ¿Cómo causa la limpieza de la alcantarilla que burbujee mi inodoro?

El equipamiento industrial de limpieza típico usa agua de alta presión para limpiar alcantarillas. La primer medida es de usar chorros de agua de alta presión para propulsar a la manguera y a la boquilla de limpieza contracorriente tan lejos como ochocientos (800) pies. Durante este proceso, el aire dentro la tubería principal es desplazada y a veces camina para arriba de la tubería lateral privada y se libera por el inodoro. Esto también puede ocurrir durante la fase de limpieza, cuando agua de alta presión es jalada corriente abajo al camión de limpieza.

4. ¿Qué causa al aire que venga de mi inodoro?

A lo largo de los años, los empleados de la Distrito han encontrado que el burbujeo de inodoros tiene muchas causas, algunas de cuales son:

- Tubería de ventilación obstruida;
- Tubería de ventilación que está posicionada muy lejos del inodoro;
- Tubería lateral que pueda estar en uso mientras que los empleados estén limpiando (por ej., vaciando la máquina de lavar, vaciando el baño, etcétera);
- Tubería lateral que podrá tener obstrucciones que están causándola a contener agua (por ej., raíces, grasa, etcétera).

5. ¿Qué hace el personal de la District, una vez informados de un inodoro burbujeante?

Una vez notificado de un baño burbujeante, explica el líder del equipo al cliente lo que ha sucedido y comprueba si hay un limpio-hacia fuera en el patio del cliente. El contratista/capataz luego hace notas y completa papeles instruyendo a Inspector de construcción del distrito para enviar una carta de instalación de dispositivo de prevención de contraflujo (BPD) para el dueño de casa. Es responsabilidad del propietario para instalar un BPD una vez que el problema ha sido identificado.

6. ¿Qué puede hacer para impedir a mi inodoro de burbujeando?

Cuando una alcantarilla empieza a desaguar lentamente, puede que sea un indicio que se necesita limpiar o reparar. Puede que los árboles y arbustos tengan estructuras de raíces que estén entrando a la tubería lateral. El dueño/la dueña de casa necesita asegurar de tener una limpieza general para acceder la línea. Es la responsabilidad del dueño/la dueña de mantener la tubería de alcantarilla lateral en buena condición operativa.

Siempre es buena idea de mantener la tapa del inodoro bajada cuando no esté el inodoro en uso, y no instalar alfombra en el cuarto de baño menos que esa se pueda quitar y limpiar. Para más información, por favor llame a la oficina de la Distrito por medio del número de teléfono (831) 624-1248.

Atentamente,
Novato Sanitary District

**Sanitary Sewer Backup Response Packet
Declination of Sewage Cleaning Services**

Customer Information

NAME:	ADDRESS:	TELEPHONE:
-------	----------	------------

ON (date)	AT (time)	Approximately (quantity)	GALLONS OF:		
			<input type="checkbox"/> Sewage	<input type="checkbox"/> Grey Water	<input type="checkbox"/> Toilet Bowl Water
			<input type="checkbox"/> Other (describe):	<input type="checkbox"/> Odor	

Overflowed from (or odor emanating from) <input type="checkbox"/> Toilet <input type="checkbox"/> Shower/Tub <input type="checkbox"/> Washer <input type="checkbox"/> Other (describe):	The overflow affected the following areas: <input type="checkbox"/> Bathroom <input type="checkbox"/> Bedroom <input type="checkbox"/> Hallway <input type="checkbox"/> Garage <input type="checkbox"/> Kitchen <input type="checkbox"/> Crawlspace <input type="checkbox"/> Other (specify):
--	--

The overflow affected the following flooring: <input type="checkbox"/> Tile <input type="checkbox"/> Wood Flooring <input type="checkbox"/> Linoleum <input type="checkbox"/> Carpet <input type="checkbox"/> Other (specify):	and/or additional materials: <input type="checkbox"/> Area Rugs <input type="checkbox"/> Towels <input type="checkbox"/> Clothing <input type="checkbox"/> Other (specify):
--	--

Were photos taken?: Yes No If yes, where are photos stored?

This Form Completed By: Name: _____	Date: _____
(Write legibly) Title: _____	Time: _____

CUSTOMER, please read the following and sign below:
 I/We acknowledge that Novato Sanitary District, CA (*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. Please refer to the Customer Service Packet for whom to contact if you have any questions.

Customer Signature*:	Date:
The information above was explained to the customer by the following employee:	Name:
	Signature:
	Title:
	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 and block floor level heating/air conditioning ducts to prevent contamination.
- 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.

**Sanitary Sewer Backup Response Packet
First Responder Form**

**B-4
Side A**

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.

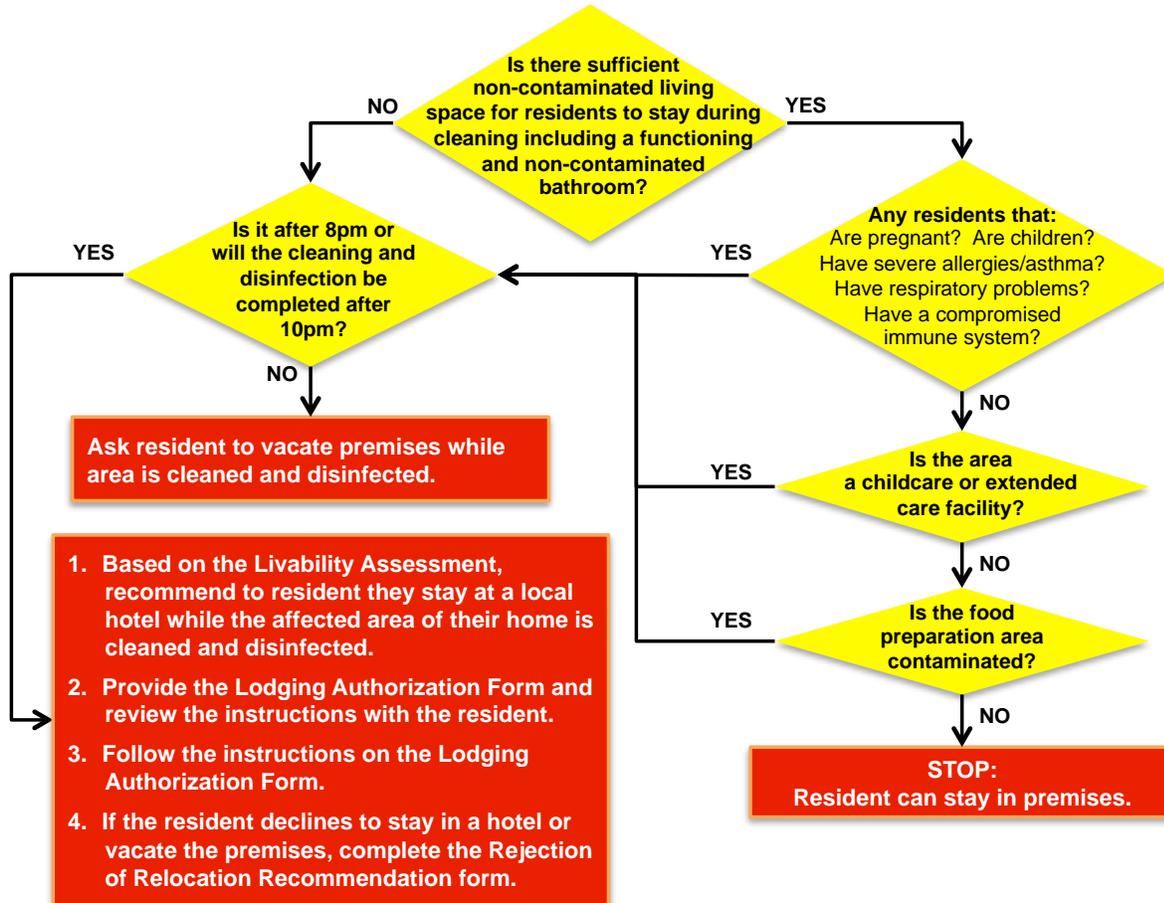
PERSON COMPLETING THIS FORM:		PHONE:
Name: _____		DATE:
Title: _____		TIME:
TIME STAFF ARRIVED ON-SITE:		
DID CUSTOMER CALL CLEANING CONTRACTOR? <input type="checkbox"/> Yes <input type="checkbox"/> No		
If YES, name of contractor:		
RESIDENT NAME:	IF RENT, PROPERTY MANAGER(S):	
<input type="checkbox"/> Owner	OWNER:	
<input type="checkbox"/> Renter		
STREET ADDRESS:	STREET ADDRESS:	
CITY, STATE AND ZIP:	CITY, STATE AND ZIP:	
PHONE:	PHONE:	
Is nearest upstream manhole visibly higher than the drain/fixture that overflowed? <input type="checkbox"/> Yes <input type="checkbox"/> No		
# OF PEOPLE LIVING AT RESIDENCE:		
Approximate Age of Home:	# of Bathrooms:	# of Rooms Affected:
Approximate Amount of Spill (gallons):	Approximate Time Sewage Has Been Sitting (hrs/days):	
Numbers of Photographs or Videos Taken:	Where are photos/video stored?	
<input type="checkbox"/> Photographs <input type="checkbox"/> Video		
Does property have a Property Line Cleanout or BPD?		<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Unknown
If yes, was the Property Line Cleanout/BPD operational at the time of the overflow?		<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Unknown
Have there ever been any previous spills at this location?		<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Unknown
Has the resident had any plumbing work done recently?		<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>If YES, please describe:</i>		

GO TO SIDE B

**Sanitary Sewer Backup Response Packet
First Responder Form**

**B-4
Side B**

LIVABILITY ASESMENT



SANITARY SEWER LINE BLOCKAGE LOCATION

PLEASE CHECK THE BOXES THAT DESCRIBE YOUR OBSERVATIONS:

Customer Cleanout Was:	Public Cleanout was:
<input type="checkbox"/> Non-Existent	<input type="checkbox"/> Non-Existent
<input type="checkbox"/> Full	<input type="checkbox"/> Full
<input type="checkbox"/> Empty	<input type="checkbox"/> Empty

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

Affected House

Upstream House

Recommended Follow-Up Action(s):

Did sewage go under buildings? Yes No Unsure

Place completed form in Sewer Backup Envelope and follow routing instructions

**Sanitary Sewer Backup Response Packet
Lodging Authorization Form**

INSTRUCTIONS TO EMPLOYEE:

1. Contact the Collections System Superintendent at 415.892.1694 Ext. 126 and explain the circumstances of the backup. Request permission to offer alternate lodging to the customer. If they agree, ask the customer which hotel identified below they prefer and relay this information to the Collections System Superintendent. The Collections System Superintendent will contact the hotel and make the necessary arrangements.
2. Review this form with the customer and instruct them to read the Instructions to Resident section below.
3. Instruct the customer that this emergency authorization is for **LODGING ONLY – NO FOOD, MINIBAR, MOVIE, PHONE or Other Charges**).
4. Explain to customer that if circumstances require additional nights' lodging and other incidentals, the District Manager or the District's Claims Adjustor will address them.
5. Have the customer sign the Acknowledgement section of this form.
6. Complete this Authorization Form and sign.
7. Give the bottom copy of this form to the customer.

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

1. This authorization provides for one (1) nights' lodging at the hotel selected below.
2. The authorization is good for **room and tax ONLY**.
3. Additional nights, other allowances, and special circumstances may be discussed by contacting the Novato Sanitary District's District Manager at 415.892.1694

CUSTOMER ACKNOWLEDGEMENT:

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

Customer Name (please print): _____

Customer Address: _____

Phone # where customer may be reached: _____

Customer Signature: _____ Date: _____

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

Novato Sanitary District Representative's Name: _____

Novato Sanitary District Representative's Phone Number: _____

This voucher is valid at the following hotels:

Day's Inn (pets allowed)
8141 Redwood Blvd, Novato
Phone: 415.897.7111

Best Western (kitchenettes available)
215 Alameda del Prado, Novato
Phone: 415.883.4400

Courtyard by Marriott
1400 N Hamilton Pkwy, Novato
Phone: 415.883.8950

**Sanitary Sewer Backup Response Packet
Rejection of Relocation Recommendation**

On _____, a sewer backup into a residence occurred at _____
(date) (Address)

Resident's Name: _____
(Please Print)

Due to a backup into the structure, the above listed property has sewage to be cleaned up/mitigated, which may also include remediation of part of the structure. It is recommended by Novato Sanitary District that the residents of the above listed property relocate until the cleanup/mitigation and any required remediation is completed.

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

PROPERTY OWNER/RESIDENT RELEASE OF LIABILITY AND ASSUMPTION OF RISK

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

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

Resident Signature

Date

Novato Sanitary District Witness

Comments:

Sanitary Sewer Backup Response Packet
Novato Sanitary District Sewer Service Call Form

Novato Sanitary District Sewer Service Call Form

Date: _____ Page 1 of 2

A. Initial Notification: Received by: _____ Referred to: _____
Referred via: phone/fax/email (circle one)

B. Caller Information:
Name: _____ Phone: _____ Time: _____ (AM/PM)
Address: _____ Call Type: Emergency Complaint Other
Cross Street: _____ Structure Up: _____ Structure Down: _____
Caller Info: _____

C. Details of Initial Response:
Arrival Time: _____ (AM/PM) Departure time: _____ (AM/PM) Weather Conditions: _____
Personnel (XX/XX) _____ Pay Code (circle one): Regular Time & ½ Comp
Personnel (XX/XX) _____ Pay Code (circle one): Regular Time & ½ Comp

D. Problem Information:
Problem type(s): (circle all that apply) Pump Station Alarm Collection System Stoppage Overflow Odor
Other _____
Problem In: (circle one) Mainline Private Lateral* Manhole Dry Well Wet Well Force Main Water Main
*if private lateral problem only, go to Part E. If no overflow, go to Part E-1
Other _____
Problem Causes: (circle all that apply) Debris Roots Grease Pipe Failure Surcharge Storm Drain MH Cover Unknown
Activity: (circle all that apply) Rodding Hydroflush HandRod None Other _____
Photo's Taken: Yes (please attach) No
Comments: _____

E. Overflow – Initial Assessment:
Overflow Type: (circle one) Capacity Stoppage
Overflow Location: (circle one) Pump Station Manhole Rodhole Lateral Cleanout

E-1. Notified Customer who is the Owner Tenant In Person By Phone Left door tag
Note: _____

Novato Sanitary District Sewer Service Call Form

Novato Sanitary District Sewer Service Call Form

Date: _____

Page 2 of 2

F. Immediate Reporting – Check Agencies Notified by Incident Commander

<input type="checkbox"/> Novato Police Emergency: 897-1122 Business: 897-4361	<input type="checkbox"/> CalOES: 800-852-7550 OES Control#: Operator Name: Time:	<input type="checkbox"/> Fish and Game Dispatch 916-358-1300
<input type="checkbox"/> NMWD Business: 897-4133		
<input type="checkbox"/> Marin County PW: 499-6528	<input type="checkbox"/> City of Novato, Public Works 899-8246	<input type="checkbox"/> Marin County Dept of Health County Comm Cntr Dispatch 499-7235

G. Overflow Information (Initial Estimates):

Amount, GPM	Total Time of Spill	Total Gallons	Gallons to Open Ground	Gallons to Street	Gallons to Storm Drain

Storm Drain Discharges to: Creek / River / Pond / Lagoon / Open Ground / NA **Name:** _____

Time spill was stopped:	Total time of cleanup, min	Retrieved from Storm drain, total gal:	Retrieved from Water Body (if applicable), total gal:

GSP Coordinates: _____

H. District Crew/Equipment Details

Crew names	Hours	Reg/Time & ½	Comp Time	Equipment	Hours

I. Additional Information/Comments: _____

J. Follow-up Regulatory Reporting: Completed by: _____

K. Service Call Form Closeout: Completed by: _____

Approved by: _____

K. Corrective Actions: To be filled out by Collections crew, Leadworker, or Collections System Supervisor only!

Clean affected mains Upgrade cleaning frequency TV main

Other (describe): _____

NOTE: This report must be approved by a District supervisor within 24 hours of the spill.

**Sanitary Sewer Overflow Response Packet
Overflow Follow Up Form**

B-8

DATE _____

LOCATION _____

UP _____ DN _____

#1

THE SEWER LINE NEEDS TO BE C.C.T.V'D TO DETERMINE THE CAUSE OF THE OVERFLOW. IF POSSIBLE HAVE JETTER OR RODDER CREW READY ON SITE TO CLEAN AS C.C.T.V. IS BEING DONE.

#2

THE SEWER LINE NEEDS TO HAVE COMPLETE C.C.T.V. FROM MANHOLE TO MANHOLE.

#3

IF YOU ARE UNABLE TO COMPLETE C.C.T.V. GIVE REASON WHY AND TURN IN PAPERWORK SO THE LEADWORKER CAN HAVE IT COMPLETED.

#4

DESCRIPTION IF NOT COMPLETED AND A SOLUTION:

Sanitary Sewer Backup Response Packet
Sanitary Sewer Overflow Report

INSTRUCTIONS: Complete all items EXCEPT those that are shaded gray

SSO Category (check one):

- Category 1: Discharge of untreated or partially treated wastewater of any volume resulting from a sanitary sewer system failure or flow condition that either (1) Reaches surface water and/or drainage channel tributary to a surface water; OR (2) Reached a Municipal Separate Storm Sewer System (MS4) and was not fully captured and returned to the sanitary sewer system or otherwise captured and disposed of properly.
- Category 2: Discharge of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from a sanitary sewer system failure or flow condition that either (1) Does not reach surface water, a drainage channel, or an MS4, OR (2) The entire SSO discharged to the storm drain system was fully recovered and disposed of properly.
- Category 3: All other discharges of untreated or partially treated wastewater resulting from a sanitary sewer system failure or flow condition
- Spill from Private Lateral (specify):
 - Single Family Home Multi-Family Home High Density Residential (5+ units)
 - Food Service Establishment (FSE) Mixed Use Property Industrial Property Commercial Property
 - Public quasi-public institution (hospital, schools, fire department, etc.)

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

A. SSO LOCATION		
SSO Location Name:		
Latitude Coordinates:	Longitude Coordinates:	
Street Name and Number:		
Nearest Cross Street:	City:	Zip Code:
County:	SSO Location Description:	

B. SSO DESCRIPTION (Complete Volume Estimation Worksheets and/or refer to Field Guide as needed for estimations.)		
SSO Appearance Point (check one or more): <ul style="list-style-type: none"> <input type="checkbox"/> Combined Sewer D.I. (Combined CS Only) <input type="checkbox"/> Force Main <input type="checkbox"/> Gravity Mainline <input type="checkbox"/> Lateral Cleanout (Private) <input type="checkbox"/> Lateral Cleanout (Public) <input type="checkbox"/> Inside Building or Structure <input type="checkbox"/> Manhole <input type="checkbox"/> Pump Station <input type="checkbox"/> Lower Lateral (Private) <input type="checkbox"/> Lower Lateral (Public) <input type="checkbox"/> Upper Lateral (Private) <input type="checkbox"/> Upper Lateral (Public) <input type="checkbox"/> Other Sewer System Structure (specify): 		
Were there multiple appearance points? <input type="checkbox"/> No <input type="checkbox"/> Yes, number of appearance points:		
Did the SSO reach a drainage channel and/or surface water? <input type="checkbox"/> Yes (Category 1) <input type="checkbox"/> No		
If the SSO reached a storm sewer, was it fully captured and returned to the Sanitary Sewer? <input type="checkbox"/> Yes <input type="checkbox"/> No (Category 1)		
Was this spill from a private lateral? <input type="checkbox"/> Yes <input type="checkbox"/> No If YES, name of responsible party:		
Final Spill Destination: <ul style="list-style-type: none"> <input type="checkbox"/> Ocean/ocean beach* <input type="checkbox"/> Surface waters other than ocean <input type="checkbox"/> Drainage channel <input type="checkbox"/> Building/structure <input type="checkbox"/> Separate Storm drain <input type="checkbox"/> Combined storm drain <input type="checkbox"/> Paved surface <input type="checkbox"/> Unpaved surface <input type="checkbox"/> Street/curb/gutter <input type="checkbox"/> Other: *Provide name(s) of affected drainage channels, beach, etc.:		
Total Estimated SSO volume (in gallons – 1,000gal or more = Category 1):		gallons
Est. volume that reached a separate storm drain that flows to a surface water body:	gal	Recovered: gal
Est. volume that reached a drainage channel that flows to a surface water body:	gal	Recovered: gal
Est. volume discharged directly to a surface water body:	gal	Recovered: gal
Est. volume discharged to land:	gal	Recovered: gal
Calc. Methods: <input type="checkbox"/> Eyeball <input type="checkbox"/> Photo Comparison <input type="checkbox"/> Upstream Lat. Connections <input type="checkbox"/> Area/Volume (include sketch/photo with dimensions) <input type="checkbox"/> Other (describe):		

C. SSO OCCURRING TIME (complete Start Time Determination Form and then complete information below)	
Estimated SSO start date:	Estimated SSO start time:
Date SSO reported to sewer crew:	Time SSO reported to sewer crew:
Date sewer crew arrived:	Time sewer crew arrived:
Who was interviewed to help determine start time?	
Estimated SSO end date:	Estimated SSO end time:

* If multiple appearance points, use the GPS coordinates for the location of the SSO appearance point closest to the failure point/blockage.
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Sanitary Sewer Backup Response Packet
Sanitary Sewer Overflow Report

D. CAUSE OF SSO

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

SSO cause (check all that apply): Air Relief or Blow-Off Valve Failure Construction Diversion Failure CS Maintenance
 Damage by others Debris (specify): From Construction From Lateral General Rags Flow Exceeded Capacity
 FROG (Fats, roots, oil, grease) Inappropriate Discharge Natural Disaster Operator Error Root Intrusion
 Pipe Structural Problem/Failure Pipe Structural Problem/Failure (Installation) Rainfall Exceeded Design
 Pump Station Failure (specify): Controls Mechanical Power Siphon Failure Vandalism
 Surcharged Pipe Non - Dispersible Wipes Other (specify):

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

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

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

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

E. SSO RESPONSE

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

SSO response completed (date & time):

Visual inspection result of impacted waters (if applicable):

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

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

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

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

Recommended corrective actions: (check all that apply and provide detail)

- Add sewer to preventive maintenance program
- Adjust schedule/method of preventive maintenance
- Enforcement action against FROG source
- Inspect Sewer Using CCTV to Determine Cause
- Plan rehabilitation or replacement of sewer
- Repair Facilities or Replace Defect
- Other (specify)

What major equipment was used in the response?

List all agency personnel involved in the response including name, title and their role in the response:

F. NOTES

G. NOTIFICATION DETAILS

CalOES contacted date and time (if applicable):

CalOES Control Number (if applicable): Spoke to:

This form prepared by: NAME: TITLE: DATE:

This form reviewed by: NAME: TITLE: DATE:

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

**Sanitary Sewer Backup Response Packet
Start Time Determination Form**

SSO Start Date: _____ Location: _____

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

What time was the agency notified of the SSO? _____ AM PM

Who notified the agency? _____

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

Who at the agency received the notification? _____

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

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

Name	Contact Information	Statement
_____	_____	_____
_____	_____	_____
_____	_____	_____

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

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

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

SSO Duration: _____ **minutes**

This form completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

Sanitary Sewer Backup Response Packet
Volume Estimation: Eyeball Estimation Method

B-11a

Use this method only for small SSOs of less than 200 gallons.

SSO Date: _____ Location: _____

- 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**

Do you believe that this method has estimated the entire SSO? Yes No
 If no, you MUST use additional methods to estimate the entire SSO. If yes, it is advisable to use additional methods to support the estimation. Explain why you believe this method has/has not estimated the entire SSO:

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

Sanitary Sewer Backup Response Packet
Volume Estimation: Duration and Flow Rate Comparison Method

SSO Date: _____ Location: _____

STEP 1: Compare the SSO to reference images on Side 2 to estimate flow rate of the current overflow. Describe which reference photo(s) were used and any additional factors that influenced applying the reference photo data to the actual SSO:

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

STEP 2: Complete the **Start Time Determination Form** to provide a detailed description of how start time was determined. Copy the SSO Duration from the Start Time Determination Form here:

SSO Duration: _____minutes

STEP 3: Multiply the flow rate by the SSO duration to calculate the estimated SSO volume.

$$\frac{\text{_____ gpm}}{\text{Flow Rate}} \times \frac{\text{_____ minutes}}{\text{SSO Duration}} = \frac{\text{_____ gallons}}{\text{Estimated SSO Volume}}$$

STEP 4: Did the SSO occur during a period of consistent flow in this portion of the system? Yes No
If no, explain how, based on this portion of the collection system and its users, you believe it may have impacted the estimated SSO volume:

By what percentage are you adjusting the estimation? increase decrease _____%

Translate the percentage into gallons: _____gallons

STEP 5: Calculate the adjusted SSO volume estimate:

$$\frac{\text{_____ gallons}}{\text{Estimated SSO Volume}} + \text{OR} - \frac{\text{_____ gallons}}{\text{Adjustment}} = \frac{\text{_____ gallons}}{\text{Estimated SSO volume}}$$

Do you believe that this method has estimated the entire SSO? Yes No
If no, you MUST use additional methods to estimate the entire SSO. If yes, it is advisable to use additional methods to support the estimation. Explain why you believe this method has/has not estimated the entire SSO:

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

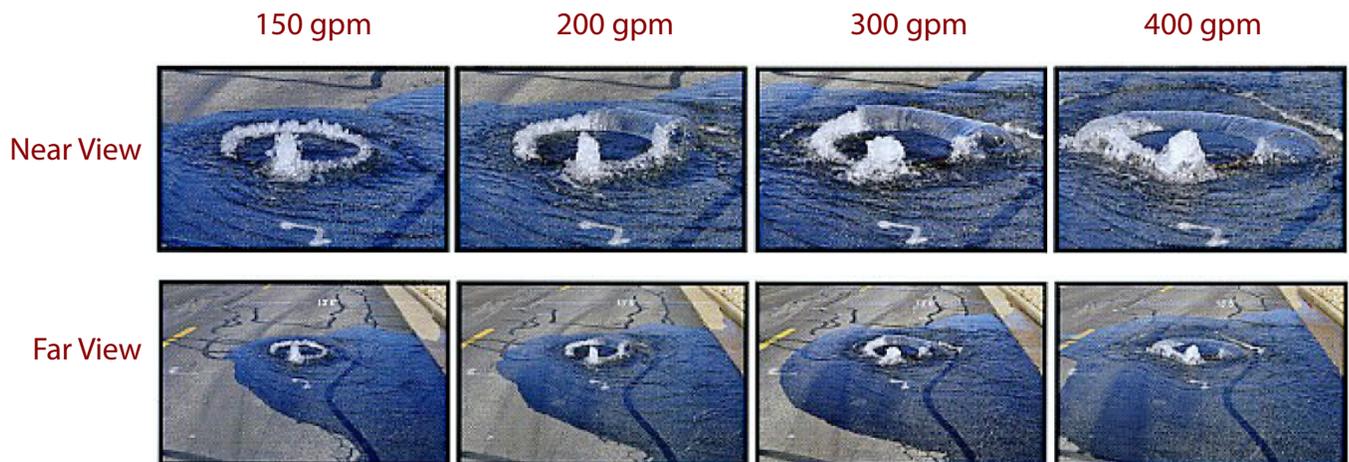
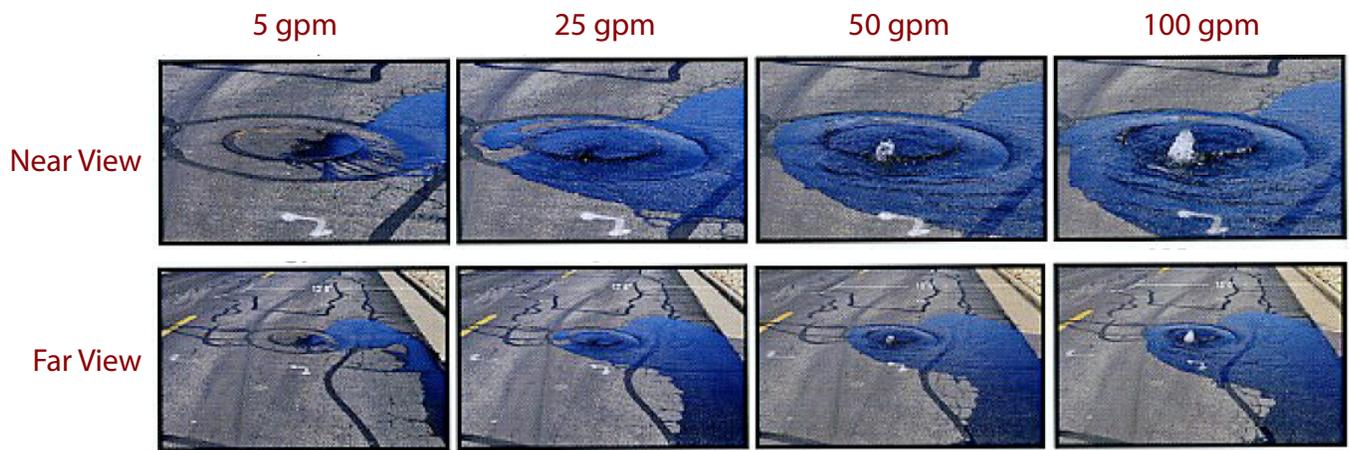
Sanitary Sewer Backup Response Packet
Volume Estimation: Duration and Flow Rate Comparison Method

IMPORTANT NOTE:

These photographs are provided as examples only and will change with many factors.

SSCSC Manhole Overflow Gauge

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



Sanitary Sewer Backup Response Packet
Volume Estimation: Upstream Lateral Connections Method

SSO Date: _____ Location: _____

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

STEP 2: This volume estimation method utilizes daily usage data based on flow rate studies of several jurisdictions in California. Column A shows how an average daily of usage of 180 gallons per day is distributed during each 6-hour period. Adjust the table as necessary to accurately represent the actual data.

Complete Column E by entering the number of minutes the SSO was active during each 6-hour time period. Multiply column D times Column E to calculate the gallons spilled during each time period. Add the numbers in Column F together for the Total Estimated SSO Volume per EDU.

Time Period	Flow Rate Per EDU				SSO	
	A	B	C	D	E	F
	Gallons per Period	Hours per period	A ÷ B = Gallons per Hour	C ÷ 60 = Gallons per Hour	Minutes SSO was active during period	D × E = Gallons spilled per period
6am-noon	72	6	12	0.20		
noon-6pm	36	6	6	0.10		
6pm-midnight	54	6	9	0.15		
midnight-6am	18	6	3	0.05		
Total Estimated SSO Volume per EDU:						

STEP 3: Multiply the Estimated SSO Volume per EDU from Step 2 by the number of EDUs from Step 1.

$$\frac{\text{gallons}}{\text{Volume per EDU}} \times \frac{\text{\# of EDUs}}{\text{\# of EDUs}} = \frac{\text{gallons}}{\text{Estimated SSO Volume}}$$

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

Estimated SSO Volume: _____ gallons

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

If no, you MUST use additional methods to estimate the entire SSO. If yes, it is advisable to use additional methods to support the estimation. Explain why you believe this method has/has not estimated the entire SSO:

This worksheet completed by:

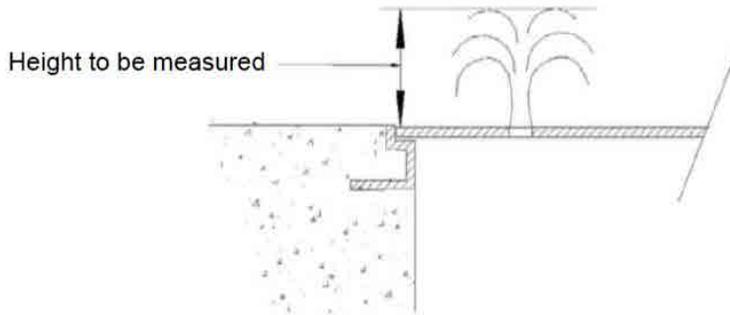
Name: _____ Signature: _____
 Job Title: _____ Date: _____

Sanitary Sewer Backup Response Packet
Volume Estimation: Flow Out of Manhole Vent or Pick Hole

SSO Date: _____ Location: _____

STEP 1: Measure the water height flowing out of the vent or pick hole in inches: _____ inches
Note: Be as precise as possible. A small difference in spout height can make a major difference in estimated spill volume!

Describe how the spout height was determined:



STEP 2: Determine the Spill Rate by referring to the table on Side 2. Find the height measured in Step 1 in the left column. Read the Spill Rate in the next column (gpm = gallons per minute).

Spill Rate = _____ gpm

STEP 3: Complete the Start Time Determination Form to provide a detailed description of how start time was determined. Copy the SSO Duration from the Start Time Determination Form here:

SSO Duration: _____ minutes

STEP 4: Multiply the spill rate by the spill duration to calculate the estimated spill volume.

$$\frac{\text{_____ gpm}}{\text{Spill Rate}} \times \frac{\text{_____ minutes}}{\text{Spill Duration}} = \frac{\text{_____ gallons}}{\text{Estimated Spill Volume}}$$

Do you believe that this method has estimated the entire SSO? Yes No
If no, you MUST use additional methods to estimate the entire SSO. If yes, it is advisable to use additional methods to support the estimation. Explain why you believe this method has/has not estimated the entire SSO:

This worksheet completed by:

Name: _____ Signature: _____
Job Title: _____ Date: _____

Sanitary Sewer Backup Response Packet
Volume Estimation: Flow Out of Manhole Vent or Pick Hole

NOTE: This table is provided for general reference. Use site-specific data if available.

This table is based on a 7/8-inch diameter pick hole

Height of spout above M/H cover H in inches	SSO FLOW Q in gpm
1/8	1.0
1/4	1.4
3/8	1.7
1/2	1.9
5/8	2.2
3/4	2.4
7/8	2.6
1	2.7
1 1/8	2.9
1 1/4	3.1
1 3/8	3.2
1 1/2	3.4
1 5/8	3.5
1 3/4	3.6
1 7/8	3.7
2	3.9
2 1/8	4.0
2 1/4	4.1
2 3/8	4.2
2 1/2	4.3
2 5/8	4.4
2 3/4	4.5
2 7/8	4.6
3	4.7
3 1/8	4.8
3 1/4	4.9
3 3/8	5.0
3 1/2	5.1
3 5/8	5.2
3 3/4	5.3
3 7/8	5.4
4	5.5
4 1/8	5.6
4 1/4	5.6
4 3/8	5.7
4 1/2	5.8
4 5/8	5.9
4 3/4	6.0
4 7/8	6.0
5	6.1

Height of spout above M/H cover H in inches	SSO FLOW Q in gpm
5 1/8	6.2
5 1/4	6.3
5 3/8	6.3
5 1/2	6.4
5 5/8	6.5
5 3/4	6.6
5 7/8	6.6
6	6.7
6 1/8	6.8
6 1/4	6.8
6 3/8	6.9
6 1/2	7.0
6 5/8	7.0
6 3/4	7.1
6 7/8	7.2
7	7.2
7 1/8	7.3
7 1/4	7.4
7 3/8	7.4
7 1/2	7.5
7 5/8	7.6
7 3/4	7.6
7 7/8	7.7
8	7.7
8 1/8	7.8
8 1/4	7.9
8 3/8	7.9
8 1/2	8.0
8 5/8	8.0
8 3/4	8.1
8 7/8	8.1
9	8.2
9 1/8	8.3
9 1/4	8.3
9 3/8	8.4
9 1/2	8.4
9 5/8	8.5
9 3/4	8.5
9 7/8	8.6
10	8.7

Unrestrained MH cover will start to lift

Disclaimer:

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

**Sanitary Sewer Backup Response Packet
Claims Submittal Checklist**

Collections Superintendent

1. Complete the following information:

Title: _____
Name: _____
Phone: _____
Today's Date: _____

2. Copy the items listed below and retain originals for internal archiving purposes.
3. Place the copies in the Backup Response Envelope and forward to the General Manager:

- Form B-3: Declination of Cleaning Services
- Form B-4: First Responder Form
- Form B-5: Lodging Authorization Form
- Form B-6: Rejection of Relocation Recommendation
- Form B-7: Service Call Form
- Form B-8: Overflow Follow-Up Form
- Form B-9: Sanitary Sewer Overflow Report
- Form B-10: Start Time Determination Form
- Form B-11: Volume Estimation Forms (a, b, c and/or d)
- Form B-12: Claims Submittal Checklist (*this form*)
- All photos taken. Check here if digital photographs will be forwarded separately
- Any other information you feel is important in this claim

4. Go to Regulatory Notifications Packet and make all appropriate notifications.

District Manager/Engineer

1. Verify claims packet is complete and forward to

Carl Warren and Co
Attention: Mauri McGuire
2300 Clayton Road, Concord, CA 94520
Telephone: (707) 732-6728 or (805) 650-7020 ext. 1003
Cell: (805) 509-1426
Email: mmcguire@carlwarren.com

2. Coordinate with Carl Warren and Co. as they administer the claim to closure

**Novato Sanitary District CA
Overflow Emergency Response Plan**

Customer Service Packet

Contents:

<u>Form</u>	<u>Form Number</u>
Customer Information Letter	CS-1
Claim Form	-2
Sewer Spill Reference Guide.....	pamphlet

Instructions:

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

If you have any questions contact the District Manager/Engineer at (415) 892-1694

This packet provided by: (name)
(title)
(phone)

Paquete de Servicio de Atención al Cliente

Contenido:

<u>Formulario</u>	<u>Número de formulario</u>
Carta de Información al Cliente	CS-1
Formulario de Demanda	-2
Guía de Referencia para Derrame de Alcantarilla	Folleto

Instrucciones:

1. Repasé la Carta de Información al Cliente para determinar las acciones que se necesitan que llevar a cabo inmediatamente.
2. Lea la Carta de Información para el Cliente que explica como presentar una demanda.
3. Repasé el Folleto-Guía de Referencia para Derrame de Alcantarilla.

Si usted tiene cualquier pregunta, llame el Distrito Gerente/Ingeniero al (415) 892-1694

Dear Resident:

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

The District Manager/Engineer has the responsibility for processing any claims for damages that are submitted. If you wish to discuss this matter, or submit a claim for damages, please contact the District Manager/Engineer at (415) 892-1694.

What you need to do now:

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

- Do not attempt to clean the area yourself; let the cleaning and restoration company handle this.
- Keep people and pets away from the affected area(s).
- Turn off all appliances that use water.
- Turn off heating/air conditioning systems and block floor level vents to prevent contamination.
- Do not remove items from the area – the cleaning and restoration company will handle this.
- If you had recent plumbing work, contact your plumber or contractor and inform them of this incident.
- If you intend to file a claim, do so as soon as practical in order to have your claim considered. To obtain a claim form contact the District Office at (415) 892-1694.
 - **Please Note:** The general provisions for the filing of claims against public entities are contained in Part 3 (*commencing at Section 900*) of Division 3.6 of the Government code. Certain claims are not governed by these provisions, including tax and assessment matters, liens, employee compensations, workers' compensation, unemployment compensation, welfare, securities, and others.
 - The form and contents of a claim are specified by Section 910, et seq. A claim relating to a cause of action for death or for injury to person or to personal property or growing crops shall be presented not later than six months after accrual of the cause of action; other claims shall be presented within one year (*Section 911.2*).
 - Claims are to be presented by delivery or mailing to District Manager/Engineer, 500 Davidson Street, Novato, CA 94945 (*Section 915*).
 - It is suggested that the claimant refer to claims law and be fully advised with respect to the exceptions and further provisions contained therein.

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

Noticia Legal Importante: Para su protección lea cuidadosamente, obtenga una traducción confiable, y/o consulte con su abogado.

Estimado Residente:

Nosotros reconocemos que los incidentes de pueden ser estresante y requieren respuesta inmediata cuando los hechos acerca de cómo un incidente ocurrió son desconocidos. Tenga por seguro que nosotros hacemos todo lo que podemos hacer para impedir este tipo de evento de ocurrir. Sin embargo, de vez en cuando las raíces de los árboles u otra basura en las líneas de la alcantarilla causan un desbordamiento para dentro de hogares situados inmediatamente contracorriente del bloqueo. A este tiempo el Distrito está investigando la causa de este incidente.

Si el Distrito es encontrada ser responsable por el incidente, nosotros estaremos comprometidos a limpiar y restaurar su propiedad, y a proteger la salud de aquellos quienes fueron afectados durante el proceso de remedio.

El contratista de limpieza proveída de parte del Distrito ha sido escogido debido a su adherencia de establecer protocolos que son diseñados para asegurar a todos los partes con servicios de limpieza completos, económicos, y expeditivos. Usted también tiene el derecho to escoger su propio contratista de limpieza, pero el Distrito no garantiza pago de tarifas/gastos incurridos y reserva el derecho de disputar las tarifas/gastos considerados no ser usuales o de costumbre.

El Distrito Gerente/Ingeniero tiene la responsabilidad para el procesamiento de las reclamaciones por daños y perjuicios que se presentan. Si usted desea discutir este asunto, o presentar una reclamación por daños y perjuicios, por favor póngase en contacto con el Distrito Gerente/Ingeniero al (415) 892-1694.

Lo Que Usted Necesita Hacer Inmediatamente:

El Distrito ha preparado este juego de instrucciones breve para ayudarle a usted a minimizar el efecto de la pérdida por medio de respondiendo rápidamente a la situación.

- No intenta de limpiar el área usted mismo; permita que la compañía de limpieza y restauración maneje esto.
- Mantenga a las personas y a las mascotas lejos de la(s) área(s) afectada(s).ú
- Apagué todos los electrodomésticos que usan agua.
- Apagué todos los sistemas de calefacción y aire acondicionado.
- No remueva artículos del área—la compañía de limpieza y restauración manejará esto.
- Si usted ha tenido trabajo de plomería llevado a cabo recientemente, póngase en contacto con su plomero u contratista para avisarles de este incidente.
- Si usted tiene la intención de presentar una demanda, hágalo tan pronto como sea práctico para que se le considere su demanda. Para obtener un formulario de demanda, póngase en contacto con el Distrito Gerente/Ingeniero esignado al (415)892-1694.
 - **Favor de Notar:** Las provisiones generales para presentar demandas contra entidades públicas están contenidas en la Parte 3 (empezando en la Sección 900) de la División 3.6 del Código de Gobierno. Ciertas demandas no son gobernadas por estas provisiones, incluyendo asuntos de impuestos y valoraciones, gravámenes, compensación de empleados, compensación de trabajadores, subsidio por incapacidad laboral, beneficios sociales, títulos valores, y otros.
 - La forma y el contenido de una demanda son especificados por la Sección 910 y subsiguientes. Una demanda relacionada a un derecho de acción por muerte o por lesión a persona u a propiedad privada, o cosechas en pie será presentada no más tarde que seis (6) meses después de acrecimiento de la causa de acción; otras demandas serán presentadas dentro de un (1) año (Sección 911.2).
 - Las demandas serán presentadas por medio de entrega o correo el Distrito Gerente/Ingeniero al 500 Davidson Street, Novato, CA 94945. (*Sección 915*).
 - Se recomienda que el demandante se refiera a las leyes de demandas y que sea completamente aconsejado con respecto a las excepciones y estipulaciones adicionales contenidas dentro de esas.

Noticia Legal Importante: Para su protección lea cuidadosamente, obtenga una traducción confiable, y/o consulte con su abogado

**Sanitary Sewer Backup Response Packet
Claim Form**

Name: _____ Date of Incident: _____

Address: _____

Telephone: _____ Date Reported: _____

Property Owner: Yes No

Briefly describe what occurred:

Describe Damage: (if any)

Insurance Contacted? Yes No

Clean up Agency contacted? Yes No

I certify the above information is true and correct to the best of my knowledge. I may be contacted at the telephone number listed above.

Signature

Date

Return completed form to: Novato Sanitary District
ATTN: District Manager/Engineer
500 Davidson Street
Novato, CA 94945

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.

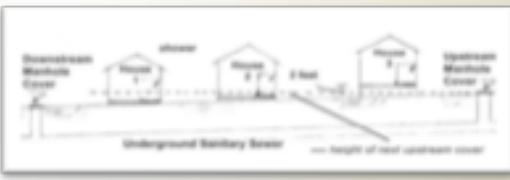


Is my home required to have a backflow prevention device?

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."



If you have a sewage spill from your private sewer line that impacts storm drains, waterways or public property, contact:

Novato Sanitary District

(415) 892-1694

Marin County Environmental Health

(415) 499-6907

California Health and Safety Code, Sections 5410-5416 requires:

- No person shall discharge raw or treated sewage or other waste in a manner that results in contamination, pollution, or a nuisance.
- Any person who causes or permits a sewage discharge to any state waters:
 - Must immediately notify the local health agency of the discharge.
 - Shall reimburse the local health agency for services that protect the public's health and safety.
 - Who fails to provide the required notice to the local health agency is guilty of a misdemeanor and shall be punished by a fine (between \$500-\$1,000) and/or imprisonment for less than one year.

San Francisco Regional Water Quality Control Board

(510) 622-2300

Requires the prevention, mitigation, response to, and reporting of sewage spills.

California Governor's Office of Emergency Services (CalOES)

(800) 852-7550

California Water Code, Article 4, Chapter 4, Sections 13268-13271 & California Code of Regulations, Title 23, Division 3, Chapter 9.2, Article 2, Sections 2250-2260 require:

- Any person who causes or permits sewage in excess of 1,000 gallons to be discharged to state waters shall immediately notify the Office of Emergency Services.
- Any person who fails to provide the notice required by this section is guilty of a misdemeanor and shall be punished by a fine (less than \$20,000) and/or imprisonment for not more than one year.

Sewer Spill Reference Guide

Your Responsibilities as a Private Property Owner

Provided to you by:

Novato Sanitary District

**500 Davidson Street
Novato, CA 94945**

(415) 892-1694

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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.

CAUTION!

When trying to locate a sewer problem, never open manholes or other public sewer structures. Only our crews are allowed to open & inspect these structures.

Common causes of sewage spills

- Grease build-up
- Tree roots
- Broken/cracked pipes
- Missing or broken cleanout caps
- Undersized sewers
- 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.

Protect the environment!

If you let sewage from your property discharge to a gutter or storm drain, you may be subject to penalties and/or out-of-pocket costs for clean-up and enforcement efforts. A property owner may be charged for costs incurred by agencies responding to spills from private properties.

What to look for:

Sewage spills can be a very noticeable gushing of water from a manhole or a slow water leak that may take time to be noticed. Don't dismiss unaccounted-for wet areas. Look for:

- Drain backups inside the building.
- Wet ground and/or water leaking around manhole lids onto your street.
- Leaking water from cleanouts or outside drains
- Unusual odorous wet areas: sidewalks, external walls, ground/landscape around a building.

The following are indicators of a possible obstruction in your sewer line:

- Water comes up in floor drains, showers or toilets.
- Toilets, showers or floor drains below ground level drain very slowly.

What to do if there is a spill:

Immediately notify the Novato Sanitary District. Our crews locate the blockage and determine if it is in the public sewer; if it is the crew removes the blockage and arranges for cleanup.

If the backup is in your private internal plumbing or in the private service laterals, you are required to immediately:

- Control and minimize the spill by shutting off or not using the water
- Keep sewage out of the storm drain system using sandbags, dirt and/or plastic sheeting
- Call a plumbing professional to clear blockages and make repairs as needed. Look in the yellow pages under "Plumbing Drain & Sewer Cleaning" or "Sewer Contractors."
- Always notify your sewer/public works department or public sewer district of sewage spills.

Spill cleanup inside the home:

For large clean ups, a professional cleaning firm should be contacted to clean up impacted areas, You can locate local firms by looking in the Yellow Pages under "Water Damage" or "Fire Damage." 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.

Other Tips:

- Keep children and pets out of the affected area until cleanup has been completed.
- Turn off heating/air conditioning systems
- Wear rubber boots, rubber gloves, and goggles during cleanup of the affected area.
- 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 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 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.
- Seek immediate attention if you become injured or ill.

Spill cleanup outside the home:

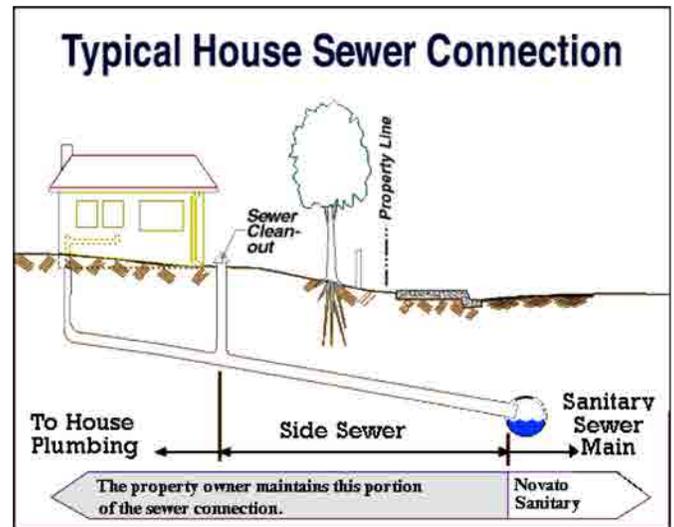
- Keep children and pets out of the affected area until cleanup has been completed.
- Wear rubber boots, rubber gloves, and goggles during cleanup of affected area.
- Clean up sewage solids (fecal material) and place in properly functioning toilet or double bag and place in garbage container.
- On hard surfaces areas such as asphalt or concrete, it is safe to use a 2% bleach solutions, 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.
- Seek immediate attention if you become injured/ill.

**NOVATO SANITARY
DISTRICT
COURTESY NOTICE**

**NOVATO SANITARY DISTRICT
Sewer Lateral Maintenance
Areas of Responsibility**

**WASTEWATER
COLLECTION SYSTEM
PHONE 892-1694**

- Responded to call.
- The sewer main is clear.
- Problem was in the sewer main and the problem has been corrected.
- Problem is in your lateral and you should get a plumber to clear the blockage.
- Other _____



**To House Plumbing/Side Sewer-
Property Owner Responsible For Repairs and
Maintaining Clear Pipe.**

**Sanitary Sewer Main-
District Responsible For Repairs and
Maintenance**

District Ordinance No. 70 Sections 146 and 510. dated February 28, 1994 state: Side sewer shall mean the sewer line beginning at a point two (2) feet outside the foundation wall of any building and terminating at the main sewer and includes the building sewer and lateral sewer together.

Maintenance of side sewer. Side sewers shall be maintained by the owner of the property served thereby.

Date: _____ Time: _____

Representative: _____

Appendix C

SANITARY SEWER OVERFLOW RESPONSE PACKET

**Sanitary Sewer Overflow Response Packet
Table of Contents**

<u>Form</u>	<u>Form Number</u>
Instructions and Chain of Custody	envelope label
Responding to a Sanitary Sewer Overflow	C-1
Sewer Overflow Report	-2
Start Time Determination Form	-3
Volume Estimation Forms	-4a, -4b, -4c, -4d
Service Call Form	-5
CCTV Work Order	-6
Overflow Follow-Up Form	-7
Regulatory Notifications Packet	
Instructions	envelope
Regulatory Reporting Guide	RN-1
Category 1 SSO Reporting Checklist	-2a
Category 2 & 3 SSO Reporting Checklist	-2b
Public Posting	n/a
Door Hanger	n/a
Sewer Spill Reference Guide	pamphlet

For pre-assembled packets contact DKF Solutions Group at (707) 373-9709 or kpatzer@dkfsolutions.com

In the event of a Sanitary Sewer Overflow READ THIS FIRST



- If this is a Category 1 SSO greater than or equal to 1,000 gallons contact the Collections System Superintendent, Collections System Leadworker or District Manager/Engineer to make the 2-hour notification to CalOES.
- Check here if you believe that fats, roots, oils and/grease (FROG) caused or contributed to the SSO.
- Contact the District Manager/Engineer or Deputy District Manager/Engineer at (415) 892-1694 for any media requests.

Instructions

Don't forget photos!



Collections Crew:

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

Print Name: _____

Initial: _____

Date: _____

Time: _____

Collections System Superintendent:

- Review the enclosed forms.
- Complete the Regulatory Notifications Packet.
- Archive this packet and all other information regarding this overflow incident according to District policy.
- Debrief using the Collection System Failure Analysis Form.

Print Name: _____

Initial: _____

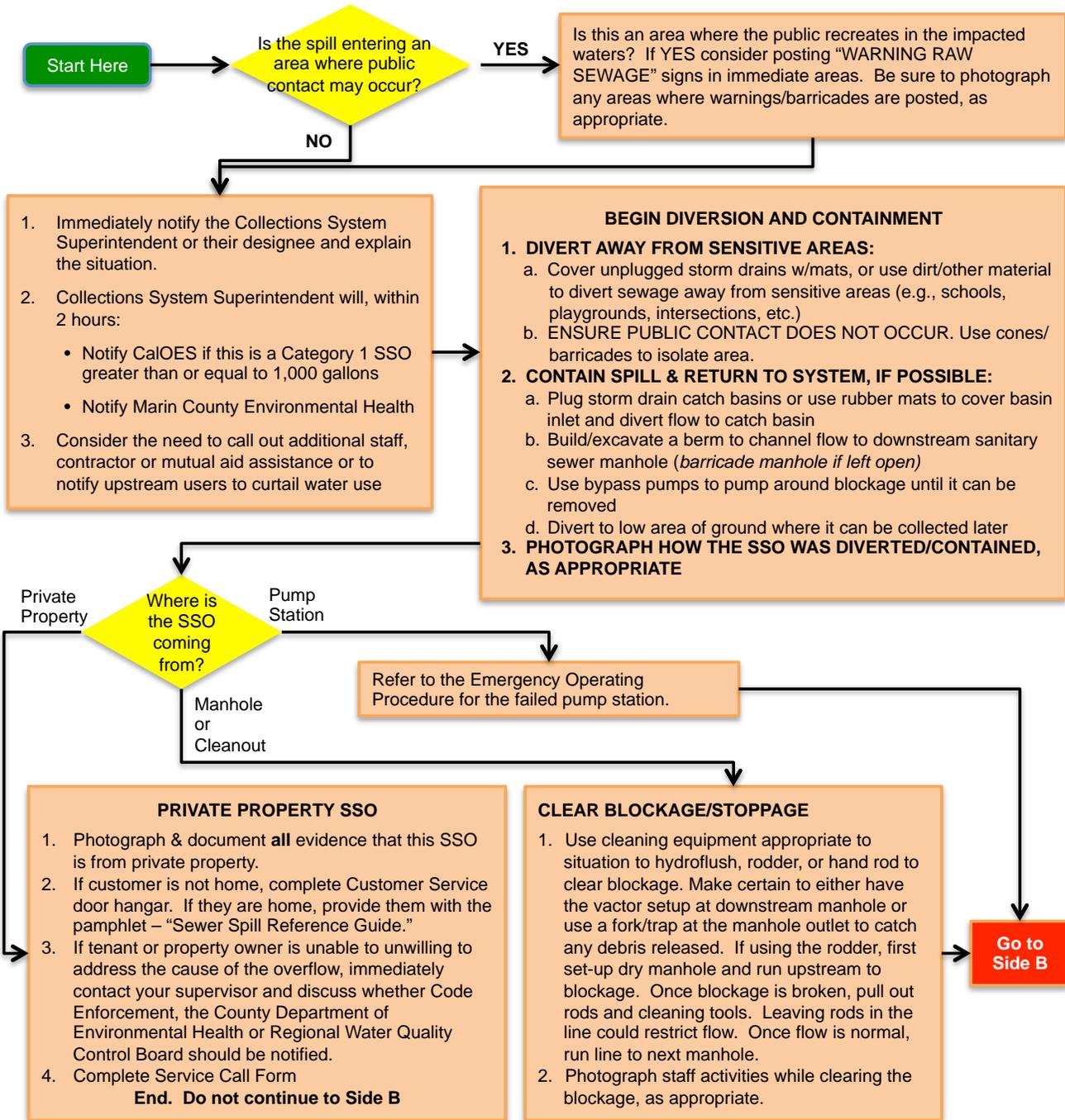
Date: _____

Time: _____

Novato Sanitary District Overflow Emergency Response Plan Sanitary Sewer Overflow Packet

**Sanitary Sewer Overflow Response Packet
Overflow Response Flowchart**

NOTE: Ensure that all photos are date/time stamped



MEDIA AND PUBLIC RELATIONS GUIDELINES:

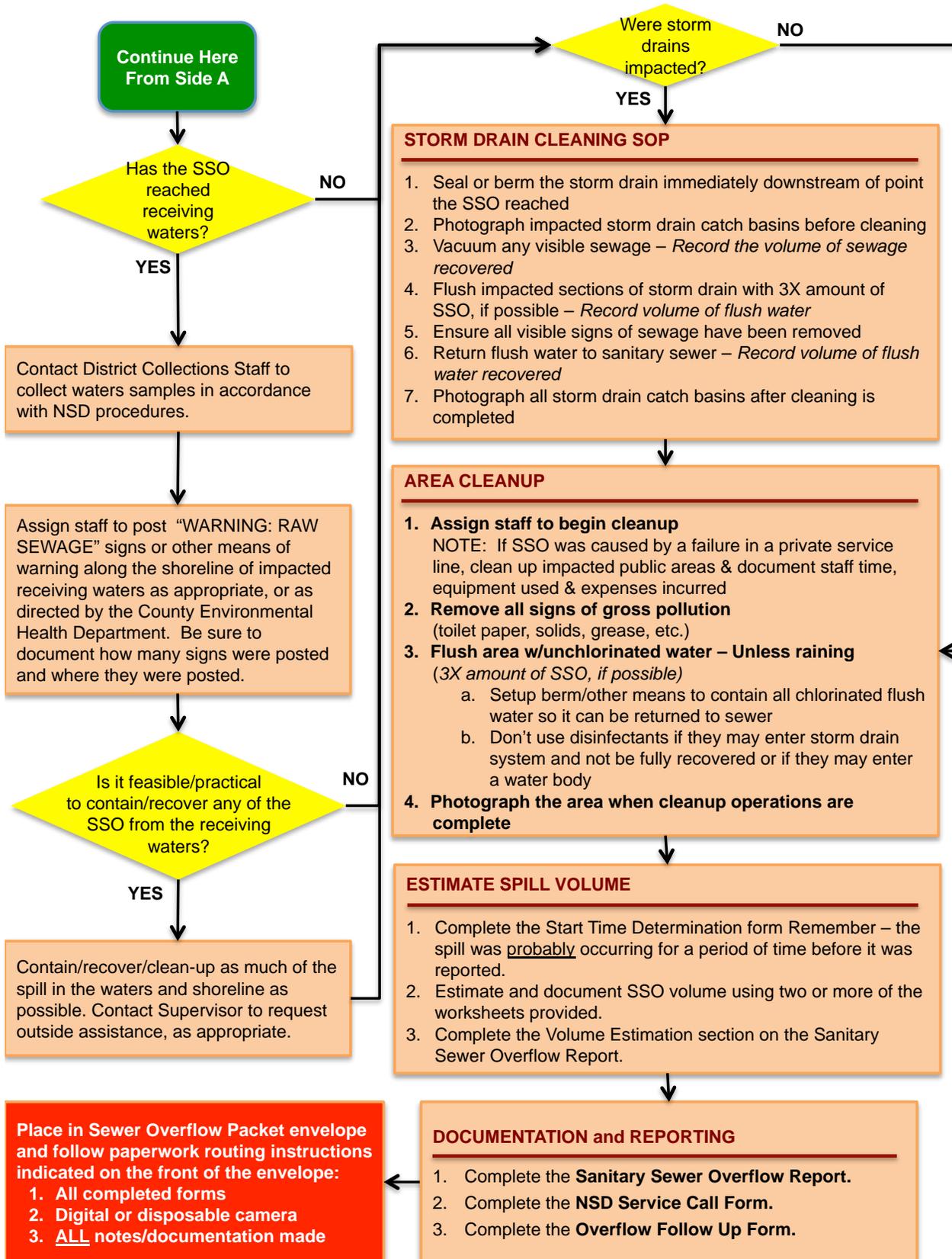
Exercise caution in contacts with the public or media when you respond to a spill. Any information you provide or statements you make may become pertinent in the event of possible court action, it is important to **AVOID THE FOLLOWING:**

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

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

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

Sanitary Sewer Overflow Response Packet
Overflow Response Flowchart



Sanitary Sewer Overflow Response Packet

Sanitary Sewer Overflow Report

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

SSO Category (check one):

- Category 1: Discharge of untreated or partially treated wastewater of any volume resulting from a sanitary sewer system failure or flow condition that either (1) Reaches surface water and/or drainage channel tributary to a surface water; OR (2) Reached a Municipal Separate Storm Sewer System (MS4) and was not fully captured and returned to the sanitary sewer system or otherwise captured and disposed of properly.
- Category 2: Discharge of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from a sanitary sewer system failure or flow condition that either (1) Does not reach surface water, a drainage channel, or an MS4, OR (2) The entire SSO discharged to the storm drain system was fully recovered and disposed of properly.
- Category 3: All other discharges of untreated or partially treated wastewater resulting from a sanitary sewer system failure or flow condition
- Spill from Private Lateral (specify): Single Family Home Multi-Family Home High Density Residential (5+ units)
 Food Service Establishment (FSE) Mixed Use Property Industrial Property Commercial Property
 Public quasi-public institution (hospital, schools, fire department, etc.)

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

A. SSO LOCATION		
SSO Location Name:		
Latitude Coordinates:	Longitude Coordinates:	
Street Name and Number:		
Nearest Cross Street:	City:	Zip Code:
County:	SSO Location Description:	

B. SSO DESCRIPTION (Complete Volume Estimation Worksheets and/or refer to Field Guide as needed for estimations.)		
SSO Appearance Point (check one or more): <input type="checkbox"/> Combined Sewer D.I. (Combined CS Only) <input type="checkbox"/> Force Main <input type="checkbox"/> Gravity Mainline <input type="checkbox"/> Lateral Cleanout (Private) <input type="checkbox"/> Lateral Cleanout (Public) <input type="checkbox"/> Inside Building or Structure <input type="checkbox"/> Manhole <input type="checkbox"/> Pump Station <input type="checkbox"/> Lower Lateral (Private) <input type="checkbox"/> Lower Lateral (Public) <input type="checkbox"/> Upper Lateral (Private) <input type="checkbox"/> Upper Lateral (Public) <input type="checkbox"/> Other Sewer System Structure (specify):		
Were there multiple appearance points? <input type="checkbox"/> No <input type="checkbox"/> Yes, number of appearance points:		
Did the SSO reach a drainage channel and/or surface water? <input type="checkbox"/> Yes (Category 1) <input type="checkbox"/> No		
If the SSO reached a storm sewer, was it fully captured and returned to the Sanitary Sewer? <input type="checkbox"/> Yes <input type="checkbox"/> No (Category 1)		
Was this spill from a private lateral? <input type="checkbox"/> Yes <input type="checkbox"/> No If YES, name of responsible party:		
Final Spill Destination: <input type="checkbox"/> Ocean/ocean beach* <input type="checkbox"/> Surface waters other than ocean <input type="checkbox"/> Drainage channel <input type="checkbox"/> Building/structure <input type="checkbox"/> Separate Storm drain <input type="checkbox"/> Combined storm drain <input type="checkbox"/> Paved surface <input type="checkbox"/> Unpaved surface <input type="checkbox"/> Street/curb/gutter <input type="checkbox"/> Other:		
*Provide name(s) of affected drainage channels, beach, etc.:		
Total Estimated SSO volume (in gallons – 1,000gal or more = Category 1):		gallons
Est. volume that reached a separate storm drain that flows to a surface water body:	gal	Recovered: gal
Est. volume that reached a drainage channel that flows to a surface water body:	gal	Recovered: gal
Est. volume discharged directly to a surface water body:	gal	Recovered: gal
Est. volume discharged to land:	gal	Recovered: gal
Calc. Methods: <input type="checkbox"/> Eyeball <input type="checkbox"/> Photo Comparison <input type="checkbox"/> Upstream Lat. Connections <input type="checkbox"/> Area/Volume (include sketch/photo with dimensions) <input type="checkbox"/> Other (describe):		

C. SSO OCCURRING TIME (complete Start Time Determination Form and then complete information below)	
Estimated SSO start date:	Estimated SSO start time:
Date SSO reported to sewer crew:	Time SSO reported to sewer crew:
Date sewer crew arrived:	Time sewer crew arrived:
Who was interviewed to help determine start time?	
Estimated SSO end date:	Estimated SSO end time:

* If multiple appearance points, use the GPS coordinates for the location of the SSO appearance point closest to the failure point/blockage.

Sanitary Sewer Overflow Response Packet
Sanitary Sewer Overflow Report

D. CAUSE OF SSO

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

SSO cause (check all that apply): Air Relief or Blow-Off Valve Failure Construction Diversion Failure CS Maintenance
 Damage by others Debris (specify): From Construction From Lateral General Rags Flow Exceeded Capacity
 FROG (Fats, roots, oil, grease) Inappropriate Discharge Natural Disaster Operator Error Root Intrusion
 Pipe Structural Problem/Failure Pipe Structural Problem/Failure (Installation) Rainfall Exceeded Design
 Pump Station Failure (specify): Controls Mechanical Power Siphon Failure Vandalism
 Surcharged Pipe Non - Dispersible Wipes Other (specify):

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

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

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

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

E. SSO RESPONSE

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

SSO response completed (date & time):

Visual inspection result of impacted waters (if applicable):

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

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

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

Were samples of impacted waters collected? Yes No

If YES, select the analyses: DO Ammonia Bacteria pH Temperature Other:

Recommended corrective actions: (check all that apply and provide detail)

- Add sewer to preventive maintenance program
- Adjust schedule/method of preventive maintenance
- Enforcement action against FROG source
- Inspect Sewer Using CCTV to Determine Cause
- Plan rehabilitation or replacement of sewer
- Repair Facilities or Replace Defect
- Other (specify)

What major equipment was used in the response?

List all agency personnel involved in the response including name, title and their role in the response:

F. NOTES

G. NOTIFICATION DETAILS

CalOES contacted date and time (if applicable):

CalOES Control Number (if applicable): Spoke to:

This form prepared by: NAME: TITLE: DATE:

This form reviewed by: NAME: TITLE: DATE:

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

Sanitary Sewer Overflow Response Packet
Start Time Determination Form

SSO Start Date: _____ Location: _____

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

What time was the agency notified of the SSO? _____ AM PM

Who notified the agency? _____

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

Who at the agency received the notification? _____

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

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

Name	Contact Information	Statement
_____	_____	_____
_____	_____	_____
_____	_____	_____

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

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

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

SSO Duration: _____ **minutes**

This form completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

Sanitary Sewer Overflow Response Packet
Volume Estimation: Eyeball Estimation Method

C-4a

Use this method only for small SSOs of less than 200 gallons.

SSO Date: _____ Location: _____

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**

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

If no, you MUST use additional methods to estimate the entire SSO. If yes, it is advisable to use additional methods to support the estimation. Explain why you believe this method has/has not estimated the entire SSO:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

Sanitary Sewer Overflow Response Packet
Volume Estimation: Duration and Flow Rate Comparison Method

SSO Date: _____ Location: _____

STEP 1: Compare the SSO to reference images on Side 2 to estimate flow rate of the current overflow. Describe which reference photo(s) were used and any additional factors that influenced applying the reference photo data to the actual SSO:

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

STEP 2: Complete the **Start Time Determination Form** to provide a detailed description of how start time was determined. Copy the SSO Duration from the Start Time Determination Form here:

SSO Duration: _____minutes

STEP 3: Multiply the flow rate by the SSO duration to calculate the estimated SSO volume.

_____gpm X _____minutes = _____gallons
 Flow Rate SSO Duration Estimated SSO Volume

STEP 4: Did the SSO occur during a period of consistent flow in this portion of the system? Yes No

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

By what percentage are you adjusting the estimation? increase decrease _____%

Translate the percentage into gallons: _____gallons

STEP 5: Calculate the adjusted SSO volume estimate:

_____gallons + or - _____gallons = _____gallons
 Estimated SSO Volume Adjustment **Estimated SSO volume**

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

If no, you MUST use additional methods to estimate the entire SSO. If yes, it is advisable to use additional methods to support the estimation. Explain why you believe this method has/has not estimated the entire SSO:

This worksheet completed by:

Name: _____ Signature: _____
 Job Title: _____ Date: _____

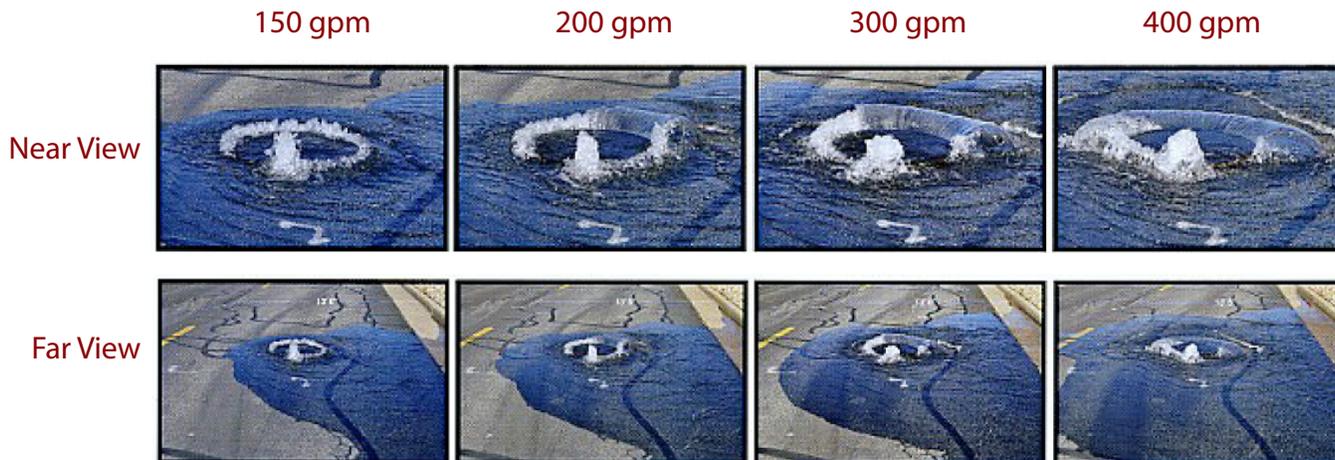
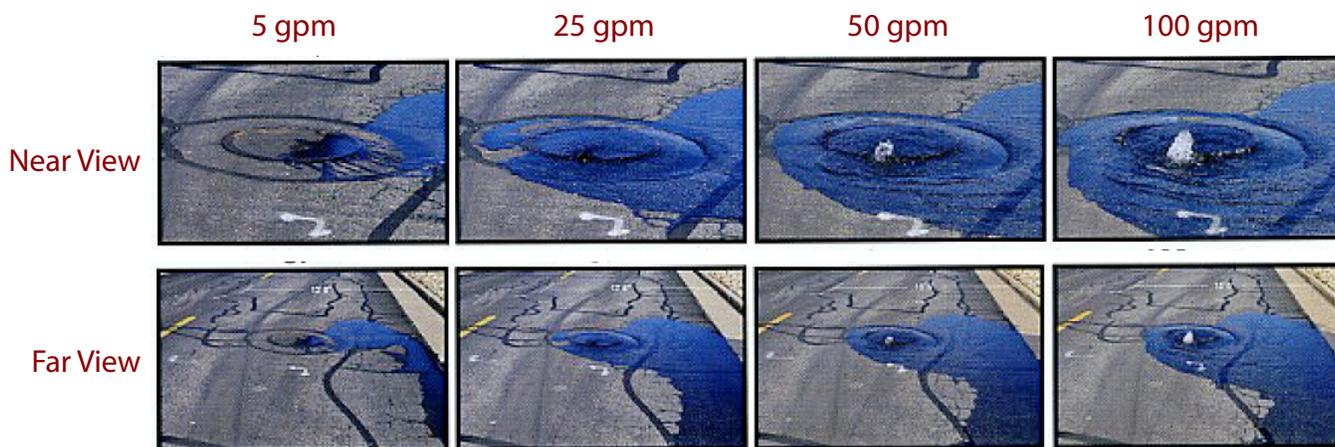
Sanitary Sewer Overflow Response Packet
Volume Estimation: Duration and Flow Rate Comparison Method

IMPORTANT NOTE:

These photographs are provided as examples only and will change with many factors.

SSCSC Manhole Overflow Gauge

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



Sanitary Sewer Overflow Response Packet
Volume Estimation: Upstream Lateral Connections Method

C-4c

SSO Date: _____ Location: _____

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

STEP 2: This volume estimation method utilizes daily usage data based on flow rate studies of several jurisdictions in California. Column A shows how an average daily of usage of 180 gallons per day is distributed during each 6-hour period. Adjust the table as necessary to accurately represent the actual data.

Complete Column E by entering the number of minutes the SSO was active during each 6-hour time period. Multiply column D times Column E to calculate the gallons spilled during each time period. Add the numbers in Column F together for the Total Estimated SSO Volume per EDU.

Time Period	Flow Rate Per EDU				SSO	
	A	B	C	D	E	F
	Gallons per Period	Hours per period	A ÷ B = Gallons per Hour	C ÷ 60 = Gallons per Hour	Minutes SSO was active during period	D × E = Gallons spilled per period
6am-noon	72	6	12	0.20		
noon-6pm	36	6	6	0.10		
6pm-midnight	54	6	9	0.15		
midnight-6am	18	6	3	0.05		
Total Estimated SSO Volume per EDU:						

STEP 3: Multiply the Estimated SSO Volume per EDU from Step 2 by the number of EDUs from Step 1.

$$\frac{\text{gallons}}{\text{Volume per EDU}} \times \frac{\text{\# of EDUs}}{\text{\# of EDUs}} = \frac{\text{gallons}}{\text{Estimated SSO Volume}}$$

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

Estimated SSO Volume: _____ gallons

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

If no, you MUST use additional methods to estimate the entire SSO. If yes, it is advisable to use additional methods to support the estimation. Explain why you believe this method has/has not estimated the entire SSO:

This worksheet completed by:

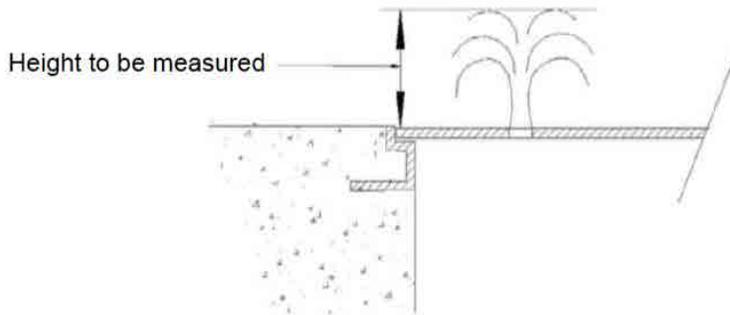
Name: _____ Signature: _____
 Job Title: _____ Date: _____

Sanitary Sewer Overflow Response Packet
Volume Estimation: Flow Out of Manhole Vent or Pick Hole

SSO Date: _____ Location: _____

STEP 1: Measure the water height flowing out of the vent or pick hole in inches: _____ inches
Note: Be as precise as possible. A small difference in spout height can make a major difference in estimated spill volume!

Describe how the spout height was determined:



STEP 2: Determine the Spill Rate by referring to the table on Side 2. Find the height measured in Step 1 in the left column. Read the Spill Rate in the next column (gpm = gallons per minute).

Spill Rate = _____ gpm

STEP 3: Complete the Start Time Determination Form to provide a detailed description of how start time was determined. Copy the SSO Duration from the Start Time Determination Form here:

SSO Duration: _____ minutes

STEP 4: Multiply the spill rate by the spill duration to calculate the estimated spill volume.

$$\frac{\text{_____ gpm}}{\text{Spill Rate}} \times \frac{\text{_____ minutes}}{\text{Spill Duration}} = \frac{\text{_____ gallons}}{\text{Estimated Spill Volume}}$$

Do you believe that this method has estimated the entire SSO? Yes No
If no, you MUST use additional methods to estimate the entire SSO. If yes, it is advisable to use additional methods to support the estimation. Explain why you believe this method has/has not estimated the entire SSO:

This worksheet completed by:

Name: _____ Signature: _____
Job Title: _____ Date: _____

Sanitary Sewer Overflow Response Packet
Volume Estimation: Flow Out of Manhole Vent or Pick Hole

NOTE: This table is provided for general reference. Use site-specific data if available.

This table is based on a 7/8-inch diameter pick hole

Height of spout above M/H cover H in inches	SSO FLOW Q in gpm
1/8	1.0
1/4	1.4
3/8	1.7
1/2	1.9
5/8	2.2
3/4	2.4
7/8	2.6
1	2.7
1 1/8	2.9
1 1/4	3.1
1 3/8	3.2
1 1/2	3.4
1 5/8	3.5
1 3/4	3.6
1 7/8	3.7
2	3.9
2 1/8	4.0
2 1/4	4.1
2 3/8	4.2
2 1/2	4.3
2 5/8	4.4
2 3/4	4.5
2 7/8	4.6
3	4.7
3 1/8	4.8
3 1/4	4.9
3 3/8	5.0
3 1/2	5.1
3 5/8	5.2
3 3/4	5.3
3 7/8	5.4
4	5.5
4 1/8	5.6
4 1/4	5.6
4 3/8	5.7
4 1/2	5.8
4 5/8	5.9
4 3/4	6.0
4 7/8	6.0
5	6.1

Height of spout above M/H cover H in inches	SSO FLOW Q in gpm
5 1/8	6.2
5 1/4	6.3
5 3/8	6.3
5 1/2	6.4
5 5/8	6.5
5 3/4	6.6
5 7/8	6.6
6	6.7
6 1/8	6.8
6 1/4	6.8
6 3/8	6.9
6 1/2	7.0
6 5/8	7.0
6 3/4	7.1
6 7/8	7.2
7	7.2
7 1/8	7.3
7 1/4	7.4
7 3/8	7.4
7 1/2	7.5
7 5/8	7.6
7 3/4	7.6
7 7/8	7.7
8	7.7
8 1/8	7.8
8 1/4	7.9
8 3/8	7.9
8 1/2	8.0
8 5/8	8.0
8 3/4	8.1
8 7/8	8.1
9	8.2
9 1/8	8.3
9 1/4	8.3 -
9 3/8	8.4
9 1/2	8.4
9 5/8	8.5
9 3/4	8.5
9 7/8	8.6
10	8.7

Unrestrained MH cover will start to lift

Disclaimer:

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

Sanitary Sewer Overflow Response Packet
Novato Sanitary District Sewer Service Call Form

Novato Sanitary District Sewer Service Call Form

Date: _____

Page 1 of 2

A. Initial Notification: Received by: _____ Referred to: _____
Referred via: phone/fax/email (circle one)

B. Caller Information:

Name: _____ Phone: _____ Time: _____ (AM/PM)

Address: _____ Call Type: Emergency Complaint Other

Cross Street: _____ Structure Up: _____ Structure Down: _____

Caller Info: _____

C. Details of Initial Response:

Arrival Time: _____ (AM/PM) Departure time: _____ (AM/PM) Weather Conditions: _____

Personnel (XX/XX) _____ Pay Code (circle one): Regular Time & 1/2 Comp

Personnel (XX/XX) _____ Pay Code (circle one): Regular Time & 1/2 Comp

D. Problem Information:

Problem type(s): (circle all that apply) Pump Station Alarm Collection System Stoppage Overflow Odor
Other _____

Problem In: (circle one) Mainline Private Lateral* Manhole Dry Well Wet Well Force Main Water Main
*if private lateral problem only, go to Part E.
If no overflow, go to Part E-1
Other _____

Problem Causes: (circle all that apply) Debris Roots Grease Pipe Failure Surcharge Storm Drain MH Cover Unknown

Activity: (circle all that apply) Rodding Hydroflush HandRod None Other _____

Photo's Taken: Yes (please attach) No

Comments: _____

E. Overflow – Initial Assessment:

Overflow Type: (circle one) Capacity Stoppage

Overflow Location: (circle one) Pump Station Manhole Rodhole Lateral Cleanout

E-1. Notified Customer who is the Owner Tenant In Person By Phone Left door tag

Note: _____

Novato Sanitary District Sewer Service Call Form

Novato Sanitary District Sewer Service Call Form

Date: _____

Page 2 of 2

F. Immediate Reporting – Check Agencies Notified by Incident Commander

<input type="checkbox"/> Novato Police Emergency: 897-1122 Business: 897-4361	<input type="checkbox"/> CalOES: 800-852-7550 OES Control#: Operator Name: Time:	<input type="checkbox"/> Fish and Game Dispatch 916-358-1300
<input type="checkbox"/> NMWD Business: 897-4133		
<input type="checkbox"/> Marin County PW: 499-6528	<input type="checkbox"/> City of Novato, Public Works 899-8246	<input type="checkbox"/> Marin County Dept of Health County Comm Cntr Dispatch 499-7235

G. Overflow Information (Initial Estimates):

Amount, GPM	Total Time of Spill	Total Gallons	Gallons to Open Ground	Gallons to Street	Gallons to Storm Drain

Storm Drain Discharges to: **Creek / River / Pond / Lagoon / Open Ground / NA** Name: _____

Time spill was stopped:	Total time of cleanup, min	Retrieved from Storm drain, total gal:	Retrieved from Water Body (if applicable), total gal:

GSP Coordinates: _____

H. District Crew/Equipment Details

Crew names	Hours	Reg/Time & ½	Comp Time	Equipment	Hours

I. Additional Information/Comments:

J. Follow-up Regulatory Reporting: Completed by: _____

K. Service Call Form Closeout: Completed by: _____

Approved by: _____

K. Corrective Actions: To be filled out by Collections crew, Leadworker, or Collections System Supervisor only!

- Clean affected mains Upgrade cleaning frequency TV main
- Other (describe): _____

NOTE: This report must be approved by a District supervisor within 24 hours of the spill.

Sanitary Sewer Overflow Response Packet
CCTV Work Order

 Novato Sanitary District CCTV Work Order		#																
BASIN:	CO4	ASSIGNED TO: CCTV Crew	DATE ISSUED: 05/6/2009															
STATUS:	Issued	ROUTE:	PLAN DUE DATE:															
Activity: Description of Work: Special Instructions:																		
LOGGED W/ <input type="checkbox"/> PICAX <input type="checkbox"/> OTHER		<input type="checkbox"/> Traffic Control Required																
ADDRESS / LOCATION 2382 RICE RD		<input type="radio"/> IN STREET <input type="radio"/> IN EASEMENT <input type="radio"/> PRIVATE PROPERTY <input type="radio"/> OTHER																
TYPE OF REQUEST <input type="checkbox"/> TV LATERAL <input type="checkbox"/> TV MAIN <input type="checkbox"/> OTHER		TV SUPERVISOR:																
DATE COMPLETED:		ASSISTANT:																
COMMENTS:																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">MH UP# - MH DN#</th> <th style="width: 15%;">MATERIAL</th> <th style="width: 15%;">LENGTH</th> <th style="width: 15%;">DIAMETER</th> <th style="width: 35%;">COMPLETED / NOTES</th> </tr> </thead> <tbody> <tr> <td colspan="5">line Segments</td> </tr> <tr> <td>-25-11-I-25-12</td> <td>VCP</td> <td>322.00</td> <td>8</td> <td></td> </tr> </tbody> </table>				MH UP# - MH DN#	MATERIAL	LENGTH	DIAMETER	COMPLETED / NOTES	line Segments					-25-11-I-25-12	VCP	322.00	8	
MH UP# - MH DN#	MATERIAL	LENGTH	DIAMETER	COMPLETED / NOTES														
line Segments																		
-25-11-I-25-12	VCP	322.00	8															
PROBLEMS: <input type="checkbox"/> ROOTS <input type="checkbox"/> GREASE <input type="checkbox"/> DEBRIS <input type="checkbox"/> PIPE DAMAGE <input type="checkbox"/> PIPE BAG <input type="checkbox"/> VERMIN <input type="checkbox"/> OTHER																		
FOLLOW UP: <input type="checkbox"/> HEAVY CLEANING <input type="checkbox"/> DEBRIS REMOVAL <input type="checkbox"/> GREASE REMOVAL <input type="checkbox"/> ROOT TREATMENT <input type="checkbox"/> REPAIR <input type="checkbox"/> ROACH CONTROL <input type="checkbox"/> OTHER																		

Sanitary Sewer Overflow Response Packet
CCTV Work Order



Novato Sanitary District
CCTV Work Order

			#
BASIN:	CO4	ASSIGNED TO:	CCTV Crew
STATUS:	Issued	ROUTE:	
			DATE ISSUED: 05/6/2009
			PLAN DUE DATE:

Labor

Fill	Operators	Date	Reg. Hours	OT Hours	DT Hours	Total Time	Cost
							Sum = 0

Equipment

Fill	Equipment	Date	Hours	Cost
				Sum = 0

Materials

Fill	Materials	Description	Unit Cost	QTY	PO	Cost
						Sum = 0

Services

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

Map Corrections / Comments

Map Changes Requested

APPROVAL
Approved By:
Approval Date:

**Sanitary Sewer Overflow Response Packet
Overflow Follow Up Form**

DATE _____

LOCATION _____

UP _____ DN _____

#1

THE SEWER LINE NEEDS TO BE C.C.T.V'D TO DETERMINE THE CAUSE OF THE OVERFLOW. IF POSSIBLE HAVE JETTER OR RODDER CREW READY ON SITE TO CLEAN AS C.C.T.V. IS BEING DONE.

#2

THE SEWER LINE NEEDS TO HAVE COMPLETE C.C.T.V. FROM MANHOLE TO MANHOLE.

#3

IF YOU ARE UNABLE TO COMPLETE C.C.T.V. GIVE REASON WHY AND TURN IN PAPERWORK SO THE LEADWORKER CAN HAVE IT COMPLETED.

#4

DESCRIPTION IF NOT COMPLETED AND A SOLUTION:



**WARNING!
SEWAGE OVERFLOW
AVOID WATER CONTACT**

**PRECAUCION!
AGUA DE DESPERDICIO
MANTENGASE FUERA DEL AGUA**



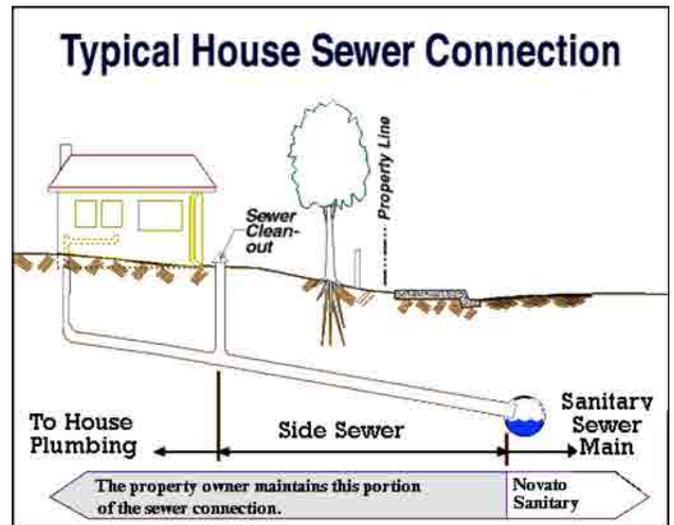
**NOVATO SANITARY DISTRICT
415-892-1694**

**NOVATO SANITARY
DISTRICT
COURTESY NOTICE**

**NOVATO SANITARY DISTRICT
Sewer Lateral Maintenance
Areas of Responsibility**

**WASTEWATER
COLLECTION SYSTEM
PHONE 892-1694**

- Responded to call.
- The sewer main is clear.
- Problem was in the sewer main and the problem has been corrected.
- Problem is in your lateral and you should get a plumber to clear the blockage.
- Other _____
- _____
- _____
- _____



**To House Plumbing/Side Sewer-
Property Owner Responsible For Repairs and
Maintaining Clear Pipe.**

**Sanitary Sewer Main-
District Responsible For Repairs and
Maintenance**

District Ordinance No. 70 Sections 146 and 510. dated February 28, 1994 state: Side sewer shall mean the sewer line beginning at a point two (2) feet outside the foundation wall of any building and terminating at the main sewer and includes the building sewer and lateral sewer together.

Maintenance of side sewer. Side sewers shall be maintained by the owner of the property served thereby.

Date: _____ Time: _____

Representative: _____

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.

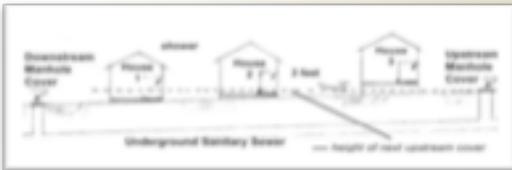


Is my home required to have a backflow prevention device?

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."



If you have a sewage spill from your private sewer line that impacts storm drains, waterways or public property, contact:

Novato Sanitary District

(415) 892-1694

Marin County Environmental Health

(415) 499-6907

California Health and Safety Code, Sections 5410-5416 requires:

- No person shall discharge raw or treated sewage or other waste in a manner that results in contamination, pollution, or a nuisance.
- Any person who causes or permits a sewage discharge to any state waters:
 - Must immediately notify the local health agency of the discharge.
 - Shall reimburse the local health agency for services that protect the public's health and safety.
 - Who fails to provide the required notice to the local health agency is guilty of a misdemeanor and shall be punished by a fine (between \$500-\$1,000) and/or imprisonment for less than one year.

San Francisco Regional Water Quality Control Board

(510) 622-2300

Requires the prevention, mitigation, response to, and reporting of sewage spills.

California Governor's Office of Emergency Services (CalOES)

(800) 852-7550

California Water Code, Article 4, Chapter 4, Sections 13268-13271 & California Code of Regulations, Title 23, Division 3, Chapter 9.2, Article 2, Sections 2250-2260 require:

- Any person who causes or permits sewage in excess of 1,000 gallons to be discharged to state waters shall immediately notify the Office of Emergency Services.
- Any person who fails to provide the notice required by this section is guilty of a misdemeanor and shall be punished by a fine (less than \$20,000) and/or imprisonment for not more than one year.

Sewer Spill Reference Guide

Your Responsibilities as a Private Property Owner

Provided to you by:

Novato Sanitary District

500 Davidson Street
Novato, CA 94945

(415) 892-1694

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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.

CAUTION!

When trying to locate a sewer problem, never open manholes or other public sewer structures. Only our crews are allowed to open & inspect these structures.

Common causes of sewage spills

- Grease build-up
- Tree roots
- Broken/cracked pipes
- Missing or broken cleanout caps
- Undersized sewers
- 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.

Protect the environment!

If you let sewage from your property discharge to a gutter or storm drain, you may be subject to penalties and/or out-of-pocket costs for clean-up and enforcement efforts. A property owner may be charged for costs incurred by agencies responding to spills from private properties.

What to look for:

Sewage spills can be a very noticeable gushing of water from a manhole or a slow water leak that may take time to be noticed. Don't dismiss unaccounted-for wet areas. Look for:

- Drain backups inside the building.
- Wet ground and/or water leaking around manhole lids onto your street.
- Leaking water from cleanouts or outside drains
- Unusual odorous wet areas: sidewalks, external walls, ground/landscape around a building.

The following are indicators of a possible obstruction in your sewer line:

- Water comes up in floor drains, showers or toilets.
- Toilets, showers or floor drains below ground level drain very slowly.

What to do if there is a spill:

Immediately notify the Novato Sanitary District. Our crews locate the blockage and determine if it is in the public sewer; if it is the crew removes the blockage and arranges for cleanup.

If the backup is in your private internal plumbing or in the private service laterals, you are required to immediately:

- Control and minimize the spill by shutting off or not using the water
- Keep sewage out of the storm drain system using sandbags, dirt and/or plastic sheeting
- Call a plumbing professional to clear blockages and make repairs as needed. Look in the yellow pages under "Plumbing Drain & Sewer Cleaning" or "Sewer Contractors."
- Always notify your sewer/public works department or public sewer district of sewage spills.

Spill cleanup inside the home:

For large clean ups, a professional cleaning firm should be contacted to clean up impacted areas. You can locate local firms by looking in the Yellow Pages under "Water Damage" or "Fire Damage." 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.

Other Tips:

- Keep children and pets out of the affected area until cleanup has been completed.
- Turn off heating/air conditioning systems
- Wear rubber boots, rubber gloves, and goggles during cleanup of the affected area.
- 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 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 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.
- Seek immediate attention if you become injured or ill.

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 solutions, 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.
- Seek immediate attention if you become injured/ill.

Appendix D
FIELD SAMPLING KIT

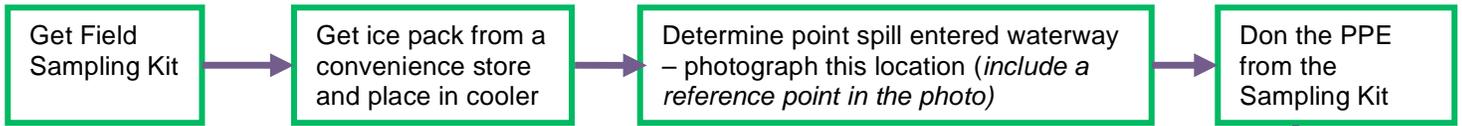
**Field Sampling Kit
Table of Contents**

<u>Form</u>	<u>Form Number</u>
Procedures for Sampling Receiving Waters and Posting Warnings after a Sewage Spill	D-1
Sample Collection Chain of Custody Record	-2

The Field Sample Kit contains:

- Cooler w/ice pack
- Latex gloves
- Safety glasses
- Water quality sample bottles
- Waterproof Pen (i.e. Sharpie®)
- Coliform sample bottles
- Combination temperature/pH meter
- Extra batteries for temperature/pH meter
- Chain of Custody form

**Field Sampling Kit
Procedures for Sampling Receiving Waters and Posting Warnings after a Sewage Spill**



- Collect all samples against the direction of the water flow! (face upstream)
- Collect downstream sample first and work your way upstream!
- Collect samples well away from the bank (preferably where water is visibly flowing) and 6" below the surface
- Avoid sampling debris or scum layer from the surface.
- Photograph evidence of dead fish!

Move 10' downstream of point where spill entered waterway (reference sample). Attach a map of sampling points.

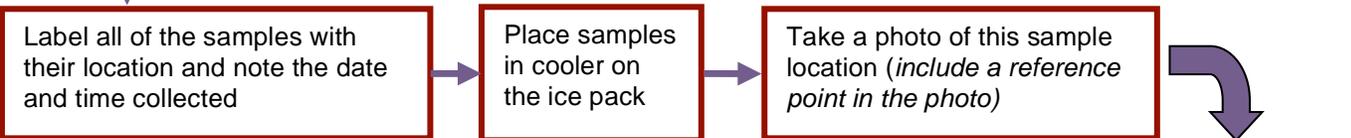
SAMPLING STEPS

Take out the temp/pH meter. Calibrate it. Take temperature and pH of the water at that sample location. Record those results on the chain of custody form.

Remove the seal from the enterococcus sample container (100ml) just prior to collecting your sample. A chemical has been added to the sample container. Leave the chemical in the bottle and do not rinse.

1. Remove the cap immediately before collecting each sample.
2. Do not allow the inside of the cap to touch anything
3. Holding the bottle in one hand, face upstream and lower the bottle 6" below the water surface. Then sweep the bottle upstream and out of the water. Be careful not to disturb the bottom sediment. Pour a little water out so that bottle is filled to the line. Immediately replace the cap.

Open the ammonia-nitrogen sample container and follow collection process above (steps 1-3) to fill to just below the neck of the jar. NOTE: The ammonia-nitrogen sample bottle contains sulfuric acid – LEAVE THE ACID IN THE BOTTLE AND DO NOT ALLOW IT TO TOUCH YOUR SKIN!



Complete the Chain of Custody form from the Sampling Kit.

Move at 50' upstream of point where spill entered waterway and repeat sampling steps (red boxes).

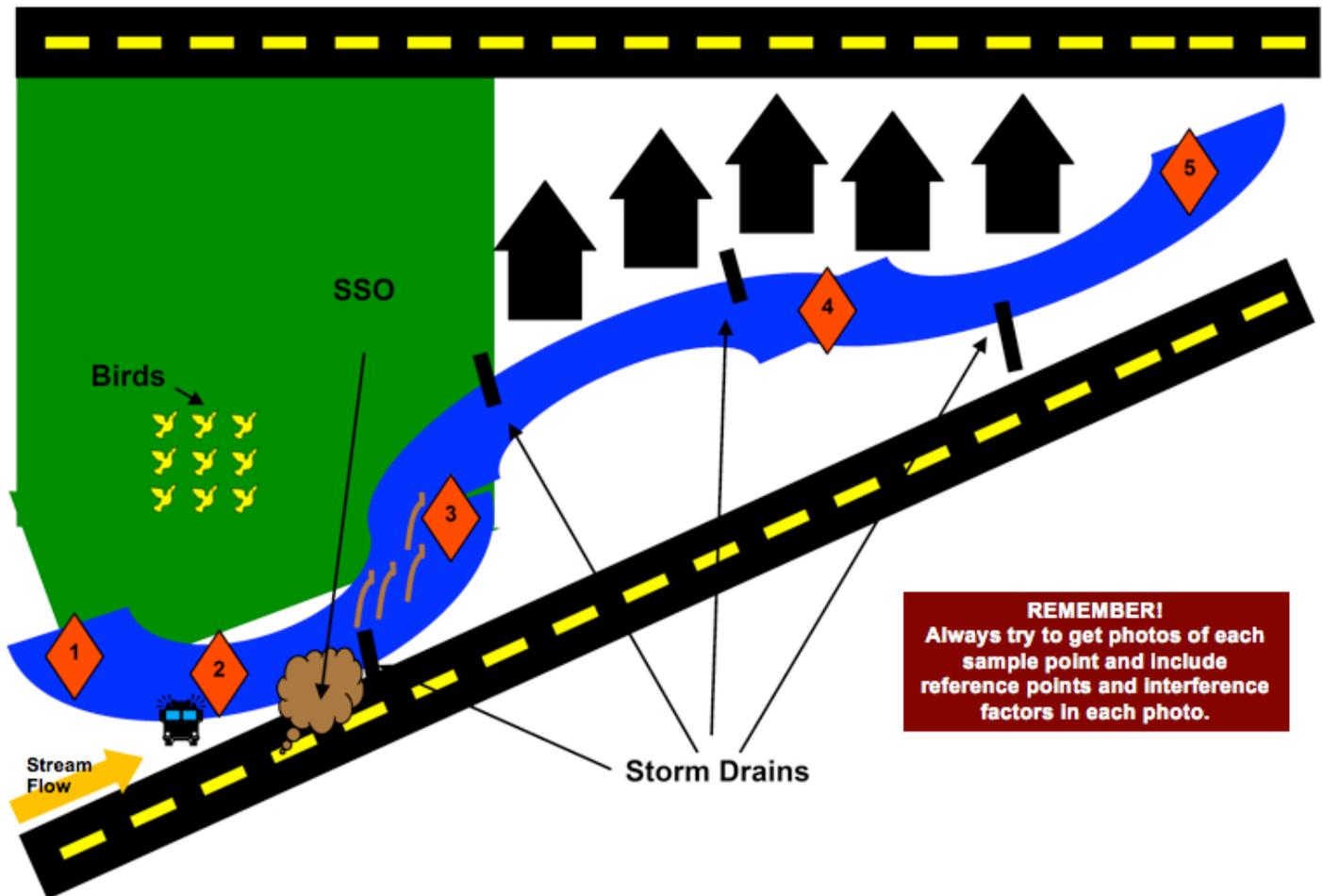
Immediately contact: Linda Candelaria, NSD at (415) 892-1694 and inform her that the following samples require processing: Ammonia-Nitrogen and Enterococcus.

Take cooler containing the samples and completed chain of custody to the NSD Lab. Samples should be taken to lab within 6 hours of collection time.

Post warning signs as directed by the County Environmental Health Department or the Collections System Superintendent. (Remove Warning Signs and lift restrictions when authorized by County Environmental Health.)

Repeat sampling daily from time the spill is known until the results of two consecutive sets of samples indicate the return to the normal level or cessation of monitoring is authorized by the County Environmental Health Department.

Field Sampling Kit
Procedures for Sampling Receiving Waters and Posting Warnings after a Sewage Spill



- 1** Sample Location 1: Baseline Sample, no observable interference from birds, animals, runoff, etc
- 2** Sample Location 2: Baseline Sample, observable interference from birds, animals, runoff, etc
NOTE: Only collect this sample if you observe any possible interfering factors upstream from the spill location
- 3** Sample Location 3: Immediately downstream of SSO entry point
- 4** Sample Location 4: Further downstream of SSO entry point – note any possible interfering factors
- 5** Sample Location 5: Further downstream of SSO entry point – note any possible interfering factors

NOTE: This example is provided for illustrative purposes only! Base each sampling event on the geography, drainage and interference factors (*i.e. birds, animals, runoff, etc.*) of the area impacted.

**Field Sampling Kit
Sample Collection Chain of Custody Record**

Customer Name		<input type="checkbox"/>	Hazardous Waste	PO#	
Customer Address		<input type="checkbox"/>	Unknown Material	WO#	
Customer Telephone		Mail Code		CONTRACT LAB INFORMATION	Turnaround Requirement
Program Name				Ship to:	<input type="checkbox"/> Normal (21 days)
Lab Program Coordinator		Phone #		Ship Date:	<input type="checkbox"/> Rush: _____
Sampled By				Courier:	<input type="checkbox"/> Other:

LIMS# (Issued by Lab)	SAMPLE COLLECTION INFORMATION							# Containers	Matrix*	Analysis Requested					QA/QC Requirements	
	Date	Time	Type		Sample Location	Field pH	Field Temp			Ammonia	Enterococcus				<input checked="" type="checkbox"/>	Lab Standard
			Composite	Grab											<input type="checkbox"/>	Special (see attached)
			<input type="checkbox"/>	<input checked="" type="checkbox"/>	Upstream			2	A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remarks/Notes	
			<input type="checkbox"/>	<input checked="" type="checkbox"/>	Entry Point			2	A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
			<input type="checkbox"/>	<input checked="" type="checkbox"/>	Downstream			2	A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
			<input type="checkbox"/>	<input type="checkbox"/>				2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
			<input type="checkbox"/>	<input type="checkbox"/>				2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
			<input type="checkbox"/>	<input type="checkbox"/>				2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

*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		
<input type="checkbox"/> USPS	<input type="checkbox"/> UPS	<input type="checkbox"/> FedEx
Tracing #:		
<input type="checkbox"/> Other:		

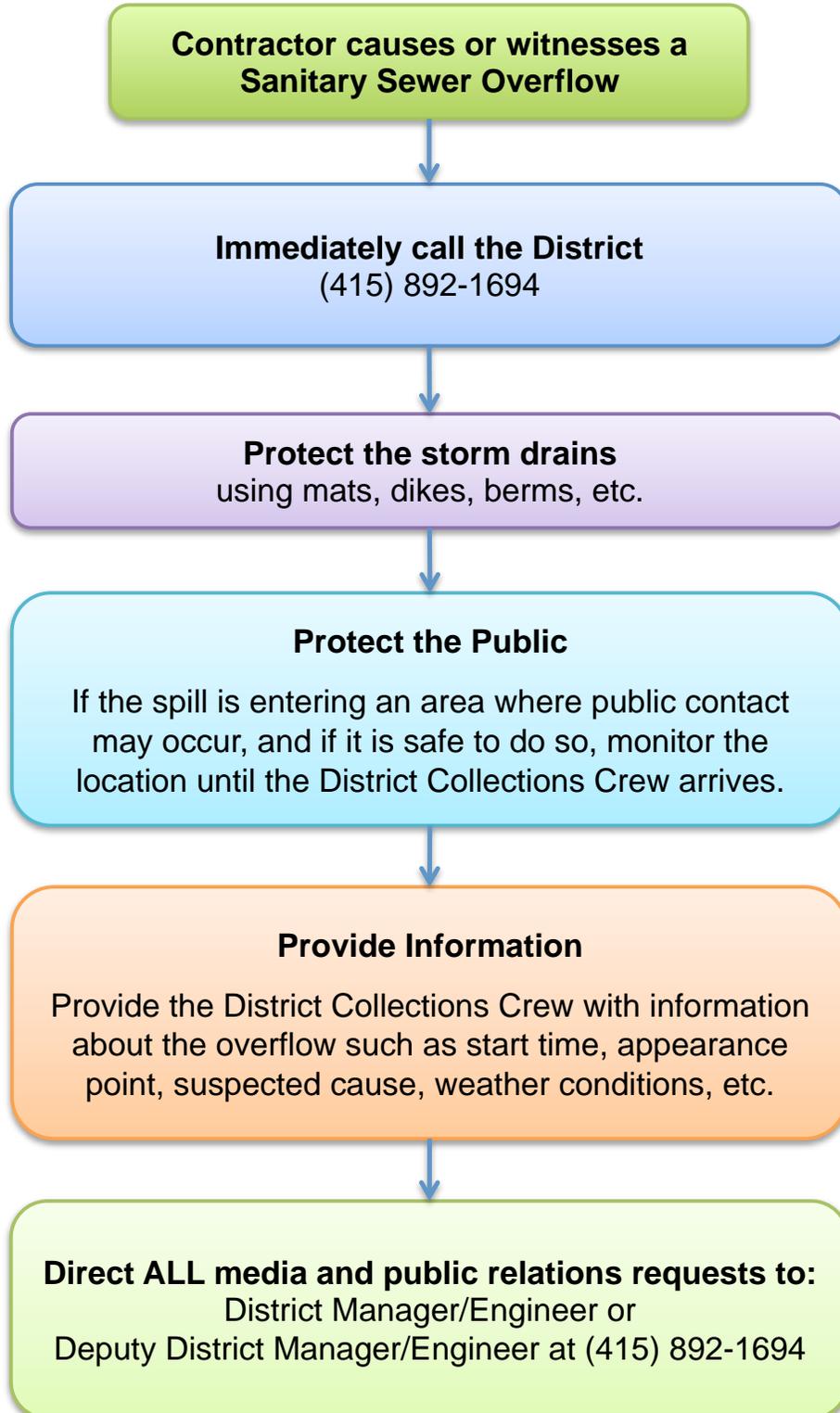
Sample Receiving Documentation

Container intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	Correct container? <input type="checkbox"/> Yes <input type="checkbox"/> No	Field preserved? <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody tape intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Cooled? <input type="checkbox"/> Yes <input type="checkbox"/> No	Temp. Blank? <input type="checkbox"/> Yes <input type="checkbox"/> No (°C)	Comments:	
Sample distribution: <input type="checkbox"/> Lab bench <input type="checkbox"/> Ice chest <input type="checkbox"/> Walk-in cooler shelf #		Disposal Date:	Disposed by: (inits.)
C-O-C Distribution	Date: By:	<input type="checkbox"/> Lab Admin File <input type="checkbox"/> Prog/proj Mgr. <input type="checkbox"/> Lab Prog. Coord.	<input type="checkbox"/> Delivery courier <input type="checkbox"/> Pick-up courier

Appendix E
CONTRACTOR ORIENTATION

CONTRACTOR ORIENTATION

The following procedures are to be followed in the event that you cause or witness a Sanitary Sewer Overflow.



Sanitary Sewer Overflows

How to avoid them and what to do if you don't

What?

A sanitary sewer overflow (SSO) is a discharge of untreated human and industrial waste before it reaches the wastewater treatment facility.

Where?

SSOs usually occur through manholes, plumbing fixtures and service cleanouts.

Why?

SSOs are usually caused by grease, debris, root balls, or personal hygiene products blocking the sewer lines, or by unusually high flow volume.

How to prevent SSOs:

...when clearing plugged sewer laterals:

- Remove root balls, grease blockages and any other debris from the sewer
- If you can't prevent root balls, grease or debris from entering the sewer main, call us at (415) 892-1694, so we can work with you to remove the blockage and prevent blockages further downstream
- Use plenty of water to flush lines.

...when constructing or repairing sewer laterals:

- Contact Building Permit Information at (415) 892-1694 for a permit and lateral specifications.
- Check your work area. Make sure there is no debris left in the sewer line before you backfill.
- Avoid offset joints, which may make sewer lines vulnerable to root intrusion and grease or debris accumulation. Properly bed your joints and don't hammer tap.

If you cause or witness an SSO, immediately contact:



**Novato
Sanitary District
at
(415) 892-1694**

Novato Sanitary District

500 Davidson Street
Novato, CA 94945

www.novato-san.com

**ATTACHMENT 3B:
SEWER SERVICE CALL FORM**

Novato Sanitary District Sewer Service Call Form

Date: _____

A. Initial Notification: Received by: _____ Referred to: _____
Referred via: phone/e-mail/in-person (circle one)

B. Caller Information:

Name: _____ Phone: _____ Time: _____ (AM) (PM)

Address: _____ Call Type: Emergency Urgent Complaint

Cross Street: _____ Structure Up: _____ Structure Down: _____

Contact details: _____

C. Details of Initial Response: Referred to: _____

Arrival time: _____ (AM) (PM) Departure time: _____ (AM) (PM) Weather Conditions: _____

Personnel (XX/XX) _____ Personnel (XX/XX) _____

Personnel (XX/XX) _____ Personnel (XX/XX) _____

D. Problem Information:

Problem type(s): (circle all that apply) Pump Station Alarm Collection System Stoppage Overflow Odor

Other _____

Problem In: (circle one) Mainline Private Lateral* Manhole Dry Well Wet Well Force Main Water Main

*if private lateral problem only, go to Part E. If no overflow, go to Part E-1
Other _____

Problem Causes: (circle all that apply) Debris Roots Grease Pipe Failure Surchage Storm Drain MH Cover Unknown

Activity: (circle all that apply) Rodding Hydroflush HandRod None Other _____

Photo's Taken: Yes (please attach) No

Comments: _____

E. Overflow – Initial Assessment:

Overflow Type: (circle one) Capacity Stoppage

Overflow Location: (circle one) Pump Station Manhole Rodhole Lateral Cleanout

E-1 Notified Customer who is the Owner Tenant In person By phone Left door tag

Note: _____

Novato Sanitary District Sewer Service Call Form

Date: _____

F. Immediate Reporting - Check Agencies Notified by Incident Commander

<input type="checkbox"/> Novato Police Emergency: 897-1122 Business: 897-4361 <input type="checkbox"/> NMWD Business: 897-4133		<input type="checkbox"/> CAL - EMA 800-852-7550 Control #: Operator Name: Time:	<input type="checkbox"/> Fish & Game Dispatch 916-358-1300 Time:
<input type="checkbox"/> Marin County PW: 499-6528	<input type="checkbox"/> City of Novato, Public Works 899-8246		<input type="checkbox"/> Marin County Dept of Health 499-7235 Time:

G. Overflow Information (Initial Estimates):

Amount, GPM	Total Time of Spill	Total Gallons	Gallons To Open Ground,	Gallons To Street	Gallons To Storm Drain

Storm Drain Discharges to: Creek / River / Pond / Lagoon / Open Ground / NA Name: _____

Time spill was stopped?	Total time of cleanup, min.	Retrieved from Storm drain, total gal:	Retrieved from Water Body (if applicable), total gal:

GPS Coordinates: _____

H. District Crew/Equipment Details

Crew names	Hours	Reg/Time & 1/2	Comp Time	Equipment	Hours

I. Additional Information/Comments: _____

J. Follow-up Regulatory Reporting: Completed by _____

K. Service Call Form Closeout: Completed by: _____

Approved by: _____

K. Corrective Actions: To be filled out by Collections crew, Leadworker, or Collections System Supervisor only!

<input type="checkbox"/> Clean affected mains	<input type="checkbox"/> Upgrade cleaning frequency	<input type="checkbox"/> TV main
<input type="checkbox"/> Other (describe): _____		

Note: This report must be approved by a District supervisor within 24 hours of the spill.

NOVATO SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP)
SECTION FOUR – FATS, OIL AND GREASE (FOG) CONTROL PROGRAM

4.1 Regulatory Requirements

4.1.1 SFRWQCB

SSMP Element 4: Each wastewater collection system agency shall evaluate its service area to determine whether a FOG control program is needed. If so, a FOG control program shall be developed as part of the SSMP. If an agency determines that a FOG program is not needed, the agency must provide justification for why it is not needed.

4.1.2. SWRCB GWDR

GWDR SSMP Element No. 7: 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.*

4.2 Fats, Oils, and Grease Control (Fog) Overview

The District's current FOG control procedures and efforts are staffed by the District's Collections Systems and Environmental Services staffs, the Staff Engineer and Construction Inspector, under the direction of the District management. Similar to formalized FOG control programs, current practices include provisions for permitting under existing ordinance provisions, inspection and monitoring, enforcement of existing ordinance provisions, and multiple language outreach efforts to commercial

establishments (primarily Food Service Establishments or FSEs), multiple dwellings complexes, and to the residential community at large.

The District does not currently issue formal FOG Wastewater Discharge permits to FSEs. However, the District's building permit review process under District code ordinance provisions requires the installation of grease removal devices, maintenance of all installed grease removal devices at facilities, and record-keeping of maintenance activities.

The District works closely with the Marin County Health Services FSE permitting program and the City of Novato Building Inspection Department to coordinate and verify need, sizing, design, and installation of grease traps and interceptors. Subsequently, the District also coordinates with the City and County in verifying proper grease trap/interceptor operation, maintenance and recordkeeping.

On the collection system side, a key element of current practices as they relate to FOG control includes hotspot identification and response (grease hotspot GIS database and priority maintenance schedule), as well as targeted responses to grease-related blockages and any consequential SSOs. Maps of known hotspots in the District's service area are provided as Figures 4-1 through 4-4. Response activities include periodic facility inspections at FSEs upstream of the problem area, camera investigations to determine point of source location, and corrective actions and enforcement procedures as needed. In addition, the District's capital improvements program incorporates sewer repair projects that along with other factors allow better flow characteristics which will aid in the control of grease buildup and minimize grease-related SSOs in its system.

4.3 Fog Program Elements

The following program elements have been outlined for the District's FOG program:

- Source Identification
- Legal Authority
- Program Structure/requirements
- Grease Removal Device Technology for FSEs
- Inspections and Monitoring for FSEs
- Enforcement for FSEs
- FOG Disposal
- Public Education and Outreach

4.3.1 Source Identification, Grease Problem Areas, and Sewer Cleaning

Source identification is the locating of sources of grease introduced into the District sewer system. Typical grease sources in the District's service area include:

- Food Service Establishments (FSEs), including but not limited to restaurants, cafes, bakeries, hospitals, nursing homes, grocery stores, caterers, commissaries, and food manufacturing facilities
- Residential (including but not limited to multi-family dwellings, and apartment or condominium complexes)
- Other commercial

Continuing sources are categorized as “Hotspots” – FSEs causing or contributing to grease-related sanitary sewer overflows (SSOs) and blockages, and “Non Hotspots”.

Grease Problem Areas: The District inventories and categorizes grease points of locations (hotspots) and has a grease hotspot GIS database (established 2006) establishing a priority maintenance schedule for flushing and/or rodding problem sewer lines. Additional sewer lines can be added to the priority maintenance schedule after an SSO event or if closed circuit television inspection (CCTV) indicates grease buildup.

Sewer Cleaning: Several segments of the gravity sewer system are on the six-month (or less) priority maintenance schedule for flushing, rodding, or both flushing and rodding, with some of these lines identified as grease problems. While the District has known areas with commercial grease sources (e.g. restaurants), the District also experiences grease issues in residential areas from lines with poor grade.

CCTV: The District conducts CCTV inspection as part of its condition assessment program, and has set a recurrence interval to inventory its entire collection system every five years. The District performs CCTV inspections to identify and categorize the severity of grease problems. Lines with known poor flow characteristics are prioritized for CCTV inspection. With information on the causes of grease problems, maintenance activities and schedules can be modified or sewer pipeline repairs made to better control grease buildup and minimize grease-related SSOs.

4.3.2 Legal Authority for FOG Program Requirements

The District’s Code Ordinance (see Section Five) is the basis of the legal authority of the FOG control program. Specifically, Article VIII of the Code includes the following provisions:

- Prohibited substances – those that cause or threaten to cause obstruction of flows in community sewers or interceptors
- Authority to require pretreatment prior to discharge to the community sewer
- Authority to inspect and monitor dischargers and sample their discharge
- Enforcement procedures and penalties for failure to adhere to the Ordinance

Provisions for grease control and removal devices are included in Section 810 of the District’s code. The California Plumbing Code (CPC) also contains provisions related to grease, and the District has adopted these Codes by reference through its Code.

4.3.3 Program Structure/Requirements

While the District does not currently issue permits to Food Service Establishments (FSEs), it enforces the following requirements:

- Installation of Grease Traps/Interceptors for all new FSEs and remodels, as part of the County’s review process for FSE construction/remodel. The District also works to educate, encourage, or mandate FSEs known to have caused or contributed to a sanitary sewer overflow or blockage to install grease removal devices.

- Grease removal device maintenance is also verified, to ensure FSEs discharges do not cause or contribute to SSOs or blockages due to lack of adequate maintenance. Also, a complete pump out (with verifiable records) of grease interceptors is required each time an interceptor is pumped.
- Maintenance records are required to be kept on site and made available at the time of inspection by the District's Environmental Compliance staff.

4.3.4 Grease Removal Device Technology for FSEs

Grease interceptor installation, design and sizing is per the California Plumbing Code. Grease interceptor waivers and variances are considered depending upon the business type, the grease generating capability (& probability) of a FSE, and difficulties with interceptor installations due to conflicts with site conditions. The installation of these is coordinated with Marin County Environmental Health Services and the City of Novato Building department.

Grease trap installation, design and sizing may be used as an alternative to interceptors in instances where a grease interceptor cannot be installed (ex: space and slope restrictions). The installation of these is coordinated with Marin County Health Services agency and the City of Novato Building Department on a case-by-case basis.

4.3.5 Inspections/Monitoring – for FSEs

Non-Hotspots: The District's environmental services staff monitors "Non-hotspot areas" as follows:

- FSEs are inspected periodically (typically at least once every 2-3 years)
- Grease interceptors are inspected – a measurement of grease/water/solids is done
- Compliance with District requirements is determined
- Verification of proper disposal methods
- Educational materials are distributed to managers and employees
- Follow-up tasks (as needed) are performed, such as increasing grease interceptor pumping frequency and requiring grease interceptor repairs

Hotspots: The District's environmental services staff monitors areas (identified by collections system staff) that have a history of grease-related SSOs and blockages, based upon field experience, maintenance records, and CCTV inventory inspection. Environmental Services staff also investigates conditions in these areas in an effort to determine which establishments/residences are causing the grease problems. Actions in these investigations may include:

- Targeted inspections of FSEs upstream of a reported hotspot
- Grease interceptor inspections – measurement of grease/water/solids
- Determination of compliance with District requirements
- Video inspections of laterals
- Video inspections of main lines
- Distribution of educational materials
- Increase of cleaning frequency by the District's Collections staff

Follow-up tasks may be done as a result of these inspections, including requirements to install a grease interceptor, increase the frequency of grease interceptor pumping, any identified repairs or modifications to existing installations, and District verification of such repairs or modifications.

4.3.6 Enforcement – for FSEs

The District utilizes an escalating or progressive enforcement structure informally modeled after the District’s current Non-Domestic Wastewater Discharge Enforcement Response Plan.

4.3.7 FOG Disposal (grease trap and grease interceptor waste)

The District maintains a list of known commercial grease haulers that is provided to interested parties for informational purposes (see table at end of this section).

In the past, the District participated in a regional study with the other Marin County wastewater treatment entities to evaluate potential on-site grease receiving facilities. However, at this time, the District’s wastewater treatment facilities do not receive waste grease from either inside or outside of its service area, and all known haulers in the District’s service area are informed about this. The District may reevaluate the possibility of becoming a receiving facility in the future based on several factors including local demand for the service.

Central Marin Sanitation Authority (CMSA) is a receiving facility located in Marin County and the East Bay Municipal Utility District (EBMUD) wastewater treatment plant in Oakland is a receiving facility and haulers, and the general public is informed of this upon enquiry.

4.3.8 Public Education and Outreach

Program brochures that describe best management practices (BMP) and a BMP chart are distributed to FSEs in English and Spanish. Brochures and other literature for FSEs include a “How to Maintain a Grease Interceptor” flyer, a “Fat Free sewer” flyer, a “Do Not Pour” poster, and BMP posters and charts.

Materials for use in residential situations include informational brochures, scrapers that can be used to clean cooking ware, and informational flyers. Staff and Board members also present FOG materials and information at public events and fairs.

The District’s web site also contains links related to FOG that contain useful FOG information, including the location of used cooking oil collection centers.

GREASE HAULERS: Service Provider / Vendor List

<u>Affordable Septic</u>	<u>North State Rendering Co. Inc.</u>
(707) 823-7867	(800) 351-4446; (530)343-6076
• Interceptor & Trap Cleaning	• Interceptor & Trap Cleaning
	• Used Cooking Oil Collection
<u>All Valley Environmental Inc.</u>	<u>Pioneer Liquid Transport</u>
(559) 498-8378	(800) 366-3265
• Interceptor & Trap Cleaning	• Interceptor & Trap Cleaning
• Used Cooking Oil Collection	• Used Cooking Oil Collection
<u>BDK Septic Service</u>	<u>Roto Rooter</u>
(707) 527-8788	(415) 898-2700
• Interceptor & Trap Cleaning	• Interceptor & Trap Cleaning
<u>Coast Sanitary Service</u>	<u>Sacramento Rendering Co. (SRC)</u>
(415)868-2720	(800) 339-6493; (916)363-4821
• Interceptor & Trap Cleaning	• Interceptor & Trap Cleaning
	• Used Cooking Oil Collection
<u>Darling International Inc.</u>	
(800) 473-4890	<u>United Site Services</u>
(415) 647-4890	(707) 543-2731 (Santa Rosa)
• Interceptor & Trap Cleaning	• Interceptor & Trap Cleaning
• Used Cooking Oil Collection	• Used Cooking Oil Collection
	(707)747-2810 (Benicia)
<u>Joe Farmers Septic & Grease Service</u>	<u>Yokayo Biofuels</u>
(707) 484-5972 (Cell)	(707) 472-0900
• Interceptor & Trap Cleaning	• Used Cooking Oil Collection
• Used Cooking Oil Collection	

INCLUSION ON THIS LIST DOES NOT REPRESENT AN ENDORSEMENT OF ANY COMPANY BY NOVATO SANITARY DISTRICT. This list has been compiled from information supplied by companies listed. It is provided solely for general information purposes and should not be used as a substitute for your own evaluation of a prospective Grease Hauler. Novato Sanitary District accepts no responsibility of any kind which may be claimed to result from the use of this document.

NOTE: Any business using a grease hauler should verify the hauler removes the entire contents of their trap or interceptor. The District suggests that the business owner or restaurant manager check how well the interceptor was cleaned before the grease hauler is released from the job.

List updated March 2014.

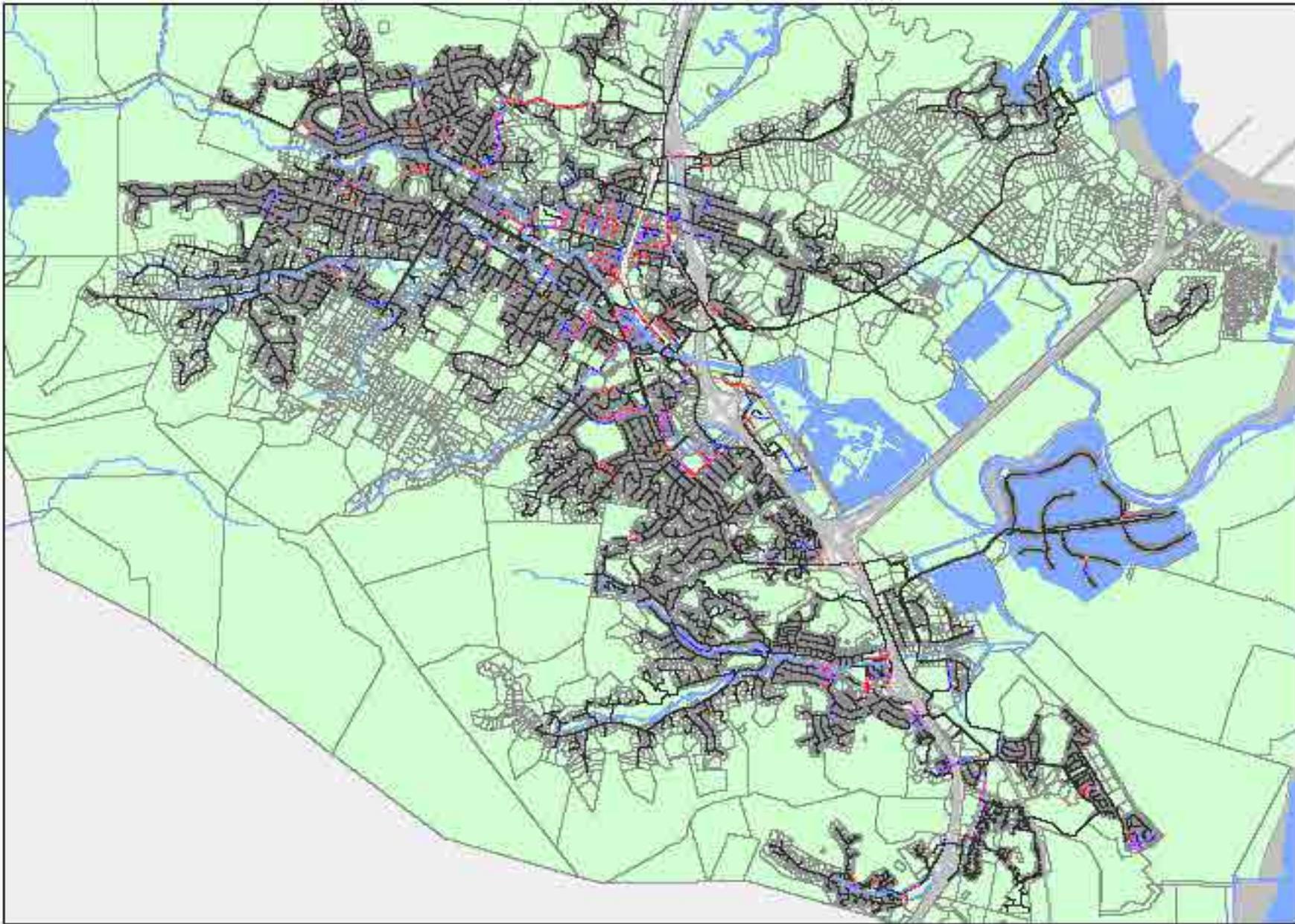


Figure 4-1: Known Grease Hotspots – Entire District Service Area (red dots/lines/areas on map indicate hotspot locations)

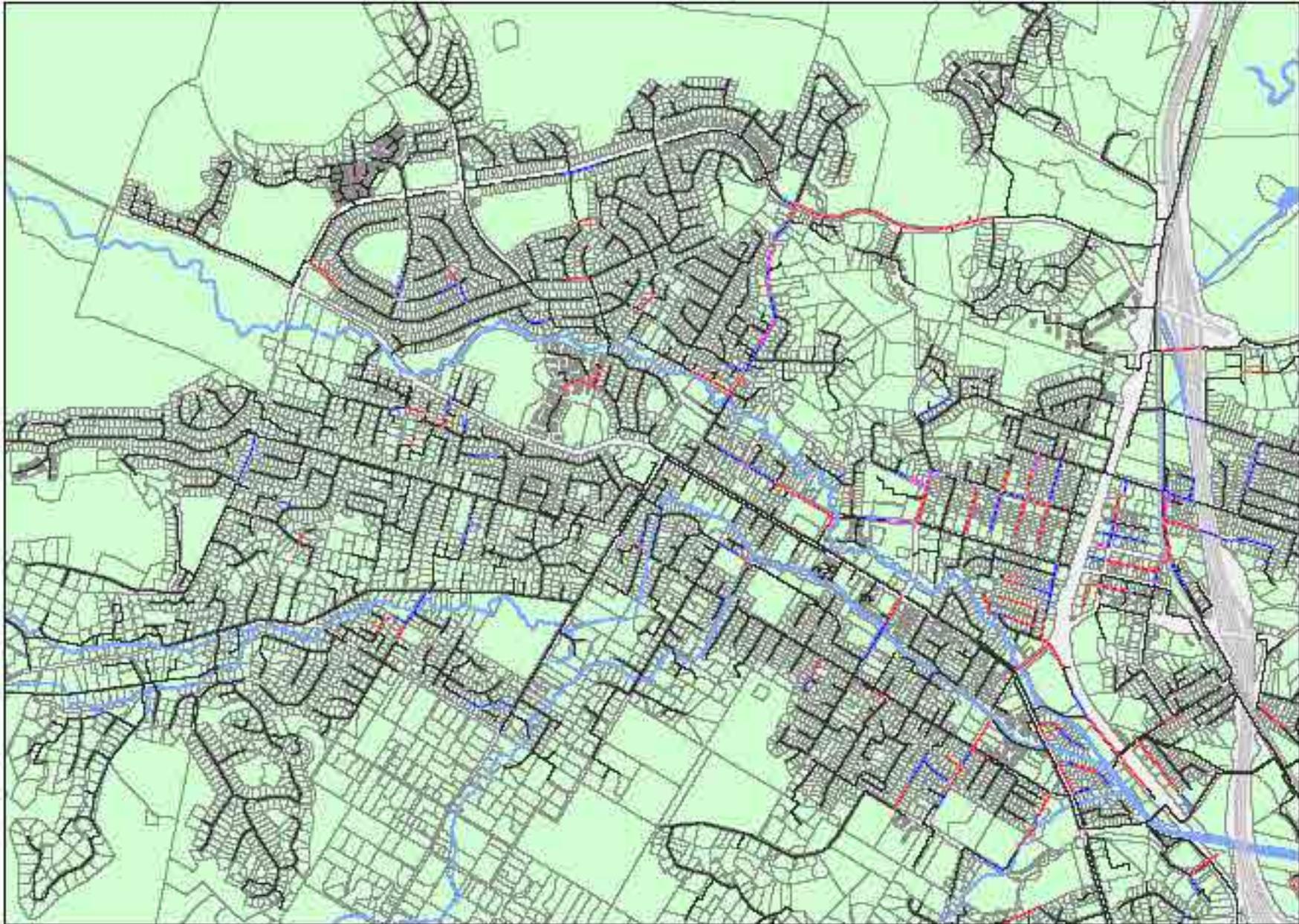


Figure 4-2 – Grease Hotspots - West portion of Service Area (red dots/lines/areas on map indicate hot spot locations)



Figure 4-3: Known Grease Hotspots - Central portion of Service Area (red dots/lines/areas on map indicate hotspot locations)



Figure 4-4: Known Grease Hotspots - South portion of Service Area (red dots/lines/areas on map indicate hotspot locations)

ATTACHMENT 4A: RESTAURANT OUTREACH

**Novato Sanitary District
2014 Restaurant FOG Inspection Summary**

FSE Name	Current Status	Dates Visited				Current FOLLOW-UP to be done / COMMENTS
Chevy's	In Compliance	7/21/14				Visit Winter 2015 to verify on-going bi-monthly pumping.
China Palace	Pending	8/12/14	9/23/14			Re-inspect in 2015 w/tube to assess depth of oil
Ming Yen Restaurant	Pending	8/8/14	8/12/14	9/23/14		Re-inspect in 2015, w/tube to assess depth of oil
<u>Vintage Way FSEs</u>						
Extreme Pizza	Pending	8/15/14				Contact Shep in 2015 for inspect (see notes in file)
IHOP #697	In Compliance	8/15/14				
Jennie Low's Chinese	Pending	8/15/14				Re-inspect in 2015
Target	In compliance	8/15/14	9/15/14			Contact new Maintenance Supe in 2015, verify pumper & frequency.
Hopmonk Tavern	In Compliance	8/15/14				
Panera Bread	In Compliance	8/15/14	9/15/14			
Pasta Pomodoro	In compliance	8/15/14				Inspect interceptor in May 2015 (is 2x per yr adequate?)
Starbucks (Store #5711)	In compliance	8/15/14	9/15/14			
In-N-Out	In compliance	8/15/14	8/25/14			
Sushi Holic	In compliance	8/25/14				Re-inspect in 2015
CostCo	In compliance	8/25/14	9/2/14	9/15/14		Re-inspect in 2015.

Novato Sanitary District
2014 Restaurant FOG Inspection Summary
 Updated: 12/24/15

FSE Name	Current Status	Dates Visited				Current FOLLOW-UP to be done / COMMENTS
Chevy's	In compliance	10/26/15				Bi-monthly pumping receipts for 2015 received 10/27/15.
The Village (1200 Grant Ave)	In compliance	10/29/15				Owner sent receipt for 8/27/15 pumping on 12/21/15.
China Palace	In compliance	10/19/15				
Ming Yen Restaurant	In Compliance	10/19/15	12/10/15	1/6/16		New trap & plumbing. 1st pumping 12/2/15. Re-visit in ~30 days 1/6/2016. Changed ownership 1/1/2016.
Tommy's Salsa	In compliance	8/2/15				Change of ownership. Visit 2016 to verify pumping.
Thai Bistro	In compliance	9/9/15	10/9/15			Change of ownership. Visit 2016 to verify pumping.
Beso Bistro	In compliance	12/10/15				Verified pumping every four months
Belli Deli	Exempt	10/29/15				
<u>Vintage Way FSEs</u>						
Extreme Pizza	In compliance	10/26/15				
Jennie Low's Chinese	In compliance	10/29/15				Letter w/requirements sent 12/4/15. Report due in 45 days. Compliant 12/24/2015. Revisit May 2016
Target	In compliance	10/19/15				
Pasta Pomodoro	In compliance	10/26/15				Visit middle or late March 2016. See 10/26/15 Inspection Report.
Sushi Holic	In compliance	10/19/15	10/26/15			
Costco	In compliance	11/4/15				Inspect during 2016- see 11/5/15 e-mail in file Interceptors to be repaired 2/16/2016. Revisit after Repairs complete 2016.

**ATTACHMENT 4B: FOG BEST MANAGEMENT PRACTICES
(BMP) FACTSHEET**



NOVATO SANITARY DISTRICT

500 DAVIDSON STREET • NOVATO • CALIFORNIA 94945 • PHONE (415) 892-1694 • FAX (415) 898-2279
www.novatosan.com

A FACT SHEET FOR

Best Management Practices for Fats, Oils and Grease

Residual fats, oils and grease (FOG) are by-products that food service establishments must constantly manage. Typically, FOG enter a facility's plumbing system from ware washing, floor cleaning, and equipment sanitation. Sanitary sewer systems are neither designed nor equipped to handle the FOG that accumulates on the interior of the sewer collection system pipes. The best way to manage FOG is to keep the material out of the plumbing systems. The following are suggestions for proper FOG management.

Dry Clean-Up

Practice dry cleanup. Remove food waste with "dry" methods such as scraping, wiping, or sweeping before using "wet" methods that use water. Wet methods typically wash the water and waste materials into the drains where it eventually collects on the interior walls of the drainage pipes. Do not pour grease, fats or oils from cooking down the drain and do not use the sinks to dispose of food scraps. Likewise it is important to educate kitchen staff not to remove drain screens as they may allow paper or plastic cups, straws, and other utensils to enter the plumbing system during clean up. The success of dry clean up is dependent upon the behavior of the employee and availability of the tools for removal of food waste before washing. To practice dry clean up:

- Use scrapers to remove fats, oils and grease from cookware, utensils, chafing dishes, and serving ware.
- Use food grade paper to soak up oil and grease under fryer baskets.
- Use paper towels to wipe down work areas. Cloth towels will accumulate grease that will eventually end up in your drains from towel washing/rinsing.

Spill Prevention

Preventing spills reduces the amounts of waste on food preparation and serving areas that will require clean up. A dry workplace is safer for employees in avoiding slip, trips, and falls. For spill prevention:

- Empty containers before they are full to avoid spills.
- Use a cover to transport interceptor contents to rendering barrel.
- Provide employees with the proper tools (ladles, ample containers, etc.) to transport materials without spilling.

Maintenance

Maintenance is key to avoiding FOG blockages. For whatever method or technology is used to collect, filter and store FOG, ensure that equipment is regularly maintained. All staff should be aware of and trained to perform correct cleaning procedures, particularly for under-sink interceptors that are prone to break down due to improper maintenance. A daily and weekly maintenance schedule is highly recommended.

- Contract with a company to professionally clean large hood filters. Small hoods can be hand-cleaned with spray detergents and wiped down with cloths for cleaning. Hood filters can be effectively cleaned by routinely spraying with hot water with little or no detergents over the mop sink that should be connected to a grease trap. After hot water rinse (separately trapped), filter panels can go into the dishwasher. For hoods to operate properly in the removal of grease-laden vapors, the ventilation system will also need to be balanced with sufficient make-up air.

- Skim/filter fryer grease daily and change oil when necessary. Use a test kit provided by your grocery distributor rather than simply a “guess” to determine when to change oil. This extends the life of both the fryer and the oil. Build-up of carbon deposits on the bottom of the fryer act as an insulator that forces the fryer to heat longer, thus causing the oil to break down sooner.
- Collect fryer oil in an oil rendering tank for disposal or transport the oil to a bulk oil rendering tank instead of discharging it into a grease interceptor or waste drain.
- Cleaning intervals depend upon the type of food establishment involved. Some facilities require monthly or once every two months cleaning. Establishments that operate a large number of fryers or handle a large amount of fried foods such as chicken, along with ethnic food establishments may need at least monthly cleanings. Full-cleaning of grease traps/interceptors (removing all liquids and solids and scraping the walls) is a worthwhile investment. Remember, sugars, starches and other organics accumulate from the bottom up. If sediment is allowed to accumulate in the trap/interceptor, it will need to be pumped more frequently.
- Develop a rotation system if multiple fryers are in use. Designate a single fryer for products that are particularly high in deposits, and change that one more often.

Oil & Grease Collection/Recycling & Food Donations

FOG are commodities that if handled properly can be treated as a valuable resource.

- Begin thinking of oil and grease as a valuable commodity. Some rendering companies will offer services free-of-charge and others will give a rebate on the materials collected. Note that these companies must be properly permitted.
- Use rendering barrels with covers for onsite collection of oil and grease other than from fryers. Educate kitchen staff on the importance of keeping outside barrels covered at all times. During storms, uncovered or partially covered barrels allow storm water to enter the barrel resulting in oil running onto the ground and

possibly into storm drains, and can “contaminate” an otherwise useful by-product.

- Use a 3-compartment sink for ware washing. Begin with a hot pre-wash, then a scouring sink with detergent, then a rise sink.
- Make sure all drain screens are installed.
- Prior to washing and rinsing use a hot water ONLY (no detergent) pre-rinse that is separately trapped to remove non-emulsified oils and greases from ware washing. Wash and rinse steps should also be trapped.
- Empty grill top scrap baskets or scrap boxes and hoods into the rendering barrel.
- Easy does it! Instruct staff to be conservative about their use of fats, oils and grease in food preparation and serving.
- Ensure that edible food is not flushed down your drains. Put into the trash or compost.

Grease Traps/Interceptors

- For grease traps/interceptors to be effective, the units must be properly sized, constructed, and installed in a location to provide an adequate retention time for settling and accumulation of the FOG. If the units are too close to the FOG discharge and do not have enough volume to allow amassing of the FOG, the emulsified oils will pass through the unit without being captured.
- Ensure all grease-bearing drains discharge to the grease trap/interceptor. These include mop sinks, woks, wash sinks, prep sinks, utility sinks, pulpers, dishwashers, pre-rinse sinks, can washes, and floor drains in food preparation areas such as those near a fryer or tilt/steam kettle. No toilet wastes should be plumbed to the grease trap/interceptor.

Consumer Tip

Buyer beware! When choosing a method of managing your oil and grease, ensure that it does what the vendor says it will do. Some technologies or “miracle cures” don’t eliminate the problem but result in grease accumulations further down the sewer line. “Out of sight” is not “out of mind.” Check the vendor’s references.

ATTACHMENT 4C: EDUCATIONAL/OUTREACH BROCHURES

What Restaurant and Building Owners Need to Know About Grease Traps or Interceptors

Restaurants, large buildings, such as apartment complexes; and other commercial establishments may have grease traps or interceptors that keep grease out of the sewer system. For a grease trap or interceptor to work correctly, it must be properly

- 1** Designed (sized and manufactured to handle the amount that is expected),
- 2** Installed (level, vented, etc.), and
- 3** Maintained (cleaned and serviced on a frequent basis).

Solids should never be put into grease traps or interceptors. Routine, often daily, maintenance of grease traps and interceptors is needed to ensure that they properly reduce or prevent blockages.

Be cautious of chemicals and additives (including soaps and detergents) that claim to dissolve grease. Some of these additives simply pass grease down pipes where it can clog the sewer lines in another area.

Fat-Free Sewers

This brochure was prepared under Cooperative Agreement Assistance #CX824505-01-0 between the Water Environment Federation (WEF) and the U.S. Environmental Protection Agency. For more information, contact your local sewer system authority or the

Water Environment Federation
601 Wythe Street
Alexandria, VA 22314-1004
Phone: 703/684-2400
Fax: 703/684-2492
Web site: <http://www.wef.org>

For additional copies of this brochure, contact WEF at 1-800-666-0206, 1-703-684-2452 or <http://www.wef.org>



How to Prevent Fats, Oils, and Greases from Damaging Your Home and

Fats, Oils, and Greases aren't just bad for your arteries and your waistline; they're bad for sewers, too.

Sewer overflows and backups can cause health hazards, damage home interiors, and threaten the environment. An increasingly common cause of overflows is sewer pipes blocked by grease. Grease gets into the sewer from household drains as well as from poorly maintained grease traps in restaurants and other businesses.

Where does the grease come from?

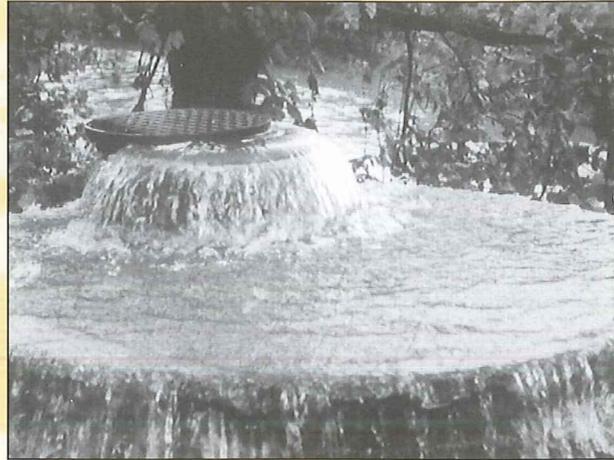
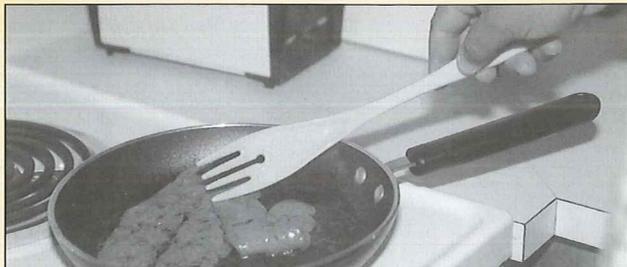
Most of us know grease as the byproduct of cooking. Grease is found in such things as:

- Meat fats
- Lard
- Cooking oil
- Shortening
- Butter and margarine
- Food scraps
- Baking goods
- Sauces
- Dairy products

Too often, grease is washed into the plumbing system, usually through the kitchen sink. Grease sticks to the insides of sewer pipes (both on your property and in the streets). Over time, the grease can build up and block the entire pipe.

Home garbage disposals do not keep grease out of the plumbing system. These units only shred solid material into smaller pieces and do not prevent grease from going down the drain.

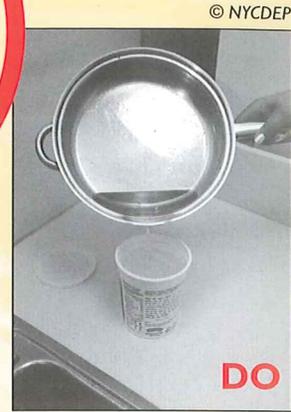
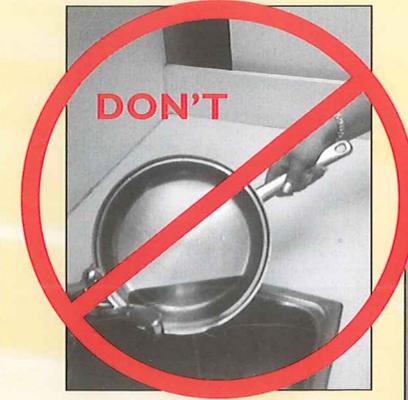
Commercial additives, including detergents, that claim to dissolve grease may pass grease down the line and cause problems in other areas.



© James L. Graham, Jr., P.E.

The results can be:

- Raw sewage overflowing in your home or your neighbor's home;
- An expensive and unpleasant cleanup that often must be paid for by **you, the homeowner**;
- Raw sewage overflowing into parks, yards, and streets;
- Potential contact with disease-causing organisms; and
- An increase in operation and maintenance costs for local sewer departments, which causes higher sewer bills for customers.



© NYCDEP

What we can do to help

The easiest way to solve the grease problem and help prevent overflows of raw sewage is to keep this material out of the sewer system in the first place.

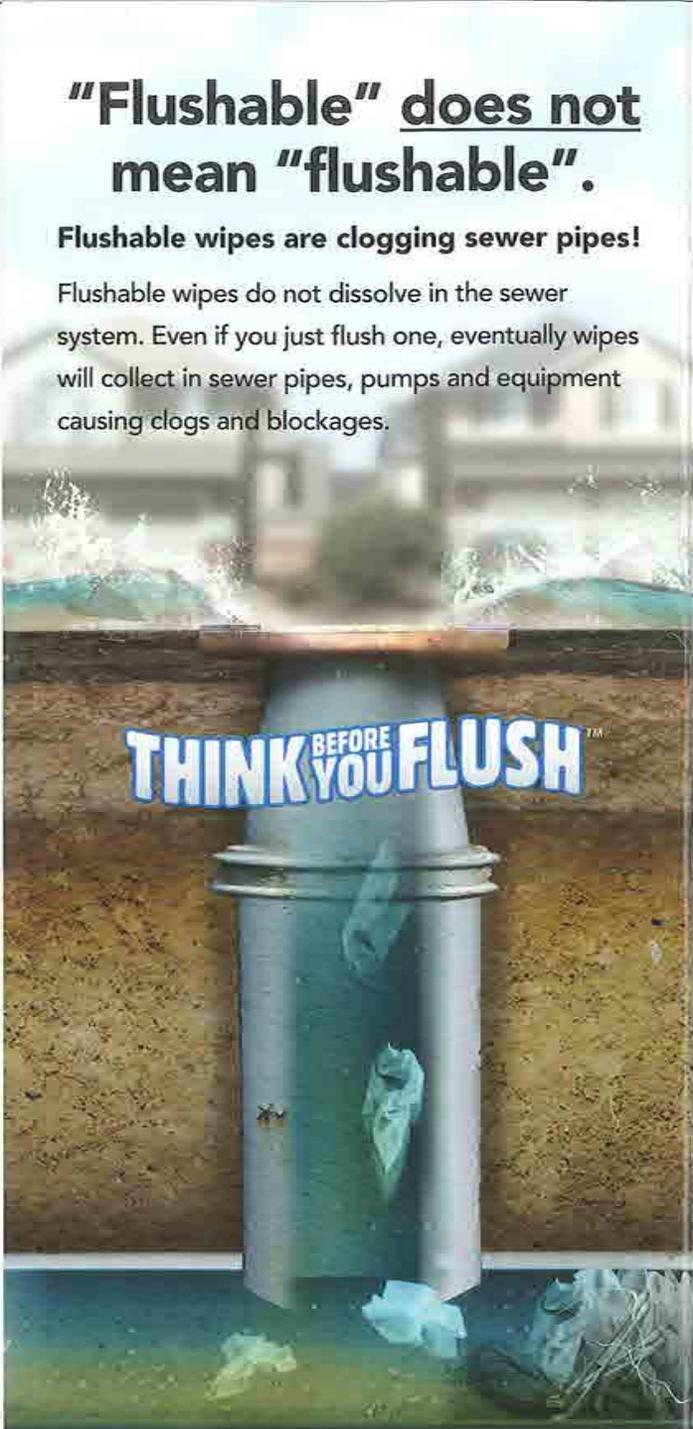
There are several ways to do this.

- 1) Never pour grease down sink drains or into toilets.
- 2) Scrape grease and food scraps from trays, plates, pots, pans, utensils, and grills and cooking surfaces into a can or the trash for disposal (or recycling where available).
- 3) Do not put grease down garbage disposals. Put baskets/strainers in sink drains to catch food scraps and other solids, and empty the drain baskets/strainers into the trash for disposal.
- 4) Speak with your friends and neighbors about the problem of grease in the sewer system and how to keep it out. Call your local sewer system

"Flushable" does not mean "flushable".

Flushable wipes are clogging sewer pipes!

Flushable wipes do not dissolve in the sewer system. Even if you just flush one, eventually wipes will collect in sewer pipes, pumps and equipment causing clogs and blockages.



THINK BEFORE YOU FLUSH™

Clogs and blockages in sewer pipes lead to sewage spills and overflows. Help us avoid sewage spills and overflows and protect our local environment.



Central Marin Sanitation Agency
1301 Andersen Drive, San Rafael, CA 94901
415-459-1455 cmsa.us



Las Gallinas Valley Sanitary District
300 Smith Ranch Road, San Rafael, CA 94903
415-472-1734 lgvsd.org



Novato Sanitary District,
500 Davidson Street, Novato, CA 94945
415-892-1694 novatosan.com



Sanitary District No. 5 of Marin County
Tiburon and Belvedere, 2001 Paradise Drive
Tiburon, CA 94920
415-435-1501 sani5.org



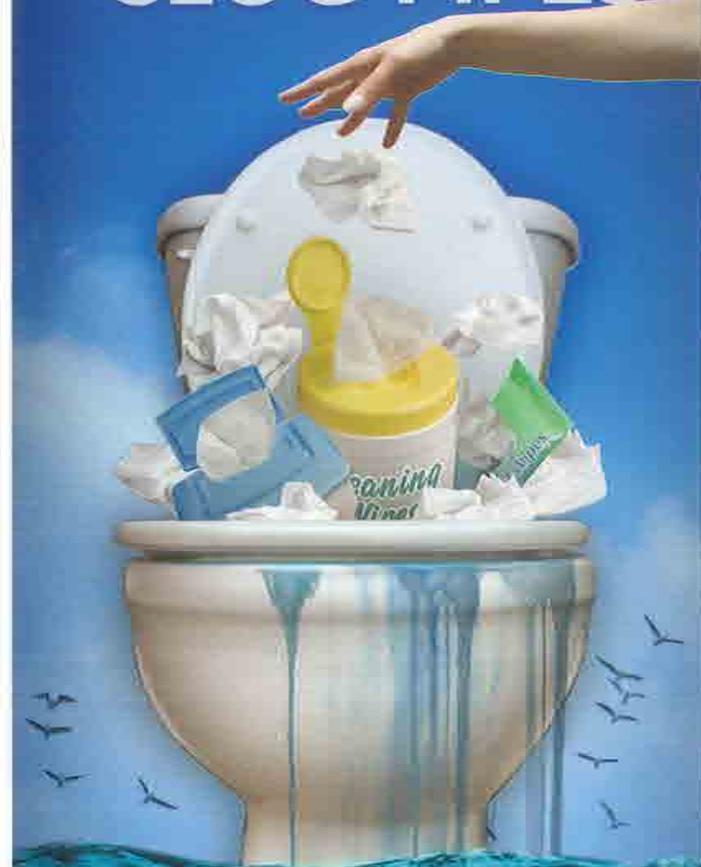
Sausalito-Marin City Sanitary District
1 Fort Baker Road, Sausalito, CA 94965
415-332-0244 sausalitomarincitysanitarydistrict.com



Sewerage Agency of Southern Marin
450 Sycamore Ave., Mill Valley, CA 94941
415-388-2402 cityofmillvalley.org

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WIPES CLOG PIPES



FLUSH ONLY TOILET PAPER

Protect Your Family, Community
and Waterways from Sewer
Backups and Overflows

Wipes clog pipes. Flush ONLY toilet paper.



An overflowing toilet can ruin your home in an instant!

Wipes do not dissolve like toilet paper. Just one wipe flushed down a toilet can collect with other wipes and materials that should not be flushed, contributing to expensive and messy sewer backups in your home or neighborhood. Do your part and put all wipes in the trash. Think Before You Flush!



**Baby
wipes**



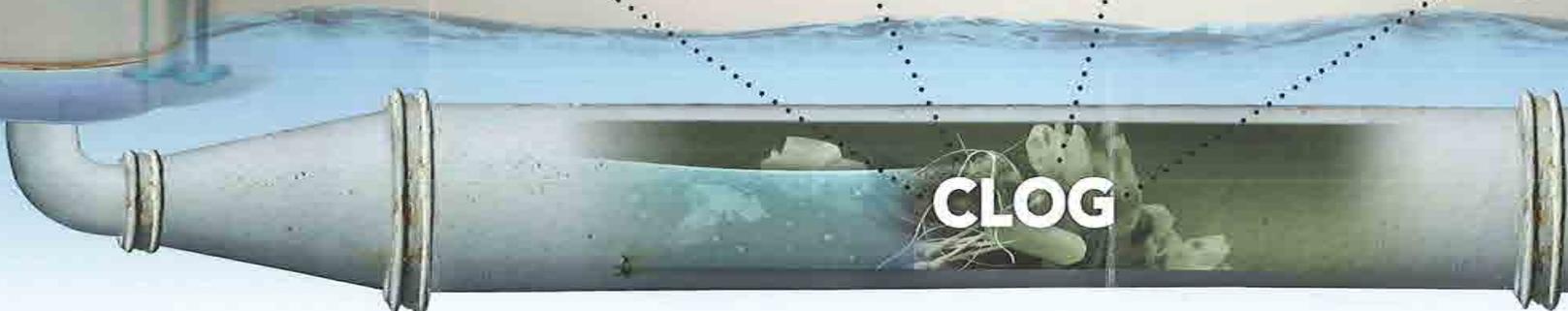
**Cleaning
wipes**



**Facial
wipes**



**Flushable
wipes**



NOVATO SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP)
SECTION FIVE – LEGAL AUTHORITY

5.1 Regulatory Requirements

5.1.1 SFRWQCB

SSMP Element 5: Each wastewater collection system agency shall, at a minimum, describe its legal authority, through sewer use ordinances, services agreements, or other legally binding procedures to:

- *Control infiltration/inflow (I/I) from satellite wastewater collection systems and laterals*
- *Require proper design and construction of new and rehabilitated sewers and connections*
- *Require proper installation, testing, and inspection of new and rehabilitated sewers*

3.1.2. SWRCB GWDR

GWDR SSMP Element No. 3: 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.*

5.2 Legal Authority

The Novato Sanitary District (District) is an independent special district. As discussed in the overview at the beginning of this document, the enabling legislation for the formation of the District, as well as the District’s legal authority, resides in the Sanitary District Act of 1923, Chapter 1, Division 6, comprising Sections 6400 through 6830 of the Health and Safety Code of the State of California. The District was formed with the primary purpose of providing wastewater collection, treatment, and disposal services for the Novato community.

The District exerts its legal authority primarily through the “Sanitary Code of the Novato Sanitary District” (Code) and amendments, service agreements, and design and construction standards.

5.3 District Code Ordinance

The District's Code regulates the use of District wastewater facilities, their construction, permits required for work on these facilities, easements, charges, materials that can be placed into sewers, and the enforcement of these requirements in the Code.

The Code incorporates the District's Sewer Use ordinance, Ordinance No. 70 and amendments, and addresses, among others: the need for and use, of public sewers; private sewage disposal; building sewers, lateral sewers and connections; public sewer construction; permits and fees for sewer connection; classes and use types of public sewers; and the enforcement provisions of the Code.

The District also operates a pretreatment program within its boundaries. The work of this program is performed by the District's Environmental Services section, which works with District management and the Collection system crews to ensure that their independent efforts are coordinated. A portion of the District's Code Ordinance No. 70, Article VIII, Sections 801 et seq, Amended and restated by Ordinance No. 115, specifically regulates the discharge of wastewater into its system in order to protect its collection and treatment facilities.

5.4 Lateral Replacement Program

The District administers a lateral replacement grant program to assist property owners replace deficient sewer laterals. In Fiscal Year 2015-2016, the District allocated a total of about \$50,000 for potential upper lateral replacement with a cap of \$1,500 per residence. The District continues to evaluate the effectiveness of this program based on factors such as participation levels. The District may choose to increase the per residence cap to encourage increased participation based on feedback from participants and actual replacement cost data gathered as part of the program..

5.5 Control of Inflow/Infiltration (I/I)

The District's ordinance prohibits the discharge of uncontaminated water, storm water, I/I, to District sewers, either directly or indirectly. Section 808 of the ordinance specifically excludes without limitation the following categories: rainwater, storm water, groundwater, street drainage, sub-surface drainage, water from yard fountains, ponds, lawn sprays, and yard drainage. Section 816 specifically prohibits the connection of discharge leaders from roofs and surface drains, and prohibits surface or subsurface drainage, rainwater, storm water, and seepage, cooling water or unpolluted industrial waters to enter the sanitary sewer system by any device or method whatsoever.

5.6 Proper Design & Construction, Installation & Testing Of Facilities

The District has developed and adopted a set of standard documents for the design, construction, installation, and testing of facilities, titled "Standard Specifications and Drawings" that are periodically updated. The District's Code Ordinance requires that these District standard documents be followed in the design, construction, installation, and testing of all wastewater facilities. This includes laterals as well as District main lines and facilities.

In this regard, Article V of the Ordinance provides an overview of the design, construction, installation and testing considerations for building sewers, lateral sewers and connections, while Article VI provides the corresponding considerations for public sewers, mainlines, and facilities. Details and specific requirements supporting the requirements of these articles are included in the standard specifications and drawings.

5.7 Backflow Prevention Devices (BPD)

The District's standards require backflow prevention devices (BPDs) and cleanouts to be installed in accordance with the California Plumbing Code, (CPC), Title 24, Part 5. BPDs are typically required to be installed on all new construction, and retrofitted to older homes and buildings upon activities (such as connection, lateral repair or replacement permit process) referred to the District as part of the City of Novato's or County of Marin's building permit process, and as required by the CPC.

5.8 Enforcement

Article IX of the District's Code Ordinance covers the enforcement alternatives available to the District in the event of non-compliance with its code and requirements. The District has many avenues of enforcement available through its Ordinance, including but not limited to: notices of violation, notification of corrective work required, cease and desist orders, disconnection and termination of service, abatement proceedings in the event of a public nuisance, and assessment of civil and criminal penalties.

ATTACHMENT 5A: DISTRICT CODE
The District's Sewer Use Ordinances can be viewed
On the District's Website: [Click Here](#)

NOVATO SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP)
SECTION SIX - MEASURES AND ACTIVITIES

6.1 Regulatory Requirements

6.1.1 SFRWQCB

SSMP Element 6.a: Each wastewater collection system agency shall maintain up-to-date maps of its wastewater collection system facilities.

6.1.2 SWRCB GWDR

GWDR SSMP Element No. 4(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

6.2 Collection System Map

The Novato Sanitary District (District) utilizes both hard copy and editable electronic collection system mapping, using a grid configuration.

The basic hard copy mapping information includes manhole identification numbers unique to each map page, pipe size, pipe type and material, year constructed, direction of flow, and percentage of slope. The system utilizes streets and property lines to provide points of reference for the location of District assets. The maps are drawn to scale based on as-built construction drawings. In addition to details of the collection system gravity sewer lines, the maps also provide location details of the District's sewer lift stations, main conveyance pump stations, force mains, and wastewater treatment plant. The hard copy maps are updated as needed by the District's engineering staff using Auto-CADD drawings.

The electronic mapping system is drawn to scale and overlays recent aerial photographs of the service area as well as property boundary. The District participates in a joint powers authority to share electronic mapping information with the City of Novato and the County of Marin. The electronic map is linked to the District's collection system computerized maintenance management system (CMMS) and is populated with all of the information required to make it a fully functional Geographic Information System (GIS) on an on-going basis.

6.3 Regulatory Requirements- Resources and Budget

6.3.1 SFRWQCB

SSMP Element 6.b: Each wastewater collection system agency shall allocate adequate resources for the operation, maintenance, and repair of its collection system.

6.3.2. SWRCB GWDR

None

6.4 Resources and Budget

The District is an independent sanitary district that derives the majority of its funding through a user-supported rate-paying structure. The District's primary focus is the collection, treatment, and disposal of rate-payer generated wastewater.

The District prepares and adopts an annual budget on a standard July-June fiscal year basis that provides a detailed overview of the District's revenue sources as well as its planned expenditures for the fiscal year. On the expenditures side, the District's budget addresses both its operating and capital needs. A copy of the current fiscal year budget is attached for reference.

On an operating expenditures basis, each of the operational sections within the District's organizational structure is organized as an individual cost center. Each cost center is assigned an account code and a formal operating budget and expenditure plan is established for it. Annual operating expenses for the collection system are detailed in the budget under Account Numbers 60010 through 60300. Details on annual operating expenses for the District's pump stations are provided under Account Numbers 65010 through 65300. As can be seen from the budget, the annual operating expenses for the collection system and pump stations cost centers account for a significant portion of the District's operating budget, typically between about 25-33% of the operating budget that is assigned for collection, treatment, and disposal.

The District also has a Capital Improvement Program (CIP) that addresses repairs and upgrades to the collection system and supporting facilities on an annual basis. Consistent with industry practices the District has established two broad classes of collection system capital projects: short term or immediate "spot" repairs, and longer term replacement and/or capacity-related upgrades.

The spot repairs category is funded as an ongoing Annual Collection System Repairs Project. The longer horizon, multi-year facilities replacement or capacity upgrade projects are budgeted under the Collection System Improvements Project, in keeping with the District's: (a) long-range plan that provides for sewer replacement on a fifty-year life cycle, and (b) Capacity related improvements identified by the Collections System Master Plan.

The District also produces a multi-year CIP projection document that serves as a planning tool for anticipated capital projects. This 5-year CIP projection document is based on information from the District's various master planning documents. As the name implies, the document looks out up to five years into the future for anticipated capital projects, their funding requirements, and makes preliminary determinations of cash-flow allocations. For the collection system, the 5-year CIP projection looks at the five year funding projections for: (a) the ongoing Annual Collection System Repairs Project, and (b) the ongoing long term Collection System Improvements Project, as discussed above.

6.5 Regulatory Requirements- Prioritized Preventive Maintenance

6.5.1 SFRWQCB

SSMP Element 6.c: Each wastewater collection system agency shall prioritize its maintenance activities.

6.5.2. SWRCB GWDR

GWDR SSMP Element No. 4(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.

6.6 Prioritized Preventive Maintenance

The District uses a computerized maintenance management system (CMMS) to manage its collection system preventive maintenance program. The District is currently on a 5-year schedule to inspect and clean each public main within the District's sphere of influence.

Areas that have known problems such as excessive grease buildup, root intrusion, or odor problems are cleaned on a much more frequent basis based on the experience and history.

Excessive grease buildup in District mains is also addressed through the District's FOG program, both through inspection and enforcement for commercial/industrial dischargers and through public outreach in residential areas.

Areas exhibiting root intrusion are identified through routine cleaning and through video inspection of the system. These areas are maintained with conventional methods and a chemical root abatement program. The District contracts annually with a chemical root abatement contractor to foam treat problem lines until they can be addressed through the District's capital improvement program. Identified problem areas are forwarded to the District's engineering staff where they are prioritized and scheduled into the capital improvement program.

6.7 Regulatory Requirements- Scheduled Inspections and Condition Assessment

6.7.1 SFRWQCB

SSMP Element 6.d: Each wastewater collection system agency shall prioritize structural deficiencies and implement a program of prioritized short-term and long-term actions to address them.

6.7.2. SWRCB GWDR

GWDR SSMP Element No. 4(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

6.8 Scheduled Inspections and Condition Assessment

The District has taken a proactive approach in inspecting and evaluating the condition of its collection system and supporting facilities. Routine annual inspections are conducted on all sewer lift stations for safety hazards and condition assessment. The District has annual smoke testing and flow monitoring programs in place as part of its Inflow and Infiltration (I&I) reduction program and for capacity assurance and analysis.

The District utilizes and maintains a continuous CCTV inspection program to identify issues in the various tributary areas of the collection system and to provide cause analysis after a collection system incident. The District maintains an electronic database of scheduled cleaning work orders and past history for all of the sewer mains within the District. Records from these systems are available on request or as required.

The District has developed an electronic data base that establishes criticality of a given line segment or area and that can be used to prioritize and schedule that problem area for replacement or repair based on criteria set by the District's Engineering and Collection system staffs.

6.9 Regulatory Requirements- Contingency Equipment and Replacement Inventories

6.9.1 SFRWQCB

SSMP Element 6.e: Each wastewater collection system agency shall provide contingency equipment to handle emergencies, and spare/replacement parts to minimize equipment/facility downtime.

6.9.2. SWRCB GWDR

GWDR SSMP Element No. 4(e): Provide equipment and replacement part inventories, including identification of critical replacement parts.

6.10 Contingency Equipment and Replacement Inventories

6.10.1 General

The District seeks to maintain an adequate supply of emergency and contingency equipment on hand to facilitate continuous operation and seamless transitions during emergencies. The following equipment is available for emergency operations and collection system maintenance:

5 - portable generators (20-40 KW)

- 4 - by-pass pumps
- 1 - truck mounted continuous rodder
- 2 - combination cleaning trucks
- 1 - closed circuit television truck
- 2 - emergency response trucks

The District has additional emergency equipment (listed at the end of this section) that can be utilized in the event of collection system events.

The District participates in mutual-aid entities such as CALWARN and can access additional equipment and services from neighboring sanitary and water districts and other public agencies during emergencies.

The District maintains a supply of consumable parts and emergency spare parts at its maintenance shop facility that is periodically verified to be adequate to meet its needs. In addition, the District maintains supply contracts with local plumbing suppliers such as Water Components, Inc. as well as the local distributorships of industrial spare parts supply houses such as W.W. Grainger, Consolidated Electric Distributors, etc., that ensures a timely supply of non-emergency spare parts is always available. The District also has a mutual aid relationship with the North Marin Water District (NMWD) for access to NMWD's contingency equipment and replacement inventories.

6.10.2 Pump Stations

All of the District's major pump stations incorporate multiple redundant pumping units to assure reliability of operation. The typical layout is separate dry weather and wet weather pumping systems, with each system incorporating duty + standby units. These pump stations are integrated into the District's Supervisory Control and Data Acquisition (SCADA) system, with remote control, monitoring, and alarming capabilities. Each of these major pump stations also incorporate stationary standby/emergency generators sized to handle the peak start and running load of the wet weather systems.

The majority of the District's lift stations incorporate a two pump (duty + standby unit) design to provide for seamless operation in the event of a single pump failure. All of the lift stations are part of a SCADA network with remote monitoring and alarming capability. For the Bel Marin Keys (BMK) lift stations, there's an additional layer of redundancy in that the hydraulic design of the collection system in that area also allows each station to surcharge to a given level and then flow by gravity to the downstream manhole.

In terms of standby/emergency power, the lift pump stations either have stationary generators, or more commonly are powered by the District's portable generators that are rotated from pump station to pump station on previously established routes, based on an analysis prepared as part of the District's emergency response plan.

The District uses the JobCalPlus CMMS system for scheduling and documenting on-going pump station maintenance activities.

6.11 Regulatory Requirements- Training

6.11.1 SFRWQCB

SSMP Element 6.f: Each wastewater collection system agency shall provide training for its staff in collection system operation, maintenance, and monitoring.

6.11.2. SWRCB GWDR

GWDR SSMP Element No. 4(d): Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained.

6.12 Training

The District takes the need for initial and continuing education and training very seriously and has established a practice of funding its training needs on an on-going basis through the training line item of its annual operating budget (Account Number 66170). An average number that is used for planning purposes to allocate training dollars is about \$2,000 per employee per year for “outside training” through attendance at industry conferences, workshops, etc. In addition, the District also provides extensive in-house training conducted by both in-house staff and outside consultants.

All employees are provided with initial training and familiarization with the District’s systems upon initial hire. Subsequently, training plans geared to the employees’ level of experience are prepared as needed by the Collection Systems Superintendent (with input from the Collections Lead Worker) and forwarded to the General Manager-Chief Engineer.

The District also provides in-house training on specific topics and uses outside training resources such as the training programs (“Ken Kerri courses”) from the Office of Water Programs of the California State University (Sacramento), professional organizations like the California Water Environment Association (CWEA), and the Bay Area Clean Water Association (BACWA), to further the education levels and technical skills of District staff.

The District is a believer and proponent of certification and continuing education, and is an active contributor and participant in CWEA’s educational activities and voluntary certification program. District staff in general is encouraged to further their professional qualifications with voluntary certification through CWEA, and the collections staff in particular is encouraged to participate in the Collection System Maintenance Operator certification program. Since the CWEA certification program also registers the continuing education activities of its certificate holders as part of the certification program, the District is assured that its employees are up-to-date with current skill levels and generally accepted practices in the industry.

In addition, the District also contracts with the California Sanitation Risk Management Authority (CSRMA) to provide training and resources for the development of District employees. CSRMA has an extensive collection of training modules both of the online and classroom variety that the District can avail of.

6.13 Regulatory Requirements

6.13.1 SFRWQCB

SSMP Element 6.f: Implement an outreach program to educate commercial entities involved in sewer construction or maintenance about the proper practices for preventing blockages in private laterals. This requirement can be met by participating in a region-wide outreach program.

6.13.2. SWRCB GWDR

None

6.14 Outreach to Plumbers and Building Contractors

The District participates in a Bay Area wide initiative with the Bay Area Clean Water Agencies (BACWA) as part of a region-wide outreach program to meet this SSMP requirement. A product of this collaboration includes the development of a plumber's outreach flyer that is distributed via mail and individual contact to the building contractors and plumbers that typically work within the District's sphere of influence (see attached). The District also participates in the Association of Bay Area Governments (ABAG) Sewer-Smart program, and promotes the Sewer-Smart web-site as an important community education tool.

The District also disseminates documents such as its sewer use regulations and ordinances, information for domestic and non-domestic users to connect to its system, and design and construction standards and periodic updates, through its web-site and at its administrative offices.

As part of its outreach efforts, the District's Field Services and/or pretreatment staffs engage frequently with entities in the District's service area that carry out construction activities, or maintenance of private laterals, or cleaning of grease traps and septic systems, to raise their awareness of the results of any actions that maybe deleterious to the District's facilities. Examples of issues that are frequently raised with such entities include dumping of construction debris into manholes, or pushing debris from lateral cleaning into a mainline, or illegal dumping of grease or septic tank haulings, that can result in incidents in the District's collection system.

ATTACHMENT 6A: DISTRICT BUDGET
The District Budget can be viewed on the
District's Website: [Click Here](#)

**ATTACHMENT 6B: CAPITAL IMPROVEMENTS
PROGRAM EXPENDITURE PROJECTION 2015-2021**

Table CIP-5: ESTIMATED CAPITAL IMPROVEMENTS PROGRAM EXPENDITURES, 2015-2021

Project No.	Project Name	Adopted FY2015-16	Preliminary FY2016-17	Revised Preliminary FY2016-17	Preliminary FY2017-18	Preliminary FY2018-19	Preliminary FY2019-20	Preliminary FY2020-21
72110	Drainage PS #3 & #7 Outfall Rehab.	5,000	-		-	-	-	-
72403	Pump Station Rehab.	50,000	50,000	50,000	250,000	250,000	500,000	500,000
72508	N. Bay Water Reuse Authority	403,000	440,000	440,000	100,000	50,000	50,000	50,000
72706	Collection System Improvements	1,050,000	900,000	900,000	1,700,000	1,700,000	1,700,000	1,700,000
72706-1	Lateral Replacement Program	50,000	50,000	60,000	75,000	120,000	140,000	160,000
72707	Hamilton Wetlands/Outfall monitoring	22,500	-	10,000	10,000	10,000	10,000	10,000
72708	Cogeneration	20,000	20,000	20,000	20,000	20,000	20,000	20,000
72802	Annual Sewer Adj. for City Projects	10,000	10,000	10,000	10,000	10,000	10,000	10,000
72803	Annual Coll. Sys. Repairs (Spot Repairs)	200,000	200,000	200,000	200,000	200,000	200,000	200,000
72804	Annual Recl. Facilities Improvements	100,000	100,000	100,000	100,000	100,000	100,000	100,000
72805	Annual Treatment Plant TP & PS Improvements	300,000	200,000	100,000	100,000	100,000	100,000	100,000
72806	Annual Pump Station Improvements	-	-	100,000	100,000	100,000	100,000	100,000
72808	Strategic Plan Update	10,000	10,000	20,000	20,000	20,000	20,000	20,000
72809	Novato Creek Watershed	15,000	-	10,000	10,000	10,000	10,000	10,000
73001	WWTP Fac. Upgr. - Contract C (Solids)	10,000	-	-	-	-	-	-
73003	Admin Bldg. Upgrades/Maintenance Bldg.	740,000	1,120,000	250,000	50,000	20,000	20,000	20,000
73004	Odor Control & NTP Landscaping	50,000	50,000	50,000	50,000	50,000	50,000	50,000
73005	RWF Expansion	150,000	1,200,000	1,300,000	20,000	10,000	-	-
73006	NTP Corrosion Control	150,000	75,000	75,000	150,000	150,000	75,000	75,000
73090	Vehicle Replacement	25,000	25,000	400,000	25,000	25,000	25,000	400,000
	Sub-total (w/o P&I for Capital Projects)	3,360,500	4,450,000	4,095,000	2,990,000	2,945,000	3,130,000	3,525,000
TOTAL (Anticipated 5-year project work expenditures)								16,685,000
78500	P&I - Capital Projects	7,075,104	7,059,705	7,059,705	7,059,705	7,059,705	7,059,705	7,059,705
	TOTALS (incl. P&I on Capital Projects)	10,435,604	11,509,705	11,154,705	10,049,705	10,004,705	10,189,705	10,584,705

Date: 1/29/2016

(Mid-year FY15-16 update).

ATTACHMENT 6C: LIST OF EMERGENCY EQUIPMENT

LIST OF EMERGENCY EQUIPMENT

Equipment type and no.	Manufacturer	Storage location
Gas Detectors (6-gas meters)	RKI	NTP
SCBA (2)	Draeger	NTP
Portable Pumps: <ul style="list-style-type: none"> • 4-inch Pump Trailer mounted • 4-inch Pump (sound-attenuated) trailer mounted 	<ul style="list-style-type: none"> • Gorman Rupp • ScrewSucker 	<ul style="list-style-type: none"> • Reclamation • OPS
<ul style="list-style-type: none"> • Air Compressor (Trailer-mounted) 	<ul style="list-style-type: none"> • Ingersoll-Rand 	<ul style="list-style-type: none"> • NTP
Generators: <ul style="list-style-type: none"> • Trailer-Mounted 30 KW • Trailer-Mounted 40 KW • Trailer-Mounted 20 KW • Trailer Mounted 10 KW • Portable generators (3) • Trailer mounted single phase 20 KW • Trailer mounted 45 KW 	<ul style="list-style-type: none"> • Kohler • Kohler • Kohler • Miller • Honda • MQ • MQ 	Various (NTP, ITPS, OPS, Reclamation)
Portable Radios, (6)	Motorola	OPS
Winch/Davit Arm (3)	DBI Sala	ITP
Video camera inspection vehicle	Dodge Sprinter	OPS
2004 (camel)	Peterbuilt	OPS
2006 (camel)	Sterling	OPS
Rodder 2014 Sreco	International	OPS
Crane Truck	Ford	ITP
Forklifts: <ul style="list-style-type: none"> • 5,000 pounds 	Hyster	NTP
Pick-up Trucks (10)	Various	Various
Sedans (2)	Toyota Prius	NTP

ATTACHMENT 6D: PLUMBER OUTREACH BROCHURE



Novato Sanitary District, 500 Davidson Street, Novato, CA 94945 (415) 892-1694 www.novatosan.com

Plumbers & Sewer Contractors:

Help Prevent Sanitary Sewer Overflows!

What are Sanitary Sewer Overflows or SSOs?

SSOs discharge untreated human and industrial waste, debris and disease-causing organisms from the sanitary sewer onto the ground and into homes and potentially into creeks, rivers, lakes or streams. SSOs are caused by root balls, debris, grease, wipes blocking the sewer, or by unusually high flows.

What are the impacts of SSOs?

SSOs may result in property damage, environmental damage and potential liability to you or your company. Allowing sewage to discharge to a gutter, storm drain or waterway may subject you to penalties or out-of-pocket costs to reimburse cities or public agencies for clean-up efforts and regulatory penalties.

How can you prevent SSOs?

When clearing plugged sewer laterals:

- Remove root balls, grease blockages and any other debris from the sewer
- If you can't prevent a root ball or grease from entering the sewer main when working in our service area, **please call us at (415) 892-1694**, so we can work with you (free of charge) to remove the blockage from the sewer main to prevent blockages further downstream.
- Use plenty of water to flush lines.

When constructing or repairing sewer laterals:

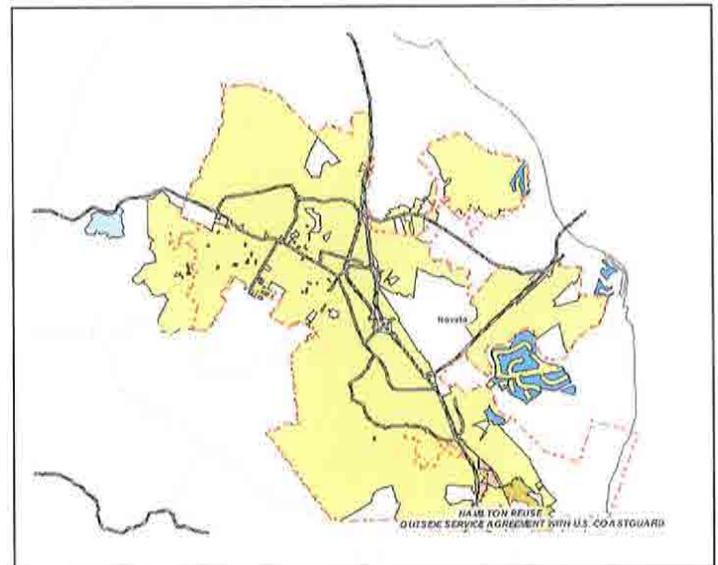
- In Novato, contact us at 500 Davidson St. Novato CA 94945, (415) 892-1694 for a permit and lateral specifications. For additional details, see our website: www.novatosan.com.
- Check your work area. Gravel, backfill material and test plugs can become lodged in the sewer line and cause blockages. Make sure no debris is left in the sewer line before you backfill.
- Avoid offset joints – offset joints make sewer lines vulnerable to root intrusion & grease accumulation, cause debris hang-ups and make lines harder to clean. Properly bed your joints and don't hammer tap.



Who Do I Call If I See a Sanitary Sewer Overflow?

NOVATO SANITARY DISTRICT

(415) 892-1694



Bay Area Clean Water Agencies
A Joint Powers Public Agency



NOVATO SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP)
SECTION SEVEN – DESIGN AND CONSTRUCTION STANDARDS

7.1 Regulatory Requirements

7.1.1 SFRWQCB

SSMP Element 7.a: Each wastewater collection system agency shall identify minimum design and construction standards and specifications for the installation of new sewer systems and for the rehabilitation and repair of existing sewer systems.

7.1.2. SWRCB GWDR

GWDR SSMP Element No. 5(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;

7.2 Standards for Installation, Rehabilitation and Repair

The District, through its Technical Services Department, maintains a document that contains a set of wastewater and sewer system design standards (Novato Sanitary District Standard Specifications and Drawings or “Standard Specifications”). These standard specifications are a comprehensive set of standards that cover all sewage or wastewater facilities in the District. The full Standard Specifications including any addendums are available at the District’s offices.

The District’s Code Ordinance requires that the standard specifications (see Section Five), be followed in the construction of new installations, and rehabilitation and/or replacement of existing facilities. They are available to contractors and the general public and are updated periodically, as necessary. A copy is also available from the District’s web-site.

Where the District initiates and implements large scale capital improvement projects, a consultant firm(s) is retained to provide specialized knowledge and expertise to the project. Project planning and design services are typically provided by such firms in these cases, and project specific drawings and specifications that conform to the District standards are prepared for public bidding by licensed contractors. The construction phase of the project is then typically monitored for adherence to the project requirements by specialty construction administration and/or management firms that the District retains for the duration of the construction phase.

7.3 Regulatory Requirements- Standards for Inspection and Testing of New and Rehabilitated Facilities

7.3.1 SFRWQCB

SSMP Element 7.a: Each wastewater collection system agency shall identify procedures and standards for inspecting and testing the installation of new sewers, pump stations, and other appurtenances; and for rehabilitation and repair projects.

7.3.2. SWRCB GWDR

GWDR SSMP Element 5(b): Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

7.4 Standards for Inspection and Testing of New and Rehabilitated Facilities

As discussed in Section Two of this SSMP, the District has a full-time Construction Inspector who inspects both new construction and repairs. The inspector ensures that all construction meets the District's standard specifications and other applicable codes. The Field Services Manager or Staff Engineer can fulfill this role in the absence of the Construction Inspector. Permits are required for all work on wastewater facilities in the District, and no facility is accepted unless it is permitted, inspected, and tested in accordance with the standard specifications.

As mentioned earlier, where the District initiates and implements large scale capital improvement projects, the District also retains specialty construction management firms to provide inspection services to ensure that the projects are constructed to the project specifications.

Novato Sanitary District

Sanitary Sewer Management Plan (SSMP)

Section 8

Capacity Management

August 2008
(Revised March 2016 by NSD staff)

Initial version (August 2008)
by
RMA / Engineering and Management Inc.
Bishop Ranch No. 3, 2603 Camino Ramon, Ste. 170
San Ramon, CA 94583

NOVATO SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP)
SECTION EIGHT – CAPACITY MANAGEMENT

8.1 Regulatory Requirements

8.1.1 SFRWQCB

SSMP Element 8.a: Each wastewater collection system agency shall establish a process to assess the current and future capacity requirements for the collection system facilities.

SSMP Element 8.b: Each wastewater collection system agency shall prepare and implement a capital improvement plan to provide hydraulic capacity of key sewer system elements under peak flow conditions.

8.1.2. SWRCB GWDR

GWDR SSMP Element No. 8: 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.

8.2 Introduction

The District has a Collection System Master Plan (CSMP), (discussed elsewhere), that meets the needs of a System Evaluation and Capacity Assurance Program for the purposes of the SSMP.

This section of the SSMP describes briefly the process the District follows to assess capacity requirements and capital improvements anticipated over the next 20 years, and will be updated as implementation occurs and priorities change. The NSD Master Planning studies for the treatment facilities and collection systems are primary source documents for the SSMP. The components comprising the District's evaluation and capacity assurance plan efforts are discussed below. The roles and responsibilities of District staff for the capacity management program are included in Section 2.

8.3 Capacity Management Program

8.3.1 Capacity Assessment

Includes assessments 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 provides estimated peak flows associated with wet weather conditions 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.

8.3.2 System Assessment

Includes assessments needed to evaluate those portions of the sanitary sewer system that may potentially contribute to an SSO discharge caused by deteriorated condition. The system assessment provides estimated damage severity for the major causes associated with overflow events.

8.3.3 CIP Planning

The District has put into place the steps needed to establish a short-and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules.

The CIP includes increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The District has prepared and is implementing a Capital Improvement Program (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. The CIP includes an implementation schedule and identifies sources of funding.

8.4 Capacity Assurance

8.4.1 Overview

The Novato Sanitary District serves an area of approximately 34 square miles in area, and serves approximately 55,800 residents. Future conditions are defined by the General Plans of the City of Novato and the County of Marin; the District does not function as a General Plan entity. Current planning forecasts growth and development into 2025, which is concurrent with the District's Strategic Plan. The District's service area is comprised primarily of single-family residential units on lots under one acre in size. Commercial land-use is concentrated along Highway 101,

along Redwood Boulevard, downtown along Grant Avenue, in the Industrial Park near the Ignacio Treatment Transfer Pump Station (ITPS) site, and in small clusters and convenience centers. No major industrial wastewater producers exist within the District's service area.

In general, the District's service area is significantly built out with densification anticipated in the downtown area and commercial corridors. Future growth areas are zoned very low density residential and include Atherton, Greenpoint, Blackpoint, Indian Valley, Bel Marin Keys, and Verissimo Valley. Each of these areas except for Bel Marin Keys and Verissimo Valley are currently on septic tank systems and are expected to convert to sewers by 2025. Indian Valley and Greenpoint are large planned residential areas that may be fully developed over the next 15 years, subject to political and environmental factors, and permitting by the City of Novato and the County of Marin.

8.4.2 System Evaluation and Capacity Assurance

The District's capacity assurance program is based on capacity assessments that relate short term and long term capacity requirements to the District's capital improvement program. The assurance plan evaluates the hydraulic capacity of key sewer system elements under peak flow conditions. The following are District's program components:

- **Hydraulic Analysis:** The District evaluates the portions of the collection system that are at risk of SSOs due to hydraulic deficiency using hydraulic modeling and analysis. Portions identified for analysis include all collection system interceptors and lines greater than 10" in diameter and lines identified that may be over capacity from existing or future flow projections.
- **Capacity Enhancement Measures:** The District develops a short- and long-term capital improvement program that addresses identified hydraulic deficiencies from the evaluation process
- **Plan updates:** The District updates plans on a periodic basis, as required. Capacity assurance and modeling will be done periodically. Capital improvement requirements are reviewed annually consistent with current planning objectives.

8.5 Flow Projections

Flow projections for use with the hydraulic analysis are based on historical flow rate data combined with calculated flow rates for growth areas, septic tank conversions and infill development. To estimate the sanitary flow impact of these areas, the results of flow metering and flow monitoring are used to define base sanitary flow, groundwater infiltration and RDI/I values in defined tributary sub basins. Flow impacts are added into the model generally in five year phases or if major development is identified over a given 5-year period, to see the effect of the development over time.

An allotment for I&I is also incorporated for new areas taking into account both laterals and mains. Residential infill I&I assumes that existing sewers will be used to convey wastewater flows to the treatment plants, without added I/I volumes for new work. The District currently specifies allowances of: (a) 1,000 gpd/acre for pipes installed since 1975, (b) 2,500 gpd/acre for

pipes installed between 1962 and 1975, and (c) 6,000 gpd/acre for pipes installed prior to 1962. Non-residential I&I are calculated based on the District standard of 1,000 gpd/acre.

8.6 Hydraulic Analysis

8.6.1 Hydraulic Modeling

The District uses hydraulic modeling to assess the capacity capability of the system based on projected flow rates. The hydraulic model evaluates the primary "back bone" of the system i.e. lines greater than or equal to 10" in diameter. The system is divided into two distinct systems North (Novato) and South (Ignacio).

The District's collection system infrastructure is contained in GIS files which are used to spatially define the system topology including geometry and network connectivity. Attribute data for each individual collection system feature is incorporated into the model. Data includes pipe types (gravity or pressure pipe), manhole types (split, diversion, outfall or standard manhole), pipe diameters, rim and invert elevations, pipe lengths and slopes.

Diversion manholes are also incorporated into the model. Diversion manholes split the incoming flow into two components, one that continues through the main line, and another that is diverted to an overflow line. Flow is divided according to predicted carrying capacities of the pipes, and will be further evaluated as more flow data becomes available in the future.

The model is used to evaluate different conveyance alternatives for addressing capacity deficiencies for various scenarios. Once evaluated, the most optimum scenario is used to program capital improvements and enhancement measures.

8.6.2 Flow Allotments

Based on the District's design standards, initial projected flows are "incorporated" into the hydraulic model. These are allocated based on the individual parcels to represent geographic regions that contribute to the flows to particular pipes along the system. Each parcel is associated with its respective Land Use designated as one of three distinct types of Sanitary Service Areas: Residential, Commercial, or Open Space/Parkland.

Residential areas generate flows based on population. The design standard for the District average family unit is considered to be 3.5 persons, which generates 90 Gallons per person per day for a total of 315 gallons per parcel per day. However, recent data indicates that with factors as diverse as water conservation and "empty nest" syndrome at play, current trends might be running closer to an average EDU of about 2.25-2.5 persons, generating flows of about 60-70 gallons per capita per day.

The Commercial areas generate flows based on metered flow volumes. The total commercial water consumption is summed from the latest base winter usage report and proportioned to each parcel by acreage in gallons per day. The Open Space/Parkland areas are assumed to generate no sanitary flow.

These land use areas are assigned to specific pipelines within the collection system. The sanitary flows are then added to the flow model throughout a 24-hour day based on flow study diurnal curves for each type of use. Diurnal curves were derived from two flow monitoring areas of the flow study, one a predominately Residential area and another predominately Commercial area. Since no flow is generated for Open Space / Parkland areas, a third diurnal curve is not needed.

Once completed, the initial flow data is adjusted to the results of the flow metering and monitoring study and the allocation of GWI, BSF & RDI/I to the sub-basins. BSF & GWI values are calibrated to the metered values found during dry weather periods.

Results of this analysis provide the loading parameter setting for present and future capacity modeling of tributary basins and sub-basins.

8.6.3 Conveyance Alternative Analysis

For combined operation scenarios, conveyance options are developed. Conveyance alternatives described in detail in the current (2008) Collection System Master Plan Report for projected future requirements in 2025 are summarized as follows:

1. Vineyard Road Project (to be reviewed in a future CSMP update)	6. First Street Project (to be reviewed in a future CSMP update)
2. Wilson Avenue Projects (completed)	7. Arthur Street project
3. Center Road Alignment (completed)	8. ITP Alignment (completed)
4. Virginia Ave Project (to be reviewed in a future CSMP update)	9. Flow reallocations via diversions (to be reviewed in a future CSMP update)
5. Nave Ct. / Novato Blvd. Alignment (completed)	10. Off-line storage (to be reviewed in a future CSMP update)

The conveyance alternatives are evaluated based on risk mitigation, cost, easement / right-of-way acquisition, permits, and constructability. The evaluation of these options results in alternative project recommendations. Updated project alternatives are maintained in the Collection System Master Plan Report. Figures 8.1 and 8.2 show current project alternatives from the 2008 Collection System Master Plan. In 2011, the District also completed an independent third party review and limited update of its 2008 Collection System Master Plan (CSMP). A further comprehensive revision of the CSMP was completed by Whitley Burchett & Associates in 2012, upon analysis of the information presented by the 2011 review and update.

8.7 System Evaluations

8.7.1 Overview

System evaluations are used to provide guidance to the District for identifying and prioritizing repair, refurbishments and maintenance activities that will lead to the elimination of structural and conditional causes of SSO's. The system evaluation process also makes use of cost benefit and risk management techniques for optimizing the SSO mitigation recommendations.

The District's system evaluation program incorporates ranking and rating collection system assets based on condition assessment data and in-situ and environmental factors that influence probability and consequences of SSO's. Areas where assets haven't been inspected in the last five years are prioritized for future inspections based on criticality and similar assets that have more recent inspections.

8.7.2 Assessing the System (Condition Assessment)

The District's preventive maintenance (PM) program for the collection system includes a proactive inspection program combined with a preventive cleaning program. The inspection program includes CCTV video inspection/condition assessment (VI/CA) of the collection system combined with a visual manhole inspection as a routine maintenance task or activity of the maintenance department. The purpose being to rate and rank investigated line segments by damage severity, then with engineering and management input, act to correct significant system problems before their becoming the source of a sanitary sewer overflow (SSO).

Conditions that lead to blockages and stoppages such as roots, grease, sedimentation and debris are ranked and prioritized for maintenance related activities such as hydro flushing and root treatments. Conditions showing asset deterioration such as cracking, sagging, pipe displacements, etc. are ranked and prioritized for repair, refurbishment or replacement. Significant repairs and refurbishments as well as replacements are programmed into the District's CIP program

Line segments or other assets selected for damage correction are incorporated as capital projects of the upcoming FY, and follow planning, design and construction to completion and acceptance. The project, once identified and funded, moves to completion with responsibility being with Engineering and Financial Management until the project is accepted and the upgraded asset is brought back into the maintenance phase of its life cycle.

8.7.3 Damage Rating and Ranking of System Assets

Manhole Inspections: Inspections conducted for manholes involve a visual assessment of the overall manhole condition and observed deficiencies that could result in I&I. Ratings applied to manhole investigations use a condition codes for each of the manhole structure components including the rim and lid, chimney/cone, bench and channel. Each component is rated as to poor, fair, and good condition as a gross determination of construction adequacy of the structure and its component parts.

Detailed investigations of manhole condition follows at a time when a connecting line segment is defined as a rehab project, and corrections needed to the manhole structure are then included as part of the project work.

CCTV Inspections: The District maintains a comprehensive television inspection program. Sewer segments undergo detailed video inspection for both structural and condition damage. As of November, 2015, the entire collection system has been inspected. Critical defects are identified for spot repairs and deteriorated reaches for potential rehabilitation or replacement. A future cleaning frequency can be determined for each pipe reach based on the results of the initial

inspections. The District has set a goal to perform cctv inspections for each pipe segment in the collection system at a recurrence level of about every 5 years.

A rating schedule for line damage covering the range from light to medium to severe damage is applied to each condition found. The sum of these individual damage ratings divided by the length of the line televised provides a damage rating per foot value defined as the Damage Severity Index (DSI) for the line segment.

$$\text{DSI} = \frac{\text{Sum of individual damage ratings}}{\text{Length of line segment televised}} = \text{Damage Rating / Ft.}$$

Use Of The Damage Severity Index The DSI value of the line segment defines its relative damage ranking among any of the line segments having undergone a condition assessment. The DSI value is calculated and included as an item in the line segment record when the VI/CA data is added to the database.

A DSI query of the CMMS database provides a listing of the VI/CA investigated line segments ordered from worst to least. This listing provides knowledge of the most significantly damaged lines of system and those most likely in need of immediate repair. Engineering investigation of the Condition Assessment data for these lines and funding concerns will define the plan of rehabilitation improvements for the upcoming year. The DSI value is the key to selecting only needed and necessary improvements to the system to avoid overflows and return the collection system to safe and functional service to the District rate payers. DSI values are also used to reschedule the next CCTV/condition assessment work for the less than significantly damaged line segments.

8.7.4 SSO Abatement (Preventive Maintenance)

Cleaning: The District has a comprehensive cleaning program for its sewers. The program initially projects sewers cleaning on a 5-year cycle. Information about the maintenance requirements of the pipes are managed and evaluated using the capabilities of the District's ICOM3 CMMS. Some sewers are included in a focused cleaning program (hot spots) while some sewers may be cleaned less frequently than every 3 years.

The focused cleaning program is projected to include approximately 20% or less of the sewer mains in the entire District service area. The focused cleaning program is also anticipated to change over time by cleaning sewers less frequently such as every 180 days instead of the current 30-, 60-, or 90-days. Reducing cleaning frequencies should be accomplished by addressing the primary causes of frequent maintenance through spot repairs, sewer rehabilitation, chemical root control, and/or grease control. This will reduce the likelihood of SSOs and would make the District's cleaning crews more available for cyclic cleaning and other work.

The District evaluates the effectiveness of sewer cleaning in removing roots and grease by performing post-cleaning CCTV inspection or by monitoring the amount of debris removed from the system on a continuing and comparable basis.

Root Control: The District utilizes chemical root treatment program to control root growth in the collection system. No additional equipment is needed since the work is outsourced, and the District manages and inspects the work.

Grease Control: The District is expanding its grease control program to include inspections of grease interceptors every 12-months in areas with high grease accumulations in sewers. The District also requires food processing establishments to adopt best management practices to minimize grease discharges to the collection system. A public education program helps reduce grease from residences (see Section Four).

Other Needs: In addition to capital costs associated with the correction of capacity and structural deficiencies, other needs for the District's collection system have been identified. These needs include modifying the Districts construction standards to enhance pipeline performance and maintenance and cyclic replacement of 6-inch diameter sewers and keeping the District's sewer master plan up to date. These needs are further described in the Master Plan.

Engineering Support: The District currently uses a mix of in-house staff and outside engineering consultants to help support the maintenance and CIP process for the collection system, and capital projects and other work recommendations. The District will continue to assign engineering staff to provide development oversight and support maintenance support maintenance planning activities and performance results of the collection system.

8.8 Capital Improvement Program (CIP)

8.8.1 General: The District's CIP process includes a system for preparing, evaluating, and reporting CIP budgets. The District's collection system requires a continuing number of improvements including collection system capacity upgrades, correcting structural problems, and modifications to pump stations and the treatment plants. A construction schedule for the capital projects is developed based on the project priorities and to support payment of all capital improvement program and equipment replacement expenditures. The schedule for the projects (in current dollars) is included in the District's Capital Improvements Plan.

8.8.2 Cyclic Replacement: The District has adopted a construction standard of 8-inch minimum for sewer mains. The District is considering a cyclic program to replace smaller 6-inch diameter sewers with larger 8-inch diameter sewers. If sewers are to be replaced, they are built to current standards. The exception is only when there is a condition of limited flow.

8.9 Reference Documents

The documents used for system evaluation and capacity assurance include:

2005 Wastewater Facilities Master Plan (SSES): Provides recommend capital improvements and proposed facility cost estimates, based on projected requirements using the District's established design criteria.

Collection System Master Plan 2008: Collection System Master Plan including wastewater flow projections and a hydraulic analysis. Includes recommended system capital improvements

and maintenance activity prioritization and cost analysis. The document was reviewed in FY2011-12, and a more thorough review is anticipated by FY15-16.

Capital Improvements Program Expenditure Projections 2016-2021: Developed by the District, this document outlines how the District proposes to continue to pay for the Capital Replacement and Improvement Programs, by noting fund balances, funding sources and fund uses, and encompasses both collection and treatment system costs.

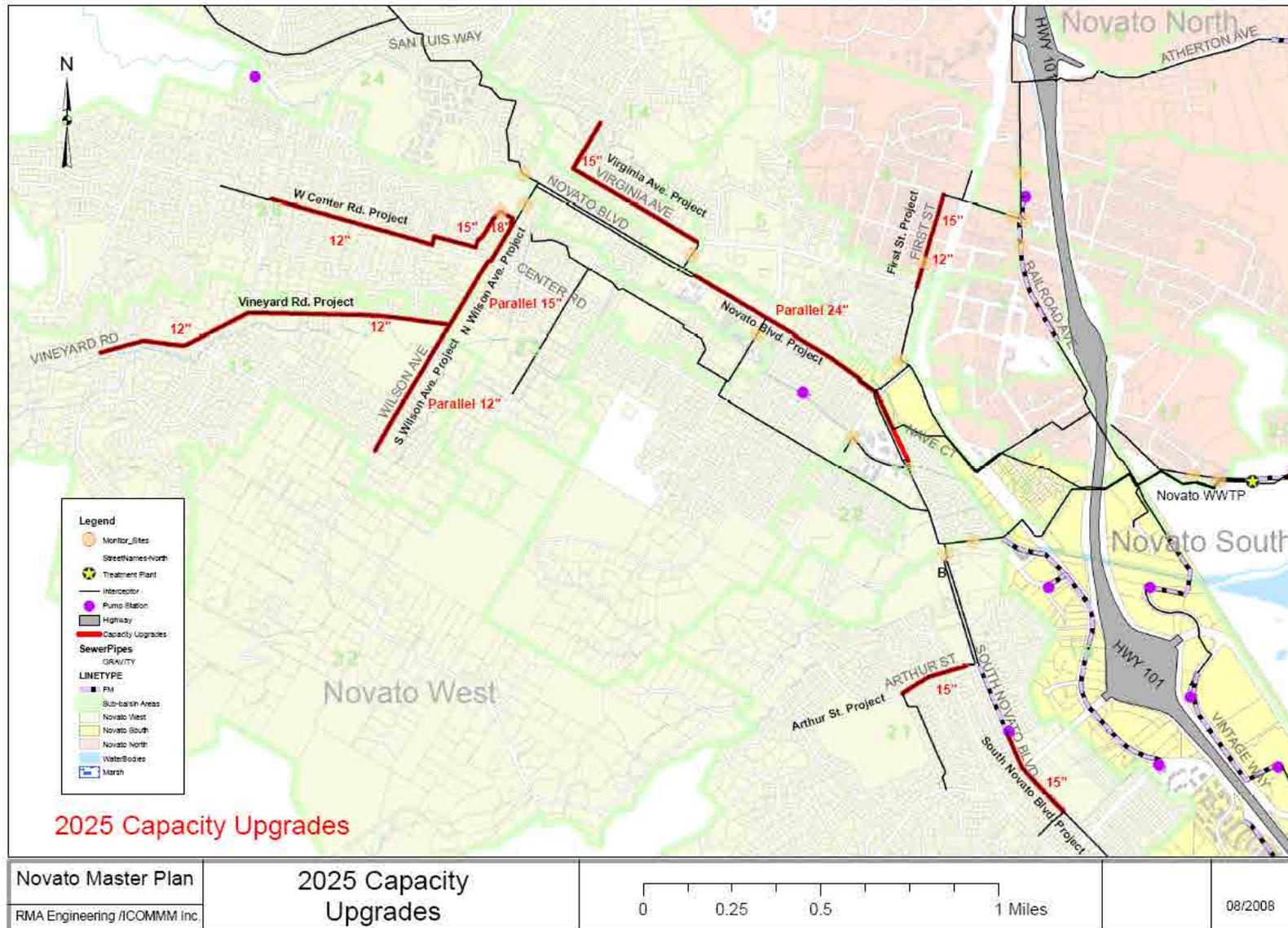


Figure 8.1 – 2025 Novato North Sewershed Capacity Upgrades

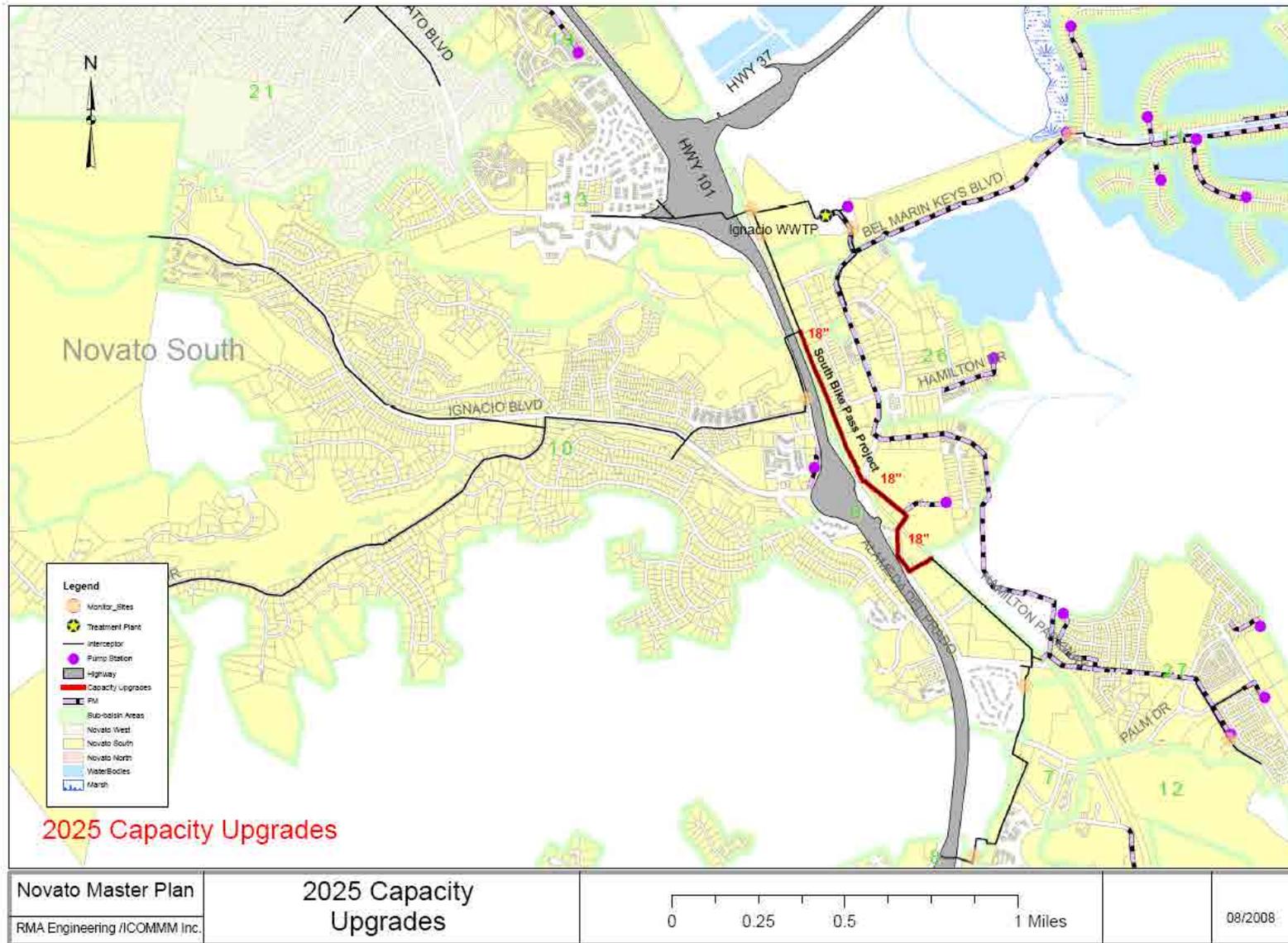


Figure 8.2 – 2025 ITP Sewershed Capacity Upgrades (Novato South)

Novato Sanitary District
Sanitary Sewer Management Plan (SSMP)

Section 9
Monitoring, Measurement, and
Program Modifications

August 2008
(Revised March 2016 by NSD staff)

Initial version (August 2008)
by
RMA / Engineering and Management Inc.
Bishop Ranch No. 3, 2603 Camino Ramon, Ste. 170
San Ramon, CA 94583

NOVATO SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP)
SECTION NINE – MONITORING, MEASUREMENT, AND PROGRAM
MODIFICATIONS

9.1 Regulatory Requirements

9.1.1 SFRWQCB

SSMP Element 9: Each wastewater collection system agency shall monitor the effectiveness of each SSMP element and update and modify SSMP elements to keep them current, accurate, and available for audits as appropriate.

9.1.2 SWRCB GWDR:

GWDR SSMP Element No. 9: 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.*

9.2 Overview

This section of the SSMP discusses how the District measures the effectiveness of SSMP elements and monitors their implementation. Effectiveness is measured by developing and tracking performance indicators on a regular basis.

Monitoring, tracking and reporting of routine maintenance activities and SSO abatement programs are reported monthly and summarized annually. Information on the collection system is maintained that allows analysis and evaluation of changed conditions.

Key performance indicators incorporated include:

- Number of dry weather SSOs over the past 12 months, (12 month average)
- Number and characteristics of wet weather SSOs over the past 12 months,
- SSOs by cause (e.g. roots, grease, debris, pipe failure, pump station failure, capacity, other)
- Volume distribution of SSOs (e.g. number of SSOs < 100 gallons, 100 to 999 gallons, 1,000 to 9,999 gallons, > 10,000 gallons)
- Annual volume of SSOs
- Number and characteristics of backups over the past 12 month
- Stoppages by cause

- Average time to respond to an SSO
- Ratio of planned sewer cleaning to unplanned sewer cleaning
- Backlog of repair, rehabilitation, and replacement projects
- Plans developed for, or implementation of, activities to target specific problems identified, such as roots, structural deficiencies, or fats, oil, and grease (FOG)

9.3 Monitoring, Tracking and Reporting.

9.3.1 Overview

The District uses the ICOM3 infrastructure management system to track maintenance, SSOs and other related activities. Historic maintenance data can be digitally linked to the GIS for analysis of repeat problem areas. This process allows the District to adjust maintenance activities to prevent stoppages and develop reports for annual audits required for the SSMP.

The ICOM3 system also manages CCTV inspection data. Inspection data is collected in a format that is compatible with ICOM3. The system allows for developing a history of operation of assets that help identify approaching problems in operation and allow investigation and correction evaluation prior to an overflow event.

9.3.2 Monitoring

Target performance levels are established at the start of the budget year. Maintenance activities are recorded in the ICOM3 database for asset management purposes. Information is stored on a per asset basis by activity type for tracking the performance and maintenance history of the individual assets of the sanitary sewer system.

The District's objective with the maintenance system is to collect all of the physical, hydraulic, and structural and condition information of the assets of the sanitary sewer collection system. Asset information can then be updated at the next cleaning or condition assessment activity.

9.3.3 Tracking

Tracking is measurement of the annually targeted unit measures of performance of maintenance activities and those achieved by the District collection system crews, to provide a basis for comparison. Monthly reporting and performance comparisons are the subjects of the monthly maintenance activities performance report prepared by the Collection System Superintendent. The tracking function further measures increasing levels of asset damage being incurred over time as provided by CCTV inspections. Results can be tracked in separate reports at the end of the calendar year as required.

9.3.4 Reporting

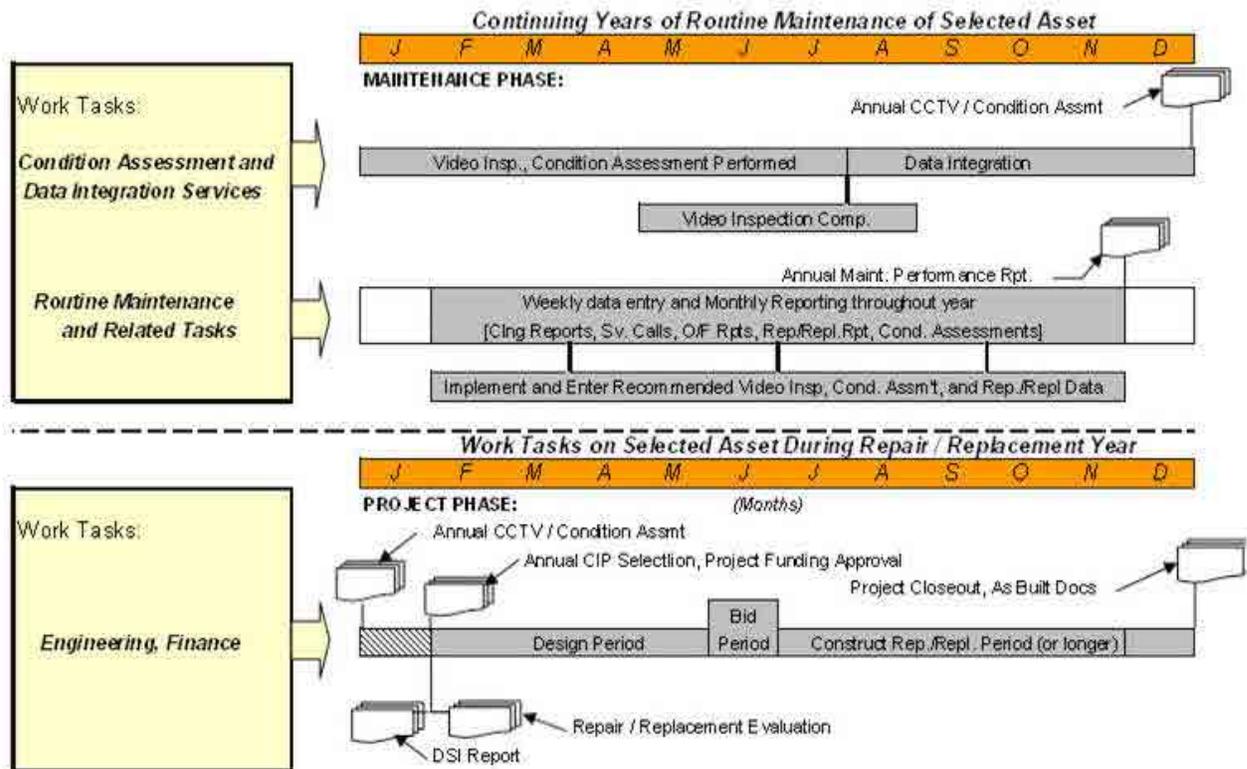
A Collection System activity performance report is distributed each month for feedback from management and responsible supervisors. The periodic feedback by these individuals to the Collection System Superintendent is used to solicit ideas and changes in current operations to likely enhance performance and productivity of the maintenance crews. Monthly reporting by the Collection System Supervisor is supplemented at year end with the Annual Collection

System Activity Performance Report; this Program status information may be included in the Collection System annual report, or required compliance documentation used to summarize performance and objectives met each year. Additionally, starting in 2010, the Wastewater Operations Committee (WWOC) of the District’s Board of Directors meets monthly to (among others) review the performance of the Collections System department against performance parameters including but not limited to (a) Employee hours worked, (b) Productivity, (c) Stoppages, (d) benchmarks (total footage, average footage, total stoppages/100 miles, SSO gal/100 miles, callouts/100 miles, overtime/100 miles, etc.).

9.4 Continuous Improvement

The complete history of collection system maintenance operations and performance is housed in the ICOM3 data warehouse. The objective is to provide all personnel of the collection system staff with information on the initial and ongoing problems being identified in the system, and further bring engineering, maintenance and financial resources into a mutually supported action plan designed for timely decisions and actions to address corrective needs of the system and achieve the compliance goals of the SSMP.

FIGURE 9.1 MONITORING, TRACKING and REPORTING FOR DECISION SUPPORT



9.5 Maintenance Performance

As mentioned earlier, a report summarizing monthly maintenance activities is produced to track performance. Activities tracked include cleaning work orders generated and completed, volume by activity, CCTV footage, the number and type of overflows, callouts and the response times

associated with those events. An annual maintenance performance report is produced at the end of each Fiscal Year, since this is the time new performance targets are adopted and changes in equipment and personnel rates are made. Assets are identified during this maintenance phase by W.O. # or by Asset Number. The Asset Number is usually the map identifier such as a Manhole or Pump Station number, or in the case of a line segment the Manhole-to-Manhole number.

1. Measures and Activities performed on the collection system: These include reactive maintenance activities such as response to reported callouts and overflow conditions. Planned maintenance includes special maintenance activities such as smoke testing and/or root foaming when determined necessary, and preventive and proactive maintenance activities of line cleaning and CCTV/condition assessment work which are to be the common routine maintenance activities of the District. All maintenance activities will be evaluated for performance by District staff or by outside contractors (general or specialty).
2. Overflow Response and F.O.G. Response: are among the reactive maintenance activities performed on demand by District staff and/or furnished by outside contractors. Maintenance activities take place throughout the year under the control and responsibility of either the Field Services or Collections System departments. The findings of all maintenance investigations are recorded to the specific collection system asset in the system. Recording, tracking and reporting of operations performance and unit costs of production are available monthly and summarized annually to check targeted performance.
3. Monitoring, Measurement and Program Modifications: is an Engineering and Management function emanating from the Maintenance Activities performed during the calendar year. The annual summary report includes the CCTV/condition assessment work performed during the year now included with all of the damage rated line segments from prior work on the system. Engineering staff performs the damage ranking of the investigated line segments. Highest ranked line segments are then evaluated for repair, replacement or deferral and continued maintenance because of it being outside planned funding limitations.
4. Alternative Repair / Replacement Analysis: Identifies the correction methodology that provides the least annual cost of operation and continuing maintenance over the expected useful life of the repair or replacement, and features:
 - Cost Analysis for most cost-efficient Repair / Replacement Method and the annual costs of maintenance over the shortest extended useful life of the construction.
 - For the selected construction methodology, both the annual operations costs and the total estimated project cost are calculated and listed.

9.6 Cost Data for Maintenance Performance Analysis.

Cost metrics can be used to evaluate the resource requirements necessary for providing the desired level of system maintenance. The District's resource requirements have generally tracked well with the planned levels of annual maintenance activity. Each maintenance activity requires resources whose cost changes at the start of each Fiscal Year, and these are documented in the District's comprehensive fiscal budget. Also, the ICOM3 systems has the capability to

track labor, equipment, and materials costs for routine maintenance activities which can be used to estimate future budgets based on the programmed levels of activity.

The ICOM3 system has the capability to be updated annually to include the hourly charge rate for equipment, personnel or crew rates and related expendables utilized in the performance of the task. Over time, the costs of performance experienced by the collections crews will establish a continuing basis for estimated performance of the District's system and will become a useful tool in forecasting maintenance performed by outside contractors in the collection system.

9.7 Annual Maintenance Performance Reporting

This annual report summarizes the monthly maintenance reporting activity. It provides a record of maintenance performance as it relates to unit costs and can display the relationship of cost per cleaning volume, the number, type and severity of overflows, callouts and the costs associated with unscheduled and unforeseen events.

NOVATO SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP)
SECTION TEN – SSMP AUDITS

10.1 Regulatory Requirements

10.1.1 SFRWQCB

SSMP Element 10: Each wastewater collection system agency shall conduct an annual audit of their SSMP which includes any deficiencies and steps to correct them (if applicable), appropriate to the size of the system and the number of overflows, and submit a report of such audit.

10.1.2. SWRCB GWDR

GWDR SSMP Element 10: 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

10.2 General

The SSMP Audits element of the SSMP requires that the District conduct a biennial audit of its SSMP that identifies any deficiencies, and steps to correct them that are appropriate to the size of the District's system and the number of overflows.

In general, these audits will focus on evaluating the effectiveness of the SSMP and the District's compliance with the SSMP requirements, including identification of any deficiencies in the SSMP and steps to correct them.

10.3 SSMP Audits Discussion

The District regularly performs audits of its SSMP beginning in December 2008. The audit is to be completed internally, by an appropriate third party auditor, or possibly by a neighboring sanitary district or agency familiar with the requirements of this element of the SSMP.

In October 2012, the SF Regional Board replaced its annual audit requirements with the biennial requirements of the State SSO-WDR. In March 2016, the District prepared its 2016 Biennial Audit, primarily as a summary report along with a summary checklist developed by RMC Water/Oakley Water Strategies of Walnut Creek, CA and distributed to the BACWA Collection system member agencies (see Attachment 10A).

ATTACHMENT 10A: 2016 SSMP BIENNIAL AUDIT



Novato Sanitary District

Sewer System Management Plan (SSMP) – 2016 BIENNIAL AUDIT

March 2016

NOVATO SANITARY DISTRICT

2016 BIENNIAL SSMP AUDIT

March 2016

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Appendices

Appendix A: December 2015 and December 2014 District Board of Directors Wastewater Operations Committee reports (Collection System related portions only)

Appendix B: 2016 Biennial SSMP Audit Checklist

NOVATO SANITARY DISTRICT

2016 BIENNIAL SSMP AUDIT

March 2016

List of Abbreviations

BACWA	Bay Area Clean Water Agencies
CY	Calendar Year
FY	Fiscal Year
NSD, District	Novato Sanitary District
GWDR	General Waste Discharge Requirement
SFRWQCB	San Francisco Regional Water Quality Control Board
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board

2016 BIENNIAL SSMP AUDIT

1. Introduction

The purpose of the Sewer System Management Plan (SSMP) Audit is to evaluate the effectiveness of Novato Sanitary District's (NSD or District) SSMP and to identify deficiencies, if any, and steps to correct them. The audit is prepared pursuant to the requirements included in the State Water Resources Control Board (SWRCB) Order No. 2006-0003-DWQ (also called General Waste Discharge Requirements, or GWDR),

A summary of compliance with the SWRCB Order is presented in check list form as Appendix B of this document.

2. Regulatory Requirements for SSMP Audits

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

SFRWQCB Requirement:

Previously, through the requirements of its Sewer System Management Plan Development Guide, dated July 2005, the San Francisco Regional Water Quality Control Board (SFRWQCB) used to require the District to conduct an annual audit of its SSMP. This annual audit was to include any deficiencies and steps to correct them (if applicable), appropriate to the size of the District's system and the number of its overflows. The annual audit was then to be submitted as a report, along with the District's annual SSO report, by March 15th of the following year.

However, consistent with SFRWQB's letter dated October 3, 2012 and titled "Discontinuation of Requirements for Annual Reports of Sanitary Sewer Overflows (SSOs), and Annual Sewer System Management Plan (SSMP) Audits", the District is not required to submit an annual audit report, and will prepare a biennial report as discussed herein.

SWRCB Requirement:

The SWRCB's SSMP audit requirements mandate that the District shall conduct periodic internal audits, appropriate to the size of its 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 District's compliance with the SSMP requirements, including identification of any deficiencies in the SSMP and steps to correct them.

3. 2016 Biennial SSMP Audit

The District conducts periodic audits of its SSMP consistent with regulatory requirements. The goal of the audit is to determine whether the SSMP complies with current requirements of the

GWDR, whether the SSMP reflects current practices, and whether the SSMP is effective in controlling SSOs.

Program effectiveness is evaluated by a review of performance indicators and discussion of SSMP and sewer system improvements. An Audit Checklist developed by the Bay Area Clean Water Agencies (BACWA) is also used as part of this evaluation.

4. SSMP Effectiveness

Performance

Performance Indicators:

Performance indicators, collected as part of Element IX (Monitoring, Measurement, and Program Modifications) are reviewed to identify patterns and areas needing improvement. Performance indicators for the two years CY2014 and CY2015 are presented in Figures 1 and 2, and SSMP effectiveness as a function of SSMP implementation are summarized in Tables 1, 2, and 3, and Figures 3(a) and 3(b).

Performance Metrics:

In terms of performance metrics, the total footage of sewer mains cleaned on a monthly basis in CY2014 and CY2015 is presented in Figure 1, while monthly productivity in terms of average length (feet) of sewer line cleaned per hour is presented in Figure 2.

Program Effectiveness:

In terms of program effectiveness, a history of SSOs is shown in Table 1, SSOs by volume history are shown in Table 2, and SSOs by cause are shown in Table 3, for Calendar Years (CY) 2011 through 2015.

From Table 1, it can be seen that the number of SSOs in 2013 reduced significantly from the previous two years, increased slightly in 2014, and then increase again in 2015, but still lower than 2011 and 2012. SSO volumes (see Table 2) generally declined over the period, with the exception of CY 2014, a year where the region was hit with an intense atmospheric river storm event that resulted in a significant portion of the District's service area being inundated by flood waters. CY2015 exhibited the lowest SSO volume of the 5 years evaluated.

As shown in Table 3, roots were the predominant cause off SSOs over the last 5 years with the two year total for 2014/15 decreasing from the previous 2 years 2012/13. Also notably, the number of grease related events has declined significantly to where there were no grease related overflows in the last 3 years, 2013-15.

Productivity Comparisons:

Productivity comparisons since the implementation of the SSMP in 2008, are tracked annually. The data is presented graphically in Figures 3(a) and 3(b), and indicate significant productivity gains and overall effectiveness over the period.

SSMP Effectiveness Reporting:

In 2009, the District Board of Directors formalized the reporting of the Collection Systems department's performance through its Wastewater Operations Committee (Committee). The Committee meets regularly on the third Monday of each month, and receives a detailed report from staff on Collection Systems operations and maintenance activities (including SSMP effectiveness tracking) for the preceding month. The Committee then reports out to the full Board through a separate Committee report, at a regularly scheduled bimonthly Board meeting, typically the fourth Monday of the month.

Copies of the monthly reports for December 2014 and December 2015 are provided in Appendix A for sample purposes. As can be seen from these reports, they also provide tracking information on a monthly basis for performance indicators and metrics for the entire year, as well as comparative information for these parameters against the prior year. In addition to sewer main maintenance, the reports also provide information relating to sewer pump station operations and maintenance and include similar performance indicators and metrics, and present similar effectiveness tracking.

Program and System Improvements

The District has a well-funded Capital Improvements Program (CIP) that addresses identified capacity and condition related improvements to its collection system, a summary of which is available through the District's Annual Budget document on its web-site.

The District also completed an independent third party review and limited update of its 2008 Collection System Master Plan (CSMP) in 2012. A comprehensive revision of the CSMP is tentatively being planned for Fiscal Year (FY) 2016-17.

In addition, as shown in Table 4, the District constructed approximately \$4 million in collection system and pump station improvement and repair projects which ranged from small spot repairs all the way to major sewer main replacements and pump station reconstructions.

5. SSMP Compliance

The District uses an Audit Checklist that was originally developed by the Bay Area Clean Water Agencies (BACWA), to evaluate its compliance with State GWDR requirements for SSMPs. The audit checklist indicates whether each SSMP element is compliant, describes recent revisions or updates and recommends future actions to maintain effective SSMP elements that reflect current District practices. The Audit Checklist, completed for the two years CY 2014 and CY 2015, is included in **Appendix A**.

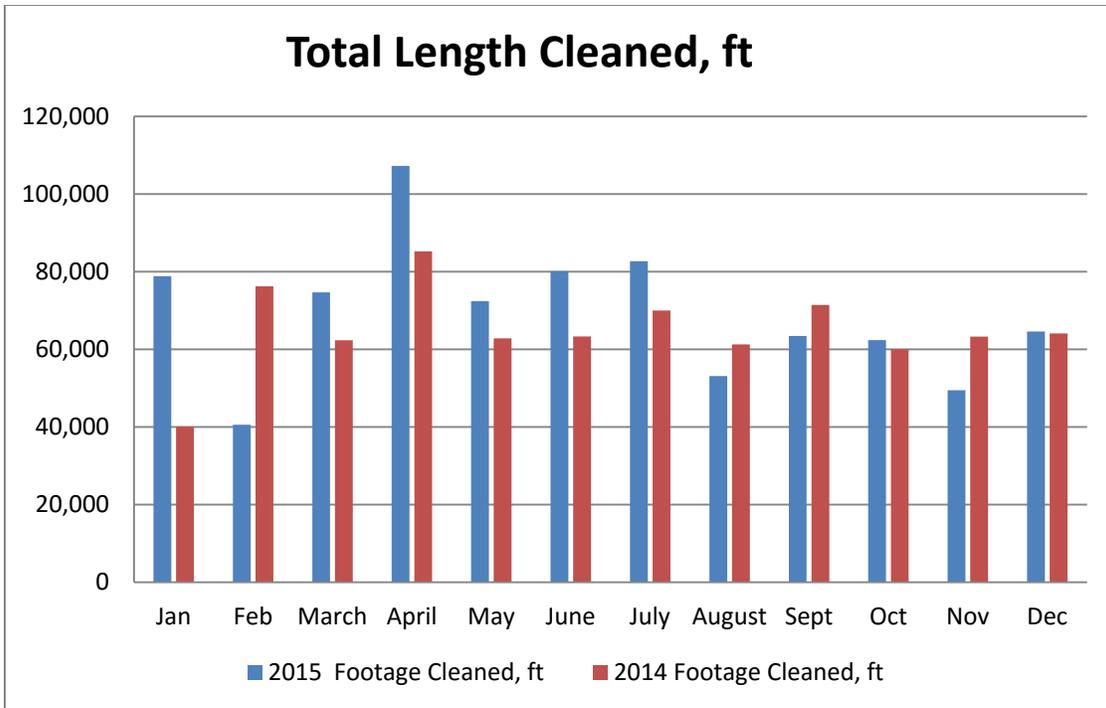


Figure 1: CY 2014 & CY 2015 - Total Footage Cleaned

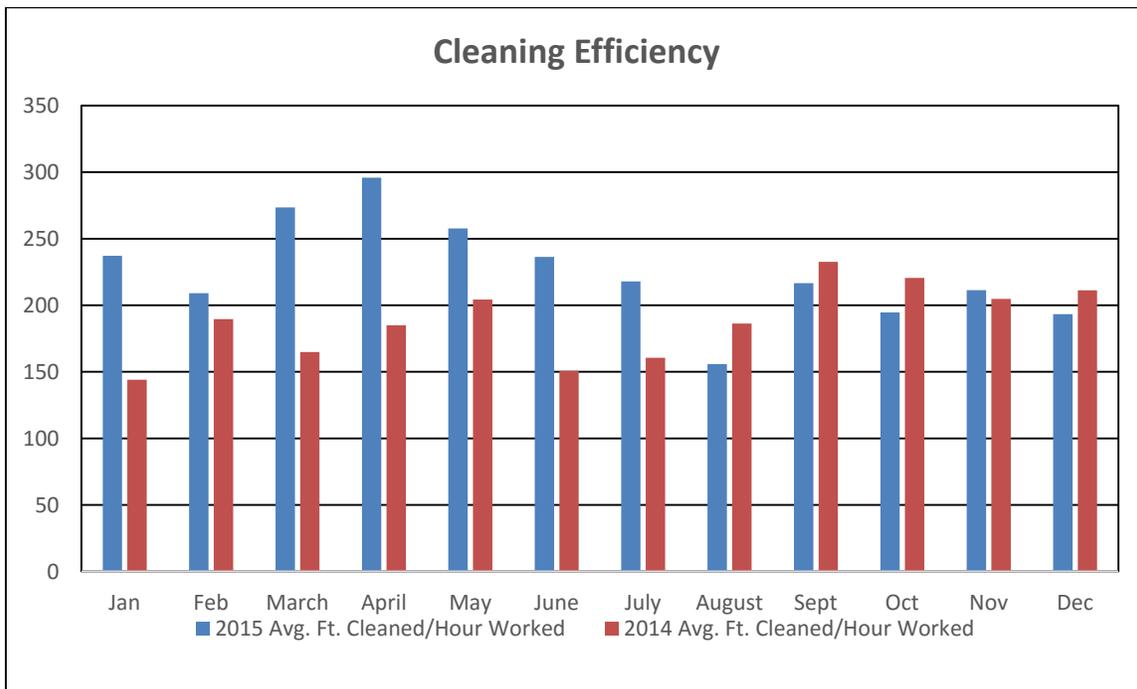


Figure 2: CY 2014 & CY 2015 - Average Ft. Cleaned/Hour Worked

Table 1. Number of SSOs, CY 2011-15

Size of SSO (gallons)	Number				
	2015	2014	2013	2012	2011
Greater than or equal to 1,000	2	3	5	5	4
From 100 to 999	3	5	2	4	4
From 1 to 99	8	3	3	9	6
Total	13	11	10	18	14

Table 2: Volume of SSOs – CY 2011-15

	Volume (gallons)				
	2015	2014	2013	2012	2011
Total volume contained and returned to sewer system for treatment	410	2,312	2,113	4,468	3,506
Total volume reaching waters of the State	3,887	33,013	8,921	12,077	18,157
Total volume not contained but not reaching waters of State (everything else)	822	0	281	8,247	53
Total	5,119	35,325	11,315	24,792	21,663

Table 3: Causes of SSOs - CY 2011-15

Cause of SSO	Number				
	2015	2014	2013	2012	2011
Blockage:					
Roots	9	4	6	12	5
Grease	--	--	--	1	5
Debris	--	3	1	--	--
Debris from Laterals	2	--	1	1	2
Pipe failure	1	--	1	--	--
Vandalism	--	--	--	--	1
Multiple Causes	--	--	--	--	--
Subtotal for Blockage	12	7	9	14	13
Infrastructure Failure	1	--	--	--	--
Cleaning Operations	--	--	--	--	--
Contractor Error	--	--	--	2	1
By-Pass Pump/Pump Station Failure	--	1	--	--	--
Flow Capacity Deficiency	--	--	--	--	--
Natural Disaster	--	--	--	--	--
Excessive I&I	--	3			
Operator Error	--	--	1	2	--
Construction damage	--	--	--	--	--
Cause Unknown	--	--	--	--	--
Total	13	11	10	18	14

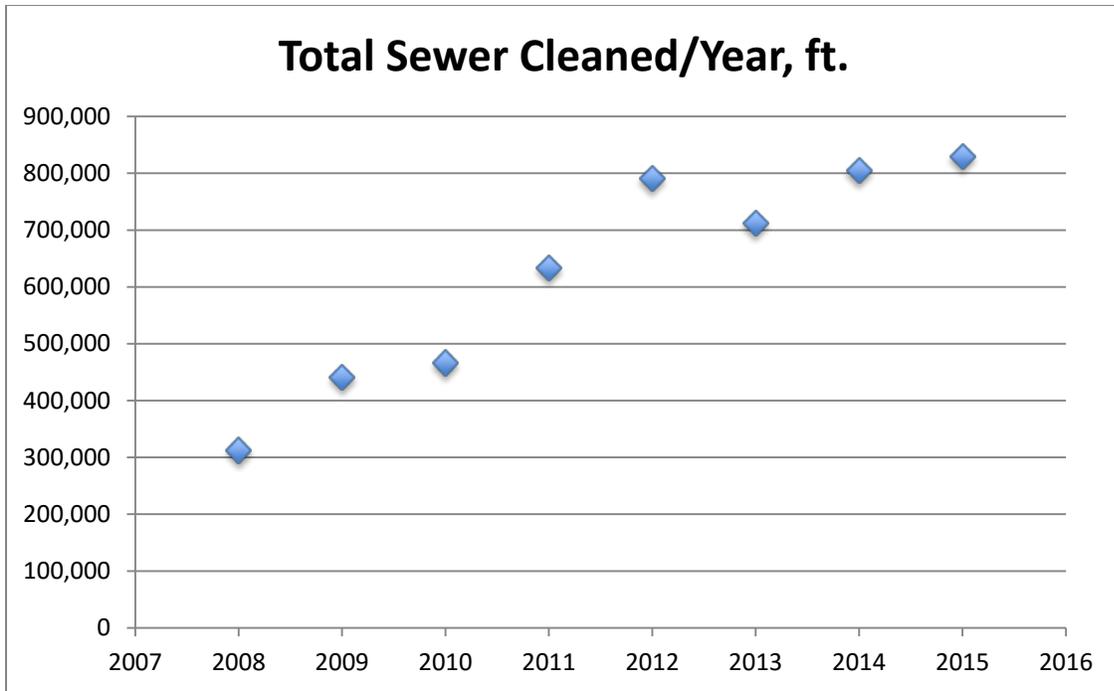


Figure 3(a): SSMP Effectiveness – Annual Productivity Comparisons

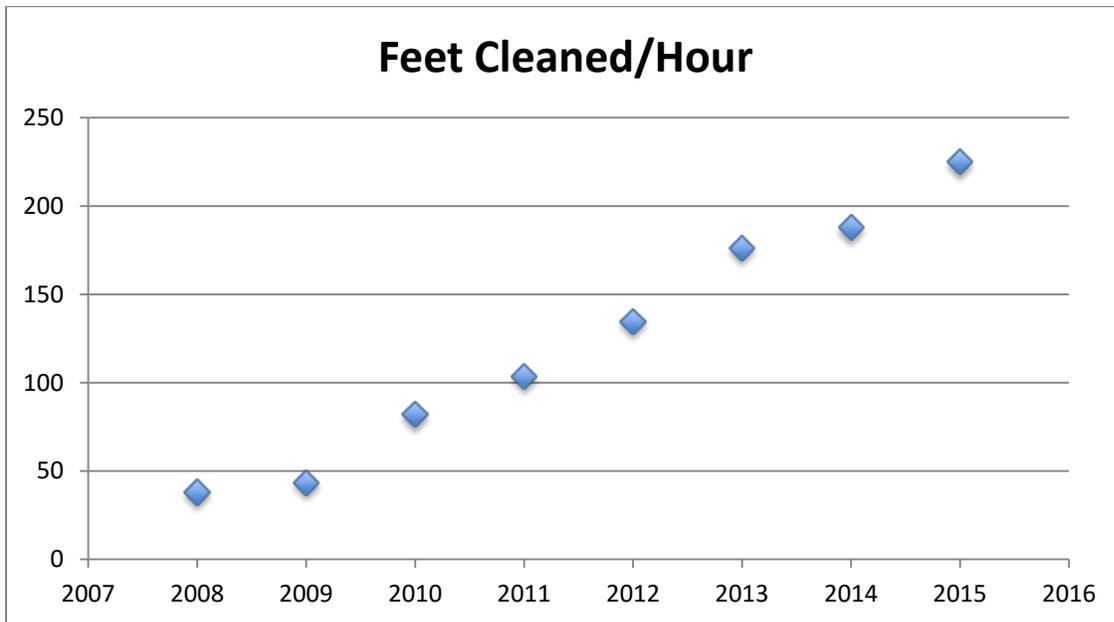


Figure 3(b): SSMP Effectiveness – Annual Productivity Comparisons

Table 4: Collection System Projects, FY13-14 & FY14-15 - Construction Costs

Project Name	Project Description	Lineal Feet	Costs
Olive Avenue Force Main Rehabilitation Project	Rehabilitate existing 27" Techite Force Main	2,250	\$1,618,246
East Hamilton, Marin Village & Bahia Pump Station Improvements	Install drainage & emergency bypass improvements	N/A	\$132,250
Pump Station Rehabilitation Project-Unit 5	Reconstruct Digital Drive & Los Robles Pump Stations	N/A	\$1,209,295
Hill Road/Redwood Blvd Rehabilitation Project	Replace approximately 199 LF of 6" sewer main.	199	\$78,128
Hamilton Trunk Sewer Rehabilitation Project	Replace 900 LF of 24" Trunk Sewer	900	\$587,228
Ignacio Transfer Pump Station Wet Weather Improvements	Expand wet weather equalization capacity.	N/A	\$162,238
Other Sewer Repair Projects	Spot repairs, repair/replace rod inlets, sewer main sections, manholes, etc.	N/A	\$234,147
Totals			\$4,021,532

**Appendix A: December 2014 and December 2015 District
Board of Directors Wastewater Operations Committee
Reports (Collection System related portions only)**

Appendix B: 2014-15 SSMP Audit Checklist

**Novato Sanitary District
Biennial Sewer System Management Plan Audit Form
2016**

The purpose of the Sewer System Management Plan (SSMP) Audit is to evaluate the effectiveness of Novato Sanitary District's (NSD) SSMP and to identify deficiencies, if any, and steps to correct them. The audit is submitted pursuant to the requirements included in the State Water Resources Control Board Order No. 2006-0003-DWQ and San Francisco Bay Regional Water Quality Control Board's Sewer System Management Plan Development Guide, July 2005. Information collected in the Annual Report of Sanitary Sewer Overflows is used in preparing this audit and therefore the two reports are intended to be submitted simultaneously.

Directions: Please circle **YES** or **NO** for each question. To answer the following questions refer to the text of the SSMP Element, any referenced material in the text, all corresponding Attachments, and any data collected to assist in assessing SSMP effectiveness. For any **NO** responses describe the updates or changes needed and the timeline to completion in "Description of Scheduled Updates/Changes to the SSMP" on Page 5 of this form.

ELEMENT I. GOALS

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

ELEMENT II. ORGANIZATION

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

ELEMENT III. OVERFLOW EMERGENCY RESPONSE PLAN

3. Does the SSMP contain or reference an up-to-date version of NSD's Overflow Emergency Response Plan? YES / NO
4. Considering the information in the Annual SSO Report, is the Overflow Emergency Response Plan effective in handling SSOs? YES / NO

ELEMENT IV. FATS, OILS, AND GREASE (FOG) CONTROL PLAN

5. Does the SSMP reference up-to-date information about NSD's FOG control program? YES / NO
6. Based upon information in the SSO Annual Report, is the current FOG program effective in documenting and controlling FOG sources? YES / NO

ELEMENT V. LEGAL AUTHORITY

7. Does the SSMP reference up-to-date information about NSD's legal authority? YES / NO
8. Does NSD have sufficient legal authority to control sewer use and YES / NO

maintenance?

ELEMENT VI. MEASURES AND ACTIVITIES

a. COLLECTION SYSTEM MAPS

9. Does the SSMP reference up-to-date information about NSD's maps? YES / NO
10. Are NSD's collection system maps complete, up-to-date, and sufficiently detailed? YES / NO

b. RESOURCES AND BUDGET

11. Does the SSMP reference up-to-date information about NSD's resources and budget? YES / NO
12. Are NSD's resources and budget sufficient to support effective sewer system management? YES / NO
13. Do NSD's planning efforts support long-term goals? YES / NO

c. PRIORITIZED PREVENTIVE MAINTENANCE

14. Does the SSMP reference up-to-date information about NSD's preventive maintenance activities? YES / NO
15. Based upon information in the Annual SSO Report, are NSD's preventive maintenance activities sufficient and effective in reducing and preventing SSOs and blockages? YES / NO

d. SCHEDULED INSPECTIONS AND CONDITION ASSESSMENT

16. Does the SSMP reference up-to-date information about NSD's inspections and condition assessment? YES / NO
17. Is NSD's scheduled inspections and condition assessment system effective in locating, identifying, and addressing deficiencies? YES / NO

e. CONTINGENCY EQUIPMENT AND REPLACEMENT INVENTORIES

18. Does the SSMP reference up-to-date information about equipment and replacement inventories? YES / NO
19. Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance? YES / NO

f. TRAINING

20. Does the SSMP reference up-to-date information about NSD's training expectations and programs? YES / NO
21. Do supervisors believe that their staff are sufficiently trained? YES / NO
22. Are staff satisfied with the training opportunities and support offered to YES / NO

them?

g. OUTREACH TO PLUMBERS AND BUILDING CONTRACTORS

23. Does the SSMP reference up-to-date information about NSD’s outreach to plumbers and building contractors? YES / NO
24. Has NSD conducted or participated in any outreach activities to plumbers and building contractors? YES / NO

ELEMENT VII. DESIGN AND CONSTRUCTION STANDARDS

25. Does the SSMP contain or reference up-to-date information about NSD’s design and construction standards? YES / NO
26. Are design and construction standards, as well as standards for inspection and testing of new and rehabilitated facilities sufficiently comprehensive and up-to-date? YES / NO

ELEMENT VIII. CAPACITY MANAGEMENT

27. Does the SSMP reference up-to-date information about NSD’s capacity assessment? YES / NO
28. Has NSD completed a capacity assessment and identified and addressed any hydraulic deficiencies in the system? YES / NO

ELEMENT IX. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

29. Does the SSMP reference up-to-date information about NSD’s data collection and organization? YES / NO
30. Is NSD’s data collection and organization sufficient to evaluate the effectiveness of the SSMP? YES / NO

ELEMENT X. SSMP AUDITS

31. Will this SSMP Audit be submitted with the Annual Report to the Regional Water Board by March 15? N/A

ELEMENT XI. COMMUNICATION PROGRAM

32. Has NSD effectively communicated with the public and other agencies about the development, implementation and performance of the SSMP? YES / NO
33. Has NSD provided the public the opportunity for input as the program is developed and implemented? YES / NO

Evaluation of the Effectiveness of the SSMP

Directions: Include information on evaluation of effectiveness of the SSMP (performance measures, etc.)

Response: See Section 4 – SSMP above.

Description of Scheduled Updates/Changes to the SSMP

Directions: For each question answered NO, please reference the SSMP Element and the audit question number when describing the content of any updates/changes needed and the timeline to completion.

Element II Organization:

Question 2. Is the SSMP up-to-date with NSD organization and staffing contact information? No.

Due to organizational changes, retirements and new staff members, the SSMP did not contain the most current organization and staffing contact information. Current contact information is updated frequently in a staff directory and is available to all staff members. Organization and staffing contact info will be updated in the 2016 Biennial SSMP Update.

NOVATO SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN (SSMP)
SECTION ELEVEN - COMMUNICATION PROGRAM

11.1 SSMP Requirements

11.1.1 SFRWQCB Requirement

None.

11.1.2 SWRCB Requirement

GWDR SSMP Element 11: The District 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 District as the program is developed and implemented.

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

11.2 Communication Plan Discussion

11.2.1 District Website/Social Media

The District maintains a website (www.novatosan.com) and a Facebook page to inform the public about its activities. Typical information available on the website includes general information about the District (including its collection system), District regulations, ordinances and codes, permit forms, pollution prevention materials, community links, and general water education information. The web-site also serves to update the public on the District's construction projects or as a tool to convey any late-breaking news. Contact information for the District as well as individual staff members is available on the website. Viewers can also contact the District directly via an e-mail web-link on the website.

The District also provides a summary of its SSOs on its web-site at the following link:
http://www.novatosan.com/assets/uploads/documents/collection_system_overflows.pdf

This link is updated monthly, to reflect at least the prior 12-months of SSO related information.

11.2.2. Newsletters, Press Releases, etc.

The District publishes periodic newsletters and issues periodic press releases to the local newspapers (the Marin Independent Journal, the Novato Advance, the Pacific Sun and Novato Patch), the Novato chamber of Commerce, and the Downtown Novato Business Association, to inform the public about its activities.

Information on the development and implementation of SSMP elements will be included in the District's newsletter. District staff reports on the progress of SSMP development and implementation periodically at the District's Board Meetings, which are held twice a month (on the second and fourth Mondays) and are open to the public. Staff also updates the Board as applicable on the status of collection system projects, as they are planned and executed.

11.2.3 Mailings and Mailing Lists

The District maintains a database (mailing list) of its customers which it utilizes as part of its newsletter mailings. The District also maintains a mailing list of interested entities that request agenda packages for its Board meetings for generic or specific reasons. Board meeting packages are mailed to these parties. Minutes from the Board Meetings are also available on the District's website.

11.2.4 Satellite and Tributary Systems

The District owns, operates and maintains its own collection system and does not have any satellite systems.

ATTACHMENT 11A: EXAMPLES OF RECENT NEWSLETTERS

District Newsletters can be viewed on the District's website:

[Click Here](#)