UC SANTA BARBARA

Sanitary Sewer Spill Emergency Response Plan

Rev. February 4, 2025

Prepared by

Environmental Health & Safety

Design, Facilities and Safety Services

Table of Contents

1. Introduction

This Spill Emergency Response Plan (SERP) is prepared for the University of California, Santa Barbara (UCSB) in accordance with the Statewide Waste Discharge Requirements General Order for Sanitary Sewer Systems (SWRCB Order No. 2022-0103) (General Order) adopted on December 6, 2022 and effective June 5, 2023.

1.1 Overview

This SERP is designed to:

1. ensure prompt detection and response to spills;
2. to reduce spill volumes; and
3. to collect information for prevention of future spills.

This SERP includes procedures to:

- Notify primary responders, appropriate local officials, and appropriate regulatory agencies of a spill in a timely manner;
- Notify other potentially affected entities (for example, health agencies, water suppliers, etc.) of spills that potentially affect public health or reach waters of the State;
- Comply with the notification, monitoring and reporting requirements of this General Order, State law and regulations, and applicable Regional Water Board Orders;
- Ensure that appropriate staff and contractors implement the Spill Emergency Response Plan and are appropriately trained;
- Address emergency system operations, traffic control and other necessary response activities;
- Contain a spill and prevent/minimize discharge to waters of the State or any drainage conveyance system;
- Minimize and remediate public health impacts and adverse impacts on beneficial uses of waters of the State;
- Remove sewage from the drainage conveyance system;
- Clean the spill area and drainage conveyance system in a manner that does not inadvertently impact beneficial uses in the receiving waters;
- Implement technologies, practices, equipment, and interagency coordination to expedite spill containment and recovery;
- Implement pre-planned coordination and collaboration with storm drain agencies and other utility agencies/departments prior, during, and after a spill event;
- Conduct post-spill assessments of spill response activities;
- Document and report spill events as required in this General Order; and
- Annually, review and assess effectiveness of the Spill Emergency Response Plan, and update the Plan as needed.

1.2 Plan Location

This SERP is stored electronically on the Office of Environmental Health and Safety (EH&S) server and can be accessed publicly on the EH&S website at ehs.ucsb.edu/index.php/programs-services/environmental-compliance/waste-water.

1.3 Spill Categories

Category 1 Spill: A spill of any volume of sewage from or caused by a regulated sanitary sewer system 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.

Category 2 Spill: A spill of 1,000 gallons or greater, from or caused by a regulated sanitary sewer system 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 spill of equal to or greater than 50 gallons and less than 1,000 gallons, from or caused by a regulated sanitary sewer system 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 spill of less than 50 gallons, from or caused by a regulated sanitary sewer system 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.

Non-Category 1 Lateral Spill: A spill of less than 1,000 gallons from Enrollee owned and/or operated lateral that does not discharge to surface waters.

1.4 Notification, Monitoring, and Reporting Requirements

The following table summarizes the notification, monitoring, and reporting requirements for each of the four spill categories. Reports are submitted to the State and Regional Water Quality Control Boards via the California Integrated Water Quality System (CIWQS).

Notification, Monitoring, and Reporting Requirements	Spill Category				
	1	2	3	4	Non-Cat 1 Lateral Spill
Notify the California Office of Emergency Services (Cal OES) within 2 hours of knowledge of a spill of 1,000 gallons or more, discharging or threatening to discharge to surface waters; obtain notification control number from Cal OES.	X	X			
Assess the spill location, spread, and estimate spill volume. For spills discharging to surface waters, conduct additional observations of the receiving water.	X	X	X	X	
Conduct water quality sampling of the receiving water within 18 hours of initial knowledge of a spill that is 50,000 gallons or more, discharging to surface waters.	X				
Submit a Draft Spill Report within 3 business days of knowledge of the spill.	X	X			
Submit a Certified Spill Report within 15 calendar days of the spill end date.	X	X			

Submit monthly Certified Spill Report within 30 calendar days after the end of the month in which the spill occurs.			X		
Certify monthly the estimated total spill volume exiting the sanitary sewer system, and the total number of all Category 4 and/or Non-Category 1 Lateral Spills; submit within 30 calendar days after the end of the month in which the spill occurs.				X	X
Submit a Technical Report within 45 days after the spill end date for a spill of 50,000 gallons or more discharged to surface waters.	X				
If necessary to update a Certified Spill Report, submit an Amended Spill Report within 90 calendar days after the spill end date.	X	X			
If necessary to update a monthly Certified Spill Report, submit an Amended Spill Report within 90 calendar days after the Certified Spill Report due date.			X		
Upload and certify a report of all spills of this category by February 1st after the end of the calendar year in which the spills occur.				X	X

1.5 Annual Review

Qualified EH&S personnel will annually review and assess the effectiveness of this SERP, making any necessary updates before the Annual Report is submitted by April 1.

2. Spill Response Procedures

This SERP details a strategy to respond to spills with appropriate personnel, materials, and resources. An appropriate response will help to correct or repair any condition which may cause or contribute to an un-permitted discharge from the sanitary sewer system.

2.1 Spill Notification

In the event of a sanitary sewer spill, the employee who first identifies the spill is the designated First Spill Responder. During normal business hours (8am-5pm, M-F) the First Spill Responder will immediately notify:

- Facilities Management (FM) Dispatch (805-451-9914); or
- Housing, Dining & Auxiliary Enterprises (805-448-0474) Dispatch; and
- Environmental Health & Safety (Attachment 1).

If a sanitary sewer spill is identified outside of normal business hours, the First Spill Responder will immediately notify:

- UCSB Police Department (UCPD) Non-Emergency (805-893-3446).

The following sections detail the spill response procedures that should be followed in the event of sanitary sewer spill.

2.2 Spill Assessment

After notification of a spill or failure of any element of the sanitary sewer system that threatens to cause a spill, the First Spill Responder will assess the affected area and determine an appropriate spill response by evaluating the following factors:

- Location and extent of the spill;
- Cause or potential cause of the spill;

- Impacts to downstream receiving water(s); and
- Estimate spill volume (Attachment 2).

The First Spill Responder will record with photographs and/or videos, as appropriate, to document spill conditions. The assessment may include observation of lift station pumps, sewer access holes, and stormwater conveyance infrastructure. To assist with accurate and complete data collection throughout the spill response, an Incident Report Form is included as an attachment to this SERP (Attachment 3).

Additionally, the First Spill Responder will evaluate the potential hazard to employees and surrounding public. If it is determined that the spill cannot be safely and effectively controlled with UCSB resources and personnel, then the First Spill Responder will initiate an evacuation and immediately notify outside emergency response agencies and/ or contactors to implement spill containment and cleanup.

2.3 Spill Containment

Upon completion of the spill assessment, the First Spill Responder will direct employees trained in spill response, to obtain appropriate spill response materials. Examples of spill response materials include sand or gravel bags, dirt or sand piles, plastic sheeting, storm drain covers, and absorbents (socks, booms, pads, pillows, and rolls). The spill responder(s) will attempt to contain the spill to prevent its entry into any downstream receiving waters or conveyance that eventually discharges to downstream receiving waters. Sewage may be pumped to an alternate/ unimpaired sewer access hole. Water supply to the upstream building(s) may be turned off.

While the spill is being contained, other spill responders will attempt to seal or otherwise stop the source of the spill. If only one spill responder is available, then spill containment should be completed before the spill source is stopped.

2.4 Spill Cleanup

Once the spill is contained and the source is eliminated, the spill responder(s) will:

- Remove residual sewage from any drainage conveyance system(s) utilizing methods that will not impact water quality in downstream receiving waters and record the estimated volume of sewage recovered;
- Clean and sanitize the affected area(s); and
- Collect contaminated materials in an appropriate manner for disposal to landfill.

Spill responders will take photos of all affected areas once the spill is contained, prior to and post cleanup. Send documentation of spill incident including location, date, time, estimate of spill volume, estimate of spill volume recovered, photos, videos, and a narrative description of spill response and cleanup activities to EH&S.

3. Safety Procedures

When appropriately trained to do so, spill responders may be required to implement the following safety procedures:

- Lock-Out/Tag-Out for equipment repair or maintenance;
- Confined Space Entry;
- Hazard Communication;
- Traffic Control; and
- Use of Personal Protective Equipment (PPE).

If it is determined that traffic control is necessary, the spill responders will contact UCPD and/or Transportation & Parking Services (TPS) staff for assistance. Traffic control measures may include:

- Barricades, traffic cones, and/ or warning tape to restrict access;
- Reflective vests when working in or around a roadway; and
- Appropriate traffic control patterns and advanced warning signs.

Spill responders are trained on the proper use of PPE in response to sanitary sewer spills. Depending on the size and nature of the spill, required PPE may include safety glasses or goggles, dust mask, protective face mask or splash-proof face shield, latex or nitrile gloves, poly-laminated Tyvek, water-resistant work or rubber boots, waterproof and slip resistant boots (Attachment 4).

4. Spill Notification Procedures

EH&S is responsible for notifying appropriate regulatory agencies of a spill in a timely manner. Additionally, EH&S will notify other potentially affected entities of spills that potentially affect public health or reach downstream receiving waters. The table below identifies the immediate entities to be notified, as well as other potentially affected entities that will be notified at the discretion of EH&S.

Notification	Trigger	Timeline	Contacts
Immediate	Sanitary sewer spill of **1,000 gallons or more** to surface water or threatening to discharge to surface water	As soon as possible, **but no later than (2) hours after:** Enrollee has knowledge of the spill & notification can be provided without substantially impending cleanup or other emergency measures	**California Office of Emergency Services (Cal OES)** (800) 852-7550
Additional (External)	Sanitary sewer spill of **1,000 gallons or more** to surface water or threatening to discharge to surface water	Within **24 hours**	**Santa Barbara County Office of Emergency Management (SBC-OEM)** (805) 681-5526
Additional (External)	Public health concern or release to a waterway	Within **24 hours**	**Santa Barbara County Public Health Department/Environmental Health Services (SBEHS)** (805) 681-4900
Additional (Internal)	Public health concern or release to a waterway	Courtesy notification as necessary in addition to SB County Public Health	**UCSB Environmental Health Specialist (Shannon Hinrichs)** (805) 893-2471

Additional (External)	Spill to a waterway	Courtesy notification as necessary	**Central Coast Regional Water Quality Control Board** (805) 549-3147
Additional (External)	Spill to a waterway	Courtesy notification as necessary	**California Department of Fish and Wildlife** (South Coast Region, Region 5) (858) 467-4201
Additional (External)	If overflow affects traffic along State Route 217	Courtesy notification as necessary	**California Department of Transportation** (Caltrans, District 5) (805) 549-3111
Additional (External)	Spill to a waterway	Courtesy notification as necessary	**US Environmental Protection Agency (EPA)** (415) 744-2000
Additional (External)	GSD and/or GWSD will be notified if there is any violation of a discharge prohibition	Courtesy notification as necessary	**Goleta Sanitary District (GSD)** (805) 967-4519 & **Goleta West Sanitary District (GWSD)** (805) 968-2617

4.1 Notification to Cal OES

EH&S will notify Cal OES **within two (2) hours** after becoming aware of a Category 1 spill of 1,000 gallons or greater, discharging or threatening to discharge to surface waters. The notification will include:

- Name and phone number of the person notifying Cal OES;
- Estimated spill volume (gallons);
- Estimated spill rate from the system (gallons per minute);
- Estimated discharge rate (gallons per minute) directly into waters of the State or indirectly into a drainage conveyance system;
- Brief narrative of the spill event;
- Spill incident location (address, city, and zip code) and closest cross streets and/or landmarks;
- Name and phone number of contact person on-scene;
- Date and time the Enrollee was informed of the spill event;
- Name of sanitary sewer system causing the spill;
- Spill cause or suspected cause (if known);
- Amount of spill contained;
- Name of receiving water body receiving or potentially receiving discharge; and
- Description of water body impact and/ or potential impact to beneficial uses.

4.2 Notification Updates to Cal OES

After the initial notification to Cal OES and until EH&S certifies the spill report in CIWQS, EH&S will provide updates to Cal OES regarding any changes to the:

- Estimated spill volume (increase or decrease in gallons than initially stated);
- Estimated discharge volume discharged directly into waters of California or indirectly into a drainage conveyance system (increase or decrease in gallons initially estimated); and
- Additional impact(s) to the receiving water(s) and beneficial uses.

5. Water Quality Sampling and Analysis Plan

UCSB will conduct water quality sampling no later than **18 hours** after becoming aware of a sewage spill in which an estimated 50,000 gallons or greater is discharged into a surface water.

5.1 Sampling Locations and Frequency

One (1) water sample will be collected each day for the duration of a spill, at the following locations:

Sample Type	Sampling Location	Sampling Location Description
Drainage Conveyance System (DCS)	DCS-001	A point in a drainage conveyance system before the drainage conveyance system flow discharges into a receiving water.
Receiving Surface Water (RSW)	RSW-001	A point in the receiving water where sewage initially enters the receiving water.
	RSW-001U	A point in the receiving water, upstream of the point of sewage discharge, to capture ambient conditions absent of sewage discharge impacts.
	RSW-001D	A point in the receiving water, downstream of the point of sewage discharge, where the spill material is fully mixed with the receiving water.

Note: If the receiving water has no flow during the duration of the spill, the Enrollee must report "No Sampling Due To No Flow" for its receiving water sampling locations. Additional water samples will be collected and analyzed as required by the applicable Regional Water Board Executive Officer or designee.

5.2 Water Quality Parameters

Samples will be collected and analyzed for ammonia and appropriate bacterial indicators per Central Coast Basin Plan (Basin Plan) water quality objectives. Water quality objectives for specific beneficial uses for bacteria for inland surface waters, enclosed bays, and estuaries are:

- Water Contact Recreation (REC1)
    - Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100 mL, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 mL.
- Non-Contact Water Recreation (REC2)
    - Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 2000/100 mL, nor shall more than ten percent of samples collected during any 30-day period exceed 4000/100 mL.

- Shellfish Harvesting (SHELL)
    - The median total coliform concentration throughout the water column for any 30-day period shall not exceed 70/100 mL, nor shall more than ten percent of the samples collected during any 30-day period exceed 230/100 mL for a five-tube decimal dilution test or 330/100 mL when a three-tube decimal dilution test is used.

Water quality objectives for specific beneficial uses for bacteria for ocean waters are:

- Water Contact Recreation (REC1)
    - A six-week rolling GM* of enterococci not to exceed 30 colony forming units (cfu) per 100 milliliters (mL), calculated weekly, and a statistical threshold value* (STV) of 110 cfu/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month*, calculated in a static manner.
    - A 30-day geometric mean* (GM) of fecal coliform density not to exceed 200 per 100 milliliters (mL), calculated based on the five most recent samples from each site, and a single sample maximum* (SSM) not to exceed 400 per 100 mL.
- Shellfish Harvesting (SHELL)
    - The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL.

A summary table of waterbodies proximal to the UCSB campus and relevant beneficial use designations are summarized in the table below.

Waterbody	Reference	Beneficial Use		
		REC1	REC2	SHELL
Devereaux Ranch Lagoon	Basin Plan	X	X	X
Devereaux Creek	Basin Plan	X	X	
Goleta Point Marsh	Basin Plan	X	X	
Goleta Slough/Estuary	Basin Plan	X	X	X
Tecolotito Creek	Basin Plan	X	X	
Pt. Arguello to Coal Oil Pt.	Ocean Plan	X	X	X
Coal Oil Pt. to Rincon Pt.	Ocean Plan	X	X	X

Note: Modified from Central Coast Basin Plan (2019), Tables 2-1 and 2-2.

Samples collected from all inland surface waters, enclosed bays, and estuaries will be analyzed for total coliform and fecal coliform. Samples collected from ocean waters will be sampled for total coliform, fecal coliform, and enterococcus.

5.3 Water Quality Sampling and Analysis

Water quality sampling and analysis will be performed by Fruit Growers Laboratory, Inc. (FGL) in Santa Paula, California or another laboratory with Environmental Laboratory Accreditation Program (ELAP) accreditation. Analytical method specifications and sample handling information for the selected water quality parameters are summarized in the table below.

Parameter	Test Method	Sample Container	Preservative	Hold Time
Ammonia (as N)	SM4500-NH3	16oz plastic	H2SO4	28 days

Total Coliform	SM 9221 B	120 ml Sterile Plastic Bacti Bottle	Na2S2O3	8 hours
Fecal Coliform	SM 9221 B,E	120 ml Sterile Plastic Bacti Bottle	Na2S2O3	8 hours
Enterococci	Enterolert	120 ml Sterile Plastic Bacti Bottle	Na2S2O3	8 hours

5.4 Safety and Access Exceptions

Water quality sampling will only be conducted under safe conditions with unrestricted accesses to surface water. Unsafe conditions include limited visibility, heavy wind or rain, and steep water banks. In cases where sampling cannot be done, details of access restrictions and/or safety hazards will be documented in related reports (e.g., Draft Spill Report, Certified Spill Report, Spill Technical Report).

6. Training

Initial and annual training is conducted for employees that are responsible for preforming duties related to the sanitary sewer system and this SERP. Initial training is conducted in collaboration between EH&S and DKF Solutions Group. Initial training items include:

- Requirements of the General Order;
- UCSB's Spill Emergency Response Plan procedures and practice drills;
- Skilled estimation of spill volume for field operators; and
- Electronic CIWQS reporting procedures for staff submitting data (*for EH&S staff responsible for electronic reporting only*).

Upon completion of initial training, employees are required annually to attend a live online training "Spill Volume & Start Time Determination" and to review the requirements of this SERP. Training records are maintained in a local electronic file system (Attachment 5).

7. External Resources

As necessary, contractors may be utilized to aid in spill response, cleanup and monitoring. Contractors will be experienced with sanitary sewer work, knowledgeable of the General Order and comply with the requirements of this SERP. Contact information for some potential contractors are provided in the table below.

Contractor	Services
Fruit Growers Laboratory, Inc. 853 Corporation Street Santa Paula, CA 93060 (805) 392-2000	Water quality sampling and analysis
DKF Solutions Group 164 Robles Way, Suite 274 Vallejo, California 94591 (800) 215-5206	Initial and annual live online and in-person training, SERP review, and surface water sampling support
Marborg Industries 728 E Yanonali Street Santa Barbara, CA 93103 (805) 963-1852	Spill response and cleanup

Attachment 1: Environmental Health & Safety Notification

Version 16: 01/29/25

University of California Santa Barbara
Office of Environmental Health & Safety

Campus Police/Fire Dispatch (805-893-3446 & 4457)
Facilities Management/Physical Facilities Dispatch (805-451-9914)
Housing, Dining & Auxiliary Enterprises Dispatch (805-448-0474)

Business Hours Notification

8:00 am – 12:00 pm & 1:00 pm – 5:00 pm

893-3194

After Hours/Weekends Notification

12:00 pm – 1:00 pm & after 5:00 pm

Use any number until contact is made

Acuna, Hector	805-450-1896	Laboratory Safety
Aghayan, Ali	805-451-7623	Environmental Health
Bickley, Jesse	805-722-7634	Industrial Hygiene
Brown, Robert	661-219-1924	Radiation Safety
Caesar, Jim	805-450-1437	Emergency Manager
Carter, Bruce	805-722-7168	Hazardous Waste
Fitzpatrick, Tim	717-682-4031	Director
Gregson, Al	805-451-7201	Deputy Fire Marshal
Hinrichs, Shannon	805-729-6519	Public Health
King, Mason	860-304-9549	Environmental Compliance
Moretto, Alex	617-480-6630	Laboratory Safety
Seaman, John	805-451-3157	General Safety
White, Jim	805-451-3925	**Fire Marshal**

Attachment 2: Volume Estimation Computations & Examples

Miscellaneous Computations & Examples

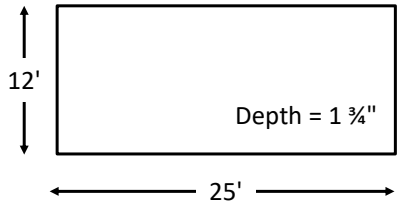
To convert inches to feet (NOTE: for the purposes of this worksheet, the unit of measurement will be in feet for formula examples)	Divide the inches by 12 or use the chart on the right. **Example 1:** 27" ÷ 12 = 2.25' **Example 2:** 1¾" = ?' 1" (0.08') + ¾" (0.06') = 0.14'
Volume of one cubic foot	7.48 gallons of liquid
Area: Two-dimensional measurement represented in square feet (SQ/FT or ft^2)	Square/rectangle: Area = Length x Width Circle: Area = $\pi \times r^2$ (where $\pi \approx 3.14$ and r = radius = ½ diameter) Triangle: Area = ½ (Base x Height)
Volume: Three-dimensional measurement represented in cubic feet (CU/FT or ft^3)	Rectangle/square footprint: Volume = Length x Width x Depth Circle footprint (cylinder): Volume = $\pi \times r^2$ x Depth (where $\pi \approx 3.14$ and r = radius = ½ diameter) Triangle footprint: Volume = ½ (Base x Height) x Depth
Depth: Wet Stain on Concrete or asphalt surface	If the depth is not measurable because it is only a wet stain, use the following estimated depths: ○ Depth of a wet stain on concrete surface: 0.0026' (1/32") ○ Depth of a wet stain on asphalt surface: 0.0013' (1/64") These were determined to be a reasonable depth to use on the respective surfaces through a process of trial and error. One gallon of water was poured onto both asphalt and concrete surfaces. Once the area was determined as accurately as possible, different depths were used to determine the volume of the wetted footprint until the formula produced a result that (closely) matched the one gallon spilled. This process was repeated several times.
Depth: Contained or "Ponded" sewage	Measure actual depth of standing sewage whenever possible. When depth varies, measure several representative sample points and determine the average. Use that number in your formula to determine volume.

Miscellaneous Computations & Examples (continued)

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 Rectangle or Square

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



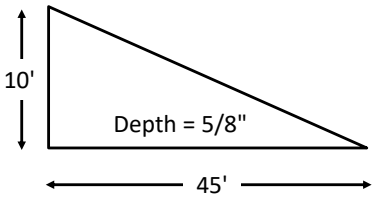
25' X 12' X 0.14' = **42 Cubic Feet**
Length Width Depth Volume

Multiply the volume by 7.48 gallons to determine the volume in **gallons**:

42 ft³ X 7.48 = **314.16 gallons**
Volume gal/ft³ Volume

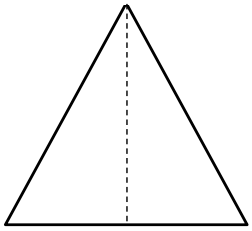
Area/Volume of a Right Triangle

Formula: Base x Height x Depth = Volume in **cubic feet**



0.5 X 45' X 10' X 0.05' x 7.48 = 84.15 gallons
Base Height Depth gal/ft³ Volume

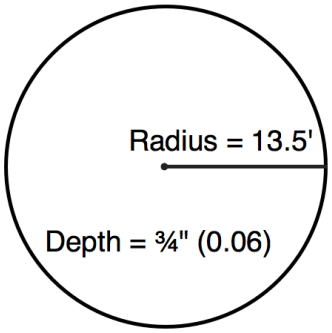
For isosceles triangles (two sides are equal lengths), break it down into two right triangles and compute area as you would for the right triangle.



Area/Volume of a Circle

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

The radius is ½ the diameter, which is a straight line passing from side to side through the center of a circle.



13.5' X 13.5' X 3.14 X 0.06' x 7.48 = 256.8 gallons
Radius Radius π Depth gal/ft³ Volume

Volume Estimation: Eyeball Estimation Method (for ≤50 gallons) E-2

Spill Date: _____ Location: _____

This method is invalid if surface conditions are wet (due to rainfall, irrigation, etc.) DO NOT use this method under these circumstances.

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

STEP 2: Imagine one or more buckets or barrels of water tipped over. Depending on the size of the spill, 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)/barrel(s)	How many of this size?	Multiplier	Estimated Spill Volume
		x 1 gallon	
		x 5 gallons	
		x 32 gallons	
		x ___ gallons	
		Estimated Total Spill Volume:	

STEP 5: List assumptions made to arrive at the total estimated spill volume:

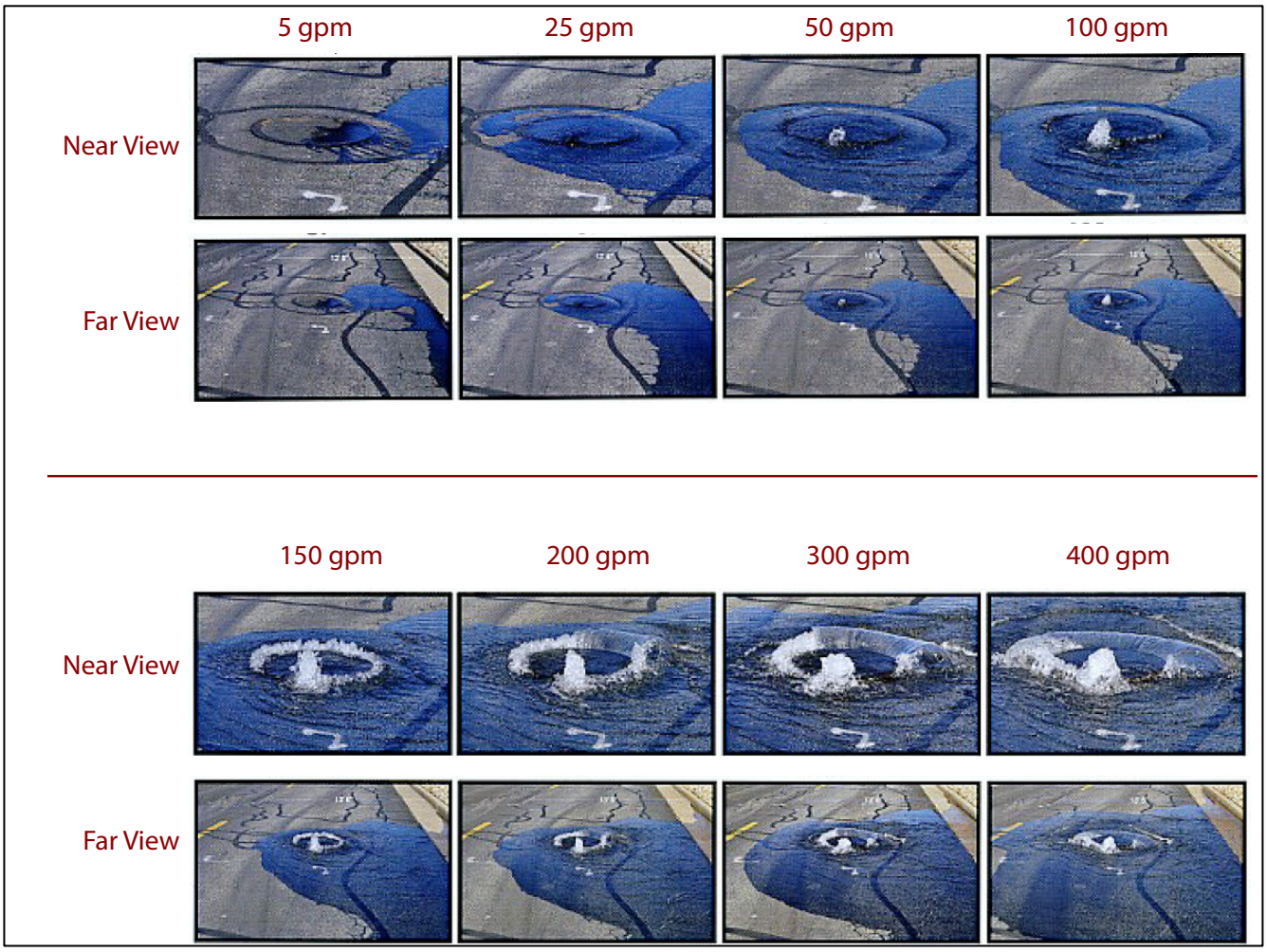
STEP 6: Take photographs. Where are photographs stored?

The following photos must be taken: appearance point closest to the failure point, extent of the spill and spill boundaries, the entry location of each drainage conveyance system the sewage entered, all discharge points into surface waters (Category 1 spill only), and location(s) of clean up.

Volume Estimation: Duration and Flow Rate Comparison Method

Spill Date: _____ Location: _____

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



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

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

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

(Continued on next page)

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

List assumptions made to arrive at the total estimated spill volume:

Take photographs. Where are photographs stored?

The following photos must be taken: appearance point closest to the failure point, extent of the spill and spill boundaries, the entry location of each drainage conveyance system the sewage entered, all discharge points into surface waters (Category 1 spill only), and location(s) of clean up.

Volume Estimation: Area/Volume Method

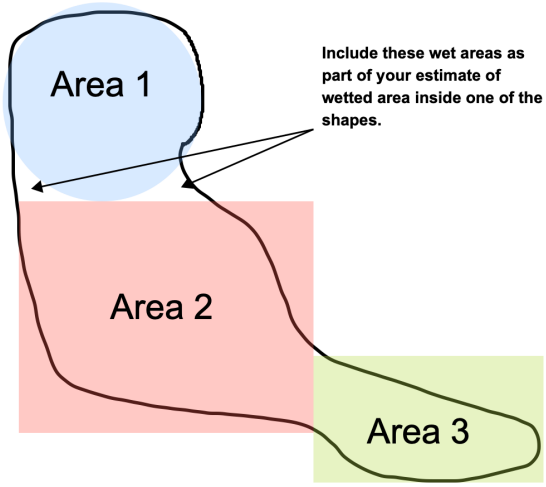
Spill Date: _____ Location: _____

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

☐ Other: _____

STEP 2: Draw/sketch the outline (footprint) of the spill. Then break the footprint down into recognizable shapes. Label/identify each sketch outline area (Area 1, Area 2, etc.) See example below.

EXAMPLE:



Include these wet areas as part of your estimate of wetted area inside one of the shapes.

Dimensions: 2.5' diameter
+/- 100% of the surface inside the circle is wet

Dimensions: 8' x 6'
+/- 80% of the surface inside the rectangle is wet

Dimensions: 6' x 3'
+/- 60% of the surface inside the rectangle is wet

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
	→	ft	X	ft	X	%	=	ft^2	X	ft	=	ft^3
	→	ft	X	ft	X	%	=	ft^2	X	ft	=	ft^3
	→	ft	X	ft	X	%	=	ft^2	X	ft	=	ft^3

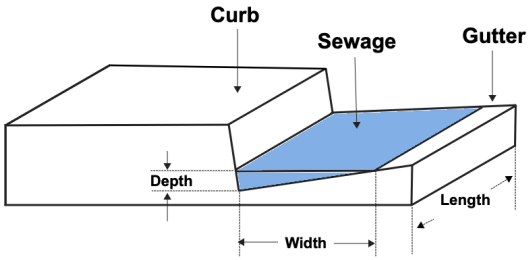
Circles:

Area # (from labeled drawing)		π	X	Radius	X	Radius	X	% Wet	=	Area	X	Depth	=	Volume
	→	3.14	X	ft	X	ft	X	%	=	ft^2	X	ft	=	ft^3
	→	3.14	X	ft	X	ft	X	%	=	ft^2	X	ft	=	ft^3
	→	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:

_____ X _____ X _____ X 0.5 = _____ ft^3

Length Depth Width **Volume**



STEP 5: Calculate Total Spill Volume (sum of all of the volume calculations above): _____ ft^3

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

_____ ft^3 x 7.48 gallons = _____ gallons

spill volume in cubic feet **Total estimated volume**

STEP 7: List assumptions made to arrive at the total estimated spill volume. Adjust estimation up for moderate to severe cracking and/or roughness of surface (General Rule 20% to 40%):

STEP 8: Take photographs. Where are photographs stored?

The following photos must be taken: appearance point closest to the failure point, extent of the spill and spill boundaries, the entry location of each drainage conveyance system the sewage entered, all discharge points into surface waters (Category 1 spill only), and location(s) of clean up.

Volume Estimation: Upstream Connections Method E-5

Spill Date: _____ Location: _____

Attach and/or reference system map and identify location of spill and buildings contributing to spill.

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

STEP 2: 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 spill 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 spill Volume per EDU.

	Flow Rate Per EDU				**Spill**	
	A	**B**	**C**	**D**	**E**	**F**
Time Period	Gallons per Period	Hours per period	A÷B = Gallons per Hour	C÷60 = Gallons per Minute	Minutes spill 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 Spill Volume per EDU:						

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

_____ gallons X _____ = _____ gallons
Volume per EDU # of EDUs Estimated spill Volume

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

Total Estimated spill Volume: _____ gallons

STEP 7: List assumptions made to arrive at the total estimated spill volume:

STEP 8: Take photographs. Where are photographs stored?

The following photos must be taken: appearance point closest to the failure point, extent of the spill and spill boundaries, the entry location of each drainage conveyance system the sewage entered, all discharge points into surface waters (Category 1 spill only), and location(s) of clean up.

Drawing Worksheet

Attachment 3: Sanitary Sewer Spill Field Report

Sanitary Sewer Spill Field Report

Check spill category (see A-3 for definitions): ☐CATEGORY 1 ☐CATEGORY 2 ☐CATEGORY 3 ☐CATEGORY 4 ☐NON-CAT 1 Lat

CalOES NOTIFICATION*		
Date:	Time:	Assigned Control Number:

Names of the Persons Participating in Spill Event	Contact Information

PHYSICAL LOCATION DETAILS	
Spill location name:	
Location description:	
Address of spill:	
City: **Santa Barbara**	Cross Street:
Regional Water Quality Control Board: **Region 3 - Central Coast**	County: **Santa Barbara**

DATE/TIME

Date and time the University was notified of, or self-discovered, the spill: _____

Operator arrival time: _____

PHOTOGRAPHS

Photos must be taken during the spill event. At a minimum, the following photos must be taken:

- ○ Appearance point closest to the failure point
- ○ Extent of the spill and spill boundaries
- ○ Entry location of each drainage conveyance system the sewage entered
- ○ All discharge points into surface waters
- ○ Location(s) of clean up

Where are photographs stored?
Send photos to UC Santa Barbara, Office of Environmental Health & Safety

* Within two (2) hours of the University's knowledge of a Category 1 or Category 2 spill of 1,000 gallons or greater, discharging or threatening to discharge to waters of the State, notify CalOES and obtain a notification control number.

SPILL ORIGINATION	
Description and GPS coordinates of the system location where the spill originated*: *Include manhole number or cleanout location of the spill appearance point closest to the failure point as applicable.*	
Latitude:	Longitude:
Number of additional appearance points:	
Spill appearance points: (Check all that apply) ☐ Backflow Prevention Device ☐ Combined Sewer Drain Inlet (Combined Collection System Only) ☐ Force Main ☐ Gravity Mainline ☐ Inside Building/Structure ☐ Lateral Clean Out (Private) ☐ Lateral Clean Out (Public) ☐ Lower Lateral (Private) ☐ Lower Lateral (Public) ☐ Manhole ☐ Other Sewer System Structure ☐ Pump Station ☐ Upper Lateral (Private) ☐ Upper Lateral (Public) ☐ Other, describe:	
Describe each spill appearance point:	
Check to confirm photos were taken of all appearance points: ☐	

* Note: If a single spill event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the "Describe each spill appearance point" description section above. Take photos of spill appearance point(s).

SPILL DESTINATION (Check all that apply)	
Final spill destination(s): ☐ Drainage Conveyance System That Discharges to Surface Water ☐ Surface Water ☐ Building or Structure ☐ Drainage Conveyance System ☐ Groundwater Infiltration Basin or Facility ☐ Paved Surface ☐ Street/Curb and Gutter ☐ Unpaved Surface ☐ Other, describe:	
Description of the spill event destination(s) including GPS coordinates if available that represent the full spread and reach of the spill.	
Latitude:	Longitude:
Latitude (if needed):	Longitude (if needed):
Latitude (if needed):	Longitude (if needed):
Latitude (if needed):	Longitude (if needed):
Check to confirm photos were taken of spill destination/boundaries: ☐	

SPILL VOLUME

Estimated total spill volume exiting the system: _____ gallons

Method used to determine estimated spill volume exiting the system: _____

Did the spill reach a drainage conveyance system? ☐ YES ☐ NO If yes:

- Estimated time the spill reached the drainage conveyance system: _____
- Distance from drainage conveyance system to entry point to surface waters: _____ feet
- Method to determine travel time from point of entry to drainage conveyance system to receiving waters:

  _____

  _____

  _____
- Describe the drainage conveyance system transporting the spill: _____

  _____

  _____

Estimated spill volume fully recovered from the drainage conveyance system: _____ gallons

Method used to determine estimated spill volume recovered: _____

Estimated spill volume remaining within the drainage conveyance system: _____ gallons

Method used to determine est. spill vol. remaining in drainage conveyance system: _____

Check to confirm photos taken of entry location of drainage conveyance system the sewage entered: ☐

Did the spill reach surface water? ☐ YES ☐ NO

If yes:

- Estimated time the spill entered the surface water: _____
- Distance from spill appearance point to entry point to surface water: _____ feet
- Method to determine travel time to receiving waters: _____

  _____

  _____
- Describe all discharge points: _____

  _____

  _____

Estimated spill volume that discharged to surface waters: _____ gallons

Method used to determine estimated spill volume discharged to surface waters: _____

Estimated total spill volume recovered: _____ gallons

Method used to determine estimated total spill volume recovered: _____

Check to confirm photos were taken of the following, as applicable: all discharge points into surface waters, waterbody bank erosion, floating matter, water surface sheen, discoloration of receiving water, any notable impacts to the receiving water: ☐

Did the spill discharge to a groundwater infiltration basin or facility? ☐ YES ☐ NO

If yes, below section does not need to be completed since spill did not reach surface waters.

- Estimated time the spill entered the groundwater infiltration basin or facility: _____
- Estimated spill volume discharged to the groundwater infiltration basin or facility: _____ gallons
- Method used to determine estimated spill volume discharged: _____

SPILL VOLUME (continued)
Estimated spill volume that did NOT reach drainage conveyance system, surface water, or groundwater infiltration basin or facility: _____ gallons Method used to determine estimated spill volume that did NOT reach drainage conveyance system, surface water, or groundwater infiltration basin or facility: _____
Estimated Total Spill Volume Recovered: _____ gallons Method used to determine estimated total spill volume recovered: _____
Description of how the spill volume estimations were calculated, including at a minimum, the methodology, assumptions and types of data relied upon, such as supervisory control and data acquisition (SCADA) records, flow monitoring or other telemetry information, used to estimate the volume of the spill discharged, and the volume of the spill recovered (if any volume of the spill was recovered):

SPILL START TIME and END TIME DETERMINATION	
Were there witnesses to the spill? ☐ YES ☐ NO If yes, provide Spill Witness Statements below:	
Witness 1 Name:	Witness 1 Contact Information:
Where did they see sewage spill from? ☐ Manhole ☐ Inside Building ☐ Vent/Clean Out ☐ Catch Basin ☐ Wet Well/Lift Station ☐ Other (describe):	
When did the witness notice the sewage spilling? _____ AM / PM Date _____ /_____ /_____ Witness description of spill and affected area: Is it currently spilling? ☐ YES ☐ NO When did the witness last observe **NO Spill** occurring? _____ AM / PM Date _____ /_____ /_____	
Did the witness notice if the spill had reached the storm drain or surface waters?	
Comments:	
Witness 2 Name:	Witness 2 Contact Information:
Where did they see sewage spill from? ☐ Manhole ☐ Inside Building ☐ Vent/Clean Out ☐ Catch Basin ☐ Wet Well/Lift Station ☐ Other (describe):	
When did the witness notice the sewage spilling? _____ AM / PM Date _____ /_____ /_____ Witness description of spill and affected area: Is it currently spilling? ☐ YES ☐ NO When did the witness last observe **NO Spill** occurring? _____ AM / PM Date _____ /_____ /_____	
Did the witness notice if the spill had reached the storm drain or surface waters?	
Comments:	
Witness 3 Name:	Witness 3 Contact Information:
Where did they see sewage spill from? ☐ Manhole ☐ Inside Building ☐ Vent/Clean Out ☐ Catch Basin ☐ Wet Well/Lift Station ☐ Other (describe):	
When did the witness notice the sewage spilling? _____ AM / PM Date _____ /_____ /_____ Witness description of spill and affected area: Is it currently spilling? ☐ YES ☐ NO When did the witness last observe **NO Spill** occurring? _____ AM / PM Date _____ /_____ /_____	
Did the witness notice if the spill had reached the storm drain or surface waters?	
Comments:	

SPILL START TIME and END TIME DETERMINATION (continued)

Are the volume of the spill and rate of flow known? ☐ YES ☐ NO

If yes, divide volume by rate of flow to get duration of spill event:

_____ Gallons ÷ _____ GPM = _____ Minutes
Spill Volume Flow Rate Spill Duration

Subtract the duration from the spill end date/time to establish the spill start date/time:

_____ — _____ = _____
Spill End Date/Time Duration Spill Start Time

Method to determine flow rate:

Solids Present? ☐ None or small amount (indicates recent start)
☐ Significant amount of buildup

Staining? ☐ None (indicates recent start)
☐ Minor
☐ Significant

Distance sewage has traveled from spill point:

Spill Date and Start Time:

Spill End Date and Time:

How was end time determined?
☐ Broke stoppage
☐ Turned pump station back on
☐ Other, explain:

Description of the methodology(ies), assumptions and type of data relied upon for estimations of the spill start time and the spill end time.

SPILL CAUSE (check all that apply)
☐ Air Relief Valve (ARV)/Blow Off Valve (BOV)/Backwater Valve Failure
☐ Construction Diversion Failure
☐ Collection System Maintenance Failure (Specify Below)
☐ Damage by Others Not Related to CS Construction/Maintenance (Specify Below)
☐ Debris from Construction
☐ Debris from Lateral
☐ Debris-General
☐ Debris-Rags
☐ Debris-wipes/Non-disposables
☐ Flow Exceeded Capacity (Separate CS Only)
☐ Fats, Oils and Grease (FOG)
☐ Inappropriate Discharge to CS
☐ Natural Disaster (Specify Below)
☐ Operator Error (Specify Below)
☐ Pipe Structural Problem/Failure – Installation
☐ Pipe Structural Problem/Failure – Controls
☐ Pump Station Failure – Power
☐ Pump Station Failure – Mechanical
☐ Pump Station Failure – Controls
☐ Rainfall Exceeded Design, I and I (Separate CS Only)
☐ Root Intrusion
☐ Siphon Failure
☐ Surcharged Pipe (Combines CS Only)
☐ Vandalism (Specify Below)
☐ Other, specify:

SYSTEM FAILURE LOCATION	
System failure location: ☐ Air Relief Valve (ARV)/Blow Off Valve (BOV) Failure ☐ Force Main ☐ Gravity Mainline ☐ Lower Lateral ☐ Manhole ☐ Pump Station Failure – Controls ☐ Pump Station Failure – Mechanical ☐ Pump Station Failure – Power ☐ Siphon ☐ Upper Lateral (Specify Below) ☐ Other, specify:	
Description of the pipe material at the failure location: ☐ Copper ☐ Galvanized Steel ☐ Polyvinyl Chloride (PVC) ☐ Acrylonitrile Butadiene Styrene (ABS) ☐ Cross-Linked Polyethylene (PEX) ☐ Cast Iron ☐ Vitrified Clay ☐ Concrete ☐ Ductile Iron ☐ Fiberglass ☐ Other, specify:	
Estimated age of sewer asset at the point of blockage or failure (if applicable):	years
Diameter of sewer pipe at the point of blockage or failure:	inches

SPILL IMPACT
Description of the impact of the spill:

STORM EVENT
Was spill associated with a storm event? ☐ YES ☐ NO

SPILL RESPONSE ACTIVITIES (check all that apply)
☐ Cleaned Up (Specify Below) ☐ Mitigated Effects of Spill (Specify Below) ☐ Contained All or Portion of Spill ☐ Restored Flow ☐ Returned All Spill to Sanitary Sewer System ☐ Returned Portion of Spill to Sanitary Sewer System ☐ Property Owner Notified ☐ Other Enforcement Agency Notified ☐ Other, specify:

SPILL CLEAN UP
Date and Time Spill Clean Up Began: Date: _____ Time: _____ AM / PM
Date and Time Spill Clean Up Completed: Date: _____ Time: _____ AM / PM
Clean Up Method: (select all that apply) ☐ Fresh Water Washdown ☐ Broom/Rake/Retrieve Solids ☐ Vacuum Retrieval ☐ Soil Removal ☐ Hydro-Jet/Vacuum Retrieve from Storm Conveyance System ☐ Building Restoration ☐ Disinfectants ☐ Other, specify:
Description of Clean Up Activities: Gallons of Water Washdown Used: _____ (gals)

SPILL CONTAINMENT	
Containment Location: (select all that apply) ☐ Curb and Gutter ☐ Street ☐ Open Space ☐ Storm Drain System ☐ Drainage Channel ☐ Inside Building ☐ Lawn/Landscaped Area ☐ Creek/Stream ☐ Wetland ☐ Other, specify:	Containment Method: (select all that apply) ☐ Photos of Containment in Place ☐ Inlet Mats ☐ Sandbags ☐ Naturally Contained ☐ Hand Dig Trench ☐ Dry Sweep ☐ Pneumatic Plugs ☐ Divert to Sewer System ☐ Absorbent Waddles ☐ Other, specify:

SPILL CORRECTIVE ACTION (check all that apply)
☐ Added Sewer to Preventive Maintenance Program ☐ Adjusted Schedule/Method of Preventive Maintenance ☐ Enforcement Action Against FOG Source ☐ Inspected Sewer Using CCTV to Determine Cause ☐ Plan Rehabilitation or Replacement of Sewer ☐ Repaired Facilities or Replaced Defect ☐ Other, specify:

Refer to Collection System Failure Analysis Report for details about:

- Spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the spill, and a schedule of major milestones for those steps.
- Schedule of major milestones

Check to confirm completion of each report:

☐ Post-Spill Assessment
☐ Collection System Failure Analysis

Spill response completion date:

INVESTIGATION
Detailed narrative of investigation and investigation findings of cause of spill:
Is the University conducting an ongoing investigation? ☐ YES ☐ NO If yes, reasons for an ongoing investigation: If yes, expected date of completion of investigation: _____

SURFACE WATERS (Complete for Category 1 Spills Only)		
Name of receiving water body	Type of receiving water body: Stream, Ocean, Wetland, Slough, Estuary, River, Lake, Reservoir, Vernal Pool, Wash, or Other (specify)	Description of the water body(s), including but not limited to: ○ Observed impacts on aquatic life, ○ Public access impact(s): public closure, restricted public access, temporary restricted use, and/or other (specify below) ○ Responsible entity for closing/restricting use of water body, and ○ Number of days closed/restricted as a result of the spill.

MUNICIPAL INTAKE (Complete for Category 1 and 2 Spills Only)		
Was the spill located within 1,000 feet of a municipal surface water intake?	☐ YES	☐ NO
Describe:		

WATER SAMPLING
Were water quality samples collected? ☐ YES ☐ NO ☐ N/A If yes, identify sample locations:
Identify parameters the water quality samples were analyzed for: (Check all that apply) ☐ Total Coliform Bacteria ☐ Fecal coliform bacteria ☐ E-coli ☐ Ammonia ☐ Other, specify:

Attachment 4: Personal Protective Equipment

Required Personal Protective Equipment (PPE) for Sanitary Sewer Spills

Small Spills

Hazards:

The spill does not exceed 2 inches in depth.

Large Spills

Hazards:

The spill exceeds 2 inches in depth.
There is a potential for splashing.

Attachment 5: Example Training Log

UCSB

Spill Emergency Response Plan (SERP)

Training Log

Trainer(s):			**Date:**	
Name	**Job Description/ Title**	**Department**	**Training Type** **(Initial, Annual, or Other*)**	**Signature**

*Specify reason for training