

**Sanitary Sewer Overflow Response  
Standard Operating Procedures**



C I T Y O F  
**HAYWARD**  
HEART OF THE BAY

FEBRUARY 2016

## ***ADMINISTRATIVE***

### **A. Introduction**

1. This SOP is a set of guidelines to aid Operations & Maintenance staff responding to sanitary sewer overflows (SSOs). All activities shall be conducted safely, in accordance with all CalOSHA and City of Hayward regulations to minimize the chance of personnel injury, or adverse impact on the environment, in compliance with all regulatory agency standards, and in a way that maximizes operational and production requirements.

### **B. References**

1. Ken Kerry. *Operation and Maintenance of Wastewater Collection System*. Office of Wastewater Programs Volume 1. CSU Sacramento. 2004. p. 554
2. California Integrated Water Quality System (CIWQS) SSO Discharger Work Book.
3. Bay Area Clean Water Agencies (BACWA) Best Management Practices for Sanitary Sewer Overflow Reduction Strategies.
4. City of Hayward Municipal Code, Article 3 – “SANITARY SEWER SYSTEM”.
5. State Water Resources Control Board Order No. 2013-0058-EXEC Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.
6. State Water Resources Control Board Monitoring and Reporting Program No. 2006-003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.
7. City of Hayward Sewer System Management Plan (SSMP).

### **C. Objectives**

1. Provide Operations & Maintenance staff with a set of formal instructions to be utilized to:
  - a. Correctly respond to a Sanitary Sewer Overflow (SSO).
  - b. Accurately estimate the volume of an SSO.
  - c. Implement best management practices (BMPs) to stop an overflow, and remediate and control the effects of an SSO.
  - d. Sample waters that may be affected or impacted by an SSO.
  - e. Clean up an SSO.

### **D. Equipment/Personnel Required**

1. Personnel – Two Collection System Utility Workers (minimum), but as many as required to safely and effectively stop the SSO, prevent the SSO from impacting

surface waters or storm drains, mitigate the effects of the SSO, including sampling surface waters that may be impacted, and clean up effects of the SSO.

2. PPE – Hard hat, gloves, steel-toe safety shoes, respiratory protection, eye protection, face shield, hearing protection, safety vest.
3. Equipment – Emergency Response Equipment: Combo-truck, pumps, hoses, generator, lights, traffic control, safety equipment, etc.

#### **E. Definitions**

1. BACWA – Bay Area Clean Water Agencies.
2. BMP – Best Management Practices for responding to, mitigating, and cleaning up spills. Refers to procedures for responding to an SSO that minimize damage and impact of SSO. For details of these procedures, refer to the following manuals.
  - a. Best Management Practices for Sanitary Sewer Overflow (SSO) Reduction Strategies – Bay Area Clean Water Agencies (BACWA)
  - b. Best Practices for Sanitary Sewer Overflow Prevention and Response Plan – Collection System Collaborative Benchmarking Group.
3. CalEMA – California Emergency Management Agency.
4. CalOES (formerly CalEMA) – California Office of Emergency Services
5. Cal OSHA – California Occupational Health and Safety Agency
6. CIWQS – California Integrated Water Quality System, online SSO reporting database.
7. CWQCB – California Water Quality Control Board or Water Board
8. SSO – Sanitary Sewer Overflow
9. WQMP – SSO Water Quality Monitoring Plan, instructions on water sampling, required if spill volume equals or exceeds 50,000 gallons.

#### **F. Terminology**

1. **NOTE** is used when information is available that can assist the Operator in accomplishing his or her task. Information is advisory in nature.
2. **CAUTION** is used when special cautions must be taken by the Operator. Failure to following prescribed steps may cause serious bodily injury and damage equipment.
3. **WARNING** is used when special cautions must be taken by the Operator. Failure to follow prescribed steps will cause loss of life or limb and severely damage equipment.

## ***PROCEDURES***

### **1. SSO Response**

**NOTE**

Detailed steps for activities listed in ***PROCEDURES*** are in following sections. Refer to these sections for detailed descriptions of activities.

#### **1.1 Determine source of the SSO.**

- Step 1: Contact caller and get info on spill; location, start time, etc.
- Step 2: Determine if spill caused by blockage, equipment failure, or damage to sewer system.

#### **1.2 Take action to stop the SSO.**

- Step 1: Locate the point of discharge.
- Step 2: Determine cause of spill.
- Step 3: Develop plan to and take action necessary to stop the SSO.
- Step 4: If necessary, call out enough personnel to control spill.

#### **1.3 Take action to contain spill.**

- Step 1: Determine extent of spill and containment necessary.
- Step 2: Block all entry points to storm drain, creeks, lakes, or any other access to waters of the state.
- Step 3: If necessary, use pneumatic plugs to block storm drain system and prevent spill from traveling any further in the storm drain system.
- Step 4: Use combo-truck to rinse and clean storm drain system and return captured sewage to the sanitary sewer system.

#### **1.4 Document Activity**

- Step 1: Estimate volume of spill.
- Step 2: Determine percentage of spill recovered.
- Step 3: **It is important to take photos throughout the response process to document the event. Photograph any evidence of spill volume, extent or severity.**

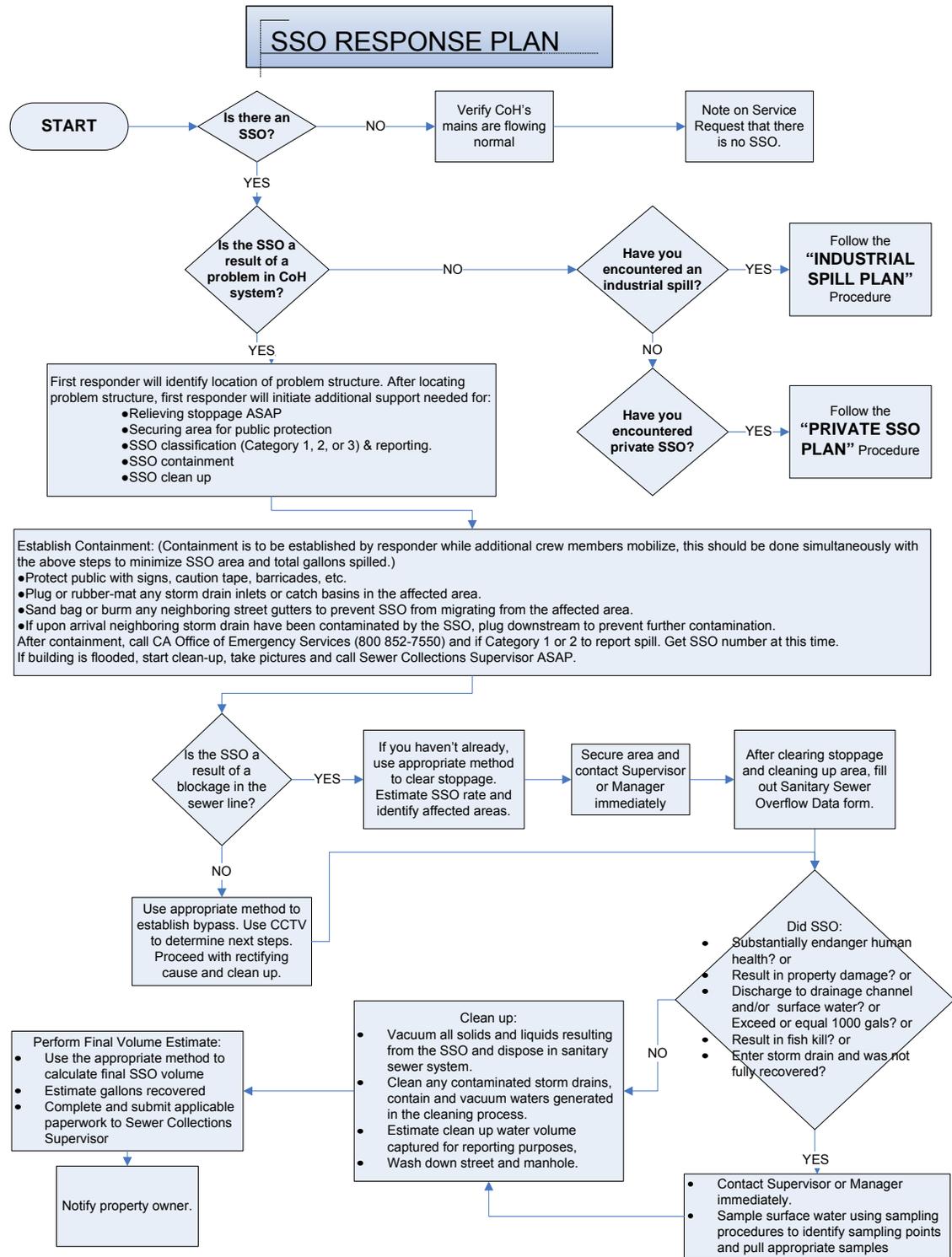
#### **1.5 Report**

- Step 1: Fill out the Sanitary Sewer Overflow Data Form as completely as possible.

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**SANITARY SEWER OVERFLOW REPOSE SOP**

- Step 2: Notify Utilities Operations & Maintenance Supervisor of spill and any mitigation activities taken.
- Step 3: For Category 1 & 2 SSO, notify CalOES (800-852-7550) of spill within two (2) hours of being notified of SSO.
- Step 4: Utilities Operations & Maintenance Supervisor: Report spill in CIWQS Online SSO Reporting Database.

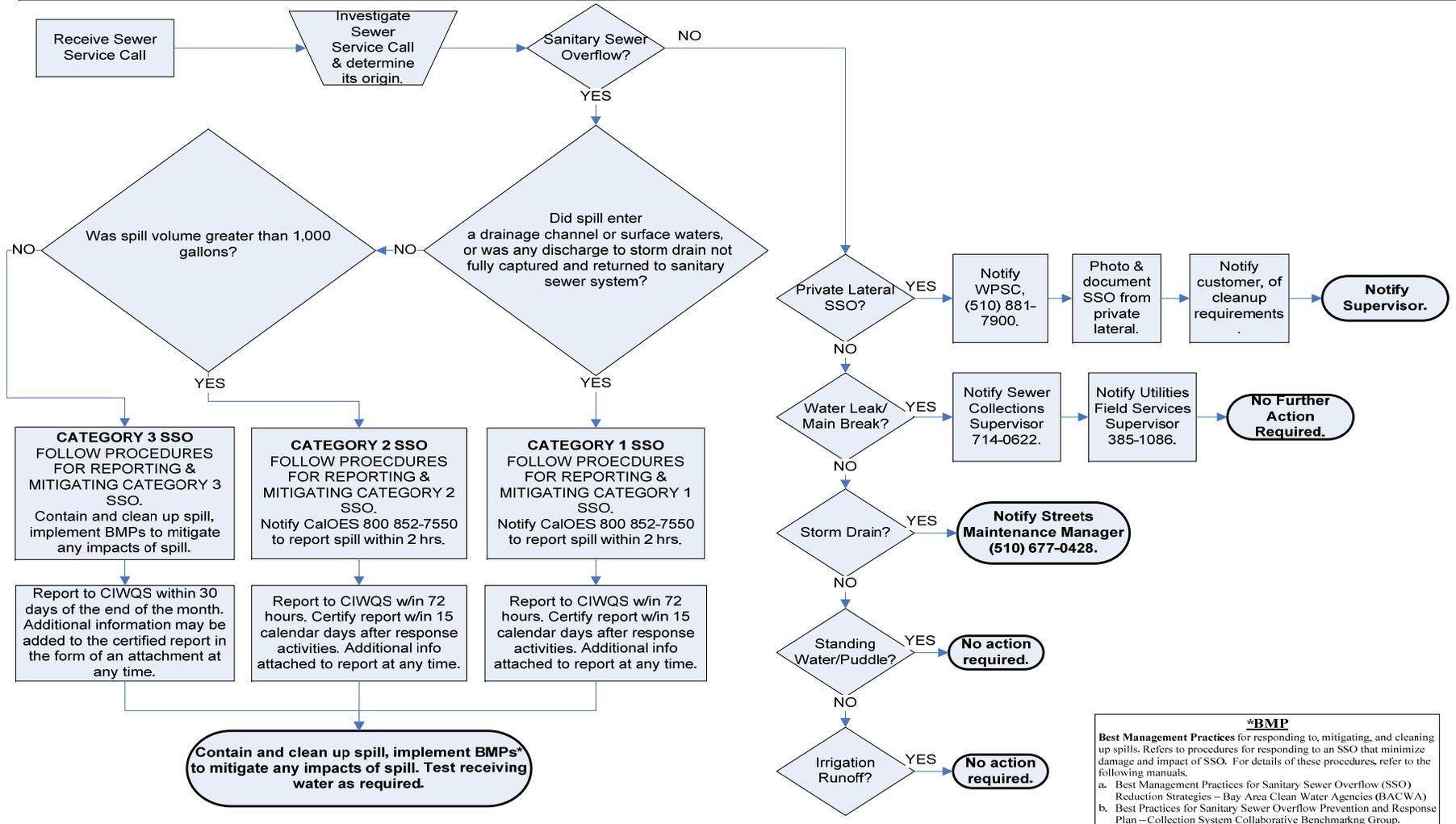


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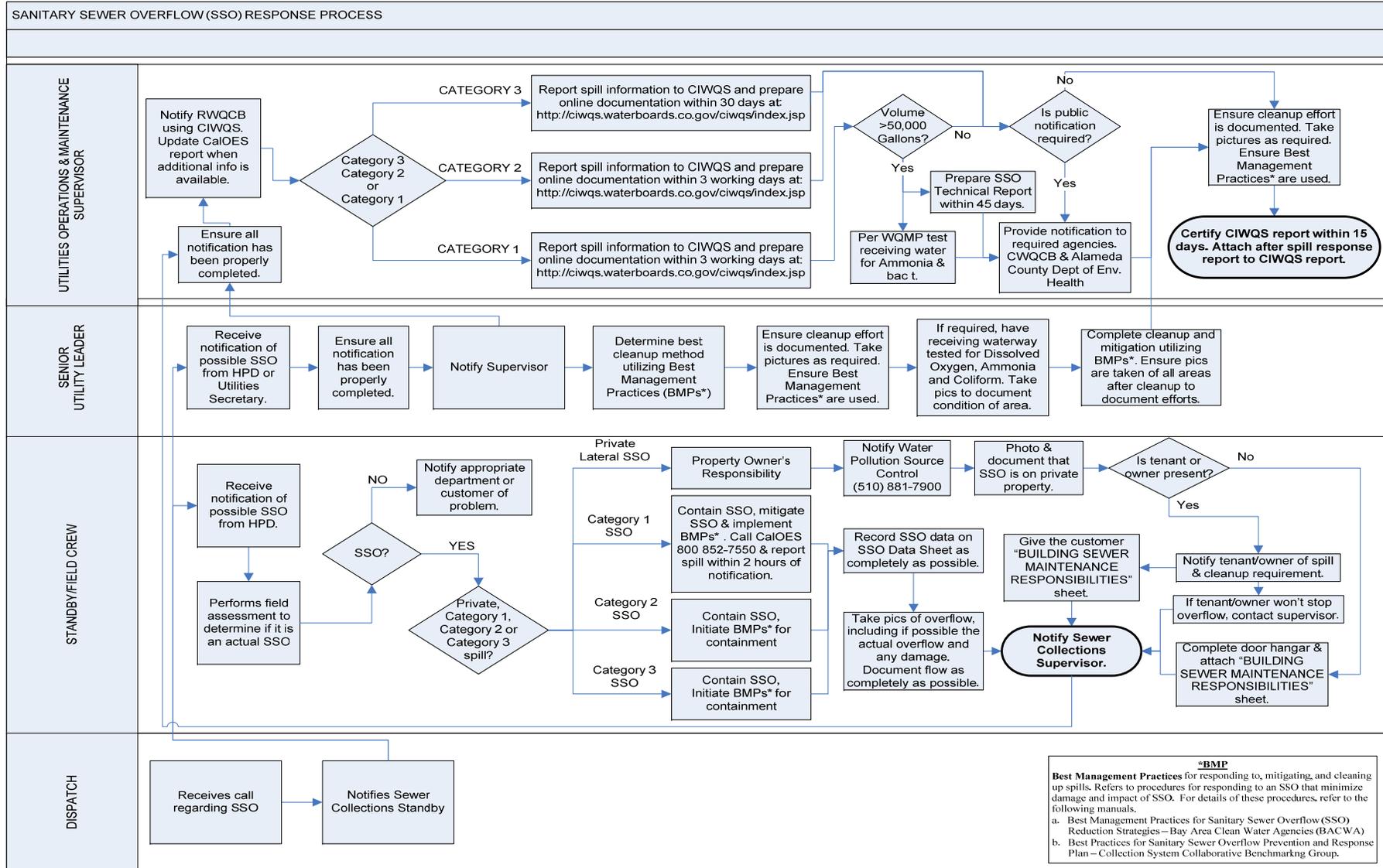
**DETERMINING SANITARY SEWER OVERFLOW CATEGORY**

For detailed instructions on reporting and and cleanup procedures, refer to CITY OF HAYWARD SANITARY SEWER OVERFLOW (SSO) STANDARD OPERATING PROCEDURES binder on bookshelf.

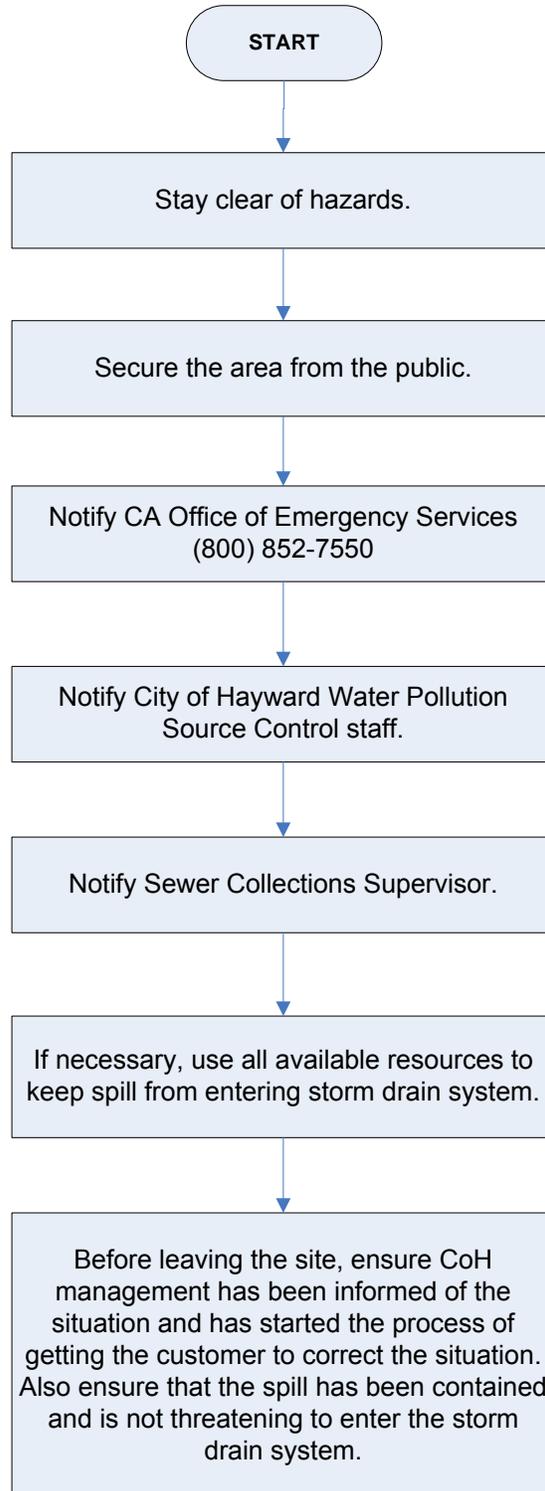


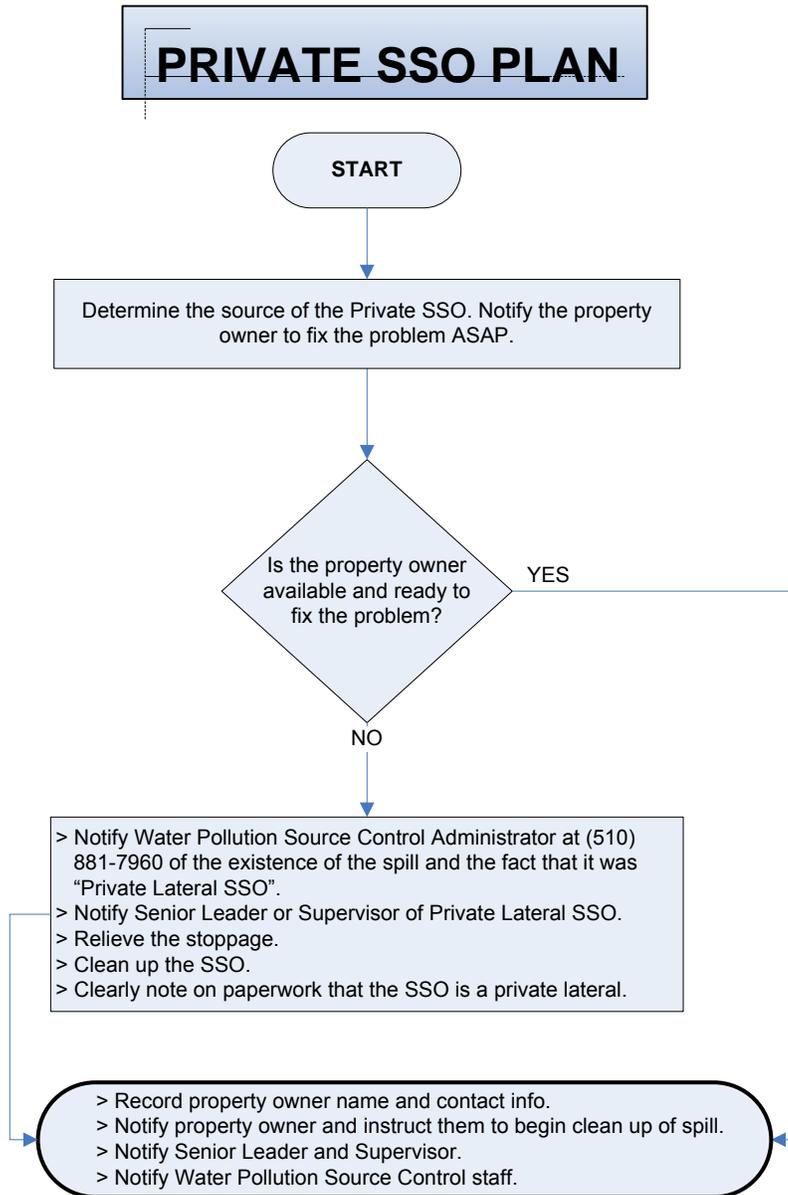
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**SANITARY SEWER OVERFLOW RESPONSE SOP**



## INDUSTRIAL SPILL PLAN





## **SSO CATEGORY DETERMINATION WORKSHEET**

### **Category 1**

**Definition:** Discharges of untreated or partially treated wastewater of any volume resulting from an enrollee's sanitary sewer system failure or flow condition that:

1. Reach a surface water and/or reach a drainage channel tributary to a surface water; **or**
2. Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).

**Notification Requirements:** Category 1 SSOs require notification to CalOES (800-852-7550) within 2 hrs.

**Reporting Requirements:** All Category 1 SSOs shall be reported to the CIWQS online reporting database as soon as possible, but never later than three (3) business days after becoming aware of the SSO. A final certification of the report shall be completed within 15 calendar days of the conclusion of the SSO response and remediation.

**For Category 1 SSOs with volume greater than or equal to 50,000 gallons, the following shall also be required:**

1. **Technical Report** – to include detailed description of:
  - a. Causes and circumstances of the SSO
  - b. Enrollee's Response to the SSO
  - c. Water Quality Monitoring
2. **Sampling Requirements** – the receiving water shall be sampled and tested for the following constituencies per the Section 3 of this document, SSO Water Quality Monitoring Plan.
  - a. Ammonia
  - b. Bacteriological contamination

### **Category 2**

**Definition:** Discharges of untreated or partially treated wastewater greater than or equal to 1,000 gallons (applies to unrecovered volume) resulting from an enrollee's sanitary sewer system failure or flow condition that does not reach a surface water, a drainage channel or the MS4 unless the entire SSO volume discharged to the storm drain system is fully recovered and disposed of properly.

**Notification Requirements:** All Category 2 SSOs require notification to CalOES (800-852-7550) within 2 hours.

**Reporting Requirements:** All Category 2 SSOs shall be reported to the CIWQS online reporting database as soon as possible, but never later than three (3) business days after becoming aware of the SSO. A final certification of the report shall be completed within 15 calendar days of the conclusion of the SSO response and remediation.

### **Category 3**

**Definition:** All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.

**Notification Requirements:** Category 3 SSOs do not require CalOES notification.

**Reporting Requirements:** All Category 3 SSOs shall be reported to the CIWQS online reporting database no later than thirty (30) days after the end of the calendar month in which the SSO occurred.

## 2. SSO Estimation

Regardless of which method is used to estimate the volume of the SSO, **take photos to document activities.**

### 2.1 Eyeball Estimate Method

**NOTE**

This method is useful for contained SSOs up to approximately 200 gallons. **Take photos to document activities.**

- Step 1: Imagine the amount of water that would spill from a bucket or a barrel.
- A bucket contains 5 gallons and a barrel contains 55 gallons.
- Step 2: If the SSO is larger than 55 gallons, try to break the standing water into barrels
- Multiply this barrel estimation by 55 gallons
- Step 3: Proceed to use other estimation methods if the SSO looks to be more than four (4) barrels

### 2.2 Measured Volume Method

**NOTE**

The volume of most small SSOs that have been contained can be estimated using this method. The shape, dimensions, & depth of the contained wastewater are needed. The shape & dimensions are used to calculate the area of the SSO and the depths is used to calculate volume. **Take photos to document activities.**

- Step 1: Sketch the shape of the contained sewage
- Step 2: Measure or pace off the dimensions
- Step 3: Measure the depth at several locations and select an average
- Step 4: Convert the dimensions, including depth, to feet
- Step 5: Calculate the area in square feet using the following formulas

**NOTE**

Rectangle: Area = length (feet) x width (feet)  
Circle: Area = radius (feet) x radius (feet) x 3.14  
Triangle: Area = base (feet) x height (feet) x 0.5

- Step 6: Multiply the area (square feet) times the average depth (in feet) to obtain the volume in cubic feet
- Step 7: Multiply the volume in cubic feet by 7.48 to convert it to gallons

### 2.3 Duration and Flow Rate Method

**NOTE**

Calculating the volume of larger SSOs, where it is difficult to measure area & depth requires a different approach. In this method, the separate estimates are made of the duration & flow of the SSO.

**Duration**

- The duration is the elapsed time from the time the SSOs started to the time flow is restored.

**Start Time**

Step 1: Establish start time; use any of the following approaches

Step 2: Inquire observations from local residents

- SSOs that occur in rights-of-way are usually observed and reported promptly.
- SSOs occurring out of public view can go longer.

Step 3: Sometimes observations like odors or sounds (e.g. water running in a normally dry creek bed) can be used to estimate the start time.

**NOTE**

Conditions at the SSO site change over time. Initially there will be limited deposits of solids. After a few days to a week, the solids form a light-colored residue. After a few weeks to a month, the solids turn dark. The quantity of toilet paper and other materials of sewage origin increase over time.

Step 4: The observations above can be used to estimate the start time in the absence of other information.

Step 5: Take photographs to document the observations

- They can be helpful if questions arise later.

**NOTE**

SSOs may not be continuous. Blockages are not usually complete (some flow continues). In this case the SSO may occur during the peak flow periods (typically 10:00 to 12:00 and 13:00 to 16:00 each day). SSOs that occur due to peak flows in excess of capacity will occur only during, and for a short period after, heavy rainfall.

**End time**

Step 1: Field crews on-site observe the “blow down” that occurs when the blockage has been removed.

- The “blow down” can also be observed in downstream flow meters, if installed

## 2.4 Flow Rate

### **Remember to take photos to document activities.**

Step 1: The flow rate is the average flow that left the sewer system during the time of the SSO.

Step 2: There are at least four acceptable methods to estimate the flow rate. Regardless of which method is utilized, **Take photos to document your conclusions:**

- **The City of Hayward Manhole Flow Rate Charts:** This is the preferred method, as these charts were done by City staff with the assistance of Union Sanitary District personnel. The observation of the field crew can be used to select the appropriate flow rate from the chart. If possible, photos are useful in documenting basis for the estimate. (See Appendix A)
- **The San Diego Manhole Flow Rate Chart:** This chart shows sewage flowing from the manhole covers at a variety of flow rates. The observation of the field crew can be used to select the appropriate flow rate from the chart. If possible, photos are useful in documenting basis for the estimate. (See Appendix B)
- **Pick & Vent Hole Wallet Card:** The wallet card has different vent and pick hole diameters with water height, GPM, and GPH calculations (See Appendix C Tables)
- **Counting Connections:** Once the location of the SSO is known, the number of upstream connections can be determined from the sewer maps. Multiply the number of connections by 200 to 250 gallons per day per connection or 8 to 10 gallons per hour per connection.

### Example

Step 1: SSO Volume

#### **NOTE**

Once duration and flow rate have been estimated, the volume of the SSO is the product of the duration in hours or days and the flow rate in gallons per hour or gallons per day.

- SSO start time = 11:00
- SSO end time = 14:00
- SSO duration = 3 hours
- SSO duration in minutes = 3 hours x 60 minutes = 180 minutes

Step 2: 3.3 gallons per minute x 180 minutes = 594 gallons. Remember to **take photos to document your conclusions.**

### 3. SSO Water Quality Monitoring Plan

**NOTE**

Required within 48 hours of initial SSO notification if the SSO volume is equal to or greater than 50,000 gallons and has reached surface waters.

**Take photos of sample points, and point where spill entered waterway.**

#### 3.1 Pre-Sampling

Step 1: Determine point SSO entered waterway.

**CAUTION**

Use Personal Protective Equipment (PPE) while performing sampling

Step 2: Photograph, map and mark the location for future sampling.

Step 3: Follow the instructions inside the kit and sample for Ammonia.

Step 4: Record the testing results.

#### 3.2 Downstream Sampling

- Conduct downstream sampling first to avoid allowing pollutants to dissipate before sample can be obtained.

Step 1: Move 50'-200' upstream of point where SSO entered waterway.

Step 2: Photograph, map and mark the location for future sampling.

Step 3: Follow the instructions inside the kit and sample for Ammonia.

Step 4: Record the testing results.

#### 3.3 Upstream Sampling

Step 1: Move 50'-200' upstream of point where SSO entered waterway.

Step 2: Photograph, map and mark the location for future sampling

Step 3: Follow the instructions inside the kit and sample for Ammonia.

Step 4: Record the testing results.

#### 3.4 Coliform Sampling

Step 1: Using the specific coliform sampling bottles, take a coliform sample upstream and downstream of the SSO area well away from the bank, preferably where water is visibly flowing.

- Follow the sampling points detailed in “3.2 Upstream Sampling” and “3.3 Downstream Sampling” of this SOP.

- There are two sets (each of six) of sampling bottles stored in the collection system crew room and another set is stored in the service van.
  - The bottles are sealed and contain an agent to deactivate the disinfectant in the water (white powder).
- Step 2: Label the sample as a Coliform sample with the date, time, location and initials
- Step 3: Place coliform grab sample in cooler, to be transported to City of Hayward Water Pollution Control Facility Laboratory.
- Step 4: Take the samples to CoH's lab and refrigerate as soon as possible.
- The coliform test must be performed within six hours after the samples have been taken.
- Step 5: You or your supervisor must notify the lab that a coliform sample test needs to be performed.
- Use the CoH Emergency Procedure Call List to notify lab personnel.

### 3.5 Deliver Samples to Lab

- Step 1: Transport the cooler containing the samples and the completed form the WPCF lab.

**NOTE**

Laboratory Service hours are:  
Monday: 08:00-16:30, Tuesday – Friday: 06:30 a. m. to 16:30 p.m.  
Saturday, Sunday, Holidays and afterhours: Call Steve DeCarolis  
(408) 829-2017 or Lin Dan (925) 285-9439

- Step 2: Give samples to the lab personnel or operator on duty for placement into the lab refrigerator for analysis.

**NOTE**

Depending on the magnitude of the SSO, continue sampling the downstream location until lab has declared the downstream results are consistent with the upstream results.  
Remember to **take photos to document activities.**

- Step 3: Lab personnel will send notification to supervisor if a coliform violation is found.
- Step 4: Results of the water quality testing will be uploaded to the CIWQS online spill reporting database.

## 4. **SSO Clean Up**

**WARNING:** Ensure all safety procedures are strictly adhered to, including traffic control,

PPE (visibility vests, hard hats, safety glasses, gloves, etc.) and if required, confined space entry procedures.

**NOTE**

To minimize health hazards to the public and to protect the environment, start cleaning the SSO area as soon as possible or immediately after the overflow stops.

**Take photographs to document cleanup efforts.**

- Step 1: Install air plugs on storm lines whenever possible to contain the SSO.
- Step 2: Remove all debris found in the SSO surface area.
  - Place back into the sanitary sewer system or dispose of properly.
- Step 3: Wash SSO area with fresh water
  - Do NOT add chlorine solution.
- Step 4: If plugs are used in the storm lines to contain SSO, pump wastewater back into the collection system and remove plugs from storm lines.
  - If plugs are not used, visually inspect the storm drain system and determine if additional cleaning is needed.
  - If additional cleaning is needed, use the hydro flush vacuum to flush and vacuum all water generated during cleaning. Return water to sanitary system.
- Step 5: Inspect the collections system and SSO areas before you leave.
- Step 6: Immediately notify management in the following events:
  - Human health endangerment
  - Property damage
  - If there is a discharge to a drainage channel and/or a surface water.
  - There is a discharge to a storm that was not fully captured and returned to the sanitary sewer system
  - SSO volume is  $\geq 1000$  gallons.
  - Fish kill
- Step 7: If SSO has come in contact with creek, pond, body of water or flood control channel, see “Section 3 SSO Sampling” of this SOP to conduct sampling.
- Step 8: Task Complete

## **5. SSO Notification and Reporting Requirements**

### **5.1 Notification Requirements.**

- Category 1 & Category 2 SSO – Initial notification to Cal OES (800) 852-7550 within 2

hours of becoming aware of the SSO.

- Category 3 SSO** does not require notification of CalOES.

## **5.2 CIWQS Online SSO Reporting Database Reporting Requirements:**

- Category 1 & Category 2** – Draft reports shall be reported to the CIWQS Online SSO Reporting Database within three (3) business days after becoming aware of the SSO. The final report shall be certified within fifteen (15) calendar days of the end of the SSO.
- Category 3** – Draft reports shall be reported to the CIWQS online reporting database within thirty (30) calendar days after the end of the calendar month in which the SSO occurred (e.g. all SSOs occurring in the month of January must be entered into the database by March 1<sup>st</sup>).

## **5.3 In addition to required CIWQS reporting, any Category 1 SSO in which 50,000 gallons or greater reaches a surface water shall require a Technical Report consisting of the following elements be entered into the CIWQS Online Database within 45 calendar days of the end of the SSO:**

- Causes and Circumstances of the SSO:
  - Complete and detailed explanation of how and when the SSO was discovered.
  - Diagram showing the SSO failure point, appearance point(s), and final destination(s).
  - Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.
  - Detailed description of the cause(s) of the SSO.
  - Copies of original field crew records used to document the SSO.
  - Historical maintenance records for the failure location.
- Enrollee's Response to SSO:
  - Chronological narrative description of all actions taken by enrollee to terminate the spill.
  - Explanation of how the SSMP Overflow Emergency Response Plan was implemented to respond to and mitigate the SSO.
  - Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.
- Water Quality Monitoring (for detailed procedures, see Section 3 of this document):
  - Description of all water quality sampling activities conducted including analytical results and evaluation of the results.

- Detailed location map illustrating all water quality sampling points.

**5.4 Ensure the Field Sanitary Sewer Overflow Data form is completed, with all fields filled in.**

- Step 1: SSO Initial Responder: After SSO has been contained, if spill is Category 1 or 2 notify CalOES. Record SSO Event ID # on Sanitary Sewer Overflow Data form. Also record date, time and if possible name and contact information of person contacted.
- If the spill enters the storm drain system, any public waterways or is in any way a public health issue, the Alameda County Department of Environmental Health shall also be notified.
- Step 2: After containment and cleanup is complete, fill out as completely as possible the Sanitary Sewer Overflow Data form.
- Forward this completed form to the Sewer Collections Supervisor.
- Step 3: Sewer Collections Supervisor: For Category 1 & 2 SSO, as soon as possible after being made aware of the SSO, but no later than 3 business days after becoming aware of the spill, log into the CWICS site and report the spill;
- For Category 3 SSO, the CIWQS report shall be completed within 30 days of the end of the calendar month that the SSO occurred.
- Step 4: For Category 1 SSO, within 15 days of completion of remediation activities, certify online spill report.
- Step 5: Task Complete

**APPENDIX A:** City of Hayward Spill Estimation Representative Photographs

FIVE (5) GALLONS TOTAL SPILLED:



TEN (10) GALLONS TOTAL SPILLED:



TEN (10) GALLONS FLOWING DOWN CURB & GUTTER



Note: Water traveled 110' in the curb & gutter.

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**Appendix B:** San Diego Manhole Flow Rate and Chart



City of San Diego  
Metropolitan Wastewater Department

**Reference Sheet for Estimating Sewer Spills  
from Overflowing Sewer Manholes**

*All estimates are calculated in gallons per minute (gpm)*

Wastewater Collection Division  
(619) 654-4160



5 gpm



25 gpm



50 gpm



100 gpm



150 gpm



200 gpm



225 gpm



250 gpm



275 gpm

All photos were taken during a demonstration using metered water from a hydrant in cooperation with the City of San Diego's Water Department.

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**Appendix C: Pick and Vent Hole Wallet Card**

Hole Dia. inches	Water Ht inches	Q cfs	Q gpm	Q gph
<b>Vent Hole</b>				
0.50	1/16 th	0.0005	0.23	14
0.50	1/8 th	0.0007	0.33	20
0.50	1/4 th	0.0010	0.47	28
0.50	one half	0.0015	0.66	40
0.50	3/4 ths	0.0018	0.81	49
0.50	1 inch	0.0021	0.94	56
<b>Vent Hole</b>				
0.75	1/16 th	0.0011	0.51	31
0.75	1/8 th	0.0016	0.72	43
0.75	1/4 th	0.0023	1.02	61
0.75	one half	0.0032	1.44	87
0.75	3/4 ths	0.0039	1.77	106
0.75	1 inch	0.0045	2.04	122
<b>Vent Hole</b>				
1.00	1/16 th	0.0020	0.88	53
1.00	1/8 th	0.0028	1.25	75
1.00	1/4 th	0.0039	1.77	106
1.00	one half	0.0056	2.50	150
1.00	3/4 ths	0.0068	3.06	184
1.00	1 inch	0.0079	3.54	212
<b>Pick Hole semicircular area</b>				
1.00	1/16 th	0.0010	0.44	27
1.00	1/8 th	0.0014	0.63	38
1.00	1/4 th	0.0020	0.89	53
1.00	one half	0.0028	1.25	75
1.00	3/4 ths	0.0034	1.53	92
1.00	1 inch	0.0039	1.77	106
1.00	1-1/2 inc	0.0048	2.17	130
1.00	2 inches	0.0056	2.51	150

**Appendix C:** Sample Templates for SSO Volume Estimation

**TABLE 'A'**  
**ESTIMATED SSO FLOW OUT OF M/H WITH COVER IN PLACE**

**24" COVER**

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

**36" COVER**

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

Disclaimer:

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example.

Effective date:  
February 2016

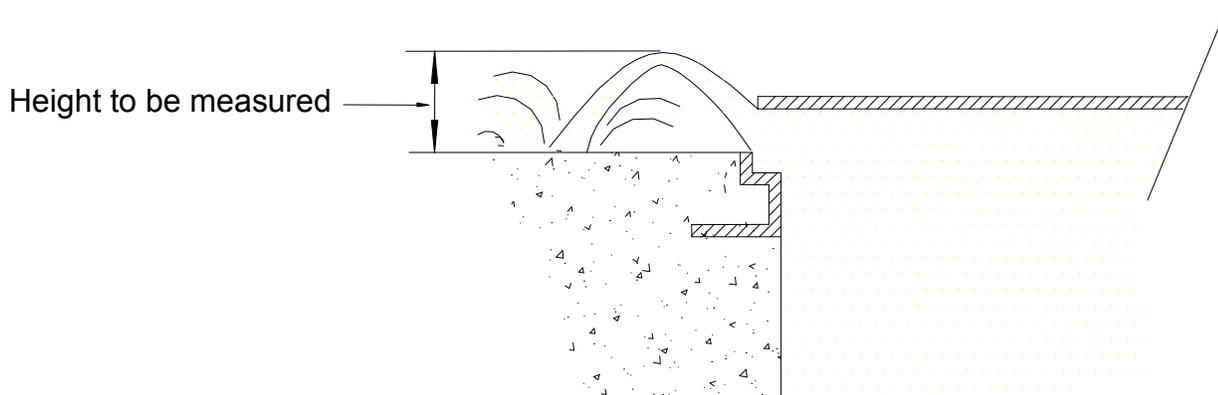
**SANITARY SEWER OVERFLOW REPOSE SOP**

The formula used to develop Table A measures the maximum height of the water coming out of the maintenance hole above the rim. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited

Example Overflow Estimation:

The maintenance hole cover is unseated and slightly elevated on a 24” casting. The maximum height of the discharge above the rim is 5 ¼ inches. According to Table A, these conditions would yield an SSO of 185 gallons per minute

**FLOW OUT OF M/H WITH COVER IN PLACE**



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

**Disclaimer:**

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example.

The formula used to develop Table B for estimating SSOs out of maintenance holes without covers is based on discharge over curved weir – bell mouth spillways for 2” to 12” diameter pipes. The formula is taken from Hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

Effective date: February 2016	<b>SANITARY SEWER OVERFLOW REPOSE SOP</b>
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Example Overflow Estimation:

The maintenance hole cover is off and the flow coming out of a 36" frame maintenance hole at one inch (1") height will be approximately 660 gallons per minute.

**TABLE 'B'**  
**ESTIMATED SSO FLOW OUT OF M/H WITH COVER REMOVED**

**24" FRAME**

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

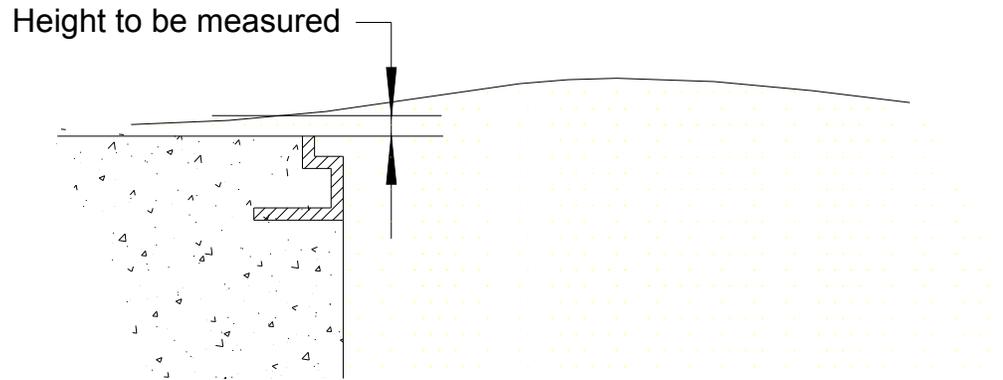
**36" FRAME**

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

Effective date:  
February 2016

**SANITARY SEWER OVERFLOW REPOSE SOP**

**FLOW OUT OF M/H WITH COVER REMOVED (TABLE "B")**



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

**TABLE 'C'**  
**ESTIMATED SSO FLOW OUT OF M/H PICK HOLE**

Height of spout above M/H cover <u>H in inches</u>	SSO FLOW <b>Q</b> <u>in gpm</u>	Height of spout above M/H cover <u>H in inches</u>	SSO FLOW <b>Q</b> <u>in gpm</u>
1/8	1.0	5 1/8	6.2
1/4	1.4	5 1/4	6.3
3/8	1.7	5 3/8	6.3
1/2	1.9	5 1/2	6.4
5/8	2.2	5 5/8	6.5
3/4	2.4	5 3/4	6.6
7/8	2.6	5 7/8	6.6
1	2.7	6	6.7
1 1/8	2.9	6 1/8	6.8
1 1/4	3.1	6 1/4	6.8
1 3/8	3.2	6 3/8	6.9
1 1/2	3.4	6 1/2	7.0
1 5/8	3.5	6 5/8	7.0
1 3/4	3.6	6 3/4	7.1
1 7/8	3.7	6 7/8	7.2
2	3.9	7	7.2
2 1/8	4.0	7 1/8	7.3
2 1/4	4.1	7 1/4	7.4
2 3/8	4.2	7 3/8	7.4
2 1/2	4.3	7 1/2	7.5
2 5/8	4.4	7 5/8	7.6
2 3/4	4.5	7 3/4	7.6
2 7/8	4.6	7 7/8	7.7
3	4.7	8	7.7
3 1/8	4.8	8 1/8	7.8
3 1/4	4.9	8 1/4	7.9
3 3/8	5.0	8 3/8	7.9
3 1/2	5.1	8 1/2	8.0
3 5/8	5.2	8 5/8	8.0
3 3/4	5.3	8 3/4	8.1
3 7/8	5.4	8 7/8	8.1
4	5.5	9	8.2
4 1/8	5.6	9 1/8	8.3
4 1/4	5.6	9 1/4	8.3
4 3/8	5.7	9 3/8	8.4
4 1/2	5.8	9 1/2	8.4
4 5/8	5.9	9 5/8	8.5
4 3/4	6.0	9 3/4	8.5
4 7/8	6.0	9 7/8	8.6
5	6.1	10	8.7

Unrestrained  
M/H cover will  
start to lift

Note: This chart is based on a 7/8 inch diameter pick hole

Disclaimer: This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example.

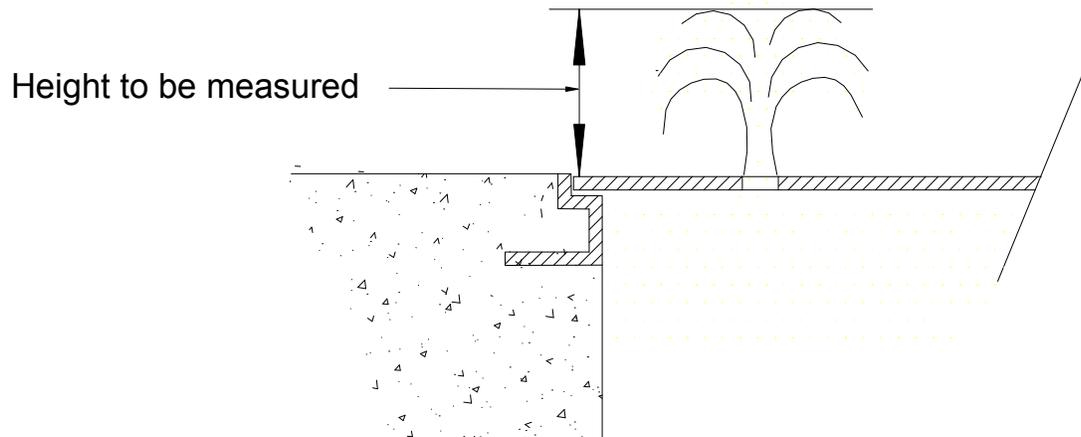
The formula used to develop Table C is  $Q=CcVA$ , where Q is equal to the quantity of the flow in gallons per minute, Cc is equal to the coefficient of contraction (.63), V is equal

to the velocity of the overflow, and A is equal to the area of the pick hole.<sup>1</sup> If all units are in feet, the quantity will be calculated in cubic feet per second, which when multiplied by 448.8 will give the answer in gallons per minute. (One cubic foot per second is equal to 448.8 gallons per minute, hence this conversion method).

Example Overflow Estimation:

The maintenance hole cover is in place and the height of water coming out of the pick hole seven-eighths of an inch in diameter (7/8") is 3 inches (3"). This will produce an SSO flow of approximately 4.7 gallons per minute.

### **FLOW OUT OF VENT OR PICK HOLE (TABLE "C")**



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

<sup>1</sup> Velocity for the purposes of this formula is calculated by using the formula  $h = v^2 / 2G$ , where h is equal to the height of the overflow, v is equal to velocity, and G is equal to the acceleration of gravity.

## EMERGENCY CONTACT LIST

### California Office of Emergency Services (CalOES)-Formerly CalEMA

Dispatch: (800) 852-7550

### California Water Resources Control Board

Fax (if CIWQS not available): (510) 622-2460

### City of Hayward Police Department

Dispatch: (510) 293-7000

### City of Hayward Fire Department/Hazardous Materials

Dispatch: 911  
Hugh Murphy: (510) 583-4924 (510) 774-0123  
Steve Buscovich: (510) 583-4927 (510) 774-0125  
Miles Perez: (510) 583-4926 (510) 774-0124

### City of Hayward Maintenance Services Department

Office: (510) 881-7999  
Matt McGrath: (510) 881-7747 (510) 385-1072  
Todd Rullman: (510) 881-7746 (510) 385-1072

### City of Hayward Utilities

Office: (510) 881-7967  
Robert Gerena: (510) 881-7978 (510) 714-0622  
John Ramirez: (510) 881-7932 (510) 385-1086  
Sewer Collections Senior Leader: (510) 881-7970 (510) 385-1088

### City of Hayward WPSC

Office: (510) 881-7900  
Elisa Wilfong: (510) 881-7960 (510) 760-0377  
Alejandro Perez: (510) 881-7993 (510) 340-6602  
William Freeman: (510) 881-7997 (510) 385-3759  
Jamie Rosenberg: (510) 881-7909 (510) 376-0101  
Bashir Sarwary: (510) 881-7908 (510) 760-0373

### Water Pollution Control Facility

Emergency: (510) 293-5398  
Ray Busch: (510) 293-5212 (510) 385-1095  
Jeff Carson: (510) 293-5181  
Farid Ramezanzadeh: (510) 293-5176

### Water Pollution Control Facility Lab

Lin Dan: (510) 293-5399 (925) 285-9439  
Steve DeCarolis: (510) 293-5391 (408) 829-2017

### Alameda County Public Works

Maint & Ops Emergency: (510) 670-5500  
Alameda County Sheriff: (510) 667-7721  
Jon Raven: (510) 670-5237 (510) 774-0455  
Greg Hilst: (510) 670-5235 (510) 774-0437

## EMERGENCY CONTACT LIST

### **Alameda County Department of Environmental Health**

Work Day Phones: (510) 567-6700 (510) 567-6777  
Scott Seery: (510) 567-6783

### **Lawrence Livermore National Laboratories**

Fire Dispatch: (925) 447-6880

### **Alameda County D.A. Office of Consumer & Environmental Affairs**

Mike Oppido: (510) 569-7566  
Ken Mifsud: (510) 569-5774

### **Bay Area Air Quality Management District**

Dispatch: (800) 334-6367 (415) 771-6000  
Robert Delarno: (415) 749-5000

### **California Department of Fish & Game**

EMA Dispatch: (800) 852-7550  
NORCOM Dispatch Center: (916) 358-1300  
Office of Spill Prev & Resp: (831) 649-2810  
Hotline: (888) 334-2258  
Sheree Christensen: (925) 556-0363  
Scott Murtha: (510) 659-1107 (510) 414-7229  
Roxanne Bowers: (510) 758-1024 (925) 570-3319

### **Caltrans**

Dist 4 Maint-E/B Region: (510) 614-5942

### **East Bay Regional Park District**

Dispatch: (510) 881-1833  
Tim August: (510) 544-3053  
Mark Taylor: (510) 783-1066 (510) 755-4005

### **CoH Streets HazMat Contractor-Decon Environmental Service**

Mike Lepisto: (510) 732-6444

### **Regional Water Quality Control Board**

Spill Hotline: (510) 622-2369

### **US Coast Guard**

National Response Center: (800) 424-8802  
24 Hour Spill Alert Line: (415) 399-3547

**Union Pacific Railroad:** (888) 877-7267

**USEPA:** (800) 300-2193



**SANITARY SEWER OVERFLOW DATA WORKSHEET**  
**If possible take photos of spill and any damage to personal property.**



	Date and Time of Spill:	
	CalEMA Event ID # (From CIWQS Online Report):	
	Certification Confirmation # (Available After Certifying CIWQS Online Report):	
	SSO Event ID # (from CIWQS Online Report):	
1	Estimated spill volume:	
2	Did the spill discharge to a drainage channel and/or surface water?:	YES NO
3	Did the spill reach a separate (not combined) storm drainpipe?:	YES NO
4	If yes, was all of the wastewater fully captured and returned to the sanitary sewer system?:	YES NO
5	Private lateral spill?:	YES NO
6	Name of responsible party (for private lateral spill only, if known):	
7	Spill Location Name:	
8	Latitude of Spill Location:	
9	Longitude of Spill Location:	
10	Address:	
11	Cross Street:	
12	Spill Location Description:	
13	Spill Appearance Point:	
14	Spill Appearance Point Explanation:	



**SANITARY SEWER OVERFLOW DATA WORKSHEET**  
**If possible take photos of spill and any damage to personal property.**



15	Final spill destination:	
16	Explanation of final spill destination:	
17	Estimated volume of spill recovered:	
18	Est'd volume of spill that reached surface water, drainage channel, or not recovered from SD:	
19	Estimated current spill rate (if applicable):	
20	Estimated spill start date/time:	
21	Date and time of sanitary system agency was notified of or discovered spill?:	
22	Estimated Operator arrival date/time:	
23	Estimated spill end time:	
24	Spill cause:	
25	Spill cause explanation:	
26	Where did failure occur?:	
27	Explanation of where failure occurred:	
28	Diameter of sewer pipe at point of blockage or spill cause (if applicable):	
29	Material of sewer pipe at the point of blockage or spill cause (if applicable);	
30	Estimated age of sewer pipe at the point of blockage or spill cause (if applicable):	
31	Description of terrain surrounding the point of blockage or spill cause (if applicable):	
32	Spill response activities:	



**SANITARY SEWER OVERFLOW DATA WORKSHEET**  
**If possible take photos of spill and any damage to personal property.**



33	Explanation of spill response activities:	
34	Visual inspection results from impacted receiving water:	
35	Health warnings posted?:	YES NO
36	Name of impacted beaches (enter NA if not applicable):	
37	Name of impacted surface waters (enter NA if not applicable):	
38	OES Control Number:	
39	OES Called Date/Time:	
40	County Health Agency Notified:	YES NO
41	Method notification:	
42	Name of staff contacted:	
43	Phone Number of Staff Contacted:	
44	Date and Time Notified:	
45	RWQB notified date/time:	
46	Method notification:	
47	Name of staff contacted:	
48	Phone Number of Staff Contacted:	
49	Other Agency Notified:	YES NO Agency:
50	Was any of this spill report info submitted via fax (or electronically) to the RWQCB:	YES NO

**City of Hayward**  
**Utilities & Environmental Services Department**  
**Sanitary Sewer Overflow**  
**Water Quality Monitoring Program Plan**  
16 January 2014

**Water Quality Monitoring – Key Elements**

- **Trigger for Sampling.** Water quality sampling must be performed for sanitary sewer overflows (SSOs) that are 50,000 gallons or greater and reach surface water.
- **Safety and Access.** Water quality sampling should only be performed if it is safe to do so and access to the surface water is not restricted. Unsafe conditions include, but are not limited to, traffic, heavy rains, slippery and/or steep riverbank slopes, visibility issues, and limited access due to terrain or soil conditions at bank of water body. When sampling is not possible, details of the situation will be recorded in the certified Category 1 SSO Report and the SSO Technical Report submitted to the CIWQS Online SSO Database.
- **When to Sample.** Sampling must be performed (when and if it is safe to do so) within 48 hours of the City of Hayward becoming aware of the SSO. Water quality sampling should not interfere with stopping the SSO.
- **Where to Sample.** Sampling should account for spill travel time in surface water (see Sample Collection Procedure below).
- **Required Water Quality Analyses.** At a minimum, analyze for ammonia and appropriate bacterial indicators per the RWQCB Basin Plan (see Sampling Parameters below).
- **Optional Follow-Up Monitoring.** It may be appropriate to conduct additional monitoring by sampling and/or visual inspection, depending on the original monitoring results. For example, if an impact from the SSO is observed, follow-up monitoring could be conducted until the water body has reverted to an estimated baseline condition.

**Water Quality Sampling - Protocol**

**SSO Sample Collection/Testing Kit Inventory:**

- Cooler.
- Ice Pack (stored in freezer).
- 3 sample bottles labeled bacteriological analyses sample.
- Test kit for Temperature, Ammonia, Dissolved Oxygen, pH and Conductivity.
- Safety gloves
- Safety glasses
- Thermometer
- Sample collection/test results form (to document sample collection date/time, chain of custody, and test results for field testing)

**Sampling/Testing Requirements:**

- Ammonia (T)
- Dissolved Oxygen (T)
- Total Coliform (S)
- E Coli (S)
- pH (T)
- Temperature (T)
- Conductivity (T)

# Sanitary Sewer Overflow Water Quality Monitoring Program Plan

## Sampling Locations (for more detail on location see also below):

- Upstream\* of SSO\*
- Immediate vicinity where SSO enters water body (“source”)
- Downstream\* of SSO
- As appropriate, any locations where water from spill may accumulate or pond.

## Sample Collection Procedure:

- 1) Retrieve SSO Sample Collection Kit (cooler) from the Utility Center.
- 2) Obtain ice pack from freezer & place in cooler.
- 3) Determine the point that the SSO entered waterway and photograph this location (include a reference point in the photo).
- 4) If sampling is performed after the SSO has stopped, estimate SSO travel time. This may be done by observing or dropping floatable debris in the surface water and timing how long it takes to travel over a measured distance (e.g., 100 feet). Include sections in the surface water where there are bends, bottlenecks, or other characteristics that may slow down the flow. If the first measurement is uncertain, this time estimate may be performed three to five times, and the values averaged to determine the estimated travel time. The velocity in the upper portion of the water body can then be calculated by dividing the measured distance by the average time.
- 5) Determine the “source” location for water quality sampling by accounting for SSO travel time.
  - If the SSO is occurring, the “source” location is the point where the SSO is entering the waterway.
  - If the SSO has stopped, calculate the approximate downstream distance from the original SSO location by dividing the time since the SSO occurred by the estimated velocity. This is the approximate downstream distance from the SSO discharge point to the “source” sampling location.

Due to possible tidal action in the surface water and other factors, another method may be used to determine the “source” location at the discretion of the Utilities Operations & Maintenance Manager or the Legally Responsible Official (LRO).
- 6) Put on safety gloves and safety glasses from the SSO Sample Collection Kit.
- 7) **Upstream Sample Collection/Testing:** Conduct tests, and as required collect samples upstream of the spill first.
  - Move approximately one hundred feet (100') upstream of Source location.
  - Take a photo of the sample location, including a reference point in the photo.
  - Be sure to accurately label sample bottles with Sample Location (Upstream, Source or Downstream), constituent to be tested for, and the date and time the sample was taken. Note this information on the Sample Collection and Testing Form.

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

## **Sanitary Sewer Overflow Water Quality Monitoring Program Plan**

- When taking water samples and testing water, document these results in the appropriate locations on Sample Collection and Testing Form. **ENSURE THIS FORM IS COMPLETELY AND ACCURATELY FILLED OUT.**
  - Ensure samples are taken against the direction of the water flow. Collect samples well away from the bank, preferably at a point where water is visibly flowing. Avoid sampling debris or scum layer from the surface.
  - Place each sample in the cooler after collection.
- 8) **Source Sample Collection:** Conduct tests, and as required collect the “source” samples next.
- Move to a location approximately 10’ downstream of the point where the overflow entered the water body.
  - Take a photo of the sample location, including a reference point in the photo.
  - Be sure to accurately label sample bottles with Sample Location (Upstream, Source or Downstream), constituent to be tested for, and the date and time the sample was taken. Note this information on the Sample Collection and Testing Form.
  - When taking water samples and testing water document these results in the appropriate locations on Sample Collection and Testing Form. **ENSURE THIS FORM IS COMPLETELY AND ACCURATELY FILLED OUT.**
  - Ensure samples are taken against the direction of the water flow. Collect samples well away from the bank, preferably at a point where water is visibly flowing. Avoid sampling debris or scum layer from the surface.
  - Place each sample in the cooler after collection.
- 9) **Downstream Sample Collection:** Lastly, collect the downstream sample
- Move to a location approximately 100’ downstream of the point where the overflow entered the water body.
  - Take a photo of the sample location, including a reference point in the photo.
  - Be sure to accurately label sample bottles with Sample Location (Upstream, Source or Downstream), constituent to be tested for, and the date and time the sample was taken. Note this information on the Sample Collection and Testing Form.
  - When taking water samples and testing water, document these results in the appropriate locations on Sample Collection and Testing Form. **ENSURE THIS FORM IS COMPLETELY AND ACCURATELY FILLED OUT.**
  - Ensure samples are taken against the direction of the water flow. Collect samples well away from the bank, preferably at a point where water is visibly flowing. Avoid sampling debris or scum layer from the surface.
  - Place each sample in the cooler after collection.
- 10) Transport the cooler containing the samples & the completed Sample Collection and Testing Form to the City of Hayward Water Pollution Control Facility Lab as soon as

## Sanitary Sewer Overflow Water Quality Monitoring Program Plan

possible after first sample collection. The parameter with the shortest holding time is bacteria at 8 hours (from sample collection to beginning of analysis), but sample analysis should begin as soon as possible after sample collection.

- 11) Restock the SSO Sample Collection Kit with the items listed on page 1.
- 12) After the analyses have been performed (see “Water Quality Analyses Protocols” below) and the results have been reviewed and finalized, check if either of the following conditions are satisfied:
  - Both the ammonia and bacteria levels downstream are approximately equal to or less than the upstream levels.
  - The concentration of un-ionized ammonia is below 0.16 mg/L as N” for Central SF Bay and bacteriological levels are below the appropriate value in Table 3.1 (excerpted from the Basin Plan) below, depending on the source destination.

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

Beneficial Use	Fecal Coliform (MPN/100mL)	Total Coliform (MPN/100mL)	Enterococcus Bacteria (MPN/100mL)		E. coli (MPN/100mL)
			Estuarine and Marine	Fresh Water	Fresh Water
Water Contact Recreation	90th percentile < 400	no sample > 10,000	no sample > 104	Max at 89	Max at 298
Shellfish Harvesting	90th percentile < 43	90th percentile < 230	--	--	--
Non-contact Water Recreation	90th percentile < 4,000	--	--	--	--

As soon as one of the above conditions are satisfied, monitoring for this SSO may stop. If neither are satisfied, repeat the Sample Collection Procedure steps until either or both of the conditions are satisfied or other information is available to suggest the SSO is no longer causing a potentially adverse effect on the waterbody.

### Warnings for Sample Collection:

- **Avoid Contamination.** Be careful. Make every effort not to touch the sample contents, because the sample containers may contain hazardous chemicals and the sample results may be easily affected by human contamination.
- **Deliver Sample to Lab.** All samples need to be delivered to the laboratory expeditiously due to the limited hold time required for maintaining sample integrity.

### Water Quality Analyses – Protocols

#### Laboratory Analyses:

The City of Hayward’s Water Pollution Control Facility Lab is accredited by the Environmental Laboratory Accreditation Program (ELAP). The methods will be performed according to the laboratory’s Standard Operating Procedures (SOPs) and specific methods used for laboratory analyses are expected to be as follows:

Parameter	Method
Ammonia	Field Test
Bacteriological (Total Coliform and E Coli)	Colilert.

## Sanitary Sewer Overflow Water Quality Monitoring Program Plan

pH	Field Test
Temperature	Field Test
Conductivity	Field Test

### **Maintenance and Calibration of Monitoring Instruments and Devices:**

All laboratory monitoring instruments and devices used for water quality analyses are maintained and calibrated according to the SOPs to ensure their continued accuracy, including. The SSO Sample Collection Kit is checked by the Sewer Collections staff after each use, and at least annually to verify its contents, and Sewer Collections staff replace the sample bottles at that time.

### **Reporting Requirements**

The Utilities Operations & Maintenance Manager or Legally Responsible Official is responsible for submitting water quality monitoring information with the certified Category 1 SSO report in the CIWQS Online SSO Database, which must be submitted within 15 calendar days of the SSO end date.

The Utilities Operations & Maintenance Manager or Legally Responsible Official is responsible for submitting information related to the Technical Report in the CIWQS Online SSO Database, which must be done within 45 calendar days of the SSO end date. The SSO Technical Report must include the following water quality monitoring information:

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

**CITY OF HAYWARD  
SSO COLILERT SAMPLE CHAIN OF CUSTODY**

DATE: \_\_\_\_\_

SAMPLE TYPE: **WASTEWATER**

FILLED OUT BY SAMPLER				FILLED OUT BY LAB					
Sample #	Sample Collected By	Date/Time Collected	Location/Sample Description	Date/Time Prepared/Incubated	Analyst	Date/Time Checked	Analyst	E. Coli MPN/100mL	E. Coli MPN/100mL
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

NOTE: fill bottle above the 100 mL line (to the shoulder of the bottle) and leave enough air space for mixing. Lab personnel will adjust volume to 100 mL.

Colilert Lot #: \_\_\_\_\_

Bottle Lot #: \_\_\_\_\_

Condition of Samples (<10° C): \_\_\_\_\_

Method of Shipment: \_\_\_\_\_

Preservative: Na<sub>2</sub>SO<sub>3</sub>

\_\_\_\_\_  
Relinquished By (Sampler)

\_\_\_\_\_  
Date/Time

\_\_\_\_\_  
Received By (Lab)

