

The Santa Lucia Preserve Community Service District Sanitary Sewer Spill Emergency Response Plan



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Sanitary Sewer Spill Emergency Response Plan

1. Purpose

The purpose of the Santa Lucia Preserve's Spill Emergency Response Plan (SERP) is to support an orderly and effective response to Sanitary Sewer Overflows (SSO's). The SERP provides guidelines for the Community Service District's (CSD) personnel to follow in responding to, cleaning up, and reporting SSO's that may occur within the service area. This SERP satisfies the SWRCB Statewide General Waste Discharge Requirements (GWDR), which require wastewater collection agencies to have a Spill Emergency Response Plan.

2. Policy

The community's employees are required to report all wastewater overflows found and to take the appropriate action to secure the wastewater overflow area, properly report to the appropriate regulatory agencies, relieve the cause of the overflow, and ensure that the affected area is cleaned as soon as possible to minimize health hazards to the public and protect the environment. The community's goal is to respond to sewer system overflows as soon as possible following notification. The Community Service District will follow reporting procedures for sewer spills as set forth by the State Water Quality Control Board (SWQCB).

3. Definitions as Used in This SERP

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.

Community: Refers to *The Santa Lucia Preserve*
1 Rancho San Carlos Drive
Carmel, Ca. 93923

CSD: Refers to the Community Service District of The Santa Lucia Preserve

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

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

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

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

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

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

- a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
- b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

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

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

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

- (i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;
- (ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and
- (iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

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

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

SSO Categories:

- **Category 1 Spill**

A Category 1 spill is a spill of any volume of sewage from or caused by a sanitary sewer system regulated under this General Order that results in a discharge to:

- A surface water, including a surface water body that contains no flow or volume of water; or
- A drainage conveyance system that discharges to surface waters when the sewage is not fully captured and returned to the sanitary sewer system or

disposed of properly.

Any spill volume not recovered from a drainage conveyance system is considered a discharge to surface water unless the drainage conveyance system discharges to a dedicated stormwater infiltration basin or facility.

*A spill from an Enrollee-owned and/or operated lateral that discharges to a surface water is a Category 1 spill; the Enrollee shall report all Category 1 spills per section 3.1 of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of this General Order.

- **Category 2 Spill**

A Category 2 spill is a spill of 1,000 gallons or greater, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.

A spill of 1,000 gallons or greater that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system, is a Category 2 spill.

- **Category 3 Spill**

A Category 3 spill is a spill of equal to or greater than 50 gallons and less than 1,000 gallons, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.

A spill of equal to or greater than 50 gallons and less than 1,000 gallons, that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system is a Category 3 spill.

- **Category 4 Spill**

A Category 4 spill is a spill of less than 50 gallons, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.

A spill of less than 50 gallons that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system is a Category 4 spill.

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

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

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

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

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

4. State Regulatory Requirements for Attachment D Section 6, Spill Emergency Response Plan

GWDR Requirement

Within six (6) months of the Application for Enrollment approval date, the Enrollee shall develop and implement a Spill Emergency Response Plan, per Attachment D, section 6 (Spill Emergency Response Plan) of this General Order.

The Enrollee shall certify, in its Annual Report, that its Spill Emergency Response Plan is up to date.

The Spill Emergency Response Plan shall include measures to protect public health and the environment. The Enrollee shall respond to spills from its system(s) in a timely manner that minimizes water quality impacts and nuisance by:

- Immediately stopping the spill and preventing/minimizing a discharge to waters of the State;
- Intercepting sewage flows to prevent/minimize spill volume discharged into waters of the State;
- Thoroughly recovering, cleaning up and disposing of sewage and wash down water; and
- Cleaning publicly accessible areas while preventing toxic discharges to waters of the State.

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

5. Goals

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

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

6. SSO Detection and Notification

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

The service district operates 7 wastewater lift stations. In the event of pumping failure, alarms are activated via the supervisory control and data acquisition (SCADA) system and service district staff is contacted. To prevent overflow, wastewater being delivered to the lift station can be pumped into a vacuum truck for disposal to a nearby sanitary sewer manhole.

6.1 PUBLIC OBSERVATION

Public observation is the most common way that the service district is notified of blockages and spills. Contact numbers and information for reporting sewer spills and backups are on the Community Service District's website: www.santaluciacsdsd.org.

Telephone numbers for reporting sewer overflows are:

SLCSD Water Department Assistant Director/LRO

Kevin Siring O: (831)620-6788

 C: (831)241-3500

SLCSD Water Department Director

Aaron Dula O: (831)620-6783

 C: (831)238-4283

During business hours, when the Service District receives calls, the Sewer Service Call Report will be filled out and attached to a work order and system operators will be immediately dispatched.

After business hours, when the Service District receives calls, System Operators will be dispatched to the incident scene for further investigation of the call.

After dispatch, Service District System Operators staff responds, investigates, takes appropriate actions, and completes the work order.

6.2 COMMUNITY SERVICE DISTRICT STAFF OBSERVATION

Service district staff conduct periodic inspections of its sewer system facilities as part of their routine activities. Any problems noted with the sewer system facilities are reported to the Water department management. Work orders are issued for both emergency and non-emergency conditions.

6.3 CONTRACTOR OBSERVATION

The following procedures are to be followed if a contractor/plumber causes or witnesses a Sanitary Sewer Overflow. If the contractor/plumber causes or witnesses an SSO they should:

1. Immediately notify the Community Service District Water department.
2. Protect storm drains.
3. Protect the public.
4. Provide information to the Service District's Sewer Operators such as start time, appearance point, suspected cause, weather conditions, etc.

6.4 NO OBSERVATION

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

7. SSO Response Procedures

7.1 Sewer Overflow/Backup Response Summary

The Community Service District will respond to SSO's as soon as feasible following notification of an overflow/backup or unauthorized discharge.

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

- Follows the instructions in the Sanitary Sewer Overflow/Backup Response Workbook.
- If the customer is not available, the Sewer Crew contacts Resident Services to obtain permission to enter the owner's property. Once property owners have consented to Service District staff to be onsite. A) District staff work to determine the location and nature of blockage B) Contact private contractor to clear their line or; clear the blocked line using in-house jetting equipment.
- If the customer is available, the Sewer Crew:
 - Explains that the blockage is in the customer's lateral, and the CSD does not have legal authority to maintain or perform work on privately owned laterals.
 - Recommends to the customer that they hire a contractor to clear their line.

If it *is* possible that the overflow/backup is due to a failure in the CSD-owned/maintained sewer lines the Sewer Crew follows the instructions in the Sanitary Sewer Overflow/Backup Workbook, and after completion of response activities, forwards the completed workbook to the Assistant Director of Water Systems.

- The Assistant Director of Water System performs required regulatory reporting in accordance with the Sanitary Sewer Overflow/Backup Workbook's Regulatory Reporting section.

If the overflow has impacted private property, the Sewer Crew provides the customer with forms and information as indicated in the Sanitary Sewer Overflow/Backup Workbook.

- The Assistant Director of Water Systems notifies the SLP Attorney or designee of the incident.
- The SLP Attorney or designee:
 - Reviews incident reports, claim form and other incident information.
 - Communicates with claimant as appropriate.
 - Administers the claim to closure.

7.2 First Responder Priorities

The first responder's priorities are:

- To follow safe work practices.
- To respond promptly with the appropriate and necessary equipment.
- To contain the spill wherever feasible.
- To restore the flow as soon as practicable.
- To minimize public access to and/or contact with the spilled sewage.
- To promptly notify the Director of water systems.
- To return the spilled sewage to the sewer system.
- To restore the area to its original condition (or as close as possible).

7.3 Safety

The first responder is responsible for following safety procedures at all times. Special safety precautions must be observed when performing sewer work. There may be times when Service District personnel responding to a sewer system event are not familiar with potential safety hazards peculiar to sewer work. In such cases, it is appropriate to take the time to discuss safety issues, consider the order of work, and check safety equipment before starting the job.

7.4 Initial Response

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

The first responder will follow procedures outlined in the Sanitary Sewer Overflow / Backup Response Workbook including:

- Note arrival time at the site of the overflow/backup.
- Confirm the overflow or blockage is from a public sewer as opposed to a private lateral.
- Identify and assess the affected area and extent of spill.
- Notify the Director of Water Systems. Determine the need for additional staffing/resources.
- Call Cal-OES if spill is Category 1

7.5 Initiate Diversion and Containment

The first responder will attempt to contain as much of the spilled sewage as possible following procedures outlined in the Sanitary Sewer Overflow/Backup Response Workbook including:

- Diverting SSO away from sensitive areas
- Containing SSO and returning to sewer system, if possible.
- If sewage has made contact with storm drainage system or surface waters, containing the sewage from downstream facilities.

7.6 Address Cause of SSO

Service District system operators will follow procedures outlined in the Sanitary Sewer Overflow/Backup Response Workbook. For collection system SSOs, using the appropriate cleaning equipment, set up downstream of the blockage and hydro-clean upstream from a clear manhole. Attempt to remove the blockage from the system and observe the flows to ensure that the blockage does not reoccur downstream. After blockage removal, and if possible, CCTV sewer to determine SSO cause and clean pipe thoroughly. If the blockage cannot be cleared within a reasonable time from arrival, or sewer requires construction repairs to restore flow, then initiate containment and/or bypass pumping.

7.7 Equipment

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

- *Closed Circuit Television (CCTV) Inspection Unit* – A CCTV Inspection Unit is required to determine the root cause for all SSOs from gravity sewers.
- *Camera* -- A digital or disposable camera is required to record the conditions upon arrival, during clean up, and upon departure.
- *Emergency Response Trucks* -- A utility body pickup truck, or open bed is required to store and transport the equipment needed to effectively respond to sewer emergencies. The equipment and tools will include containment and clean up materials.
- *Portable Generators, Portable Pumps, Piping, and Hoses* – Equipment used to bypass pump, divert, or power equipment to mitigate an SSO.
- *Combination Sewer Cleaning Trucks* -- Combination high velocity sewer cleaning trucks with vacuum tanks are required to clear blockages in gravity sewers, vacuum spilled sewage, and wash down the impacted area following the SSO event.

(Greenline INC, 1128 Madison Ln #A, Salinas, CA 93907/ 831-422-2298)
(PSTS, 73 W. Carmel Valley Rd, Carmel Valley, CA 93924/ 831-65-2465)

- *Air plugs and sandbags*
- *SSO Sampling Kits*
- *Portable Lights*

Standard operating procedures are available for equipment that may be necessary in the event of a sanitary sewer overflow or backup.

7.8 Continued Response Efforts

The Community Service District shall, following the initial response and reporting required by the State Water Resources Control Board's Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (SSS WDR), continue response efforts based on the risk posed by the SSO at issue, taking into account: (1) the volume of the SSO; (2) the proximity of the SSO to high risk areas, which shall include sensitive populations, specifically public areas. (3) the timing and/or seasonality of the SSO event The CSD further agrees to provide training to its response crews regarding implementation of the risk assessment. The CSD shall augment the SSMP and SERP, as necessary, to document this practice.

8. Recovery and Cleanup

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

8.1 Estimate the Flow and Volume of Spilled Sewage

A variety of approaches exist for estimating the volume of a sanitary sewer spill. Service District crew members should use the method most appropriate to the sewer overflow in question and reference the Sanitary Sewer Overflow/Backup Response Workbook which provides four (4) methods:

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

Where safe and possible, the Service District shall take photographs of an SSO event before and during the recovery operation to help aid in establishing and justifying spill volume. Such photographs will preserve data such as the date and time for when Service District staff took the photograph.

8.2 Recovery of Spilled Sewage

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

8.3 Clean-up and Disinfection

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

Private Property

CSD crews are responsible for the cleanup when the property damage is minor in nature and is outside of private building dwellings, such as in front, side and backyards, easements, etc. In all

other cases, affected property owners can call a water damage restoration contractor to complete the cleanup and restoration. If the overflow into property is the definite cause of Community's system failure property.

Hard Surface Areas

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

Landscaped and Unimproved Natural Vegetation

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

Natural Waterways

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

Wet Weather Modifications

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

8.4 Public Notification

In the event the CSD cannot confirm that specific human pathogens from an SSO have been removed or mitigated, the CSD shall post and maintain appropriate public notification signs and place barricades to keep vehicle and pedestrian traffic away from contact with the spilled sewage. The signs and other public notices will not be removed until the County of Monterey Department of Environmental Health or other agency with jurisdiction over the matter has determined there is no further risk to public health and the environment.

The area and warning signs, once posted, will be checked every day to ensure that they are still in place. Photographs of sign placement will be taken.

The CSD will provide notification to members of the public for any SSO in excess of fifty thousand (50,000) gallons if the SSO reaches a surface water.

9. Water Quality

9.1 Waters of the State

Waters of the State include any surface water or groundwater, including saline waters, within the

boundaries of the state as defined in Water Code section 13050(e), and are inclusive of waters of the United States. Any discharge from a sanitary sewer system, discharged directly or indirectly through a drainage conveyance system or other route, to waters of the State is prohibited.

9.2 Water Quality Monitoring Plan

Water quality sampling and testing will be performed for Category 1 SSOs of 50,000 gallons or greater to determine the extent and impact of the SSO.

9.3 SSO Technical Report

The LRO will submit an SSO Technical Report to the CIWQS Online SSO Database within 45 calendar days of the SSO end date for Category 1 spills of 50,000 gallons or greater. This report, which does not preclude the Water Boards from requiring more detailed analyses if requested, shall include at a minimum, the following:

1. **Introduction**: Agency/system description
2. **SSO Technical Report** : Contents and Responses
 - a. Causes and Circumstances of the SSO
 - i. Detailed explanation of how and when SSO was discovered.
 - ii. Diagram indicating SSO "Cause point", appearance point, and final destination (use attachments, maps and diagrams as needed)
 - iii. Detailed description of methodology employed, and available data used to calculate the SSO volume, and any volume recovered.
 - iv. Detailed description of the cause(s) of the SSO
 - v. Copies of the original field crew records used to document the SSO (attachment)
 - vi. Historical maintenance records for the lines involved in the cause of the SSO (attachment)
 - b. Agency's Response to the SSO
 - i. Chronological narrative description of actions taken by agency to terminate the SSO.
 - ii. Description of how the OERP was implemented to respond to and mitigate any impacts of the SSO.
 - iii. Final corrective action(s) completed and/or planned, including a schedule for actions not yet completed.
 - c. Water Quality Monitoring
 - i. Description of all water quality sampling activities conducted, including analytical results and evaluation of the results.
 - ii. Detailed location map illustrating all water quality sampling points.

3. Conclusions

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

Procedures will be followed for sewer overflow/backups into/onto private property as described in the Sanitary Sewer Overflow / Backup Response Workbook which includes: safety instructions, contact information if wishing to file a claim, and requirements for having a backflow prevention device.

- It is the responsibility of the Community Service District Sewer Crew to gather information regarding the incident per the Workbook forms and notify the Water System Director or their designee. Sewer Crew shall not enter private property, but request owner takes photos/videos of impacted and non-impacted areas on their behalf.
- It is the responsibility of the CSD Attorney or their designee to review all claims and to oversee the adjustment and administration of the claim to closure.

11. Notification, Reporting, Monitoring and Recordkeeping Requirements

In accordance with the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (SSS GWDRs), The Santa Lucia Preserve Community Service District maintains records for each sanitary sewer overflow. Records include:

- Documentation of response steps and/or remedial actions
- Photographic evidence to document the extent of the SSO, field crew response operations, and site conditions after field crew SSO response operations have been completed. The date, time, location, and direction of photographs taken will be documented.
- Documentation of how any estimations of the volume of discharged and/or recovered volumes were calculated including all assumptions made.
- Regulatory notifications are outlined in Section 11.1 on the following page.

11.1 Regulator Required Notifications

ELEMENT	REQUIREMENT	METHOD
NOTIFICATION	Within two hours of becoming aware of any Category 1 SSO greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water, the CSD will notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.	Call Cal OES at: (800) 852-7550
REPORTING	<ul style="list-style-type: none"> • The Legally Responsible Official shall electronically certify, on the Enrollee’s behalf, all applications, reports, the Sewer System Management Plan(s) and corresponding updates, and other information submitted electronically into the online CIWQS Sanitary Sewer System Database • Category 1 SSO: The CSD will submit a draft spill report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. Within 45 days the CSD will also submit a Spill technical report • Category 2 SSO: The CSD will submit a draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date. • Category 3 SSO: The CSD will submit certified report within 30 calendar days of the end of month in which SSO the occurred. • Category 4 SSO: The CSD will submit certified report within 30 calendar days of the end of month in which SSO the occurred. • SSO Technical Report: The CSD will submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters. • “No Spill” Certification: The CSD will certify that no SSOs occurred within 30 calendar days of the end of the month in which no SSOs occurred. • Collection System Questionnaire: The CSD will update and certify every 12 months 	<p>Enter data into the CIWQS Online SSO Database¹ (http://ciwqs.waterboards.ca.gov/) certified by the Legally Responsible Official(s) ².</p> <p>All information required by CIWQS will be captured in the Sanitary Sewer Overflow Report.</p> <p>Certified SSO reports may be updated by amending the report or adding an attachment to the SSO report within 120 calendar days after the SSO end date.</p> <p>After 120 days, the State SSO Program Manager must be contacted to request to amend an SSO report along with a justification for why the additional information was not available prior to the end of the 120 days.</p>
WATER QUALITY MONITORING	The CSD will conduct water quality sampling within 48 hours after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.	Water quality results will be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.

RECORD KEEPING	<p>The CSD will maintain the following records:</p> <ul style="list-style-type: none"> • SSO event records. • Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP. • Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters. 	<p>Self-maintained records shall be available during inspections or upon request.</p>
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For reporting purposes, if one SSO event of whatever category results in multiple appearance points in a sewer system, a single SSO report is required in CIWQS that includes the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that cause the SSO, and descriptions of the locations of all other discharge points associated with the single SSO event.

11.2 Complaint Records

The CSD shall maintain records of all complaints received whether they result in sanitary sewer overflows. These complaint records include:

- Date, time, and method of notification
- Date and time the complainant or informant first noticed the SSO or occurrence related to the call
- Narrative description describing the complaint
- Name, address, and contact telephone number of the complainant or informant reporting the potential SSO (if not reported anonymously)
- Follow-up return contact information for each complaint received (if not reported anonymously)
- Final resolution of the complaint with the original complainant

All complaint records will be maintained for a minimum of five years whether they result in an SSO. SSO records are kept under the direction and control of the Director of Water Systems and via work orders.

12. Post SSO Event Debriefing

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

As soon as possible after SSO events, all participants, from the person who received the call to the last person to leave the site, will meet to review the procedures used and to discuss what worked and where improvements could be made in preventing or responding to and mitigating future SSO events. The results of the debriefing will be documented as part of the Collection System Failure Analysis form discussed in the section below.

13. 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 or for other SSOs to occur.

The product of the failure analysis investigation will be the determination of the root cause and the identification and scheduling of the corrective actions. The Collection System Failure Analysis Form (in Sanitary Sewer Spill/Backup Response Workbook) will be used to document the investigation.

14 SSO Response Training

14.1 Initial and Annual Refresher Training

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

The Community Service District will verify that annual safety training requirements are current for each employee, and that employees are competent in the performance of all core competencies. The Community Service District will address, through additional training/instruction, any identified gaps in required core competencies.

14.2 SSO Response Drills

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

Sanitary Sewer Overflow/Backup Response Workbook

- If this is a Category 1 SSO greater than or equal to 1,000 gallons, **immediately contact CALOES** at (800) 852-7550 within 2 hours.

<p>Sewer Crew:</p> <ul style="list-style-type: none"><input type="checkbox"/> Follow the instructions on the Overflow/Backup Response Flowchart. Complete forms in this workbook as indicated.<input type="checkbox"/> After all work is done and prior to leaving the site, review all documentation including photos to ensure accuracy, completeness, and legibility of documentation collected.<input type="checkbox"/> Complete the chain of custody record (to the right) and deliver this workbook to the Director of Water Systems.	<p>Print Name: _____</p> <p>Initial: _____</p> <p>Date: _____</p> <p>Time: _____</p>
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Director of Water Systems:

- Review the SSO Event Checklist and the forms in this booklet. Contact the Sewer Crew for additional information if necessary.
- Confirm that all required regulatory notifications have been made.
- Complete the Collection System Failure Analysis Form.
- Enter data into CIWQS.

SSO Event Checklist

- Date of SSO: _____ SSO Location/Name: _____
CIWQS Event ID #: _____ Category? 1 2 3 4 OES #: _____
Property Damage? Yes No Work Order #: _____
- Efforts made to contain and return overflow to sanitary sewer
 - Pictures/video taken of overflow and containment efforts
 - Pictures taken of affected/unaffected area
 - Impacted waters identified
 - SSO category properly determined
 - If Category 1, notifications made and logged
 - If private backup, Community Service District's Attorney's office contacted, and forms provided
 - SSO Field Report complete
 - Photos/videos labeled and dated (including affected/unaffected areas, containment efforts, blockage clearing activities, cleaning activities, etc.)
 - Volume Estimate Worksheet complete
 - Folder started for all documentation related to this SSO (including workbook, work orders, photos, correspondence, printed CIWQS confirmations, etc.)
 - Reviewed all documentation related to this SSO to ensure data is consistent (e.g., dates, times, volumes, causes, etc.)
 - System Failure Analysis performed
 - For all Categories, submitted Ready to Certify in CIWQS (provide sufficient time for LRO review)
 - LRO reviewed folder and CIWQS entry
 - LRO certified CIWQS (15 days for Cat 1 and 2; 30 days after end of month in which SSO occurred for Cat 3 and Cat 4)
 - For Category 1 and 50,000 gal or more, submitted Technical Report in CIWQS (45 days)
 - If changes are required to SSMP, updated SSMP and added to SSMP Change Log

Regulatory reporting Guide

Deadline	Category 1 SSO	Category 2 SSO	Category 3 SSO
2 hours after awareness of SSO	<ul style="list-style-type: none"> If the spill is greater than or equal to 1,000 gallons, call CalOES. (800) 852-7550 	-	-
As soon as possible	If SSO impacts private property that may be a failure of the sewer main and/or if a claim for damages may be submitted against the city, notify the Director of Water Systems who will notify the CSD's Attorney.		
48 Hours after awareness of SSO	If 50,000 gal or more were not recovered, begin water quality sampling.	-	-
3 Business Days after awareness of SSO	Submit Draft Spill Report in the CIWQS database.	Submit Draft Spill Report in the CIWQS database.	-
15 Days after response conclusion	Certify Spill Report in CIWQS. Update as needed until 120 days after SSO end date.	Certify Spill Report in the CIWQS database. Update as needed until 120 days after SSO end date.	-
30 Days after end of calendar month in which SSO occurred	-	-	Certify Spill Report in CIWQS. Update as needed until 120 days after SSO end date.
45 days after SSO end date	If 50,000 gal or more were not recovered, submit SSO Technical Report in CIWQS.	-	-

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

Regulatory Reporting Contacts and Authorization

Authorized Personnel:

The Community Service Districts LRO (or designated backup) are authorized to perform regulatory reporting of SSOs and data entry in CIWQS.

The Community Service Districts Legally Responsible Official (LRO) is authorized to perform regulatory reporting of SSOs, and electronically sign and certify SSO reports in CIWQS:

- Kevin Siring, Assistant Director of Water Systems
- Aaron Dula, Director of Water Systems: *designate*

Contact	Telephone/Email
CAL OES	(800) 852-7550
The Santa Lucia Water Department	Business Hours: M-F 7:00am -4: 00pm After hours and emergency: (831)-241-3500
The Santa Lucia CSD Security Dispatch	Monte Roecker (831)238-0996
The Santa Lucia CSD Attorney	Robert Wellington (831)373-8733
Regional Water Quality Control Board	Phone: (805)549-3121 Kristina.olmos@waterboards.ca.gov
State Water Resources Control Board Walter Mobley	(916) 323-0878 Walter.Mobley@waterboards.ca.gov

Sanitary Sewer overflow field report forms

PHYSICAL LOCATION DETAILS		
Spill location name	Latitude of spill location	
	Longitude of spill location	
County Monterey	Regional Water Quality Control Board Central Coast Regional	
RESPONDING STAFF		
Person(s) completing this form	Name:	Signature:
	Name:	Signature:
	Name:	Signature:
Name(s) of person(s) involved in the response:		
VOLUMES BY DESTINATION	Volume Spilled (Gallons)	Volume Recovered (Gallons)
2.a/2.b Estimated spill volume that reached a separate storm drain that flows to a surface body of water. (If not all recovered, this is a Category 1)		
2.c/2d Estimated spill volume that directly reached a drainage channel that flows to a surface water body? (Any volume spilled is a Category 1)		
2.e/2.f Estimated spill volume discharged directly to a surface water body? (Any volume spilled is a Category 1)		
2.g/2.h Estimated spill volume discharged to land? (Includes discharges directly to land, and discharges to a storm drain system or drainage channel that flows to a storm water infiltration/retention structure, field, or other non-surface water location. Also, includes backups to building structures).		
	Volume Spilled	Volume Recovered
Total Volume Spilled (Verify this matches the table in between 2.h and 3 in CIWQS)		
Describe any assumptions made to determine any of the volume estimates including recovered volumes:		

DATE/TIME DETERMINATIONS		
Indicate date and time of each event listed below:	DATE	TIME
Start of SSO (Use Start Time Determination/Notes Below)		
Agency (SLP CSD) Notified		
Collection System Operator Dispatched		
Collection System Operator Arrived		
End of SSO		
End of Spill Response		

Start Time Determination/Notes

**Don't forget to
take photos!**



Witness 1: _____

Name

Contact Information

Where did you see sewage spill from?

a) Manhole b) Inside Building c) Vent/Clean Out d) Catch Basin e) Wet Well/Lift Station f) Other: _____

When did you notice the sewage spilling? _____ AM / PM Date __ / _____ / _____

When did you last observe **NO Spill** occurring? _____ AM / PM

Date __ / _____ / _____ Comments: _____

Witness 2: _____

Name

Contact Information

Where did you see sewage spill from?

a) Manhole b) Inside Building c) Vent/Clean Out d) Catch Basin e) Wet Well/Lift Station f) Other: _____

When did you notice the sewage spilling? _____ AM / PM Date __ / _____ / _____

When did you last observe **NO Spill** occurring? _____ AM / PM

Date __ / _____ / _____ Comments: _____

Witness 3: _____

Name

Contact Information

Where did you see sewage spill from?

a) Manhole b) Inside Building c) Vent/Clean Out d) Catch Basin e) Wet Well/Lift Station f) Other: _____

When did you notice the sewage spilling? _____ AM / PM Date __ / _____ / _____

When did you last observe **NO Spill** occurring? _____ AM / PM

Date __ / _____ / _____ Comments: _____

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

_____ Gallons ÷ _____ GPM = Minutes (SSO Duration).

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

Other Comments Regarding Spill Start Time

SSO FIELD REPORT	
Note: Prepare and reference a marked-up GIS map as a supplement.	
Spill location description:	
Number of appearance points:	
Spill appearance points: (Check all that apply)	
<input type="checkbox"/> Backflow Prevention Device <input type="checkbox"/> Force Main <input type="checkbox"/> Gravity Mainline	
<input type="checkbox"/> Inside Building/Structure <input type="checkbox"/> Lateral Clean Out (Private/Public)	
<input type="checkbox"/> Lower Lateral (Private/Public) <input type="checkbox"/> Manhole <input type="checkbox"/> Pump Station	
<input type="checkbox"/> Upper Lateral (Private/Public)	
<input type="checkbox"/> Other Sewer System Structure	
Spill appearance point explanation. (Enter information here if "Other" or multiple appearance points were selected):	
Final spill destination: (Check all that apply)	
<input type="checkbox"/> Building/Structure <input type="checkbox"/> Combined Storm Drain <input type="checkbox"/> Drainage Channel	
<input type="checkbox"/> Other (Specify Below) <input type="checkbox"/> Paved Surface <input type="checkbox"/> Separate Storm Drain	
<input type="checkbox"/> Street/Curb and Gutter <input type="checkbox"/> Surface Water <input type="checkbox"/> Unpaved Surface	
Explanation of final spill destination (Enter information if "Other" was selected):	

SSO FIELD REPORT

Spill cause: (Check One)

- Air Relief Valve (ARV)/Blow Off Valve (BOV)/Backwater Valve Failure
- Construction Diversion Failure
- CSD Maintenance Caused Spill/Damage
- Damage by Others Not Related to CS Construction/Maintenance (Specify Below)
- Debris from Construction
- Debris from Lateral
- Debris-General
- Debris-Rags
- Debris Wipes/Non-Dispersible
- Flow Exceeded Capacity
- Grease Deposition (FOG)
- Inappropriate Discharge to CS
- Natural Disaster
- Operator Error
- Other (Specify Below)
- Pipe Structural Problem/Failure
- Pipe Structural Problem/Failure – Installation
- Pump Station Failure – Controls
- Pump Station Failure – Mechanical
- Pump Station Failure – Power
- Rainfall Exceeded Design, I and I
- Root Intrusion

Spill cause explanation: (Required if Spill Cause is “Other”)

**SSO FIELD
REPORT**

Where did the problem occur?

- Air Relief Valve (ARV)/Blow Off Valve (BOV) Failure
 Force Main Gravity Mainline Lower Lateral (Public) Manhole
 Other (Specify Below) Pump Station Failure – Controls
 Pump Station Failure – Mechanical Pump Station Failure – Power
 Siphon Upper Lateral (Public)

Explanation of where failure occurred: (Required if Where Failure Occurred is “Other”)

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

- Spill Response Activities. (Check all that apply) Cleaned Up Mitigated Effects of Spill
 Contained All or Portion of Spill Other (Specify Below) Restored Flow
 Returned All Spoil to Sanitary Sewer System Property Owner Notified
 Other Enforcement Agency Notified

Explanation of spill response activities: (Required if spill response activities is “Other”):

Spill corrective action taken: (Check all that apply)

- Add location to, or increase frequency check, in Preventive Maintenance Program
- Adjusted Schedule/Method of Preventive Maintenance
- Enforcement Action Against FOG Source
- Inspected Sewer Using CCTV to Determine Cause
- Other (Specify Below)
- Plan Rehabilitation or Replacement of Sewer
- Repaired Facilities or Replaced Defect

Explanation of corrective action taken: (Required if spill corrective action is "Other")

Is there an ongoing investigation?

YES

NO

Health warnings posted?

YES

NO

Name of impacted surface waters:

SSO FIELD REPORT

Water quality samples analyzed for: (Check all that apply)

- Dissolved Oxygen
- Other Chemical Indicators(s) – Specify Below
- Biological Indicator(s) – Specify Below
- No Water Quality Samples Taken
- Not Applicable to the Spill
- Other (Specify Below)

Explanation of water quality samples analyzed for: (Required if water quality samples analyzed for is "Other chemical indicator(s)", "Biological indicator(s)", or "Other")

Method and explanation of volume estimation methods used: (Check all that apply)

- Eyeball Estimate Measured Volume Duration and Flow Rate
- Counting Upstream Connections
- Other (Explain):

Miscellaneous Computations & Examples

To convert inches to feet (NOTE: for the purposes of this worksheet, the unit of measurement will be in feet for formula examples)	Divide the inches by 12 or use the chart on the right. Example 1: $27'' \div 12 = 2.25'$ Example 2: $1\frac{3}{4}'' = ?'$ $1'' (0.08') + \frac{3}{4}'' (0.06') = 0.14'$	Convert Inches to Feet																																						
		<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; border: 1px solid black; padding: 2px;">Inches</th> <th style="width: 50%; border: 1px solid black; padding: 2px;">Feet</th> </tr> </thead> <tbody> <tr><td style="border: 1px solid black; padding: 2px;">1/8"</td><td style="border: 1px solid black; padding: 2px;">0.01'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">1/4"</td><td style="border: 1px solid black; padding: 2px;">0.02'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">3/8"</td><td style="border: 1px solid black; padding: 2px;">0.03'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">1/2"</td><td style="border: 1px solid black; padding: 2px;">0.04'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">5/8"</td><td style="border: 1px solid black; padding: 2px;">0.05'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">3/4"</td><td style="border: 1px solid black; padding: 2px;">0.06'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">7/8"</td><td style="border: 1px solid black; padding: 2px;">0.07'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">1"</td><td style="border: 1px solid black; padding: 2px;">0.08'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">2"</td><td style="border: 1px solid black; padding: 2px;">0.17'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">3"</td><td style="border: 1px solid black; padding: 2px;">0.25'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">4"</td><td style="border: 1px solid black; padding: 2px;">0.33'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">5"</td><td style="border: 1px solid black; padding: 2px;">0.42'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">6"</td><td style="border: 1px solid black; padding: 2px;">0.50'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">7"</td><td style="border: 1px solid black; padding: 2px;">0.58'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">8"</td><td style="border: 1px solid black; padding: 2px;">0.67'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">9"</td><td style="border: 1px solid black; padding: 2px;">0.75'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">10"</td><td style="border: 1px solid black; padding: 2px;">0.83'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">11"</td><td style="border: 1px solid black; padding: 2px;">0.92'</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">12"</td><td style="border: 1px solid black; padding: 2px;">1.00'</td></tr> </tbody> </table>	Inches	Feet	1/8"	0.01'	1/4"	0.02'	3/8"	0.03'	1/2"	0.04'	5/8"	0.05'	3/4"	0.06'	7/8"	0.07'	1"	0.08'	2"	0.17'	3"	0.25'	4"	0.33'	5"	0.42'	6"	0.50'	7"	0.58'	8"	0.67'	9"	0.75'	10"	0.83'	11"	0.92'
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11"	0.92'																																							
12"	1.00'																																							
Volume of one cubic foot	7.48 gallons of liquid																																							
Area: Two-dimensional measurement represented in square feet (SQ/FT or ft ²)	Square/rectangle: Area = Length x Width Circle: Area = $\pi \times r^2$ (Where $\pi \approx 3.14$ and $r = \text{radius} = \frac{1}{2} \text{ diameter}$) Triangle: Area = $\frac{1}{2} (\text{Base} \times \text{Height})$																																							
Volume: Three-dimensional measurement represented in cubic feet (CU/FT or ft ³)	Rectangle/square footprint: Volume = Length x Width x Depth Circle footprint (cylinder): Volume = $\pi \times r^2 \times \text{Depth}$ (Where $\pi \approx 3.14$ and $r = \text{radius} = \frac{1}{2} \text{ diameter}$) Triangle footprint: Volume = $\frac{1}{2} (\text{Base} \times \text{Height}) \times \text{Depth}$																																							
Depth: Wet Stain on Concrete or asphalt surface	If the depth is not measurable because it is only a wet stain, use the following estimated depths: <ul style="list-style-type: none"> Depth of a wet stain on concrete surface: 0.0026' (1/32") Depth of a wet stain on asphalt surface: 0.0013' (1/64") <p>These were determined to be a reasonable depth to use on the respective surfaces through a process of trial and error. One gallon of water was poured onto both asphalt and concrete surfaces. Once the area was determined as accurately as possible, different depths were used to determine the volume of the wetted footprint until the formula produced a result that (closely) matched the one gallon spilled. This process was repeated several times.</p>																																							
Depth: Contained or "Ponded" sewage	Measure actual depth of standing sewage whenever possible. When depth varies, measure several representative sample points and determine the average. Use that number in your formula to determine volume.																																							

Volume estimation and examples

Miscellaneous Computations & Examples (continued)

Area/Volume of a Rectangle or Square

Formula: Length x Width x Depth = Volume in **cubic feet**



$$\begin{array}{ccccccc} \underline{25'} & \text{X} & \underline{12'} & \text{X} & \underline{0.14'} & = & \underline{42 \text{ Cubic Feet}} \\ \text{Length} & & \text{Width} & & \text{Depth} & & \text{Volume} \end{array}$$

Multiply the volume by 7.48 gallons to determine the volume in

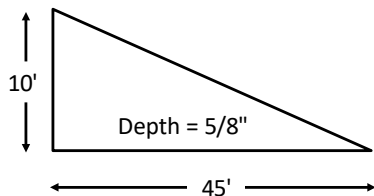
$$\begin{array}{ccccccc} \underline{\text{gallons: } 42 \text{ ft}^3} & & & \text{X} & \underline{7.48} & = & \\ \text{Volume} & & \text{gal/ft}^3 & & \text{Volume} & & \end{array}$$

314.16 gallons

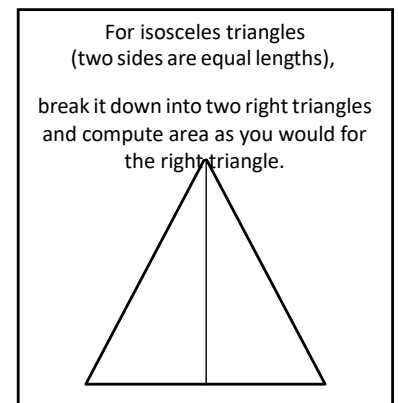
Convert Inches to Feet	
Inches	Feet
1/8"	0.01'
1/4"	0.02'
3/8"	0.03'
1/2"	0.04'
5/8"	0.05'
3/4"	0.06'
7/8"	0.07'
1"	0.08'
2"	0.17'
3"	0.25'
4"	0.33'
5"	0.42'
6"	0.50'
7"	0.58'
8"	0.67'
9"	0.75'
10"	0.83'
11"	0.92'
12"	1.00'

Area/Volume of a Right Triangle

Formula: $\frac{1}{2}$ x Base x Height x Depth = Volume in **cubic feet**

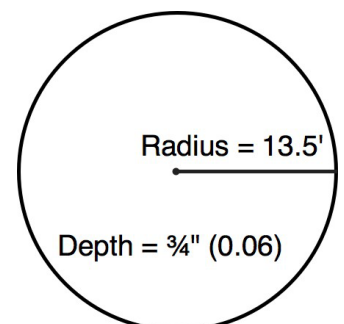


$$\begin{array}{ccccccc} 0.5 & \text{X} & \underline{45'} & \text{X} & \underline{10'} & \text{X} & \underline{0.05'} & \text{x} & \underline{7.48} & = & \underline{84.15} \\ \text{gallons} & & \text{Base} & & \text{Height} & & \text{Depth} & & & & \text{gal/ft}^3 \\ & & \text{Volume} & & & & & & & & \end{array}$$



Area/Volume of a Circle

Formula: π x r² x Depth = Volume in **cubic feet**



The radius is 1/2 the diameter, which is a straight line passing from side to side through the center of a circle.

$$\frac{13.5'}{\text{Radius}} \times \frac{13.5'}{\text{Radius}} \times 3.14 \times \frac{0.06'}{\text{Depth}} \times \frac{7.48}{\text{gal/ft}^3} = \frac{256.8 \text{ gallons}}{\text{Volume}}$$

Volume estimation: Eyeball method

- STEP 1: Position yourself so that you have a vantage point where you can see the entire SSO.
- STEP 2: Imagine one or more buckets or barrels of water tipped over. Depending on the size of the SSO, select a bucket or barrel size as a frame of reference. It may be necessary to use more than one bucket/barrel size.
- STEP 3: Estimate how many of each size bucket or barrel it would take to make an equivalent spill. Enter those numbers in Column A of the row in the table below that corresponds to the bucket/barrel sizes you are using as a frame of reference.
- STEP 4: Multiply the number in Column A by the multiplier in Column B. Enter the result in Column C.

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

STEP 5: Is rainfall a factor in the SSO? Yes No
 If yes, what volume of the observed spill volume do you estimate is rainfall? _____ gallons
 If yes, describe how you determined the amount of rainfall in the observed spill?

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

_____ gallons - _____ gallons = _
 _____ gallons Estimated SSO Volume Rainfall **Total**
Estimated SSO Volume

STEP 7: Describe any assumptions made to determine any of the volume estimates including recovered volumes:

Volume Estimation: Flow out of manhole vent or pickhole

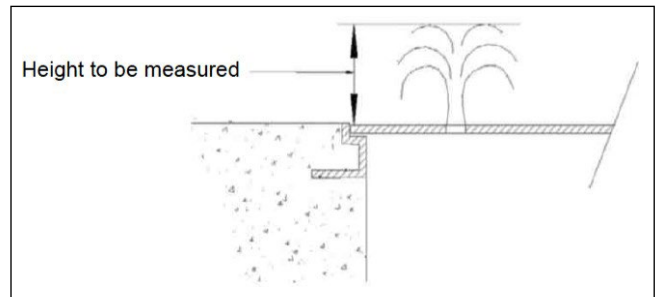
SSO Date: _____ Location: _____

STEP 1: Measure the water height flowing out of the vent or pick hole in inches:

_____ inches

Note: Be as precise as possible. A small difference in spout height can make a major difference in estimated spill volume!

Describe how the spout height was determined:



STEP 2: Determine the Spill Rate by referring to the table on the following pages (E-3 pages 2 and 3). Find the height measured in Step 1 in the left column. Read the Spill Rate in the next column (GPM = gallons per minute). **NOTE: This table is provided for general reference. The agency is strongly encouraged to develop site-specific data.**

Spill Rate = _____ GPM

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

_____ GPM X _____ min. = _____ gal
 Spill Rate Duration Est. Spill Volume

STEP 4: Describe any assumptions made to determine any of the volume estimates including recovered volumes:

Estimated Flows through manhole cover vent holes and pick holes for SSO estimating

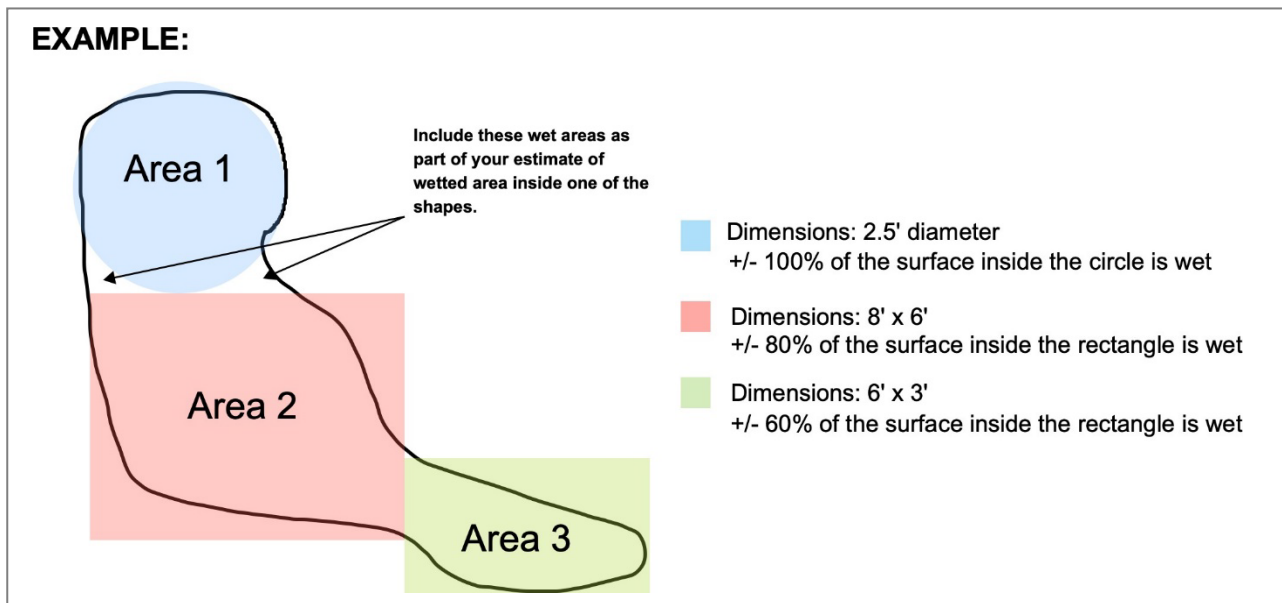
Hole Dia. inches	Area sq. ft.	Coeff. of Vel. Cv	Coeff. Of Cont. Cc	C Cv x Cc	Water Ht inches	Water Ht inches	Water Ht feet	Q cfs	Q gpm	Q gph
	Formula: =0.785*A*x* A*x/144			Formula: =I*x*449			Formula: =G*x/12	Formula: =E*x*B*x*(S QRT(2*32. 2*H*x))	Formula: =I*x*449	Formula: =J*x*60
Vent Hole										
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
0.50	0.00136	0.945	0.70	0.662	1 1/4 "	1.250	0.104	0.0023	1.05	63
0.50	0.00136	0.945	0.70	0.662	1 3/8"	1.375	0.115	0.0024	1.10	66
0.50	0.00136	0.945	0.70	0.662	1 1/2"	1.500	0.125	0.0026	1.15	69
0.50	0.00136	0.945	0.70	0.662	1 5/8"	1.625	0.135	0.0027	1.20	72
0.50	0.00136	0.945	0.70	0.662	1 3/4"	1.750	0.146	0.0028	1.24	74
0.50	0.00136	0.945	0.70	0.662	2 inches	2.000	0.167	0.0030	1.33	80
0.50	0.00136	0.945	0.70	0.662	2 1/4"	2.250	0.188	0.0031	1.41	84
0.50	0.00136	0.945	0.70	0.662	2 1/2"	2.500	0.208	0.0033	1.48	89
0.50	0.00136	0.945	0.70	0.662	2 3/4"	2.750	0.229	0.0035	1.56	93
0.50	0.00136	0.945	0.70	0.662	3 inches	3.000	0.250	0.0036	1.62	97
0.50	0.00136	0.945	0.70	0.662	3 1/4"	3.250	0.271	0.0038	1.69	101
0.50	0.00136	0.945	0.70	0.662	3 1/2"	3.500	0.292	0.0039	1.75	105
0.50	0.00136	0.945	0.70	0.662	3 3/4"	3.750	0.313	0.0040	1.82	109
0.50	0.00136	0.945	0.70	0.662	4.000	4.000	0.333	0.0042	1.88	113
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
0.75	0.00307	0.955	0.67	0.640	1 1/4 "	1.250	0.104	0.0051	2.28	137
0.75	0.00307	0.955	0.67	0.640	1 3/8"	1.375	0.115	0.0053	2.39	144
0.75	0.00307	0.955	0.67	0.640	1 1/2"	1.500	0.125	0.0056	2.50	150
0.75	0.00307	0.955	0.67	0.640	1 5/8"	1.625	0.135	0.0058	2.60	156
0.75	0.00307	0.955	0.67	0.640	1 3/4"	1.750	0.146	0.0060	2.70	162
0.75	0.00307	0.955	0.67	0.640	2 inches	2.000	0.167	0.0064	2.89	173
0.75	0.00307	0.955	0.67	0.640	2 1/4"	2.250	0.188	0.0068	3.06	184
0.75	0.00307	0.955	0.67	0.640	2 1/2"	2.500	0.208	0.0072	3.23	194
0.75	0.00307	0.955	0.67	0.640	2 3/4"	2.750	0.229	0.0075	3.38	203
0.75	0.00307	0.955	0.67	0.640	3 inches	3.000	0.250	0.0079	3.53	212
0.75	0.00307	0.955	0.67	0.640	3 1/4"	3.250	0.271	0.0082	3.68	221
0.75	0.00307	0.955	0.67	0.640	3 1/2"	3.500	0.292	0.0085	3.82	229
0.75	0.00307	0.955	0.67	0.640	3 3/4"	3.750	0.313	0.0088	3.95	237
0.75	0.00307	0.955	0.67	0.640	4.000	4.000	0.333	0.0091	4.08	245
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
1.00	0.00545	0.960	0.65	0.624	1 1/4 "	1.250	0.104	0.0088	3.96	237
1.00	0.00545	0.960	0.65	0.624	1 3/8"	1.375	0.115	0.0092	4.15	249
1.00	0.00545	0.960	0.65	0.624	1 1/2"	1.500	0.125	0.0097	4.33	260
1.00	0.00545	0.960	0.65	0.624	1 5/8"	1.625	0.135	0.0100	4.51	271
1.00	0.00545	0.960	0.65	0.624	1 3/4"	1.750	0.146	0.0104	4.68	281
1.00	0.00545	0.960	0.65	0.624	2 inches	2.000	0.167	0.0111	5.00	300
1.00	0.00545	0.960	0.65	0.624	2 1/4"	2.250	0.188	0.0118	5.31	318
1.00	0.00545	0.960	0.65	0.624	2 1/2"	2.500	0.208	0.0125	5.59	336
1.00	0.00545	0.960	0.65	0.624	2 3/4"	2.750	0.229	0.0131	5.87	352
1.00	0.00545	0.960	0.65	0.624	3 inches	3.000	0.250	0.0136	6.13	368

Volume Estimation: Area/Volume Method

SSO Date: _____ Location: _____

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

STEP 2: Draw/sketch the outline (footprint) of the spill. Then break the footprint down into rectangles and circles. Label each area. See example below.



STEP 3: Calculate the area of the footprint by completing the table below for each area in Step 2. Measure actual depth of standing sewage whenever possible. When depth varies, measure several representative sample points and determine the average. If the depth is not measurable because it is only a wet stain, use the following estimated depths:

- Depth of a wet stain on concrete surface: 0.0026' (1/32")
- Depth of a wet stain on asphalt surface: 0.0013' (1/64")

Rectangles:

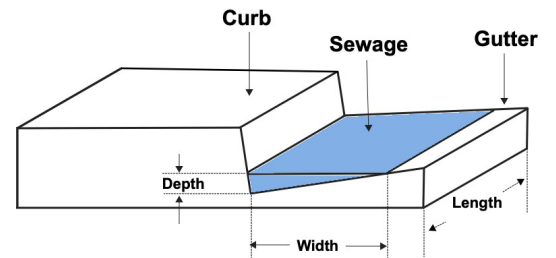
Area # (from labeled drawing)	Length	X	Width	X	% Wet	=	Area	X	Depth	=	Volume
<input type="checkbox"/>	ft	X	ft	X	%	=	ft ²	X	ft	=	ft ³
<input type="checkbox"/>	ft	X	ft	X	%	=	ft ²	X	ft	=	ft ³
<input type="checkbox"/>	ft	X	ft	X	%	=	ft ²	X	ft	=	ft ³

Circles:

Area # (from labeled drawing)	π	X	Radius	X	Radius	X	% Wet	=	Area	X	Depth	=	Volume
<input type="checkbox"/>	3.14	X	ft	X	ft	X	%	=	ft ²	X	ft	=	ft ³
<input type="checkbox"/>	3.14	X	ft	X	ft	X	%	=	ft ²	X	ft	=	ft ³
<input type="checkbox"/>	3.14	X	ft	X	ft	X	%	=	ft ²	X	ft	=	ft ³

STEP 4: If part of the spill is in a gutter, use the formula below to calculate the volume:

$$\text{Length} \times \text{Depth} \times \text{Width} \times 0.5 = \text{Volume} \text{ ft}^3$$



STEP 5: Calculate Total Spill Volume (sum of all of the volume calculations above): _____ ft³

STEP 6: Convert from cubic feet to gallons by multiplying by 7.48.

$$\text{_____ ft}^3 \times 7.48 \text{ gallons} = \text{_____ gallons}$$

STEP 7: Describe any assumptions made to determine any of the volume estimates including recovered volumes:

Volume Estimation: Upstream Connections Method

SSO Date: _____ Location: _____

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

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

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

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

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

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

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

Total Estimated SSO Volume: _____ gallons

STEP 5: Describe any assumptions made to determine any of the volume estimates including recover volumes:

First Responder Form

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

Fill out this form as completely as possible.

Ask the customer if they can take photos of damaged and undamaged areas. Do not enter home or building.

PERSON COMPLETING THIS FORM:		PHONE:
Name: _____		DATE:
Title: _____		TIME:
TIME STAFF ARRIVED ON-SITE:		
RESIDENT NAME: <input type="checkbox"/> Owner <input type="checkbox"/> Renter ADDRESS: PHONE:	IF RENT, PROPERTY MANAGER(S): OWNER: ADDRESS: PHONE:	
# OF PEOPLE LIVING AT RESIDENCE:		
Approximate Age of Home:	# of Bathrooms:	# of Rooms Affected:
Numbers of Photographs or Videos Taken: <input type="checkbox"/> Photographs <input type="checkbox"/> Video <input type="checkbox"/> Customer did not provide or allow photographs	Where are photos/video stored?	
Is nearest upstream manhole visibly higher than the drain/fixture that overflowed? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Does property have a Property Line Cleanout or BPD? <input type="checkbox"/> Cleanout <input type="checkbox"/> BPD <input type="checkbox"/> Neither <input type="checkbox"/> Unknown		
If yes, was the Property Line Cleanout/BPD operational at the time of the overflow? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		
Have there ever been any previous spills at this location? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		
Has the resident had any plumbing work done recently? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <i>If YES, please describe:</i>		

Collection System Failure Analysis

OFFICE USE ONLY

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

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