

Sanitary Sewer Overflow (SSO) Incident Report Form

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Submit completed form to EHS.

Date of SSO spill: _____ Identify the SSO category (check one):

- Category 1 SSO – Spills of any volume that reach surface water
- Category 2 SSO – Spills greater than or equal to 1,000 gallons that do not reach surface water
- Category 3 SSO – Spills less than 1,000 gallons that do not reach surface water

Name (*person completing this form*): _____ Phone: _____

Exact spill location: _____

Latitude: _____ Longitude: _____

Spill location description: _____

Date/time spill was first discovered or reported to Facilities Management:

Date: _____ Time: _____ am/pm

Estimated spill start date/time: Date: _____ Time: _____ am/pm

Estimated first responder arrival date/time: Date: _____ Time: _____ am/pm

Estimated spill end date/time: Date: _____ Time: _____ am/pm

Final spill destination (*Check all that apply*):

- Building/Structure Street Curb/Gutter Paved Surface Unpaved Surface
- Storm Drain Surface Water Drainage Channel
- Storm Water Infiltration/Retention Structure/Field Other (*specify*): _____

Number of spill appearance points: _____

Spill appearance point (*Check all that apply. See page 3 complete list*):

- Gravity Mainline Inside Building or Structure Manhole
- Other Sewer System Structure (*specify*): _____

Spill cause (*Check all that apply. See page 3 complete list of options*):

- Debris - General Debris – Rags Root Intrusion Debris from Construction
- Construction Diversion Failure Collection System Maintenance Caused Spill/Damage
- Damage by Others Not Related to Collection System Other (*specify*): _____

Where did failure occur? (*Check all that apply. See page 3 complete list of options*):

- Gravity Mainline Manhole Inside Building or Structure Other (*specify*): _____

Was this 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: _____ years

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Spill Volume Estimation

| | | |
|--|--|------------------|
| Did spill discharge to land? <i>(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)</i> | If Yes, estimated spill volume discharged to land: | gallons |
| | Estimated spill volume recovered from discharge to land: <i>(Do not include water used for clean-up)</i> | - gallons |
| | Total discharge to land: | = gallons |
| Did spill reach storm drain? | If Yes, estimated spill volume that reached storm drain : | gallons |
| | Estimated spill volume recovered from storm drain: | - gallons |
| | Total discharge to storm drain | = gallons |
| Did spill reach drainage channel? | If Yes, estimated spill volume that reached discharge channel: | gallons |
| | Estimated spill volume recovered from drainage channel: | - gallons |
| | Total discharge to drainage channel: | = gallons |
| Total SSO Discharge | | = gallons |

Methods used to estimate spill volumes *(Check all that apply. Use attached Volume Estimation Forms to document spill dimensions, shapes and other volume estimation information):*

- Eyeball Method Calculations from Spill Dimensions Duration and Flow Rate
- Open Channel Spill Estimation Drop Bucket Method Calculations Based on Pipe Size
- Flow from Vent or Pick Holes Flow around Manhole Cover Flow from Manhole w/o a Cover

Spill response activities *(Check all that apply):*

- Cleaned-up Contained All or Portion of Spill Mitigated Effects of Spill Restored Flow
- Returned All of Spill to Sanitary Sewer System Other Enforcement Agency Notified
- Other *(specify):* _____

Spill response completion date: _____

Spill corrective action taken: *(Check all that apply. See page 3 complete list of options):*

- Added Sewer to Preventive Maintenance Program Adjusted Schedule/Method of Preventive Maintenance
- Inspected Sewer Using CCTV to Determine Cause Plan Rehabilitation or Replacement of Sewer
- Repaired Facilities or Replaced Defect Other *(specify)* _____

Cal OES notification information *(required for Category 1 SSOs over 1,000 gallons):*

Control Number: _____ Date: _____ Time: _____ am/pm

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CIWQS SSO Online Database Dropdown Lists:

Spill Appearance Point

Force Main
Gravity Mainline
Inside Building or Structure
Lateral Clean-Out
Lower Lateral
Manhole
Other Sewer System Structure
Pump Station
Upper Lateral

Spill Cause

Air relief valve (ARV) Failure
Blow-off Valve (BOV) Failure
Construction Diversion Failure
CS Maintenance Caused Spill/ Damage
Damage by Others Not Related to CS Construction/
Maintenance (specify type below)
Debris from Construction
Debris from Lateral
Debris-General
Debris- Rags
Flow Exceeded Capacity (Separate CS only)
Grease Deposition (FOG)
Inappropriate Discharge to CS
Natural Disaster
Non-Dispersible Operator Error
Other (specify)
Pipe Structural Problem/ Failure Installation
Pump Station Failure- Controls
Pump Station Failure- Mechanical
Pump station Failure- Lower
Rainfall Exceeded Design, Inflow and Infiltration
(Separate CS Only)
Root Intrusion
Siphon Failure
Surcharged Pipe (Combined CS Only)
Vandalism

Where Did Failure Occur

Air Relief Valve (ARV)
Blow- off Valve (BOV)
Force Main
Gravity Mainline
Lower Lateral (Public)
Manhole
Other (specify below)
Pump Station- Controls
Pump Station- Mechanical
Pump Station- Power
Siphon
Upper Lateral (public)

Spill Response Activities

Cleaned-Up
Mitigated Effects of Spill
Contained All or Portion of Spill
Other (specify below)
Restored Flow
Returned All of Spill to Sanitary Sewer System
Property Owner Notified
Other Enforcement Agency Notified

Spill Corrective Action Taken

Added Sewer to Preventative Maintenance Program
Adjusted Schedule/ Method of Preventative
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

Method 1: Eyeball Estimate

- Imagine amount of water that would spill from a 1-gallon jug, 5-gallon bucket or 50-gallon barrel
- Method can be used to estimate the volume of spills on asphalt, concrete, sloped surfaces, and flat surfaces
- Only useful for spills up to 200 gal

One gallon spill on a sloped surface
(with a point of reference)



Two gallon vs. one gallon spill on a slope
(Two gallons left, one gallon right).



Two gallon spill on a very slight slope



Five gallon spill-forty feet in length.



Method 1: Eyeball Method Volume Measurement Worksheet

Manhole/ Pipe Number: _____

Date: _____

Name of Estimator: _____

Telephone: _____

Exact Location of Spill (address): _____

Exact Latitude: _____ Exact Longitude: _____

Picture taken? YES NO

Dimensions of spill (in ft. or paces): Length _____ Width _____ Depth _____

Shape of spill: RECTANGLE TRIANGLE CIRCLE

Estimated spill volume: _____ gal



One gallon on sloped surface



Two gallon spill on sloped surface



Five gallon spill on sloped surface

Estimated volume of spill recovered: _____ gal

Please sketch spill with dimensions:

Was a reference image used? YES NO

Additional Notes and Documentation (please describe how the spill volume was calculated/measured.):

Method 2: Duration and Flow Rate

If area/ depth are impossible to measure, use duration and flow rate estimate

Duration: time elapsed from start to end of SSO

- To estimate **start time**, use one of the following methods:
 1. Compare hourly data on a downstream flow meter to find changes in flow.
 2. Local residents can be used to establish start time. Observations like odors or sounds (e.g. water running in a normally dry creek bed) can be used to estimate the start time.
 3. Observe conditions at the SSO site. Initially there will be limited deposits of sewage solids and toilet paper. After a few days to a week, the quantity of toilet paper and other materials of sewage origin increase in amount. These changes with time can be used to estimate the start time in the absence of other information. Taking photographs to document the observations can be helpful if questions arise later in the process.
- To estimate **end time**, field crews observe and record time of the “blow down” that occurs when blockage is removed or observe “blow down” on flow meters.

Flow Rate: The flow rate is the average flow that left the sewer system during the time of the spill. There are three common ways to estimate the flow rate.

1. Use data from **flow meter** to estimate flow rate for the spill (better for large SSOs). Changes in flows in downstream flow meters can be used to estimate the flow rate during the spill
2. Estimate based on **up-stream connections**. Once the location of the SSO is known, the number of upstream connections can be determined from system maps. Multiply the number of connections by average hourly or daily water use per connection.
3. Refer to the **Flow Rate Charts for Estimating Sewer Spills** to estimate flow rate based on images of sewage flowing from manholes at varying flow rates.

Volume of SSO is the product of the duration (in hours or days) x flow rate (in gallons per hour or gallons per day). (ft³= 7.48 gal)

Method 2: Spill Volume Estimation Based on Duration and Flow Rate

Manhole/ Pipe Number: _____
Date: _____

Name of Estimator: _____ Telephone: _____

Exact Location of Spill (address): _____
Exact Latitude: _____ Exact Longitude: _____

Estimated spill start date/time: _____ (MM/DD/YY) _____ (HR:MIN)

Estimated spill end date/time: _____ (MM/DD/YY) _____ (HR:MIN)

Spill duration: _____ min

Flow rate: _____ gal/min

How was flow rate determined? Flow Meter Upstream Connections Reference Sheet

Estimated spill volume (duration x flow rate): _____ gal

Estimated volume of spill recovered: _____ gal

Picture taken? YES NO

Dimensions of spill (in ft. or paces): Length _____ Width _____ Depth _____

Shape of spill: RECTANGLE TRIANGLE CIRCLE

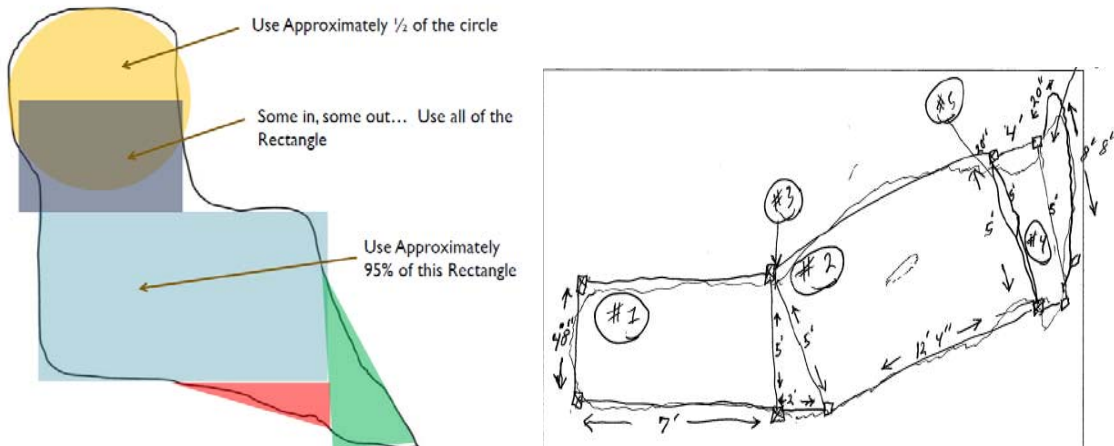
Please Sketch Spill with Dimensions:

Additional Notes and Documentation (please describe how the spill volume was calculated/measured. Please show calculations.):

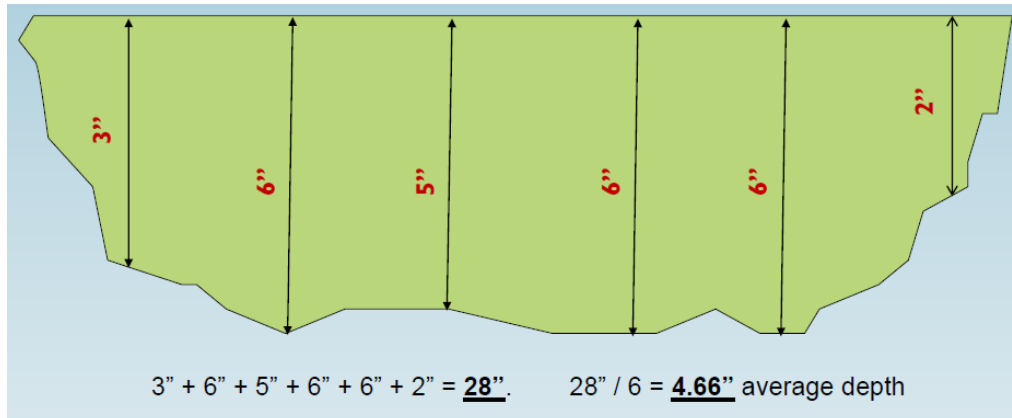
Method 3: Estimating Volume Based on Spill Dimensions

If not raining, the shape, dimensions, and depth of spill may be used to estimate volume

1. Sketch shape of spill
 2. Measure/pace off dimensions
 3. Measure depth in several locations; take average
 4. Convert all dimensions to feet
 5. Calculate area of spill based on approximate shape:
 - Rectangle: Area = length x width
 - Circle: Area = diameter x diameter x 0.785
 - Triangle: Area = base x height x 0.5
 6. Multiply area x depth to get volume
 7. Multiply volume x 7.5 to convert into gallons
- Using a spill footprint to get surface area and sample sketch



- Calculate average depth to get a depth measurement



Method 3: Spill Volume Estimation Worksheet Based on Spill Dimensions

Manhole/ Pipe Number: _____

Date: _____

Name of Estimator: _____

Telephone: _____

Exact Location of Spill (address): _____

Exact Latitude: _____ Exact Longitude: _____

| | | | | |
|-----------------|-----------|----------|--------|--|
| Picture taken? | YES | NO | | |
| Shape of spill: | RECTANGLE | TRIANGLE | CIRCLE | |

Please sketch spill in zones with dimensions:

| | | | |
|----------|-------|-------|-------|
| Area # 1 | _____ | % Wet | _____ |
| Area # 2 | _____ | % Wet | _____ |
| Area # 3 | _____ | % Wet | _____ |
| Area # 4 | _____ | % Wet | _____ |
| Area # 5 | _____ | % Wet | _____ |
| Area # 6 | _____ | % Wet | _____ |

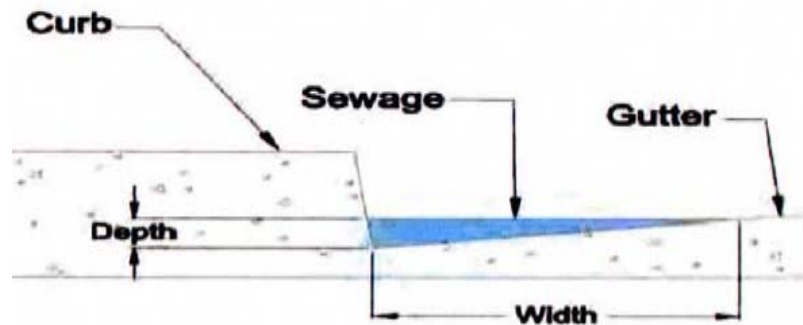
Please Calculate Average Depth:

Estimated Spill Surface Area _____ square feet
Number of Depth Measurements Used _____ Average Depth _____ inches
Estimated Spill Volume: _____ gal
Estimated volume of spill recovered: _____ gal

Additional Notes and Documentation (please describe how the spill volume was calculated/measured. Please show calculations.):

Method 4: Open Channel Spill Estimation

- For ditches, channels, gutters, etc.
 1. Measure the cross sectional dimensions (to determine the area) of the channel and determine the velocity of the flow.
 2. Velocity can be measured by dropping a floating object into the flow and timing the object over a measured distance.
 3. Flow (Q), ft³/sec = Velocity (V), ft/sec X Area (A),ft²
 4. Flow times duration equals amount of spill
 5. Multiply by 7.48 (number of gallons in one cubic foot) to convert to gallons



Method 4: Spill Volume Estimation Based on Open Channel Spills

Manhole/ Pipe Number: _____
Date: _____

Name of Estimator: _____ Telephone: _____

Exact Location of Spill (address): _____
Exact Latitude: _____ Exact Longitude: _____

Estimated spill start date/time: _____ (MM/DD/YY) _____ (HR:MIN)

Estimated spill end date/time: _____ (MM/DD/YY) _____ (HR:MIN)

Spill duration: _____ min Velocity: _____ ft./min

Cross Sectional Area of Ditch, Channel, or Gutter:
Depth: _____ ft. Width: _____ ft. Area: _____ ft²

Flow rate (velocity x Area): _____ ft³/min

Estimated spill volume (duration x flow rate x 7.48): _____ gal

Estimated volume of spill recovered: _____ gal

Picture taken? YES NO
Dimensions of spill (in ft. or paces): Length _____ Width _____ Depth _____

Shape of spill: RECTANGLE TRIANGLE CIRCLE

Please Sketch Spill with Dimensions:

Additional Notes and Documentation (please describe how the spill volume was calculated/
measured. Please show calculations.):

