Overflow Emergency Response Plan

February 2020

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Background

This Overflow Emergency Response Plan (OERP) has been prepared in compliance with the State Water Resources Control Board (SWRCB) Order 2006-0003: Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (GWDR), as revised by Order No. WQ 2008-0002.EXEC on February 20, 2008 and amended by SWRCB Order No. WQ 2013-0058 EXEC in July of 2013. The GWDR prohibits sanitary sewer overflows (SSOs), requires reporting of SSOs using the statewide electronic reporting system, and requires the development and implementation of a Sewer System Management Plan (SSMP).

This OERP has been prepared by the City of Alameda (City) with assistance from RMC Water and Environment.

Definitions, Acronyms, and Abbreviations

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

Calendar Year (CY)

California Integrated Water Quality System (CIWQS) - Refers to the State Water Resources Control Board online electronic reporting system that is used to report SSOs, certify completion of the SSMP, and provide information on the sanitary sewer system. The electronic reporting requirement became effective on May 2, 2007 for Region 2.

Capital Improvement Program (CIP) - Refers to the document that identifies planned capital improvements to the City's sanitary sewer system.

City - Refers to the City of Alameda.

Closed Circuit Television (CCTV) - Refers to the process and equipment that is used to internally inspect the condition of gravity sewers.

Computerized Maintenance Management System (CMMS)

East Bay Municipal Utility District (EBMUD)

Fats, Oils, and Grease (FOG) - Refers to fats, oils, and grease typically associated with food preparation and cooking activities that can cause blockages in the sanitary sewer system.

Feet per Second (fps)

First Responder – Refers to the City employee who provides the City's initial response to a sewer system event.

Fiscal Year (FY)

Food Service Establishment (FSE) - Refers to commercial or industrial facilities where food is handled, prepared, and/or served that discharge to the sanitary sewer system.

Force Main - Refers to a pressure sewer used to convey wastewater from a pump station to the point of discharge.

General Waste Discharge Requirements (GWDR) - Refers to the State Water Resources Control Board Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006, as revised on February 20, 2008.

Geographical Information System (GIS) - Refers to the City's system that it uses to capture, store, analyze, and manage geospatial data associated with the City's sanitary sewer system assets.

Global Positioning System (GPS) - Refers to the handheld unit used to determine the longitude and latitude of sanitary sewer overflows for use in meeting CIWQS reporting requirements.

Gallons per Day (GPD)

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

Lateral - See sewer service lateral.

Legally Responsible Official (LRO) - Refers to the individual who has the authority to certify reports and other actions that are submitted through CIWQS.

Lower Lateral – Refers to the portion of the sewer service lateral between the property line and the public sewer

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

Monitoring and Reporting Program (MRP) **–** Refers to the Monitoring and Reporting Program associated with SWRCB Order No. 2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, as revised by WQ 2013-0058-EXEC.

National Pollution Discharge Elimination System (NPDES)

National Response Corporation (NRC)

Office of Emergency Services (OES) - Refers to the California Governor's Office of Emergency Services which is part of the California Emergency Management Agency.

Operation and Maintenance (O&M)

Overflow Emergency Response Plan (OERP)

Preventative Maintenance (PM) - Refers to maintenance activities intended to prevent failures of the sanitary sewer system facilities (e.g. cleaning, CCTV, inspection).

Public Works Supervisor **–** Refers to the Sewer and Plumbing Operations Supervisor.

Regional Water Quality Control Board (RWQCB) - Refers to the San Francisco Bay Regional Water Quality Control Board.

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

- Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;
- Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and
- 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.

Sanitary Sewer System - Refers to the portion of the sanitary sewer facilities that are owned and operated by the City of Alameda.

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

Sewer Service Lateral - Refers to the piping that conveys sewage from the building to the City's sewer system.

Sewer System – See Sanitary Sewer System.

Sewer System Management Plan (SSMP)

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

Surface Waters – See *Water of the State*.

Waste Discharge Identification Number (WDID) **-** *Waste Discharge Identification number is a unique identifier assigned by the State Water Board to each Enrollee for regulatory record and data management purposes. City of Alameda's WDID is 2SSO10087.*

Wastewater Collection System **-** See Sanitary Sewer System.

Water Body – A water body is any stream, creek, river, pond, impoundment, lagoon, wetland, or bay.

Water of the State – Water of the State means any water, surface or underground, including saline waters, within the boundaries of California. In case of a sewage overflow, storm drains are considered to be waters of the State unless the sewage is completely contained and returned to the sewer system and that portion of the storm drain is cleaned.

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

Section 1. Introduction

1.1. Purpose

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

1.2. Regulatory Requirements for OERP Element of SSMP

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.

1.3. Goals

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

- Respond quickly to minimize the volume of the SSO;
- Contain the overflowed wastewater to the extent feasible;
- Eliminate the cause of the SSO;
- Minimize public contact with the overflowed wastewater;
- Mitigate the impact of the SSO; and
- Meet the regulatory reporting requirements.

Section 2. SSO Detection and Notification

The processes that are employed to notify the City of the occurrence of an SSO include observation by the public, receipt of an alarm, or observation by City staff during the normal course of their work. The notification and response procedure flow chart is shown in **Figure 2-1**.

2.1. Public Observation

Public observation is the most common way that the City is notified of blockages and SSOs. Contact information for reporting SSOs and backups is in the phone book and on the City's website: www.alamedca.gov. The direct line to Public Works is (510) 747-7930. If the public contacts the local police, fire, or other city department, calls are forwarded to the Public Works Department during business hours and to the on call staff after hours. A summary of the response and notification process is shown in **Figure 2-1**.

2.1.1. Normal Work Hours

The City's regular working hours are Monday through Friday from 8:00 a.m. to 6:00 p.m., except holidays. When a report of a SSO or backup is made during normal work hours, Public Works administrative staff receive the call, takes information from the caller, and dispatches the appropriate staff.

The information regarding the service call is documented on a "Receiving a Sewer Service Call Report" (**Appendix K**), which is then scanned and uploaded to SeeClickFix, the City's customer relations manager.

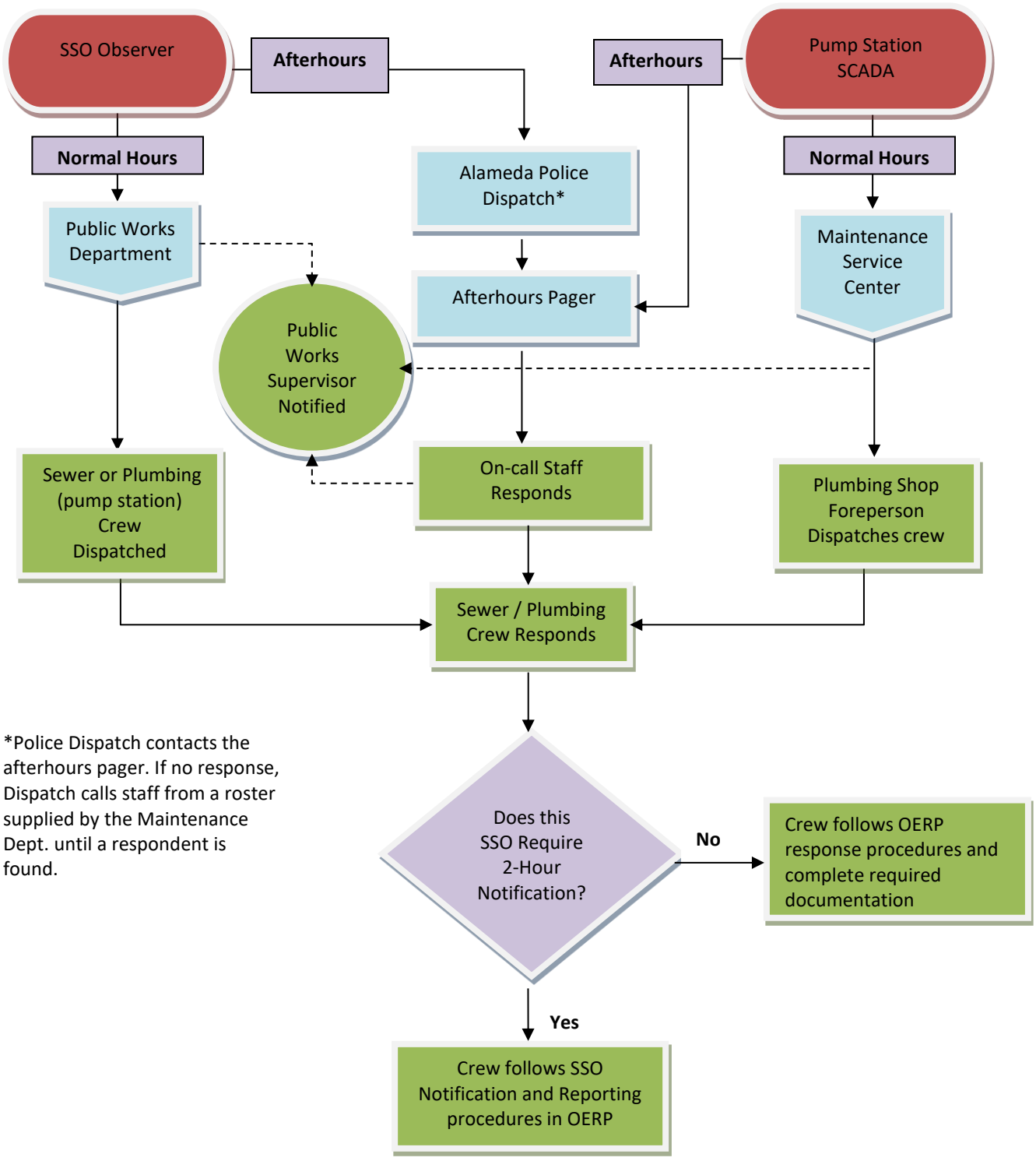
2.1.2. After Hours

If a call comes to the Public Works Department after hours, they are directed to press a number to connect to police dispatch in case of an emergency. The Public can also contact Police Dispatch directly at (510) 337-8340. Police Dispatch contacts the afterhour's pager that the on call staff member carries and is responsible for responding to. The pager also receives alarm signals from the pump station SCADA monitoring system.

If the pager holder on-call staff member does not respond back to the page, Police Dispatch has a backup list of phone numbers, including the Sewer Shop Foreperson and Public Works Supervisor. The Police Dispatcher continues to call Public Works staff until one can be reached to respond to the call. Police Dispatch communicates the information received to the respondent staff member.

After hours response information is entered directly into Lucity, the City's maintenance management system, by the on-call staff member.

Figure 2-1: Notification and Response Procedure Flow Chart



*Police Dispatch contacts the afterhours pager. If no response, Dispatch calls staff from a roster supplied by the Maintenance Dept. until a respondent is found.

Flow Chart Version_021020

2.2. City Staff Observation

Maintenance staff may observe sewer system emergencies while performing their routine activities. Maintenance Staff are instructed to report problems to the general Public Works Department number so administrative staff can receive the call and follow the procedures to document and dispatch staff for the incident. Any other City staff that observe a sewer issue are instructed to forward any reports of sewer problems to the Public Works Department.

2.3. Alarms

Pump station alarms are transmitted via SCADA to the Maintenance Service Center during working hours. Police Dispatch receive SCADA alarms after hours and when they do, they contact the afterhour's pager. The on call staff member carrying the pager is designated as the first responder.

Section 3. SSO Response Procedures

Sewer service calls are considered high priority events that demand a prompt response. Responders follow the procedures in this OERP to execute a responsible SSO response.

3.1. First Responder Priorities

The first responder's priorities are:

- To follow safe work practices.
- To respond promptly with the appropriate equipment.
- To contain the overflow wherever feasible.
- To restore the flow as soon as practicable.
- To minimize public access to and/or contact with the overflowed sewage.
- To determine start time and photograph the incident, when possible.
- To promptly notify the Public Works Supervisor in event of major SSO.
- To return the overflowed sewage to the sewer system.
- To restore the area to its original condition (or as close as possible).

3.2. Safety

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

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

3.3. 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 should:

- Note arrival time at site using SSO Report form. The report form is included in **Appendix C**.
- Identify and assess the affected area and extent of the overflow.
- Verify if overflowed sewage is present and caused by failure/blockage in the public system (note appearance point(s), and
- Contain the overflow and return sewage to the City sewer system
- Take photographs and contact caller if time permits.
- Notify the Public Works Supervisor (working hours and after hours):
    - If the SSO appears to be flowing to a storm drain, is in a sensitive area, or if there is doubt regarding the extent, impact, or how to proceed.
    - If additional help is needed.

3.4. Initiate SSO Containment Measures

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

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

3.5. 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 recur downstream. Crew should attempt to capture the blocked material and remove to evaluate the cause of the blockage.

If the blockage cannot be cleared within a reasonable time (15 minutes), or the sewer requires construction repairs to restore flow, then initiate containment and/or bypass pumping. If assistance is required, immediately contact the Public Works Supervisor who will contact other employees, contractors, and equipment suppliers.

3.6. Water Quality Sampling and Testing

Although the MRP requires water quality sampling for Category 1 SSOs in which 50,000 gallons or greater reach surface waters, the City will perform water quality sampling for SSOs larger than 1,000 gallons that reach any lagoon within the City and for SSOs larger than 5,000 gallons that reach other surrounding water bodies (note: there are no streams or creeks in Alameda). The City will keep all water quality sampling results in the SSO file and will upload water quality results into CIWQS only for Category 1 SSOs in which 50,000 gallons or greater reach surface waters, per MRP requirement. Water quality sampling should be collected as soon as possible after the discovery of the SSO event and in no case later than 48 hours after the City becomes aware of the SSO.

The water quality sampling procedures are:

- Per agreement, staff contacts EBMUD Field Inspections to collect samples at City's direction.
- The water quality samples should be collected near the point of sewage entry into the water body and 100 feet along the shore on either side of the entry location. A map should be created showing the location of each sample point.
- The EBMUD laboratory will analyze the results to determine the nature and impact of the discharge. Additional samples will be taken to determine when posting of warning signs can be discontinued. The basic analyses should include, enterococcus and ammonia nitrogen.
- For the lagoon systems, sampling should be continued until the test results are below the following daily maximum levels:
    - Enterococcus = no sample > 104 MPN/100 mL

Refer to the Water Quality Monitoring Program Plan in **Appendix I** for more detailed procedures on water quality sampling and analysis.

Section 5. Recovery and Clean-Up

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

5.1. Estimate the Volume of Overflowed Sewage

To estimate the volume of overflowed sewage, use the methods outlined on the back of the SSO Report Form (**Appendix C**) and refer to **Appendix F** if the Duration and Flow Method is needed. Wherever possible, document the estimate using photos of the SSO site before and during the recovery operation.

5.2. Recovery of Overflowed Sewage

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

5.3. Clean-up and Disinfection

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

5.3.1. *Private Property*

If the SSO is due to a failure/blockage in the public system, after stopping or reducing flow entering a building, ask the resident if you can enter the building to take photos and/or video to document the situation for the claims process. Advise the customer of the City claims procedure for damages and/or cleaning costs and provide the resident a Claims Form (**Appendix L**).

Document the incident details using the Private Property Incident Form included as **Appendix D**.

If the customer is not home, clean any exterior impacts and leave a City Door Hanger (**Appendix J**).

If an overflow occurs due to a blockage in a private lateral or private sewer system but has the potential to impact public property/infrastructure, the City will take action to contain and clean up the overflow.

If the SSO was caused by an upper lateral problem, inform the customer that it will be the property owner's responsibility to clean and restore the site. SSOs due to blockage in lower laterals in the public right-of-way are responded to, cleaned and restored by the City.

5.3.2. *Hard Surface Areas*

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

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

Disinfect all areas that were contaminated from the overflow using a disinfectant. Apply minimal amounts of the disinfectant using a hand sprayer.

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

5.3.3. *Landscaped and Unimproved Natural Vegetation*

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

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

Contain and/or vacuum up the wash water so that none is released and deposit it back to the sewer system.

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

5.3.4. *Humanmade Waterways (Lagoons)*

Install barricades with caution tape to keep the public from entering the lagoons. Post signs as discussed in Section 5.4 and perform sampling as in Section 3.6.

5.3.5. *Wet Weather Modifications*

Omit flushing and sampling during heavy storm events with heavy runoff where flushing is not required and sampling would not provide meaningful results.

5.4. Public Notification

Post signs and place barricades to keep vehicles and pedestrians away from contact with sewage. Do not remove the signs until clean-up is completed. A sample warning sign is included in **Appendix G**.

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

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

Major SSOs may warrant broader public notice. The Public Works Director will authorize contact with local media when significant areas may have been contaminated by sewage.

5.5. Failure Analysis Investigation

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

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

- The completed SSO Report form and available photographs
- Completed Receiving a Sewer Service Call Report
- Incident map
- Pump station records, if applicable
- Review of filed interview notes from response staff
- Review of past applicable maintenance records,
- CCTV inspection to determine the condition of the line segment immediately following the SSO and reviewing the video and logs, and
- Interview of staff that responded to the SSO.

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

Section 6. SSO Documentation and Reporting

All SSOs should be thoroughly investigated and documented in a specific, individual file for use in managing the sewer system and meeting established notification and reporting requirements. An SSO file should contain a completed SSO File Incident Checklist Form (**Appendix K**) and associated materials. The procedures for investigating and documenting SSOs are as follows.

6.1. SSO Categories

The California State Water Resources Control Board (SWRCB) has established guidelines for classifying and reporting SSOs. Reporting and documentation requirements vary based on the type of SSO.

There are three categories of SSOs as defined by the SWRCB[1]:

Table 6-1: SSO Categories and Definitions

CATEGORIES	CATEGORY DEFINITIONS
CATEGORY 1	Discharges of untreated or partially treated wastewater of **any volume** resulting from an enrollee's sanitary sewer system failure or flow condition that: • Reach surface water and/or reach a drainage channel tributary to a surface water, or • Reach a municipal separate storm sewer system 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	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	All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.
PRIVATE LATERAL SEWAGE DISCHARGE (PLSD)*	Discharges of untreated or partially treated wastewater resulting from blockages or other problems **within a privately owned sewer lateral** connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be voluntarily reported to the CIWQS Online SSO Database.

*In the City of Alameda, the property owns the entire lateral (upper and lower); however the City has maintenance responsibility for the lower lateral. Therefore only discharges that are caused by a failure/blockage from the upper are considered Private Lateral Sewage Discharges.

[1] Order No. WQ 2013-0058-EXEC (2013 amendment to Monitoring and Reporting Program associated with Order 2006-003-DWQ)..

6.2. Internal SSO Reporting Procedures

6.2.1. Category I & 2 SSOs

The Maintenance Service Center (working hours) or on-call staff (after hours) will immediately notify the Sewer Shop Foreperson and Public Works Supervisor.

The field crew will fill out the SSO Report form and turn it in to the Sewer Shop Foreperson. The Sewer Shop Foreperson will forward the report to the Public Works Supervisor.

In the event of a Category 1 overflow, the Public Works Supervisor or the Public Works Maintenance Superintendent may notify the Public Works Coordinator and/or Deputy Public Works Director. The Public Works Director may notify the City Manager and City Council.

6.2.2. Category 3 SSOs

The field crew will fill out the SSO Report form and turn it in to the Sewer Shop Foreperson. The Sewer Shop Foreperson will forward the report to the Public Works Supervisor.

6.3. External SSO Reporting Procedures

The California Integrated Water Quality System (CIWQS) electronic reporting system should be used for reporting SSO information to the SWRCB whenever possible. A summary table on reporting procedures is included below in **Table 6-2**. A flow chart is included as **Figure 6-1** showing the external reporting response requirements based on the type of SSO.

If an SSO reaches one of the lagoon systems in the City or the Robert Crown State Beach shoreline, additional notification to the impacted homeowner association and/or EBRPD, respectively, is required (see contact list in **Appendix B**).

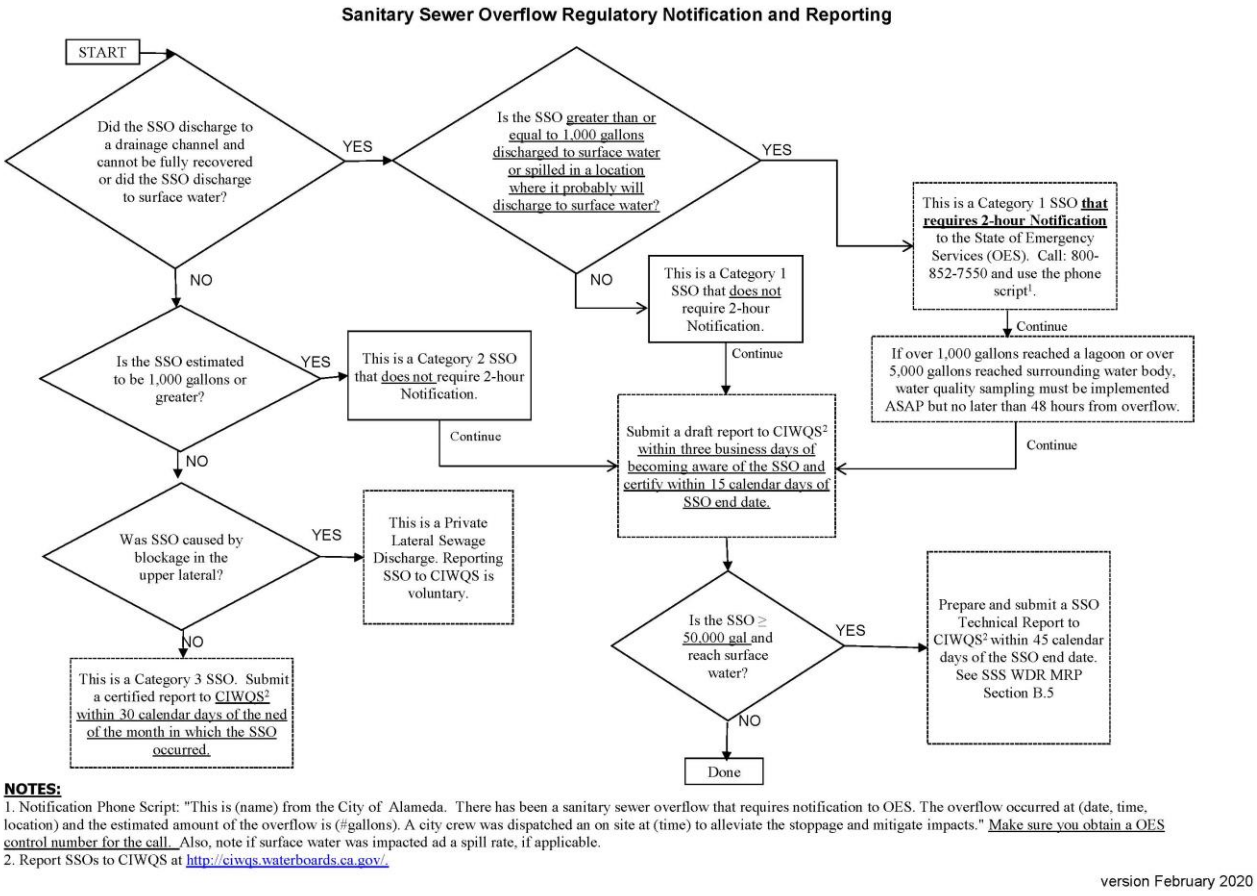
Table 6-2: Notification, Reporting, Monitoring, and Record Keeping Requirements*

ELEMENT	REQUIREMENT	METHOD
NOTIFICATION (see Section B*)	• Within 2 hours of becoming aware of any **Category 1 SSO greater than or equal to 1,000 gallons**, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.	Call Cal OES at: **(800) 852-7550**
REPORTING (see Section C*)	• **Category 1 SSO**: Submit Draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. • **Category 2 SSO**: Submit Draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. • **Category 3 SSO**: Submit Certified report within 30 calendar days of the end of month in which SSO occurred. • **SSO Technical Report**: Certify within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater is spilled to surface waters. • **"No Spill" Monthly Certification**: Certify that no SSOs occurred within 30 calendar days of the end of the month in which no SSOs occurred. • **Collection System Questionnaire**: Update and Certify every 12 months.	Enter data into the California Integrated Water Quality System (CIWQS) Online SSO Database (http://ciwqs.waterboards.ca.gov/), certified by enrollee's Legally Responsible Official(s).
WATER QUALITY MONITORING (see Section D)**	• Conduct water quality sampling **within 48 hours** after initial SSO notification for **Category 1 SSOs** in which **50,000 gallons or greater** is spilled to surface waters.	Water quality results are required to be uploaded into CIWQS for **Category 1 SSOs in which 50,000 gallons or greater** is spilled to surface waters.
RECORD KEEPING (see Section E)**	• SSO event records. • Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to 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.

*In the event that CIWQS is not available, the Public Works Supervisor will call the RWQCB SSO Hotline and leave a voice message with all required information in accordance with the time schedules identified above. In such event, the City will submit the appropriate reports using CIWQS as soon as practical. The RWQCB SSO Hotline is (510) 622-2369.

**Refers to section in Order No. WQ 2013-0058-EXEC (2013 amendment to Monitoring and Reporting Program associated with Order 2006-003-DWQ).

Figure 6-1: Regulatory Reporting Flow Chart



6.3.1. *Category 1 SSOs Greater than or Equal to 1,000 gallons that Reach Waters of the State*

If a Category I SSO greater than or equal to 1,000 gallons results in a discharge to waters of the State (a drainage channel or a surface water, if not fully recovered), the following reporting requirements apply:

Within two hours of becoming aware of the SSO event, the Public Works Supervisor, or their designee, will:

- Notify California Office of Emergency Services (CalOES) and obtain an identification number for use in other reports;

Within 3 business days of being notified of the SSO event, the Public Works Supervisor, or their designee, will submit a draft SSO report using CIWQS.

Within 15 calendar days of the SSO end date, a LRO that knows and understands the SSO event will certify the final report using CIWQS.

The Public Works Superintendent, or their designee, will update the certified report as new or changed as information becomes available. Reports can only be amended within 120 calendar days after SSO end date. Amended report needs to be certified by the LRO.

6.3.2. *Category 2 SSOs*

Within 3 business days of being notified of the SSO event, the Public Works Supervisor, or their designee, will submit a draft SSO report using CIWQS.

Within 15 calendar days of the SSO end date, a LRO that knows and understands the SSO event will certify the final report using CIWQS.

The Public Works Superintendent, or their designee, will update the certified report as new or changed information becomes available. Reports can only be amended within 120 calendar days after SSO end date. Amended report needs to be certified by the LRO.

6.3.3. *Category 3 SSOs*

Within 30 calendar days after the end of the calendar month in which the SSO occurs, the Public Works Supervisor, or their designee, will submit an electronic report using CIWQS and a LRO that knows and understands the SSO event will certify the final report using CIWQS.

The report will include the information to meet the GWDR requirements.

6.3.4. *SSO Technical Report*

A LRO will submit ad certify a SSO Technical Report in the CIWQS Online SSO Database within 45 calendar days of the SSO end date for any SSO in which 50,000 gallons or greater reach surface waters. This report will include the following:

Causes and Circumstances of the SSO:

a) Complete and detailed explanation of how and when the SSO was discovered.

b) Diagram showing the SSO failure point, appearance point(s), and final destination(s).

c) Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.

d) Detailed description of the cause(s) of the SSO.

e) Copies of original field crew records used to document the SSO.

f) Historical maintenance records for the failure location.

City's Response to SSO:

a) Chronological narrative description of all actions taken by enrollee to terminate the SSO.

b) Explanation of how the City's OERP was implemented to respond to and mitigate the SSO.

c) Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.

Water Quality Monitoring:

a) Description of all water quality sampling activities conducted including analytical results and evaluation of the results.

b) Detailed location map illustrating all water quality sampling points.

6.3.5. *Private Lateral Sewage Discharges*

The Public Works Supervisor may report private lateral SSOs to the SWRCB (using CIWQS) **at the City's discretion**, specifying that the sewage discharge occurred and was caused by a private lateral and identifying the responsible party (other than the City), if known. Voluntary Private Lateral Sewage Discharge (PLSD) reports in CIWQS do not require certification.

6.3.6. *No SSO Certification (Monthly)*

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

6.3.7. *SSO enters Lagoon Systems*

Each of the lagoon systems under the City's management has gate barriers that separate the lagoon water from the Bay water body. The City can control these gates in order to contain the water or discharge the water to the Bay, and therefore has the capability to prevent any overflowed wastewater from entering the Bay by keeping the gates closed. In the case of overflow to a lagoon, the City has a response plan that involves containment, drainage, and treatment of lagoon waters.

6.3.7.1. South Shore Lagoon System

In the event an SSO enters the South Shore Lagoon, the Public Works Supervisor will notify the Alameda West Home Owners Association (HOA) President. Contact information is included in **Appendix B** of this OERP.

6.3.7.2. Bay Farm Island Lagoon System

In the event an SSO enters one of the Bay Farm Island Lagoons, the Public Works Supervisor will notify Harbor Bay Security. The Harbor Bay Security number is (510) 865-0417.

6.4. Internal SSO Documentation

6.4.1. *Category 1, 2, & 3 SSOs*

The first responder will complete the SSO Report Form and provide to the Sewer Shop Foreperson. The Sewer Shop Foreperson will review and forward the report to the Public Works Supervisor.

If applicable, the first responder will complete the Private Property Incident Form (**Appendix D**) if an SSO has occurred in a residence or building and provide to the Sewer Shop Foreperson. The Sewer Shop Foreperson will review and forward the report to the Public Works Supervisor. The Public Works Supervisor will keep a copy of the form for the SSO file and email a copy to the City's Risk Management Department (mhung@alamedaca.gov).

The Public Works Supervisor will create and maintain a separate, individual file for each SSO. The file should include an SSO Incident Checklist Form (**Appendix K**) and associated materials.

6.5. SSO Record Keeping Requirements[2]

The GWDR and MRP require that individual SSO records be maintained by the City for a minimum of **five years** from the date of the SSO. This period may be extended when requested by a Regional Water Quality Control Board Executive Officer.

All records shall be made available for review upon SWRCB or RWQCB staff's request during on-site inspection or through an information request. Records shall be retained for all SSOs, including but not limited to the following when applicable:

[2] State Water Resources Control Board Monitoring and Reporting Program No. 2006·0003-DWQ (as revised by Order No. WQ 2008-0002.EXEC and WQ 2013-0058-EXEC), Statewide General Waste Discharge Requirements for Sanitary Sewer Systems

- Service call records and complaint logs of calls received by the City, documenting how the City responded to all notifications of possible or actual SSOs (including complaints that do not result in SSOs), including:
- Date, time, and method of notification
- Date and time the complainant or informant first noticed the SSO
- Narrative description of the complaint, including any information the caller can provide regarding whether or not he/she knows if the SSO has reached surface waters, drainage channels, or storm drains
- Follow-up return contact information for complainant or informant for each complaint received, if not reported anonymously
- Final resolution of the complaint;
- Electronic monitoring records relied upon for documenting SSO events and/or estimating SSO volume discharged, including:
- Supervisory Control and Data Acquisition (SCADA) systems
- Alarm systems
- Flow monitoring devices or other instruments used to estimate wastewater levels, flow rates, or volumes
- Records documenting steps and/or remedial actions take to control and terminate the SSO and recover as much of the discharged volume as possible;
- Records documenting how estimates of volume discharged and volume recovered were calculated.

If water quality samples are required by an environmental or health regulatory agency or State law or if voluntary monitoring is conducted by the City or its agent(s) as a result of any SSO, records of monitoring information shall include:

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

Section 7. Equipment

This section provides a list of specialized equipment that is required to support this Overflow Emergency Response Plan. The City has recently acquired a dedicated SSO Response Vehicle to improve its response capabilities. A more detailed list of SSO response equipment used for SSO response is provided in **Appendix H**.

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

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

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

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

Portable Generators, Portable Pumps, Piping, and Hoses -- The list of portable equipment that is required to support this plan is included in the Sewer System Management Plan.

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

Backup Combination Vactor Trucks – Also used to vacuum sewage and wash down the impacted area following the SSO event.

Section 8. SSO Response Training

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

8.1. Initial and Annual Refresher Training

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

8.2. SSO Response Drills

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

8.3. Tailgate Sessions

The Maintenance Service Center holds monthly tailgate meetings that cover a variety of topics applicable to their responsibilities and safety requirements. SSO emergency response is a topic at these tailgate sessions on a routine basis.

8.4. SSO Training Record Keeping

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

8.5. Contractors Working on City Sewer Facilities

Any contractors that work or otherwise utilize the sewer system are required to comply with all legal requirements associate with SSO responses, be provided a copy of the City's OERP and have knowledge of the City's response procedures and requirements.

Appendices

A: SSO Standard Operating Procedure
B: Emergency Contact List
C: SSO Report Form
D: Private Property Incident Form
E: Collection System Failure Analysis Form
F: Duration and Flowrate Method for Estimating SSO Volume
G: Sample Warning Signs
G: SSO Response Equipment
I: Water Quality Monitoring Program Plan
J: Door Hanger
K: Receiving a Sewer Service Call Report
L: City Claim Form

Appendix B: Emergency Contact List

City of Alameda	
Public Works Director: Erin Smith	(510) 747-7938; cell (415) 812-3746
Deputy Public Works Director: Vacant	
Public Works Supervisor: Emanuel Rios	(510) 747-7922; cell (510) 514-5186
Public Works Foreperson: Vacant	
Plumbing Shop Team Leader: Victor Erdei	(510) 747-7900; cell (510) 506-6146
San Francisco Bay Regional Water Quality Control Board	
Michael Chee	(510) 622-2312 (Monday-Friday, 8am-5pm)
SSO Hotline (only if electronic reporting not available)	(510) 622-2369 (leave message with SSO information)
California Office of Emergency Services	
Hazardous Notification	(800) 852-7550
Randy Schulley, Chief of Warning Center	(916) 845-8911
California Department of Fish and Wildlife	
Bay Delta Regional Office	(707) 944-5500
East Bay Regional Parks District	
Public Safety Dispatch	(510) 881-1833
Water Quality for Crown Beach, Hal Maclean (hmaclean@ebparks.org)	(510) 285-7627
East Bay Municipal Utilities District (EBMUD)	
Adam Kern, FOG Program Coordinator	(510) 287-1065
Water Quality Sampling (EBMUD)	
Flo Gonzalez, Supervising Wastewater Control Inspector	Monday-Friday, 8am-4:30pm (510) 287-1655; cell (510) 385-6156
Alameda West Home Owners Association	
President, Pete Grosser	petegrosser@gmail.com; (415) 948-3523
Bay Farm Island Lagoons	
Harbor Bay Security	(510) 865-0417
Alameda County Health	
Business Hours	510-267-8000

Business Hours: PW Admin takes Sewer Service Call and dispatches Maint. Staff or Maint. Staff responding to SCADA alarm.

Non-Business Hours: Police Dispatch takes Sewer Service Call or sees SCADA Alarm and contacts On call Pager. On call Staff member is responder.

RESPONDER START HERE

Is SSO in area where public contact may occur?

Yes

1. Use barricades with "Sanitary Sewer Overflow" sign and caution tape to divert traffic and pedestrians, as necessary.
2. Photograph any area where warning signs or barricades are posted, as appropriate.

If raw sewage reached lagoon:

1. PW Supervisor contacts Alameda West Lagoon HOA or Harbor Bay Security
2. If more than 1,000 gals, initiate water quality sampling plan and contact East Bay Parks

If more than 5,000 gals reached another surface water and is not recovered:

1. Initiate water quality sampling plan

If Water Quality Sampling is performed:

Post "WARNING RAW SEWAGE HAS CONTAMINATED WATER" signs - Use Water Quality Sampling Plan

No

If SSO greater than or equal to 1,000 gals, has reached a storm drain or surface water and can't be recovered :

CONTACT OES: (800) 852-7550 to make 2-hour Notification.

Record Call Control No. on SSO Report Form.

DIVERION AND CONTAINMENT

1. Plug storm drains, if applicable, using air plugs, sandbags, and/or plastic mats.
2. If spilled sewage made contact with the storm drainage system, plug downstream storm drainage facilities, if applicable. Contain/direct spilled sewage using dike/dam or sandbags, if applicable. Divert to low area of ground where sewage can be collected later.
3. Photograph diversion/containment, as appropriate .

Where did blockage occur?

Public System

CLEAR BLOCKAGE

1. Clear lower lateral from cleanout or if in sewer main system set up downstream of blockage and hydro clean upstream from a clear manhole. Attempt to remove the blockage from the system and observe the flows to ensure that the blockage does not recur downstream.
2. Set up bypass pumping if the blockage cannot be cleared or the sewer requires construction repairs to restore flow.
3. If assistance is required, immediately contact the Public Works Supervisor.

Private Property

PRIVATE PROPERTY SSO

1. PHOTOGRAPH & document ALL evidence that the SSO is from private property.
2. Implement DIVERSION AND CONTAINMENT procedures, if needed.
3. If customer is not home, complete and leave a Customer Service Door Hanger.
4. If customer is home, inform them that the blockage is on the private side and that they must call a private plumber. Any damage caused by the sewage is not the responsibility of the City.
5. If customer is unwilling to address the overflow, contact PW Supervisor and discuss if City Code Enforcement and/or County Health should be contacted.
6. Complete only top portion of SSO report and clearly mark that is was a private blockage/SSO.

SITE CLEANUP

1. Vacuum up and/or pump the spilled sewage and discharge it back into the sanitary sewer system, if possible.
2. Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms.
3. Wash down the affected area with clean water until the water runs clear. Take reasonable steps to contain and vacuum up the wastewater.
4. Disinfect all areas that were contaminated from the overflow using a disinfectant.
5. Photograph area when cleanup operations are complete.
6. If private property affected, ask to enter residence to photograph damage and gather information to complete the Private Property Incident Form. Provide resident City Claims Form.

ESTIMATE SPILL VOLUME

Use guidance on Page 2 of the SSO Report and check the box of the method used.

DOCUMENTATION

1. Complete SSO Report and Private Property Incident Form, if applicable, and submit to PW Supervisor as soon as possible but no later than 24 hours from incident (unless Friday afternoon or Saturday incident - then submit Monday morning).
2. Transfer photographs to PW Supervisor.
3. Turn Lucity request to Work Order and document resources used. Select Problem Code on Work Order as Sanitary Sewer Overflow.

FOLLOW UP CCTV INSPECTION

1. As soon as reasonably possibly, but no later than 3 days following an SSO in the City system, perform a follow up CCTV inspection of the sewer main .
2. Conduct a complete inspection and record in Granite XP.

FAILURE ANALYSIS, REPORTING AND RECORD KEEPING

1. PW Supervisor or designee submits data to CIWQS according to timeline in Regulatory Reporting Flowchart; Maintenance Superintendent certifies report.
2. PW Supervisor, note CIWS ID on Comment on Lucity Work Order before completing the work order.
3. PW Supervisor holds a meeting with sewer maintenance staff to discuss incident and completes Failure Analysis Form, as needed.
4. PW Supervisor creates separate folder for the incident, following the SSO Incident File Checklist Form

MEDIA AND PUBLIC RELATIONS GUIDELINES

Exercise caution in contacts with the public or media when you respond to a SSO. Avoid the following:

- Making accusations against customers, businesses or other agencies.
- Speculating about the situation.

Be courteous and attempt to provide accurate but only as needed information to questions from the public. In some cases, it may be appropriate to say we do not have any information, or delay answering questions.

In ALL cases, refer media requests to the Public Works Director. Do not speak on behalf of the City.

City of Alameda – Public Works Department – Maintenance Service Center
1616 Fortmann Way, Alameda CA 94501
Tel (510) 747 – 7400

Sanitary Sewer Overflow Questionnaire

Lucity Work Order ID: _____

***pictures are required**

SPILL TYPE

Check One:

_____ Category 1 (Any volume that reaches a water way, or surface water and is not fully captured)
_____ Category 2 (≥ 1,000 gallons and did not reach a water way or surface water, unless fully captured)
_____ Category 3 (≤ 1,000 gallons)
_____ PLSD (Caused by blockages or other problems within privately owned laterals. Report is voluntary)

A. Estimated spill volume that reached a separate storm drain that flows to a surface water body? _____

B. Estimated spill volume recovered from the separate storm drain that flows to a surface water body? _____

C. Estimated spill volume that directly reached a drainage channel that flows to a surface water body? _____

D. Estimated spill volume recovered from a drainage channel that flows to a surface water body? _____

E. Estimated spill volume discharged directly to a surface water body? _____

F. Estimated spill volume recovered from surface water body? _____

G. Estimated spill volume discharged to land? _____

H. Estimated spill volume recovered from the discharge to land? _____

PHYSICAL LOCATION DETAILS

1. Spill Location Name:
   _____
2. County: _____
3. Spill location description: _____

SPILL DETAILS

4. Number of appearance points: _____
5. Spill appearance points (circle all applicable):
   a. Force main
   b. Gravity mainline
   c. Building or structure
   d. Lower Lateral clean out
   e. Manhole (manhole # _____)
   f. Other sewer system structure (specify)
   g. Pump station
   h. Upper lateral cleanout
6. Spill appearance point explanation:
   (only required if spill appearance point is "other sewer system structure" and/or multiple appearance points are selected)

   _____

7. Final Spill Destination (circle all applicable):
   a. Beach
   b. Building or structure
   c. Drainage channel
   d. Other (specify)
   e. Paved surface
   f. Separate storm drain
   g. Street/curb gutter
   h. Surface water
   i. Unpaved surface

8. Explanation of final spill destination: *(required if final spill destination is "other")*

   _____

9. Estimated spill start date/time: Date:_____ Time:_____
10. Date and time C.O.A. was notified of or discovered spill: Date:_____ Time:_____
11. Estimated Operator arrival date/time: Date:_____ Time:_____
12. Estimated spill end date/time: Date:_____ Time:_____
13. Spill Cause: (Select Only One)
    a. Debris, General
    b. Debris, Rags
    c. Flow exceeded capacity
    d. Grease Deposition (FOG)
    e. Operator Error
    f. Pipe structural problem/failure
    g. Pump Station failure
    h. Rainfall exceeded design
    i. Root Intrusion
    j. Vandalism
    k. Other (specify)
14. Spill cause explanation: *(required if spill cause is "other")*

    _____

15. Where did failure occur?
    a. upper lateral
    b. lower lateral
    c. gravity main
    d. Other (Specify)
16. Explanation of where failure occurred: *(required if where failure occurred in "Other")*

    _____

17. Was this spill associated with a storm event? (circle one)
    a. yes b. no
18. Diameter (in) of sewer pipe at the point of blockage: _____
19. Material of sewer pipe at the point of blockage: _____
20. Estimated age of sewer asset at the point of blockage: _____
21. Spill response activities (circle all applicable):
    a. Cleaned-up
    b. Mitigated Effects of Spill
    c. Contained all or portion of Spill
    d. Other (specify)
    e. Restored Flow
    f. Returned All Spill to Sanitary Sewer System
    g. Returned Portion of Spill to Sanitary Sewer System
    h. Property Owner Notified
    i. Other Enforcement Agency Notified
22. Explanation of spill response activities: *(required if spill response activities is "other")*

    _____

23. Spill response completion date: _____

24. Spill corrective action taken (circle all applicable):
    a. Added sewer to preventative maintenance program
    b. Adjusted schedule/method of preventative
    c. Enforcement action against FOG source
    d. inspected sewer using CCTV
    e. Other (specify)
    f. Plan rehab or replacement
    g. Repaired or replaced sewer line
25. Explanation of spill corrective action taken: *(required is spill corrective action is "other")*

    _____

26. Is there an ongoing investigation? (circle one)
    a. yes b. no
27. Reason for ongoing investigation?
    _____
28. Visual inspection results from impacted receiving water:
    _____
29. Health warnings posted? (circle one)
    a. yes b. no

30. Name of impacted beaches (enter NA if none)
    _____
31. Name of impacted surface water (enter NA if none):
    _____
32. Water quality samples analyzed for (circle all applicable):
    a. Dissolved oxygen
    b. Other chemical indicators (specify)
    c. Biological indicators (specify)
    d. No water quality samples taken
    e. Not applicable to this spill
    f. Other (specify)

33. Explanation of water quality samples analyzed for: *(required if water quality samples analyzed for is "other")*
    _____
34. Water quality sample results reported to (circle all applicable):
    a. County Health Agency
    b. Regional Water Quality Control Board
    c. Other (specify)
    d. No water quality samples taken
    e. Not applicable to this spill
35. Explanation of water quality sample results reported to *(required if samples results reported to is "other"):*
    _____

36. Explanation of volume estimation methods used: *(describe how you developed volume estimates for this spill:)*
    _____

37. CAL OES Control Number: _____
38. CAL OES Called Date/Time: Date:_____ Time:_____
39. Crew Member Names and Hours:
    _____
    _____

40. Form Completed by: _____

Report Entry In CIWQS By: _____ Date: _____
Certification In CIWQS By: _____ Date: _____
CIWQS Event ID: _____

SEWER BLOCKAGE IN CITY SYSTEM – PRIVATE PROPERTY INCIDENT FORM

Complete if blockage was in City system and caused an overflow in a building/private property.

City Staff Arrived on-site: / / Time: : AM/PM (circle)

Resident Name: Property Owner/Manager Name:

Street Address:

City: Alameda

Phone: # Pictures Taken:_____

Estimate Amount of Sewage on Private Property:_____ (gals) inside_____ (gals) outside

SqFeet of Inside Area Affected:_____ What Rooms Affected:

Approx. Time Spilled Sewage was Sitting on Private Property: mins

Building Clean Out: ☐ Non-Existent ☐ Full ☐ Empty

Notes:

Property Line Clean Out: ☐ Non-Existent ☐ Full ☐ Empty

Notes:

Location of blockage: ☐ Street Main ☐ Easement Main ☐ MH#_____

☐ Other: Notes:

☐ Was resident notified to Stop Using Water/sewer discharge facilities until blockage cleared?

Damage From: ☐ Black Water ☐ Grey Water ☐ Fresh Water

Cleaning Co. Contacted by Owner: ☐No ☐Yes Time Called:__:___ AM/PM Time Arrived: __:___ AM/PM

Cleaning Co. Name and Contact:

Is first MH upstream from blockage visibly higher than Private Lateral/CO: ☐ No ☐ Yes

Is Finished Floor 12” or Below Nearest Upstream MH: ☐ No ☐ Yes

Does Affected Private Property have Backflow Prevention Device: ☐ No ☐ Yes

If Yes, Was Backflow Prevention Device Operational at time of incident: ☐ No ☐ Yes

Type of Flooring in the Areas Affected:

☐Tile ☐Carpet ☐Wood ☐Other:_____

Describe Condition:

Are there Baseboards: ☐ No ☐ Yes Material:_____

☐ Baseboard Bottom has Tight Seal with Floor ☐Baseboard top has Tight Seal with Wall

☐ Baseboard has Space Between Bottom & Floor ☐Baseboard has Space Between Baseboard & Wall

Has the Resident had any Plumbing Done Recently: ☐ No ☐ Yes ☐ Unknown

Any Active Plumbing Projects Observed: ☐ No ☐ Yes

Has the Area Been Remodeled: ☐No ☐ Yes ☐ Unknown

Has there been any previous overflows at this location: ☐No ☐ Yes ☐ Unknown

Additional Information:_____

Form Completed By:_____ Form Reviewed By:_____ Date:____/_____/_____

COLLECTION SYSTEM FAILURE ANALYSIS FORM

Complete form as follow-up to a SSO incident.

Date of Failure Analysis Meeting: Form Prepared by:

Lucity WO #: CIWQS ID:

Location of SSO: Mainline ID:

Total SSO Volume: (gals) Volume Recovered: (gals)

SSO Cause: ☐ Roots ☐ Debris ☐ FOG ☐ Vandalism ☐ Pipe Failure ☐ Capacity
☐ Pump Station Failure ☐ Power Failure ☐ Other:_____

When was Affected Mainline Last Cleaned:

Summary of Related Historical SSOs, Backups, Service Calls, Other Problems

Records Reviewed By:_____ Record Review Date:_____

Event Date	Cause/Problem	Date Previously Cleaned	Crew Responding to Call
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Summary of CCTV and/or Pump Station Record Information

CCTV Inspection Date in Granite XP:_____ Applicable CCTV Observations:_____

Pump Station Alarm and/or performance notes:

Recommendations (For each recommendation, include responsible person for implementation and completion deadline)

☐ No Changes or Repairs Required

☐ Change in Maintenance Frequency_____

☐ Repair (Location and Type):_____

☐ Add to Capital Improvement /Replacement List:_____

☐ Change in Pump Station Operation:_____

☐ Training:_____

☐ Other:_____

Additional Information:_____

_____

_____

Form Reviewed By: Review Date: / /

Attendees at Failure Analysis Meeting:_____

_____

Appendix F
City of Alameda OERP

SEWER SPILL ESTIMATION GUIDE

Developed by the Orange County Area Waste Discharge Requirements Steering Committee

Sewer Spill Estimation Guide

A Guide to Estimating Sanitary Sewer Overflow (SSO) Volumes

Developed by the Orange County Area
Waste Discharge Requirements Steering Committee
Orange County, CA

February 18, 2014

Acknowledgements

This Sewer Spill Estimation Guide has been compiled through the efforts of members of the Orange County Wastewater Discharge Requirements (WDR) Steering Committee. This committee was originally formed to address the requirements of the original WDR imposed by the California Regional Water Quality Board, Region 8 and later the statewide WDR imposed by the California State Water Resources Control Board. Committee members who assisted in the compilation of this Sewer Spill Estimation Guide are:

Nicholas J. Arhontes	Director Facilities Support Services	Orange County Sanitation District
Peggy Echavarria	Executive Assistant	Orange County Sanitation District
Gene Estrada	Environmental Program Manager	City of Orange
Rob Hamers	District Engineer	Costa Mesa Sanitary District
Robert Kreg	(Former) Director of Support Services	South Coast Water District (Retired)

Disclaimer

This Sewer Spill Estimation Guide is freely offered to agencies to assist the user with the estimation process for a sanitary sewer overflow. Methods used for spill estimation and the estimate itself are solely the responsibility of the agency making the estimate. The authors or contributors to this Sewer Spill Estimation Guide do not accept any responsibility for the spill estimation methods used; their accuracy or any spill estimate determined through the use of this guide. Information found in this guide is commonly available on the internet and is also common practice with many cities and sewering agencies throughout Southern California.

No statewide or national standards issued by a regulatory agency exist at this time.

Table of Contents

SSO Volume Estimation

Accurate flow estimation is essential to determine the volume of a Sanitary Sewer Overflow (SSO). An accurate estimate of an SSO is required for reporting to the California Integrated Water Quality System (CIQWS) and to the Orange County Health Care Agency. The estimated volume of an SSO is used to determine the category of the SSO and can also be used in the calculation of penalties or fines from the State or Regional Water Quality Control Boards in California. Additionally, accurate flow estimation is important to determine the extent of the cleanup and its effectiveness.

Volume estimation is basically the flow rate (gallons per minute) times the amount of time (in minutes) the flow has occurred. Each SSO tends to be unique requiring different strategies for determining the volume of the SSO. Different methods can also be used for the same SSO acting as a check to ensure the most accurate estimate. The method(s) utilized will be determined by several factors including the type of SSO and the personnel responding. Some SSO volumes, due to terrain, rainfall or other factors, can be very difficult for field staff to determine and may require someone with additional expertise. There is no one method that works for all types of SSOs. The following are methods that may be utilized for SSO volume estimation. These methods are effective means of estimating a sewer spill volume during dry weather but may not be effective during rain events.

During rain events, infiltration and/or inflow into the collection system and runoff in the stormwater system, including the curb and gutter, can affect the SSO estimate. When estimating an SSO during a rain event, the SSO estimate is to include only the wastewater that left the collection system and not any waters that the wastewater comingled with after leaving the system. The same is true for any wash down water; although contaminated, the water is not considered part of the SSO estimate. Any water that infiltrated into the collection system upstream of the SSO and subsequently became part of the SSO is included in the SSO volume estimate.

Start Time

Determining the start time for an SSO is one of the most critical, yet can be one of the most difficult, factors to determine. Depending upon the location and time of day, an SSO may occur for some time before it is reported to the City or Agency or it may trickle for an extended period of time before being noticed. What is known is that the SSO started some time before the City or Agency was notified. It is common for SSOs to start and stop as flows in the pipeline routinely rise and fall because most blockages do not entirely block the flow in the pipe. Every effort should be utilized to determine the most accurate start time of each SSO. These efforts may include:

- If possible, contact the person who reported the SSO to determine when they became aware of the SSO.
- Make contact with residences or businesses in the area of the SSO to determine if there were any witnesses that could help establish the start time.
- Conditions change during the SSO. This is particularly true in remote areas out of public view. Initially, there may be an amount of toilet paper and solids around the spill site. This will increase the longer the SSO continues. After a few days to a week, these may form a light brown residue that may turn dark after a few weeks to a month.

Stop Time

The stop time is the time that wastewater stopped overflowing. For manhole covers in low areas, this is noted by water flowing back into the manhole through the vent holes and should be easy to determine by SSO response personnel. Care should be taken to accurately record the time that the SSO stopped.

Photographs

Take photographs of the spill event. Try to include objects of known size in the photographs to give a perspective of the extent of the spill. Photographs should include the initial spill, remediation efforts, clean up, and the spill area after the spill remediation has been completed. Photographs should be maintained with the spill report information.

Flow Rate

The flow rate is the volume of flow per unit time that is escaping from the collection system. SSOs do not always occur at a constant rate. This is because flows into the collection system are not constant and rise and fall throughout the day. Additionally, most blockages are not full blockages. Pressure buildup as the wastewater surcharges in the pipe can cause the blockage to clear or partially clear, resulting in changes to the flow rate.

To make an SSO volume estimate as accurate as possible, the onsite City or Agency employee should note the time and the amount of change of any significant differences in flow noticed during the event. For example, if the employee determines the flow rate escaping from the manhole is 100 gallons per minute when they arrive on scene but noticed that it has dropped to 50 gallons per minute five minutes later, their report should reflect that fact. The estimated flow rate and the time period for that flow rate should be recorded. During any one SSO event there could be multiple flow rates spread over the duration of the SSO.

Volume Estimation Methods

Visual or Eyeball Method

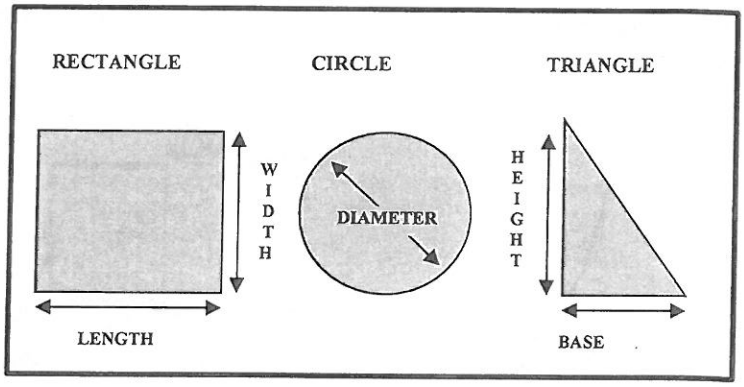
The volume of small spills can be estimated using an "eyeball estimate." To use this method, imagine the amount of water that would spill from a bucket or a barrel. A full bucket may contain 1, 2 or 5 gallons and a barrel contains 55 gallons when full. If the spill is larger than 55 gallons, try to divide the standing water into barrels and then multiply by 55 gallons. This method is useful for contained spills up to approximately 200 gallons. This method can be useful on spills that occur on hard surfaces such as concrete or asphalt. Crews can be trained by estimating the volume of a measured amount of potable water spilled upon concrete and asphalt surfaces.

Measured Volume

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

dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.

Common Shapes and Dimensions



1. Sketch the shape of the contained wastewater.
2. Measure or pace off the dimensions.
3. Measure the depth at several locations and select an average.
4. Convert the dimensions, including depth, to feet.
5. Calculate the area:

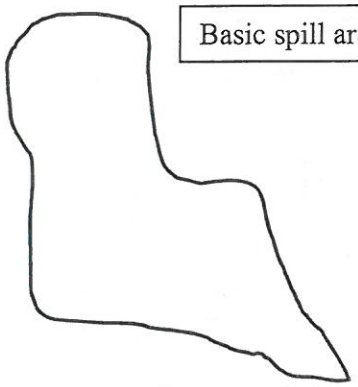
   Rectangle: Area = length (feet) x width (feet)

   Circle: Area = diameter (feet) x diameter (feet) x 3.14 divided by 4

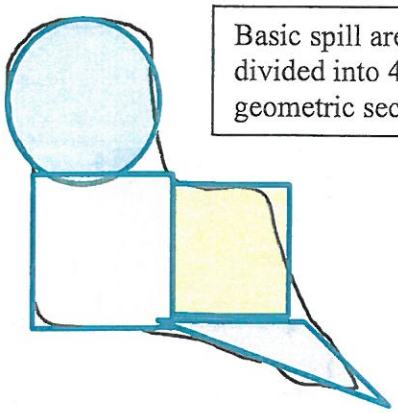
   Triangle: Area = base (feet) x height (feet) x 0.5
6. Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet.
7. Multiply the volume in cubic feet by 7.48 to convert to gallons

Not all SSOs will conform to a specific shape. When this occurs, break up the area of the SSO into various shapes or segments, then calculate the amount of wastewater spilled in each segment, adding them together to arrive at the total spill volume.

Example:

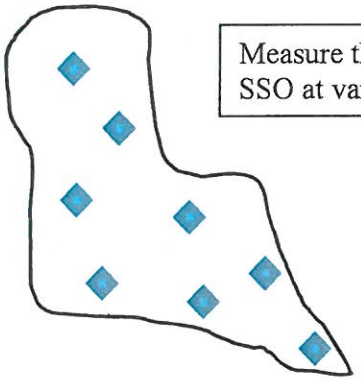


Basic spill area



Basic spill area divided into 4 geometric sections.

Determine the area of each of the geometric sections adding them all together to determine the total area of the spill.



Measure the depth of the SSO at various locations.

Where it is difficult to measure wet spots on asphalt, use a depth of 0.0026'or 1/32". For wet spots on concrete use depths of 0.0013'or 1/64" for reasonable estimates.

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

Sample Calculation:
A 20 ft x 20 ft square wet spot on concrete equals 3.9 gal and for asphalt is 7.8 gal.

Counting Connections

Once the location of the blockage has been established, the amount of the SSO could be estimated by counting the number of upstream connections. On the sewer atlas maps or GIS system, locate the pipeline where the SSO occurred. Count all of the developed parcels that are connected to the pipeline upstream of the blockage. The typical single family residential parcel may discharge 8 to 10 gallons of wastewater per hour during active times of the day. For a multi-family residential development such as an apartment or condo complex, count each apartment as a single family residential unit. Use the higher flow number (10 gallons per hour) during typical peak flow hours and the lower flow number (8 gallons per hour) during low flow periods. Multiply the number of connections times the average flow (8 to 10 gallons per hour) times the time period (duration) that the SSO occurred.

Example for an SSO occurring on a weekday at 8:00am:

Number of upstream connections	22
Estimated flow per parcel	10 gallons per hour
Duration of SSO event	45 minutes
Total spill estimation (22 x 10 x .75)	165 gallons

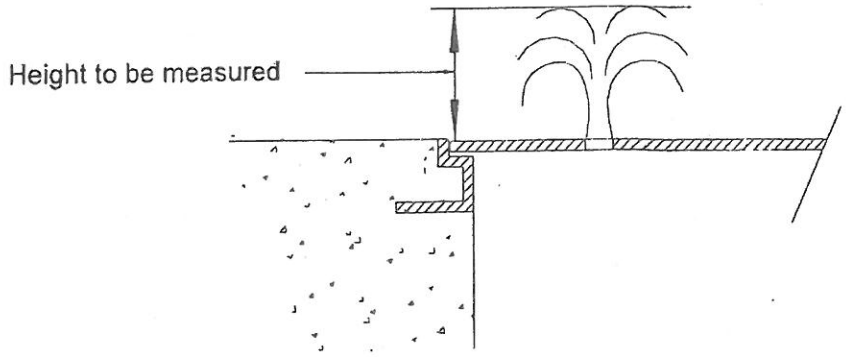
(22 connections x 10 gallons per hour x 45 minutes (.75 hour) = 165 gallons)

Data may be available in your drainage area from your capacity planners at your city or agency. Consult with them on reasonable flow amounts or rates of flow.

Pick and Vent Holes in Manhole Covers

Small SSOs will occur where the wastewater escaping from the manhole is isolated to the pick or vent holes in the cover. Larger SSOs may involve both the discharge from the pick and/or vent holes and the gap between the manhole cover and manhole frame. To estimate an SSO occurring from the manhole pick and vent holes, measure the height of the wastewater plume exiting the holes. Find that height and hole diameter on the manhole pick or vent hole chart to determine the flow rate escaping the pick/vent hole. Multiply the flow rate times the number of holes that are discharging wastewater. Once the total volume (gpm) has been determined,

multiply the gpm by the duration of the SSO in minutes. This will result in the total estimated gallons of the SSO.



Example: Measured height of plume exiting pick/vent hole is 1 inch from a ½-inch vent hole and there are 4 vent holes. The total volume per minute would be .94 gpm per hole (from attached chart) or 3.76 gpm total (.94 gpm x 4 holes) from the manhole cover. If the SSO lasted one hour, the total wastewater lost would be 226 gallons (3.76 x 60 = 225.6).

Number of pick holes	4
Flow from each pick hole	.94 gpm
Duration of SSO	60 minutes
Total SSO volume (.94 x 4 x 60=225.6)	226 gallons

Pick and Vent Hole Estimation Chart

Estimated Flows thru Manhole Cover Vent Holes and Pick Holes for SSO estimating

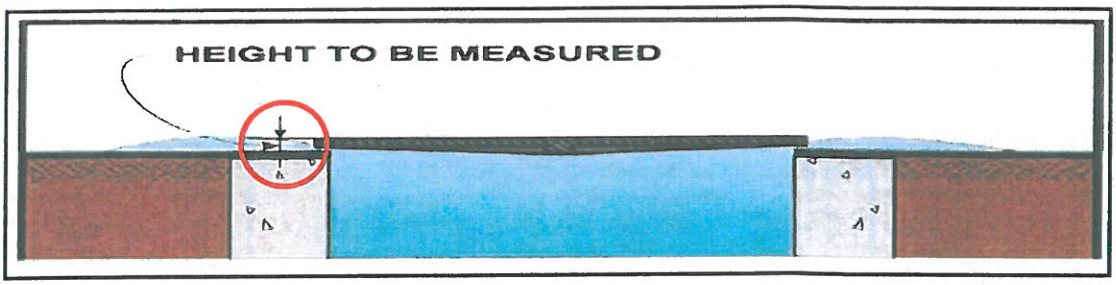
Hole Dia. inches	Area sq. ft.	Coeff.of Vel. Cv	Coeff. Of Cont. Cc	C Cv x Cc	Water Ht inches	Water Ht inches	Water Ht feet	Q cfs	Q gpm	Q gph
	Formula: =0.785*Ax*Ax/144			Formula: =Ix*449			Formula: =Gx/12	Formula: =Ex*Bx*(SQRT(2*32.2*Hx))	Formula: =Ix*449	Formula: =Jx*60
Vent Hole										
0.50	0.00136	0.945	0.70	0.662	1/16 th	0.063	0.005	0.0005	0.23	14
0.50	0.00136	0.945	0.70	0.662	1/8 th	0.125	0.010	0.0007	0.33	20
0.50	0.00136	0.945	0.70	0.662	1/4 th	0.250	0.021	0.0010	0.47	28
0.50	0.00136	0.945	0.70	0.662	one half	0.500	0.042	0.0015	0.66	40
0.50	0.00136	0.945	0.70	0.662	3/4 ths	0.750	0.063	0.0018	0.81	49
0.50	0.00136	0.945	0.70	0.662	1 inch	1.000	0.083	0.0021	0.94	56
Vent Hole										
0.75	0.00307	0.955	0.67	0.640	1/16 th	0.063	0.005	0.0011	0.51	31
0.75	0.00307	0.955	0.67	0.640	1/8 th	0.125	0.010	0.0016	0.72	43
0.75	0.00307	0.955	0.67	0.640	1/4 th	0.250	0.021	0.0023	1.02	61
0.75	0.00307	0.955	0.67	0.640	one half	0.500	0.042	0.0032	1.44	87
0.75	0.00307	0.955	0.67	0.640	3/4 ths	0.750	0.063	0.0039	1.77	106
0.75	0.00307	0.955	0.67	0.640	1 inch	1.000	0.083	0.0045	2.04	122
Vent Hole										
1.00	0.00545	0.960	0.65	0.624	1/16 th	0.063	0.005	0.0020	0.88	53
1.00	0.00545	0.960	0.65	0.624	1/8 th	0.125	0.010	0.0028	1.25	75
1.00	0.00545	0.960	0.65	0.624	1/4 th	0.250	0.021	0.0039	1.77	106
1.00	0.00545	0.960	0.65	0.624	one half	0.500	0.042	0.0056	2.50	150
1.00	0.00545	0.960	0.65	0.624	3/4 ths	0.750	0.063	0.0068	3.06	184
1.00	0.00545	0.960	0.65	0.624	1 inch	1.000	0.083	0.0079	3.54	212
Pick Hole semicircular area										
1.00	0.00273	0.960	0.65	0.624	1/16 th	0.063	0.005	0.0010	0.44	27
1.00	0.00273	0.960	0.65	0.624	1/8 th	0.125	0.010	0.0014	0.63	38
1.00	0.00273	0.960	0.65	0.624	1/4 th	0.250	0.021	0.0020	0.89	53
1.00	0.00273	0.960	0.65	0.624	one half	0.500	0.042	0.0028	1.25	75
1.00	0.00273	0.960	0.65	0.624	3/4 ths	0.750	0.063	0.0034	1.53	92
1.00	0.00273	0.960	0.65	0.624	1 inch	1.000	0.083	0.0039	1.77	106
1.00	0.00273	0.960	0.65	0.624	1-1/2 inch	1.500	0.125	0.0048	2.17	130
1.00	0.00273	0.960	0.65	0.624	2 inches	2.000	0.167	0.0056	2.51	150

Courtesy of OCSD: Created 5/17/99, as an estimating tool for field staff. This is based on flow through orifices assumptions. Your city or agency may want to develop a similar tool.

Q=CA(2gh)^.5 Where Q=cfs C=0.624 A=area(sq. ft.) g=32.2 ft/sec/sec
h= water height (ft.)

Manhole Ring

Some manhole covers in use today typically only have one pick hole forcing most of the wastewater to escape from the perimeter of the manhole cover during higher flow SSOs. To estimate the volume in this example, measure the observed height of the wastewater plume exiting the manhole cover. Find the height and manhole diameter on the Manhole with Cover in Place to determine the flow rate escaping the manhole. The chart has two columns, one for 24-inch diameter covers and one for 36-inch diameter covers. Wastewater will also be escaping from the pick hole and must be accounted for separately by following the instructions for estimating an SSO from pick/vent hole. Multiply the flow rate times the number of holes that are discharging. The total estimated rate (gpm) is determined by adding together the rate being lost (gpm) from around the cover with the rate being lost (gpm) from the pick and/or vent hole(s). Once the total rate (gpm) has been determined, multiply the gpm by the duration of the SSO in minutes. This will result in the total estimated gallons of the SSO.



Example: The measured height of the plume exiting the ring of a 36-inch manhole is 1 inch. The total volume per minute would be 13 gpm from around the ring of a 36-inch manhole cover (from the attached chart). (Calculate the amount exiting the pick hole(s) and add to the total being lost around the ring). If the SSO lasted one hour the total wastewater lost would be 780 gallons (13 x 60 = 780).

Estimated loss around ring (from chart)	13 gpm
Duration of SSO	60 minutes
Total SSO (without loss from pick hole)	780 gallons

(13 gal/min x 60 minutes = 780 gallons plus amount lost from pick hole(s))

ESTIMATED SSO FLOW OUT OF MH WITH COVER IN PLACE

24" COVER

Height of spout above M/H rim H in inches	S S O Q FLOW in gpm	in MGD	Min. Sewer size in which these flows are possible
1/4	1	0.001	
1/2	3	0.004	
3/4	6	0.008	
1	9	0.013	
1 1/4	12	0.018	
1 1/2	16	0.024	
1 3/4	21	0.030	
2	25	0.037	
2 1/4	31	0.045	
2 1/2	38	0.054	
2 3/4	45	0.065	
3	54	0.077	
3 1/4	64	0.092	
3 1/2	75	0.107	
3 3/4	87	0.125	
4	100	0.145	
4 1/4	115	0.166	
4 1/2	131	0.189	
4 3/4	148	0.214	
5	166	0.240	
5 1/4	185	0.266	
5 1/2	204	0.294	
5 3/4	224	0.322	6"
6	244	0.352	
6 1/4	265	0.382	
6 1/2	286	0.412	
6 3/4	308	0.444	
7	331	0.476	
7 1/4	354	0.509	
7 1/2	377	0.543	
7 3/4	401	0.578	8"
8	426	0.613	
8 1/4	451	0.649	
8 1/2	476	0.686	
8 3/4	502	0.723	
9	529	0.761	

36" COVER

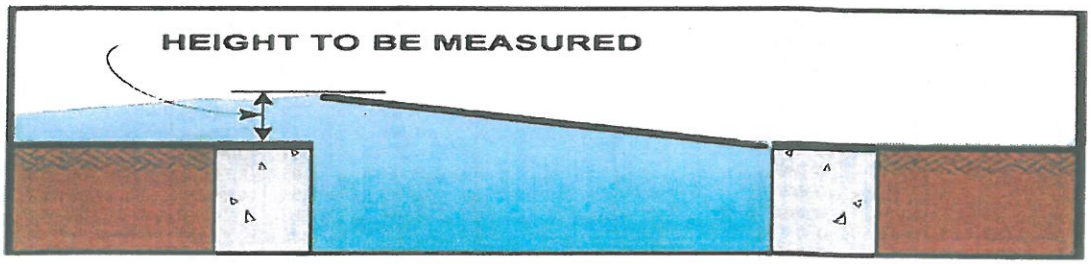
Height of spout above M/H rim H in inches	S S O Q FLOW in gpm	in MGD	Min. Sewer size in which these flows are possible
1/4	1	0.002	
1/2	4	0.006	
3/4	8	0.012	
1	13	0.019	
1 1/4	18	0.026	
1 1/2	24	0.035	
1 3/4	31	0.044	
2	37	0.054	
2 1/4	45	0.065	
2 1/2	55	0.079	
2 3/4	66	0.095	
3	78	0.113	
3 1/4	93	0.134	
3 1/2	109	0.157	
3 3/4	127	0.183	
4	147	0.211	
4 1/4	169	0.243	
4 1/2	192	0.276	
4 3/4	217	0.312	6"
5	243	0.350	
5 1/4	270	0.389	
5 1/2	299	0.430	
5 3/4	327	0.471	
6	357	0.514	
6 1/4	387	0.558	8"
6 1/2	419	0.603	
6 3/4	451	0.649	
7	483	0.696	
7 1/4	517	0.744	
7 1/2	551	0.794	
7 3/4	587	0.845	10"
8	622	0.896	
8 1/4	659	0.949	
8 1/2	697	1.003	
8 3/4	734	1.057	
9	773	1.113	

The formula used to develop Table 1 measures the maximum height of the water coming out of the maintenance manhole above the rim. The formula was taken from Hydraulics and Its Application by A.H. Gibson (Constable & Co. Limited).

Partially Covered Manhole

Sometimes an SSO will occur that only lifts one side of the manhole cover. This is especially true of manholes where the cover is on an incline with the cover lifting on the downward side of the manhole. To estimate the volume of an SSO under these conditions, calculate the area (in square feet) from where the wastewater is escaping and the velocity (in feet per second) that the wastewater is normally traveling in the sewer at half the pipe depth. The velocity is estimated from visual observation with 2 feet/second or less being a small velocity, 4 to 5 feet/second being a medium velocity, and 7 feet/second or higher being a large velocity. Velocities in the sewer above 7 feet/second may be strong enough to blow the manhole cover off. Higher velocities also tend to raise the manhole lid higher. Next, multiply by the duration

(in seconds) that the SSO occurred. Finally, multiply by 7.48 to determine the volume of the SSO in gallons. The formula is Volume (gallons) = Area (sq. ft.) x Velocity (ft/sec) x Time (in seconds) x 7.48 (gal/cu. ft.).



Example: The measured height of the plume exiting the side ring of a 24-inch manhole is 2 inches. Based upon the data provided in the Area Calculation Chart below, a 2-inch plume from one side of a 24-inch manhole cover provides 0.524 square feet of area. The velocity of the flow is estimated at 4 ft/sec (visual observation) with the assumed duration of the flow lasting for one hour. The total amount of the SSO is estimated at 56,441 gallons (.524 x 4 x 60 x 60 x 7.48 = 56,441)

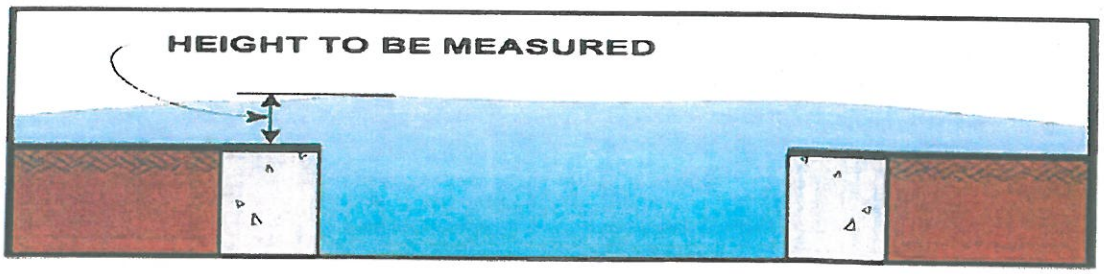
Height of plume	2 inches
Area for 24 inch manhole	0.524 square feet
Estimated velocity	4 ft/sec
Duration of SSO	60 minutes
Conversion from cu. ft. to gallons	7.48
Total estimated SSO volume	56,441 gallons

(.524 sq. ft. x 4 ft/sec x 60 minutes x 60 sec/min x 7.48 gal/cu ft = 56,441 gal)

Area Calculation Chart		
Height of Flow	24 Inch Manhole	36 Inch Manhole
.5 inches	0.131 sq. ft.	0.195 sq. ft.
1 inches	0.262 sq. ft.	0.391 sq. ft.
1.5 inches	0.393 sq. ft.	0.586 sq. ft.
2 inches	0.524 sq. ft.	0.782 sq. ft.
2.5 inches	0.655 sq. ft.	0.977 sq. ft.
3 inches	0.786 sq. ft.	1.173 sq. ft.
3.5 inches	0.917 sq. ft.	1.368 sq. ft.
4 inches	1.048 sq. ft.	1.564 sq. ft.

Open Manhole

In large events the force of the overflowing wastewater will have sufficient pressure and volume to unseat the cover from the frame and move the manhole cover away from the manhole. Typically, when the SSO rates reach approximately 7 cfs (approximately 3,000 gpm or about 4.32 mgd), there is sufficient flow and pressure to blow off the manhole cover. To estimate the volume of an SSO where the manhole cover has been removed, the average height of the plume of wastewater exiting the manhole must be measured. This measurement is from the pavement surface close to the manhole ring to the top of the plume. Take several measurements in several locations around the ring and average the findings. If possible, and being safe to protect yourself from the open manhole, find the average height of the plume for the size of the manhole lid (24-inch or 36-inch diameter) on the Area Calculation Chart to determine the rate of flow exiting the manhole. Multiply the flow rate expressed in gallons per minute from the chart multiplied by the duration of the SSO in minutes to determine the total volume of the SSO. A photo taken at a safe distance upon arrival may help you refine your estimate.



Example: Determine the observed height of the plume at several locations around the ring of the manhole and average the results. Determine the size of the manhole cover. If the average height of the plume exiting an open 24-inch diameter manhole is 2 inches, find 2 inches on the 24-inch Manhole Cover Removed Chart. Based upon the data provided in the Manhole Cover Removed Chart, the flow in gallons per minute would be 3,444 gpm. If the duration of the flow lasted for one hour (60 minutes), the total amount of the SSO would be estimated at 206,640 gallons (3,444 x 60 = 206,640).

Height of plume (average) on 24-inch manhole	2 inches
Estimated flow from chart	3,444 gpm
Duration of SSO	60 minutes
Estimated SSO total volume	206,640 gallons

(Est flow from chart 3,444 x 60 minutes = 206,640)

ESTIMATED SSO FLOW OUT OF M/H WITH COVER REMOVED

24" FRAME

Water Height above M/H frame H in inches	S S O FLOW Q in gpm	in MGD	Min. Sewer size in which these flows are possible
1/8	28	0.04	
1/4	62	0.09	
3/8	111	0.16	
1/2	160	0.23	
5/8	215	0.31	6"
3/4	354	0.51	8"
7/8	569	0.82	10"
1	799	1.15	12"
1 1/8	1,035	1.49	
1 1/4	1,340	1.93	15"
1 3/8	1,660	2.39	
1 1/2	1,986	2.86	
1 5/8	2,396	3.45	18"
1 3/4	2,799	4.03	
1 7/8	3,132	4.51	
2	3,444	4.96	21"
2 1/8	3,750	5.4	
2 1/4	3,986	5.74	
2 3/8	4,215	6.07	
2 1/2	4,437	6.39	
2 5/8	4,569	6.58	24"
2 3/4	4,687	6.75	
2 7/8	4,799	6.91	
3	4,910	7.07	

36" FRAME

Water Height above M/H frame H in inches	S S O FLOW Q in gpm	in MGD	Min. Sewer size in which these flows are possible
1/8	49	0.07	
1/4	111	0.16	
3/8	187	0.27	6"
1/2	271	0.39	
5/8	361	0.52	8"
3/4	458	0.66	
7/8	556	0.8	10"
1	660	0.95	12"
1 1/8	1,035	1.49	
1 1/4	1,486	2.14	15"
1 3/8	1,951	2.81	
1 1/2	2,424	3.49	18"
1 5/8	2,903	4.18	
1 3/4	3,382	4.87	
1 7/8	3,917	5.64	21"
2	4,458	6.42	
2 1/8	5,000	7.2	24"
2 1/4	5,556	8	
2 3/8	6,118	8.81	
2 1/2	6,764	9.74	
2 5/8	7,403	10.66	
2 3/4	7,972	11.48	30"
2 7/8	8,521	12.27	
3	9,062	13.05	
3 1/8	9,604	13.83	
3 1/4	10,139	14.6	
3 3/8	10,625	15.3	36"
3 1/2	11,097	15.98	
3 5/8	11,569	16.66	
3 3/4	12,035	17.33	
3 7/8	12,486	17.98	
4	12,861	18.52	
4 1/8	13,076	18.83	
4 1/4	13,285	19.13	
4 3/8	13,486	19.42	

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.

Pictorial Reference

Currently there are two picture charts being widely used to assist with estimating SSO volumes. The older chart is the city of San Diego's Manhole Overflow Rate Chart with the

newer chart being the CWEA Southern Section Collection Systems Committee (SSCSC) Manhole Overflow Gauge. Each chart is a pictorial depiction of how an overflowing manhole appears at a given flow rate. The SSCSC Manhole Overflow Gauge has an additional picture for each flow rate showing a wide angle view of the spill area. When using either of the pictorial reference charts, select which picture most accurately represents the SSO being estimated. Use the gpm of the associated picture multiplied times the duration of the SSO to determine the total spill volume. Example: If the selected picture shows 300 gpm and the duration of SSO is 55 minutes, the total estimated spill volume would be 16,500 gallons (300 gpm x 55 min).

Selected picture volume	300 gpm
Duration of SSO	55 minutes
Total estimated SSO	16,500 gallons
(300 gpm x 55 minutes = 16,500 gallons)	

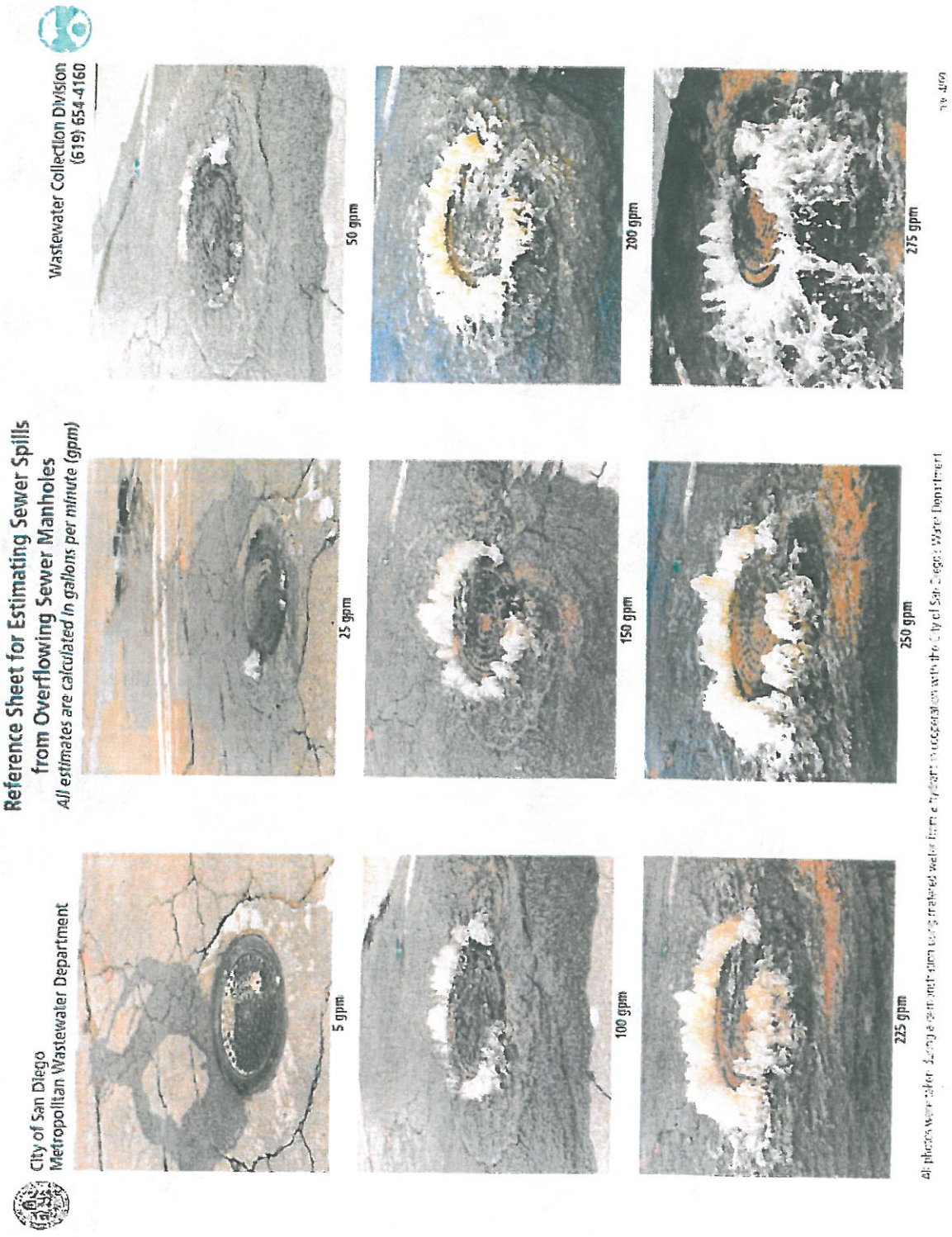
Note: Data was obtained at training facilities where potable water was metered and photos were taken at various flow rates.

Training facilities also exist at the Orange County Sanitation District in Fountain Valley, CA.

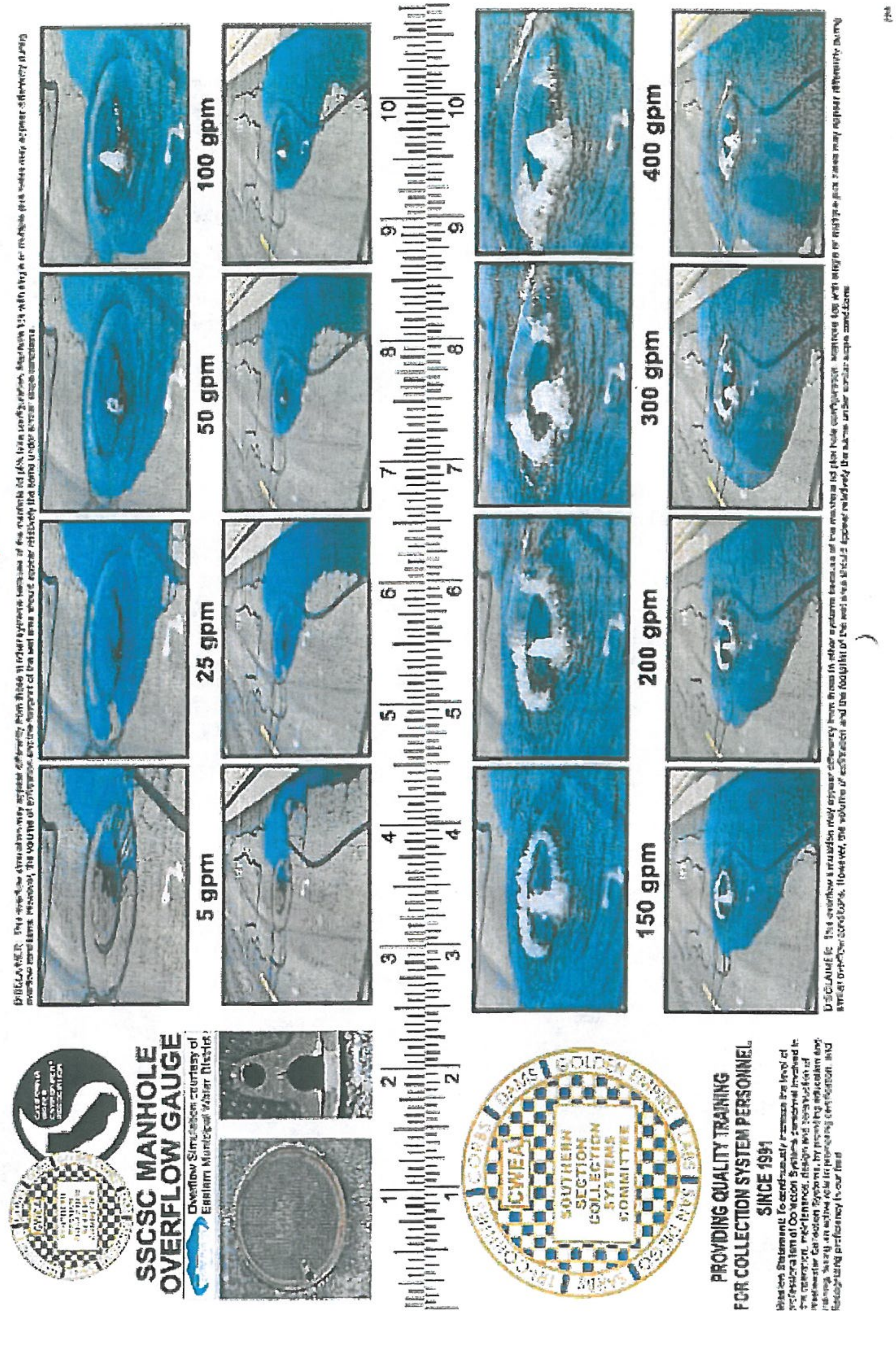
As a reference point, an 8-inch diameter sewer flowing half full at a velocity of 2.5 ft/sec would have a flow rate of about 192 gal/min. If fully blocked, the SSO rate would be 192 gpm. For a partial blockage, the SSO rate will be less.

Other agencies have developed above ground estimating tools such as frame and cover sets that can be pressurized using potable water and simple flow meters.

City of San Diego Manhole Overflow Picture Chart

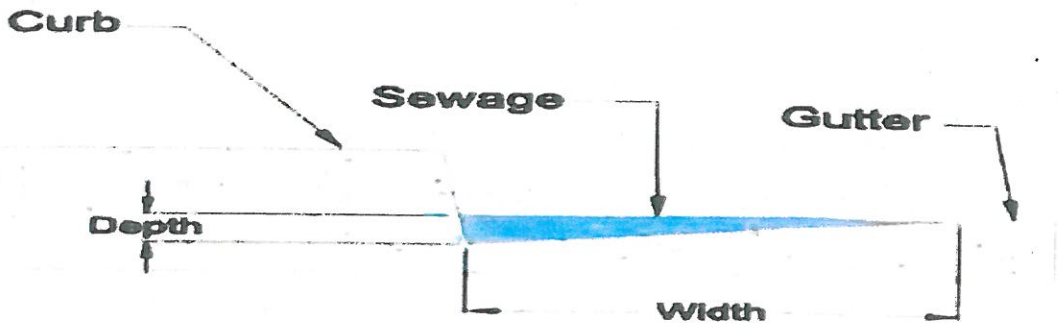


SSCSC Manhole Overflow Gauge



Gutter Flow (Simplified Version)

Although the traditional Manning's Equation is used to calculate flows in open channels, this simplified version can be used to measure SSOs that are flowing in open channels such as ditches, curb and gutter, etc. and still achieve reasonable estimations. Two things need to be determined to utilize this method of spill estimation, the cross sectional area of the channel and the velocity of the flow in the channel. First, determine the cross sectional dimensions of the channel (width and depth of flow) to determine the area of the flow. Then determine the velocity of the flow in the channel. To determine the velocity, drop a small floating object (ping pong ball, leaf, small piece of wood, etc.) into the flow and time how long it takes the object to travel a measured distance. This should be practiced several times in a non-SSO situation, and averaged to determine the flow velocity. The velocity of the flow multiplied by the cross sectional area of the flow multiplied by the duration of the SSO will result in the approximate volume of the SSO.



$Q = V \times A$

Flow (gal/min) = Velocity (ft/sec) x Area (ft^2) x 7.48 gal/cu ft x 60 sec/min

Example: If the cross section triangular area of the spill is calculated at .5 sq.ft. with the velocity measured at .25 ft. per second, the flow would be .125 cubic feet per second. Multiply times 449 (one cubic foot per second equals 449 gallons per minute) to determine the gallons per minute (56 gpm). If the SSO lasted for 35 minutes the total estimated spill volume would be 1,964 gallons.

Simplified Cross Section Area of the SSO	
Estimated Triangular Area	0.5 square feet
Estimated Velocity	.25 feet per second
Duration of the SSO	35 minutes
Gallons per minute per cubic foot per second conversion	449
Total estimated spill volume	1,964 gallons

(Area .5 sq.ft. x Est velocity .25 ft. per sec. = .125 cfs x 449 = 56 gpm x 35 minutes = 1,964 estimated gallons spilled)

Gutters on steep hillsides will flow at higher velocities. Practice your estimating on flatter areas and steeper areas of your service area.

Bucket Method

This method can be used for small spills due to partial blockages where the entire flow stream could be captured in a bucket. Estimate how many minutes it takes to fill the bucket. Dividing the volume of the bucket (in gallons) by the elapsed time to fill the bucket (in minutes). This provides the flow rate in gallons per minute (gpm). Once the gpm has been established, multiply the gpm by the total time duration in minutes of the SSO until it stopped to determine the total estimated volume of the SSO.

Example: If it takes 30 seconds (.5 minutes) to fill a 5 gallon bucket and the total spill duration was 20 minutes, the total spill volume would be 200 gallons. (5gal/.5 min = 10 gpm x 20 min = 200 gal).

Time to fill a 5 gallon bucket	30 seconds (.5 minute)
Duration of SSO	20 minutes
Estimated spill volume	200 gallons

(5 gallons every 30 seconds equals 10 gallons per minute x 20 minutes = 200 gallons)

You can practice visual estimating by filling a bucket of known volume for a measured time from a garden hose.

Pipe Size

To calculate an SSO based upon pipe size requires the diameter of the pipe, the depth of flow in the pipe downstream of the blockage during and after the blockage, and the flow velocity in the pipe. This method calculates the amount of flow in the pipe at the same time of the day during the blockage compared to the amount of flow normally in the pipe to determine how much flow had been lost over time.

To use this method, measure the flow depth at the nearest manhole downstream from the blockage. Record the depth reading. Once the blockage has been cleared and the flow stabilized, measure the flow depth at the same manhole as before and record the reading. The attached chart can be used on various size pipelines where the velocity is 2.0 feet per second. Pipelines of other rates will have to be calculated.

To use the attached chart, find the depth of the flow during the blockage in column 1. Follow the row across to the diameter of the pipe where the blockage has occurred. The number listed will be the flow rate in gallons per minute for pipelines with a velocity of 2 feet per second. Next find the flow depth after the blockage has been removed and the flow stabilized. Move across the chart to the proper pipe size and record the flow rate for a free flowing pipeline. Subtract the flow rate from the blocked pipe from the flow rate of the free flowing pipe. The remainder will be the flow rate lost. Multiply the flow rate lost times the duration of the SSO to determine the total flow volume lost. Example: If the flow depth during the blockage of a 10-inch pipe was 1 inch, the flow rate would 25 gpm. After the blockage was cleared and the flow stabilized, the flow depth was now 5 inches then the flow rate would be 240 gpm. To determine the amount lost, subtract the gpm (pipe blocked) from the gpm (pipe cleared) (240 gpm – 25 gpm = 215gpm) leaving the flow rate of the SSO. Multiply the remaining flow rate multiplied by the duration of the SSO in minutes to estimate the total volume of the SSO.

Flow Depth Inches	8 " PIPE	10" PIPE	12" PIPE	15" PIPE	18" PIPE	21" PIPE	24" PIPE
1	20 GPM	25 GPM	30 GPM	35 GPM	40 GPM	45 GPM	50 GPM
2	60	70	80	85	95	105	125
3	110	125	135	150	175	185	210
4	160	180	200	235	260	285	320
5	190	240	280	315	360	380	445
6	260	310	355	415	455	500	555
7	290	370	425	495	570	620	695
8	320	430	500	600	680	760	815
9		465	575	690	800	890	965
10		490	625	775	905	1005	1120
11			685	870	1020	1135	1275
12			715	935	1130	1260	1410
13				1020	1240	1415	1580
14				1070	1345	1520	1690
15				1105	1425	1650	1850
16					1495	1760	1990
17					1550	1880	2110
18					1595	1980	2285
19						2050	2410
20						2115	2530
21						2160	2630
22							2700
23							2765
24							2820

Note: the chart assumes V = 2.0 feet per second and n = 0.013

1. Record the time that spill was reported.
2. Record the flow, in inches, downstream of the spill or blockage. Record the pipe size in inches. Determine flow rate in gallons per minute (GPM) using chart above.
3. Re-establish flow and allow stabilizing. Record the time that flow stabilizes and the depth of flow, in inches. Determine flow rate using chart above.
4. Subtract the flow rate calculated in #2 from the flow rate calculated in #3.
5. Multiply the result of 4 by the minutes elapsed from notification to stopping overflow.
6. Report total amount in gallons on the SSO Report.

Note: The above chart is only for pipelines of the diameters shown and flowing at a velocity of 2.0 ft/sec.

Metered Flow

Estimates of the amount of wastewater spilled from a continuously metered system can be achieved utilizing upstream and downstream flow meters located close to the point where the wastewater escaped. Flow meters may be located at strategic locations throughout the wastewater collection system or at the intake or discharge of wastewater pump or lift stations. Flow metering usually occurs on pressure systems. If a spill is suspected on a metered upstream wastewater line, check the flow meter readings for abnormalities and note the time they start. Also check the flow meter readings at the downstream flow meter. If the downstream readings are lower than usual, the difference may be the amount of wastewater being lost to a spill. Abnormal pumping cycles for pump or lift stations located downstream from the spill can also be used to estimate the volume of a spill. Portable flow meters could also be installed in gravity sewers after a SSO event to help verify average flows at various times of the day when full or partial blockages may have occurred. You should also perform

this on the same day of the week that the SSO occurred. This is also a good way to understand how flows will change during the day in various parts of your system.

Rain Events

Previous examples of methods throughout the document were all in dry weather situations. Rain events cause substantial difficulties for SSO responders in establishing an accurate estimate of an SSO. Infiltration into the sewer system will increase, sometimes dramatically, the system flow including the amount of the SSO. When estimating the SSO amount during a rain event, the estimate is to include only the amount of wastewater that left the collection system (this includes any clear water inflow and/or infiltration (I&I) that entered the collection system upstream of the SSO) and not any waters that the wastewater comingled with after leaving the system. Although the comingled waters are considered contaminated by the SSO and may be involved in the cleanup, they should not be considered in the estimate of the volume of sewage spilled for the event. Consult with your city or agency management or your site-specific procedures to be used during wet weather SSOs.

Saturated Soils

Spills that have occurred on or migrated to grassy or dirt areas can be estimated if the area is dry and is not regularly irrigated like a field or dirt parking lot. This method is effective only during dry weather and not during or after a rain event. To estimate how much wastewater has been lost to the soil, first determine how many cubic feet of soil has been wetted. First determine the size of the area where the spill occurred. This is done in the same manner as for spills that occurred on hard surfaces and as discussed in the Measured Volume Method. Next determine how deep the soil has been saturated. To determine the depth of the soil saturation, dig several test holes with a round point shovel until dry soil is reached. Measure the depth of each hole and determine the average depth of the saturated soil. Multiply the area of the spill (in square feet) times the average depth of the soil saturation to determine the amount (in cubic feet) of saturated soil. Different types of soils will retain moisture in different amounts. Water will penetrate sandy soils quicker than clay soils and clay soils are capable of holding more moisture than sandy soils. Use an average of 18% moisture content when estimating the amount of wastewater that has saturated the soil.

Example: If the spill was contained in a dry dirt or grassy area of 10 feet by 20 feet, the area of the spill would be 200 square feet if it was a perfect rectangle (assumed). If the wastewater penetrated the soil to an average depth of 3 inches, the total amount of saturated soil would be 50 cubic feet (10 x 20 x .25 = 50 cf.). To determine the amount of wastewater suspended in the wetted soil, multiply the 50 cubic feet times 7.48 gallons per cubic foot (50 cf x 7.48 gal/cf = 374 gallons). Next multiply the gallons times the average amount of moisture the soil can hold (use 18% as a rough estimate or calculate the soil moisture) to determine the actual estimated amount of wastewater that has saturated the soil (374 gal x .18 = 67.3 gallons of wastewater contained in the soil for the area of the spill). Add the amount of wastewater estimated to be contained in the soil with the amount of surface wastewater that was removed to achieve an estimated total amount of the wastewater spill.

Simple method to calculate soil moisture content:
Equipment needed: One coffee filter; a funnel; a graduated measuring cup; a jar or bottle. Place the coffee filter into the funnel. Place the funnel into the mouth of the jar or bottle. Place one cup of clean dry soil from the spill site onto the coffee filter. Pour one cup (8 ounces) of water onto the soil and allow the water to drain into the jar. Once the water has stopped dripping from the funnel, remove the funnel and measure the amount of water in the jar. The difference between the amount of water in the jar and the 8 ounces originally poured over the soil is the amount of moisture the soil retained.

Example: If six and one half ounces (6.5) remained in the jar, one and one half ounce (1.5) or 18.75% remained in the soil. The soil moisture content would be 18.75%.

Combo Truck or Vacuum Truck Recovery

When the spill is contained to a specific area and recovered by a combo or vacuum truck, the amount recovered can be used in calculating the amount of the original spill. If the spill is contained on a hard surface, estimate the total spill volume by what was captured by the combo or vacuum truck plus the amount that could not be captured. To estimate the amount not captured by the combo or vacuum truck, use the Measured Volume Method. For wet spots on concrete, use a depth of 0.0013 ft. or 1/64 inch. For wet stains on asphalt, use a depth of

0.0026 ft. or 1/32 inch. If the spill is contained on soil, use the Saturated Soils Method to determine how much of the spill soaked into the soil and add to the amount captured by the combo or vacuum truck.

Conversion Factors

1.0 cfs = .6463 mgd

One cubic foot of water (cf) = 7.48 gallons

One cubic foot of water per second (cfs) = 448.8 gallons per minute

A cylinder 1 foot in diameter and one foot deep = 5.87 gallons

A 1 square foot triangle 1 foot deep = 3.25 gallons

One inch or 1/12 ft = .083 feet

Volumes Recovered with Trucks or Pumped to Tanks

Level gauge on truck or

Known volume of the full tank or

Number of full tank trucks used during large SSO events

Use your agency's approved conversion factors, if available.

References

California Environmental Protection Agency

http://www.calepa.ca.gov/

State Water Resources Control Board

http://www.swrcb.ca.gov/

Sanitary Sewer Overflow (SSO) Reduction Program

http://www.swrcb.ca.gov/water_issues/programs/sso/index.shtml

Sample Worksheet

_____
(City or Agency Name)

SSO Volume Estimation Worksheet

SSO Address/Location:_____ **Date:** _____

_____

SSO Volume Method of Estimation (check appropriate box and provide appropriate information for method used below)

Pictorial Reference Flow Rate Chart (San Diego Chart ☐ CWEA Ruler ☐)
Vent or Pick Holes ☐ Eyeball estimate ☐

Measured volume ☐ Counting Connections ☐ Manhole Ring ☐ Partially Covered Manhole ☐ Open Manhole ☐

Bucket Method ☐ Pipe Size Method ☐ Gutter Flow Method ☐ Metered Flow ☐
Rain Event Method ☐

Saturated Soils Method ☐ Combo/Vacuum Truck Recovery Method ☐

Spill Start Date: _____ Spill Start Time:_____

Spill End Date: _____ Spill End Time: _____ Total Est. Spill Volume (gal):_____

Provide a detailed description of the method(s) used to determine the SSO estimate. (Use additional sheets as needed)

Signed: _____ **Date:** _____

DANGER

RAW SEWAGE HAS CONTAMINATED WATER

CONTACT MAY CAUSE ILLNESS

Keep Children and pets out of this area.

PELIGRO

AGUA CONTAMINADA

CONTACTO CON EL AGUA
PUEDE CAUSAR ENFERMEDADES

Mantenga niños y mascotas fuera de esta área.

For more information – Para más información

Contact: City of Alameda

Department of Public Works

(510) 747-7900

Below sign is used in combination with caution tape to keep public out of an area deemed unsafe.

Appendix H: SSO Response Equipment

version 2/7/2020

SSO Response Vehicle	Last Date of Inspection
Cab (one each unless noted)	
Overflow Emergency Response Plan	
Current Version of Sewer Map Book	
Current Version of Storm Map Book	
GPS unit hand held	
Digital camera/Flashcard	
4 pack AA batteries	
2- Flash lights	
Potable flood light (lighter adapter)	

Cargo Area	Last Date of Inspection	Specific Location
First Aid Kit		
2-Box Latex Gloves/Work gloves		
2” Electric Submersible Pump		
2” Trash Pump (Gas)		
Fuel Can (2.5 Gal)		
2- 20 feet 2 “suction hose		
2- 50 feet 2’ discharge hose		
Pig drain inlet blanket		
Foss spill kit		
20- Sand bags		
2- Rolls 6 ml plastic 20’ x 100 ‘		
8-12” pneumatic plug		
12-18” pneumatic plug		
10” mechanical plug		
Speed air 5 gal 125 psi air tank		
Round point shovel and square shovel		
2- Push brooms		
2-Rolls caution tape		

Cargo Area	**Last Date of Inspection**	**Specific Location**
4-Type 1 Barricade w/Reflective SSO Sign		
20- 18“ reflective cones		
Generator Honda 2000 inverter		
2- 50“ extension cords		
2- Portable light standards		
Dechlorination Tablets		
Vac-Con Jetter / Vacuum		
Utility Truck (F-450)		
Mini Pick-Up (Ranger)		
Utility Truck (C-30)		
Wakers (2 ea)		
2- Emergency Bypass Pump		
Emergency Lighting		
Sewer Snakes (4 ea)		
CCTV Lateral Camera		
Pipe Locator		
2 - Portable Generator		

Appendix I: Water Quality Monitoring Program Plan

Water Quality Monitoring – Key Elements

- **Trigger for Sampling.** Water quality sampling must be performed for sanitary sewer overflows (SSOs) greater than 1,000 gallons that reach a lagoon in the City or are greater than 5,000 gallons and reach any other surface water.
- **Safety and Access.** Water quality sampling should only be performed if it is safe to do so and access to the surface water is not restricted. Unsafe conditions may include, but are not limited to, slippery and/or steep stream banks. When sampling is not possible due to safety considerations or access restrictions, document the conditions in writing and with photos if possible; details of the situation will be recorded in the certified Category 1 SSO Report and the SSO Technical Report submitted to the CIWQS Online SSO Database.
- **Who Samples.** The City entered into agreement with EBMUD, effective January 1, 2020, for water quality sampling collection and laboratory analysis sampling. EBMUD Wastewater Control Inspectors collect water quality samples at the City's direction.
- **When to Sample.** Sampling must be performed within 48 hours of the City becoming aware of the SSO. Water quality sampling should not interfere with stopping the SSO.
- **Where to Sample.** Point of entry, upstream and downstream. Sampling should account for spill travel time in surface water (see Sample Collection Procedure below).
- **Required Water Quality Analyses.** At a minimum, analyze for ammonia and enterococcus for saline surface waters (see Sampling Parameters below).
- **Follow-Up Monitoring.** It may be appropriate to conduct additional monitoring by sampling and/or visual inspection, depending on the original monitoring results. For example, if an impact from the SSO is observed, follow-up monitoring could be conducted until the water body has reverted to an estimated baseline condition. Consult with appropriate Environmental Health Department or local Fish & Wildlife representative if necessary.

Water Quality Sampling – Protocol

1. Contact EBMUD's Supervising Wastewater Control Inspector:
   Florencio C. Gonzalez
   Office: (510) 287-1655
   Mobile: (510) 385-6156
   florencio.gonzalez@ebmud.com

   Inform him of the need for water quality sampling following an SSO. For each SSO, there locations are to be sampled for the following parameters:
   - Ammonia
   - Enterococcus bacteria
2. Identify the 3 sample locations for EBMUD to collect from:
   1. Source Location
      a. If the SSO is occurring, the "source" location is the point where the SSO is entering the waterway.
      b. If the SSO has stopped, calculate the approximate downstream distance from the original SSO has traveled by dividing the time since the SSO occurred by the estimated velocity of the water body. This may be done by observing or dropping floatable debris in the surface water and timing how long it takes to travel over a measured distance (e.g., 100 feet). Include sections in the surface water where there are

bends, bottlenecks, or other characteristics that may slow down the flow. If the first measurement is uncertain, this time estimate may be performed three to five times, and the values averaged to determine the estimated travel time. The velocity in the upper portion of the water body can then be calculated by dividing the measured distance by the average time.

c. Due to possible tidal action in the surface water or other factors, another method may be used to determine the "source" location at the discretion of the Legally Responsible Party (LRO).

2. 100 feet upstream of Source Location[1]
3. 100 feet downstream of Source Location[1]

3. Photograph each sample location and label, accordingly
4. Obtain the manifest number for each location from EBMUD. Note the location and manifest number for that location and include in the SSO file.
5. Do not initiate a second round of sampling if the results provided by EBMUD meet any of the following conditions:
    - Both the ammonia and bacteria levels downstream are approximately equal to or less than the upstream levels; or
    - The concentration of un-ionized ammonia is below 0.16 mg/l as N; or
    - The concentration of bacterial indicator levels are below the appropriate water quality objectives listed in the table below, which was excerpted from the Basin Plan. (Note: If you are unsure which beneficial uses apply to the water body, or the water body does not have beneficial uses listed in the June 2013 Basin Plan, use the enterococcus bacteria indicator, since it is the most human-specific pathogen of the options.)

    If the above conditions are not satisfied, initiate a second round of sampling and keep signs posted. Repeat the Sample Collection Procedure steps until either or both of the conditions are satisfied or other information is available to suggest the SSO is no longer causing a potentially adverse effect on the water body.

6. Remove signs once monitoring is complete.

[1] The terms "upstream" and "downstream" may depend on the tidal cycle if the water body is tidally-influenced. Check the tide chart(s) and table at the following link: < http://tidesandcurrents.noaa.gov/noaatidepredictions/NOAATidesFacade.jsp?Stationid=9415623 >.

Excerpt of Table 3-1 of the June 2013 Basin Plan

Beneficial Use	Fecal Coliform (MPN/100mL)	Total Coliform (MPN/100mL)	Entercoccus Bacteria (MPN/100mL)	
			Estuarine and Marine	Fresh Water
Water Contact Recreation	**90th percentile < 400**	**no sample > 10,000**	**no sample > 104**	**Max at 89**
Shellfish Harvesting	**90th percentile < 43**	**90th percentile < 230**	**--**	**--**
Non-contact Water Recreation	**90th percentile < 4,000**	**--**	**--**	**--**

Water Quality Analyses – Protocols

Laboratory Analyses

Water quality analyses are performed by EBMUD, an accredited Laboratory. The methods will be performed according to the laboratory's Standard Operating Procedures (SOPs).

Maintenance and Calibration of Monitoring Instruments and Devices:

All laboratory monitoring instruments and devices used for water quality analyses are maintained and calibrated according to the laboratory's SOPs to ensure their continued accuracy.

Reporting Requirements

The LRO is responsible for submitting water quality monitoring information with the certified Category 1 SSO report in the CIWQS Online SSO Database, which must be submitted within 15 calendar days of the SSO end date.

The LRO is responsible for submitting information related to the Technical Report in the CIWQS Online SSO Database, which must be done within 45 calendar days of the SSO end date. The SSO Technical Report must include the following water quality monitoring information:

- Description of all water quality sampling activities conducted
- Analytical results and evaluation of the results
- Detailed location map showing all water quality sampling point

City of Alameda

On (date) _____, at (location)

_____,
we responded to a blockage of the sanitary sewer service near this residence.

We discovered a blockage in:

- ☐ The sanitary sewer main and cleared the line
- ☐ The lower lateral and cleared the line.
- ☐ The upper lateral, which is your responsibility to maintain.

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

City of Alameda representative notes: _____

_____

_____

City of Alameda Representative:

_____

For questions or comments, please call
City of Alameda Public Works
(510) 747-7900

City of Alameda

On (date) _____, at (location)

_____,
we responded to a blockage of the sanitary sewer service near this residence.

We discovered a blockage in:

- ☐ The sanitary sewer main and cleared the line
- ☐ The lower lateral and cleared the line.
- ☐ The upper lateral, which is your responsibility to maintain

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City of Alameda representative notes: _____

_____

_____

City of Alameda Representative:

_____

For questions or comments, please call
City of Alameda Public Works
(510) 747-7900

City of Alameda
Receiving a Sewer Service Call Report

Date: _____ **Time call**: _____**am/pm** **Staff receiving the call**: _____

☐ What is the callers name: _____

☐ What is the caller's phone number: _____

☐ What is the address of incident: _____

☐ Please describe the problem:

_____

_____

_____

☐ What time did the caller first notice the incident: _____

☐ Is sewage currently overflowing: Yes No If no, what time did it stop: _____am/pm

☐ If the problem is sewer odor only, specifically ask where the smell is coming from:
_____

☐ Clearly communicate Public Works Maintenance staff will respond. During business hours response time should not exceed 30 minutes and non-business hours response time should not exceed 1 hour.

☐ Clearly communicate that if the blockage/problem is in the sewer main line or the property's lower lateral if a property line cleanout is present, it will be promptly cleared, but that City staff is not **allowed to work on a blockage in the property owner's/resident's upper service lateral line.**

☐ Show concern and empathy for the property owner/resident, **but do not admit or deny liability.**

☐ Instruct the caller to keep all family members & pets away from the affected area.

☐ Instruct the caller to place towels, rags, blankets, etc between areas that have been affected & areas that have not been affected.

☐ Instruct the caller to turn off all plumbing appliances (laundry, shower, sinks, etc..)

☐ Instruct the caller to not remove any contaminated items – *let the professionals do this.*

☐ Instruct the caller to move any **uncontaminated** property away from the overflow area.

☐ If possible, have the property owner take photographs of any damage

- ☐ Dispatched Staff: _____
- ☐ Scan sheet and submit as attachment to SeeClickFix Sewer Service Call Request

SUBMIT TO CITY CLERK
City Hall
2263 Santa Clara Ave., Suite 380
Alameda, CA 94501

CLAIM AGAINST THE CITY OF ALAMEDA

1. Claimant's Name: _____

   Claimant's Address: _____

   _____

   Claimant's Daytime Phone No: _____ Cell. No: _____

   Gender: M / F Date of Birth: _____ *SSN: _____

   Driver's License No: _____ State/Exp. Date: _____

2. When did the damage or injury occur (date and time)? _____

   _____

3. Place of occurrence: _____

4. What happened and why is the City responsible? _____

   _____

   _____

   Name of City's employee(s) causing injury or damage, if known: _____

   _____

5. Description of damage or loss: _____

   _____

   _____

   _____

6. **Total amount claimed: _____

   _____

   Date: _____ Signed: _____

*** Under Senate Bill 2499, the Medicare, Medicaid, and SCHIP Extension Act of 2007 (MMSEA) , mandatory reporting requirements for all claimants require a Social Security Number be provided, under penalty of law.**

****If total amount claimed is less than $10,000.00, enter amount claimed and the basis for computation of that amount. If it is more than $10,000.00, indicate whether the municipal or superior court would have jurisdiction. Government Code Section 910(f).**

PRESENTING A CLAIM AGAINST THE CITY OF ALAMEDA

- PLEASE TYPE OR PRINT CLEARLY ALL OF THE INFORMATION REQUESTED ON THE CLAIM FORM.
- YOU MUST COMPLETE EACH SECTION, OR YOUR CLAIM MAY BE RETURNED TO YOU AS INSUFFICIENT.
- THE FOLLOWING PROVIDES SPECIFIC INSTRUCTIONS FOR COMPLETING EACH SECTION OF THE CLAIM FORM.

1. **CLAIMANT S FULL NAME, CONTACT AND PERSONAL INFORMATION** Print the full name, mailing address and phone number, gender, date of birth, social security number and driver's license information of the person/persons claiming damage or injury. (Under Senate Bill 2499, the "Medicare, Medicaid, and SCHIP Extension Act of 2007 (MMSEA)", mandatory reporting requirements for all claimants **require a Social Security Number be provided**, under penalty of law.)

2. **WHEN DID THE DAMAGE OR INJURY OCCUR?** Print the exact month, date, year and approximate time (if known) of the incident, which caused the alleged damage/injury.

   Under State law, claims relating to causes of action for personal injury, wrongful death, property damage, and crop damage must be presented to the City of Alameda no later than six months after the incident date. Please note that evidence of **presentation** must include a clear postmark date on the envelope or a certification of personal service.

   When filing a claim beyond the six-month period, you must explain the reason the claim was not filed within the six-month period. This explanation is called an **application for leave to present a late claim.** In considering your claim, the City will first decide whether the late claim application should be granted or denied. (See Government Code Section 911.4 for the legally acceptable reasons claim may be filed late.) Only if your late claim application is granted will the City consider the merits of your claim.

   Claims relating to any cause of action, subject to the Tort Claims Act, other than personal injury, wrongful death, property damage, and crop damage, must be presented no later than one year after the incident date. (See Government Code Section 911.2)

3. **PLACE OF OCCURRENCE** Please include street address, city, intersection, etc. If possible, also include the Police Report number.

4. **WHAT HAPPENED AND WHY IS THE CITY RESPONSIBLE?** Please explain the circumstances that led to the alleged damage or injury. State all facts, which support your claim with the City of Alameda, and why you believe the City is responsible for the alleged damage or injury. If known, identify the name of the City Department(s) and/or City employee(s) that allegedly caused the damage or injury.

5. **DESCRIPTION OF DAMAGE OR LOSS** Provide in full detail a description of the damage/injury that allegedly resulted from the incident.

6. **TOTAL AMOUNT CLAIMED** State the specific total dollar amount you are claiming as result of the alleged damage/injury. Provide a breakdown or how the total amount that you are claiming was computed. You may declare expenses incurred and/or future, anticipated expenses. If you have supporting documents (i.e., bills, payments receipts, cost estimates), please attach copies to your claim.

7. **SIGNATURE** The claim must be signed by the claimant or by the attorney/representative of the claimant. The City will not accept the claim without proper signature.

- SUBMIT COMPLETED CLAIM AND RELATED DOCUMENTATION TO: The City Clerk' s Office, 2263 Santa Clara Avenue, Room 380, Alameda, CA 94501. The City Clerk's Office will accept personal service during regular City business hours, 8:00 a.m. to 6:00 p.m. Monday through Thursday. If you have any questions regarding the filing of a claim, please contact the Risk Manager at (510) 747-4750.