

# Appendix B

City of West Sacramento  
Public Works and Community Development

## Sanitary Sewer Overflow Response Plan

For the City of West Sacramento's  
Sanitary Sewer Collection System





**City of  
West Sacramento**

# **Sanitary Sewer Overflow (SSO) Response Plan**

December 2008

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## Term Definitions

**Category 1 SSO:** Any discharge that is greater than or equal to 1,000 gallons and/or discharges to a drainage channel or surface water and/or any discharge that reaches a storm drain and is not fully captured.

**Category 2 SSO:** All other discharges resulting from the failure of the City's maintained sanitary sewer system.

**Composite Sample:** A collection of individual samples obtained at regular intervals.

**Grab Sample:** A single sample collected at a particular time and place which represents the composition of the wastewater at that particular time and place.

**Lateral:** A sewer branch line that reaches from the main sanitary sewer line to individual properties/buildings.

**OES:** Office of Emergency Services

**Private Lateral SSO:** Sewage discharges that are caused by blockages or other problems within a privately owned sanitary sewer lateral.

**Potable Water:** Water that does not contain objectionable pollution, contamination, minerals, or infective agents and is considered satisfactory for drinking.

**Purveyor:** An agency or person that supplies water (usually potable water).

**RWQCB:** Regional Water Quality Control Board

**SSO:** Sanitary Sewer Overflow, any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system.

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## Section 1 Introduction

### 1.1 Introduction

On May 2, 2006, the State Water Resources Control Board (SWRCB) adopted Order No. 2006-0003-DWQ (Order). The Order requires all federal and state agencies, municipalities, counties, districts, and other public entities (Enrollees) that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California to comply with the Statewide General Waste Discharge Requirements (WDR). The WDR outlines requirements for Enrollees to ensure that a system-wide operation, maintenance, and management plan is in place to reduce sanitary sewer overflows (SSOs) within the state.

Major causes of SSOs include: grease blockages, root blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, excessive storm or ground water inflow/infiltration, debris blockages, sanitary sewer system age, construction material failures, lack of proper operation and maintenance, insufficient capacity and contractor-caused damages. Many SSOs are preventable with adequate and appropriate facilities, source control measures, and effective operation and maintenance of the sanitary sewer system.

### 1.2 Sewer System Management Plan

Under the WDR each Enrollee must develop and implement a Sewer System Management Plan (SSMP). The SSMP must include provisions to provide proper and efficient management, operation, and maintenance of the sanitary sewer systems. Additionally, the SSMP must contain a Sanitary Sewer Overflow Response Plan (SSORP) that establishes standard procedures for immediate response to an SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.

Elements of the SSORP include: proper internal notification procedures, appropriate response to all overflows, procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities, procedures to ensure that appropriate staff and contractor personnel are aware of the SSORP and are appropriately trained. Procedures to address emergency operations such as traffic and crowd control and a program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from an SSO.

### 1.3 Purpose

The purpose of the SSORP is to satisfy the requirements of the WDR. The ultimate purpose of the SSORP is to provide procedures to effectively manage the response and the remediation of an SSO when it occurs in an effort to protect public health as well as the environment.

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## 1.4 Distribution of SSORP

This SSORP covers procedures for responding to SSOs within the City of West Sacramento to minimize the adverse effects on water quality and beneficial use. Updates reflecting changes in policies, procedures and contacts may be made as needed to achieve the objectives of this plan.

Copies of this plan will be distributed to the following city personnel:

Director of Public Works and Community Development  
Public Works Manager  
Capital Facilities Manager  
Engineering Construction Manager  
Construction Management Staff  
Utility Maintenance Superintendent  
Utility Maintenance Staff  
Maintenance Superintendent  
Treatment Plant Mechanics; Electricians  
Public Works Administrative Staff  
Environmental Program Division Manager  
Environmental Program Division (EPD) Staff  
Fire Department  
Police Department

## 1.5 Training

The City of West Sacramento's Public Works Department EPD will schedule and document training sessions for applicable city staff as needed to assist in the awareness of the policies and procedures contained within this SSORP and to ensure that the various personnel involved are aware of their responsibilities and duties.

## Section 2 Internal Notification

### 2.1 Receipt of SSO Notification

SSOs can be detected by city personnel, construction contractors or the public. During normal working hours, Monday through Friday from 8:00 am to 4:30 pm, the public can call the Public Works department at (916) 617-4850 to report SSOs. After hours the Public Works phone system redirects incoming phone calls to the Dispatch Center or this center can be called directly at (916) 372-3375.

Once the initial call is made reporting the SSO, the report is dispatched to the Chief Utility Maintenance Worker during normal working hours or to the On-call Utility Maintenance Worker afterhours for response. The responding employee is responsible for determining whether additional city personnel are necessary to aid in containment, clean-up and remediation. Refer to Table 2-1 for internal contact information.

If an SSO occurs within the portion of the sanitary sewer collection system maintained and operated by the Sacramento Regional County Sanitation District contact Sacramento County Central at (916) 875-5000.

**Table 2-1 Internal Contact Information**

<b>Administrative</b>			
<b>Title</b>	<b>Name</b>	<b>Office Number</b>	<b>Cell</b>
City Manager	Toby Ross	(916) 617-4500	
Director of Public Works and Community Development	Steve Patek	(916) 617-4645	
Public Works Manager	Greg Fabun	(916) 617-4855	
Capital Facilities Manager	Bill Panos	(916) 617-4596	
<b>Engineering</b>			
Senior Civil Engineer	Mike Bessette	(916) 617-4655	
Engineering Assistant III	Ted Karnegas	(916) 617-4662	
Engineering Assistant I	Ken Jameson	(916) 617-4664	
Engineering Assistant II	Tom Bacon	(916) 617-4680	
Engineering Assistant I	Annie Martin	(916) 617-4672	
<b>Utilities Maintenance</b>			
Utilities Maintenance Superintendent	Jim Elrod	(916) 617-4849	
Assistant Maintenance Utilities Superintendent	Charlie Schubert	(916) 617-4834	
Chief Maintenance Worker	Loren Alander	(916) 617-4848	
Chief Maintenance Worker	Danny Valencia	(916) 617-4835	
Chief Maintenance Worker	Lonny Lee	(916) 617-4837	
On-Call Utility Worker	On-Call Utility Worker		
Treatment Plant Mechanic (SCADA)	Jon Witmer	(916) 617-4820	
	Bernie Heier		
<b>Water Services Operations</b>			
Water Treatment Plant Superintendent	Dan Mount	(916) 617-4862	
Assistant Water Treatment Plant Superintendent	Mark Sanders	(916) 617-4863	
On-Call Operator	On-Call Operator	(916) 617-4860	
Electrical / Instrumentation Technician (SCADA)	Lew Grondin	(916) 617-4827	
Treatment Plant Mechanic (SCADA)	John Waterman	(916) 617-4860	
<b>Environmental Program Division</b>			
Environmental Program Manager	Mike Reed	(916) 617-4864	
Environmental Program Specialist	Belinda Arthurs	(916) 617-4872	
	Ryan Radford	(916) 617-4736	

**Table 2-1 Internal Contact Information (cont)**

<b>Police Department</b>	
<b>Name</b>	<b>Office Number</b>
Dispatch	(916) 372-3375
Non-Emergency Number	(916) 617-4900
<b>Fire Department</b>	
Dispatch	(916) 372-3375
Station 41	(916) 617-4741
Station 42	(916) 617-4742
Station 43	(916) 617-4743
Station 44	(916) 617-4744
Station 45 (Administration)	(916) 617-4745

## 2.2 Communication Center

The City's Public Works Department will be responsible for establishing a communication center in the event of a Category 1 SSO. The communication center will consist of one of the Public Works employees listed in Table 2-2 stationed at a predetermined location within the Public Works Administration building. The communication center will be the direct line of communication with outside regulatory and emergency agencies as well as responding city crews.

**Table 2-2 Communication Center Staffing**

Utilities Maintenance Superintendent
Assistant Utilities Maintenance Superintendent
Chief Utilities Maintenance Worker
Public Works Senior Clerk

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## Section 3 SSO Category Description, Notification and Reporting Requirements

### 3.1 Category 1 SSO

**Description:** Discharge resulting from the failure of the City's sanitary sewer system that:

- Equals or exceeds 1,000 gallons; or
- Results in a discharge to a drainage channel and/or surface water; or
- Discharges to a storm drainpipe that was not fully captured and returned to the sanitary sewer system.

**Notification:** Mandatory notification to the following outside agencies on all Category 1 SSOs. Agency contact phone numbers are listed on SSO Report Form (Appendix E).

- **OES** – Within 2 hours of becoming aware of discharge.
- **Yolo County Environmental Health** - Within 2 hours of becoming aware of discharge.
- **RWQCB (Region 5)** - 2 hours of becoming aware of discharge.
  - Additionally, a certification statement must be submitted to the RWQCB within 24 hours stating that OES and Yolo County Environmental Health were notified (Appendix F).

**Reporting:** Complete field SSO report form.

Online electronic reporting mandatory on all Category 1 SSOs.

- Draft submittal must be reported no later than 3 business days after becoming aware of the discharge.
- Final certification must be made within 15 calendar days of conclusion of the SSO response.

### 3.2 Category 2 SSO

**Description:** All other discharges resulting from a failure of the City's sanitary sewer system.

**Notification:** No outside agency notification required on Category 2 SSOs.

**Reporting:** Complete field SSO report form.

Online electronic reporting mandatory on all Category 2 SSOs.

- Must be reported within 30 days after the end of the calendar month in which the SSO occurs.

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### 3.3 Private Lateral SSO

**Description:** Sewage discharges that are caused by blockages or other problems within a privately owned lateral.

**Notification:** No outside agency notification required on Private Lateral SSOs, unless SSO meets Category 1 description, see SSO SOP Appendix A.

**Reporting:** Complete field SSO report form.  
Online electronic reporting at the discretion of the City

### 3.4 Construction Related SSO

**Description:** The WDR specifies that “temporary storage and conveyance facilities (such as vaults, temporary piping, construction trenches, wet wells, impoundments, tanks, etc) are considered to be part of the sanitary sewer system, and discharges into these temporary storage facilities are not considered to be SSOs”.

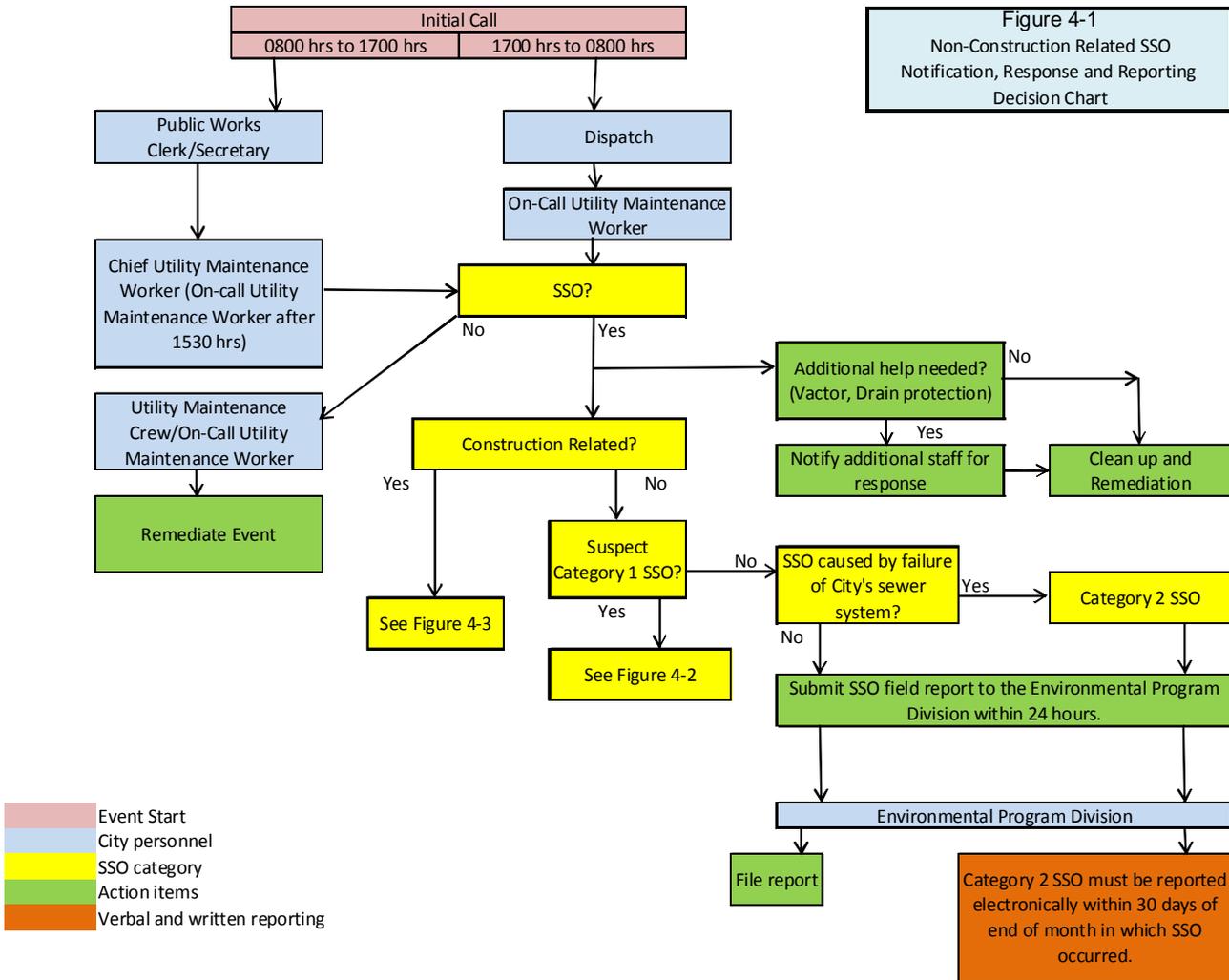
**Notification:** No outside agency notification required on Construction Related SSO’s, that is contained within trenches or temporary structures.

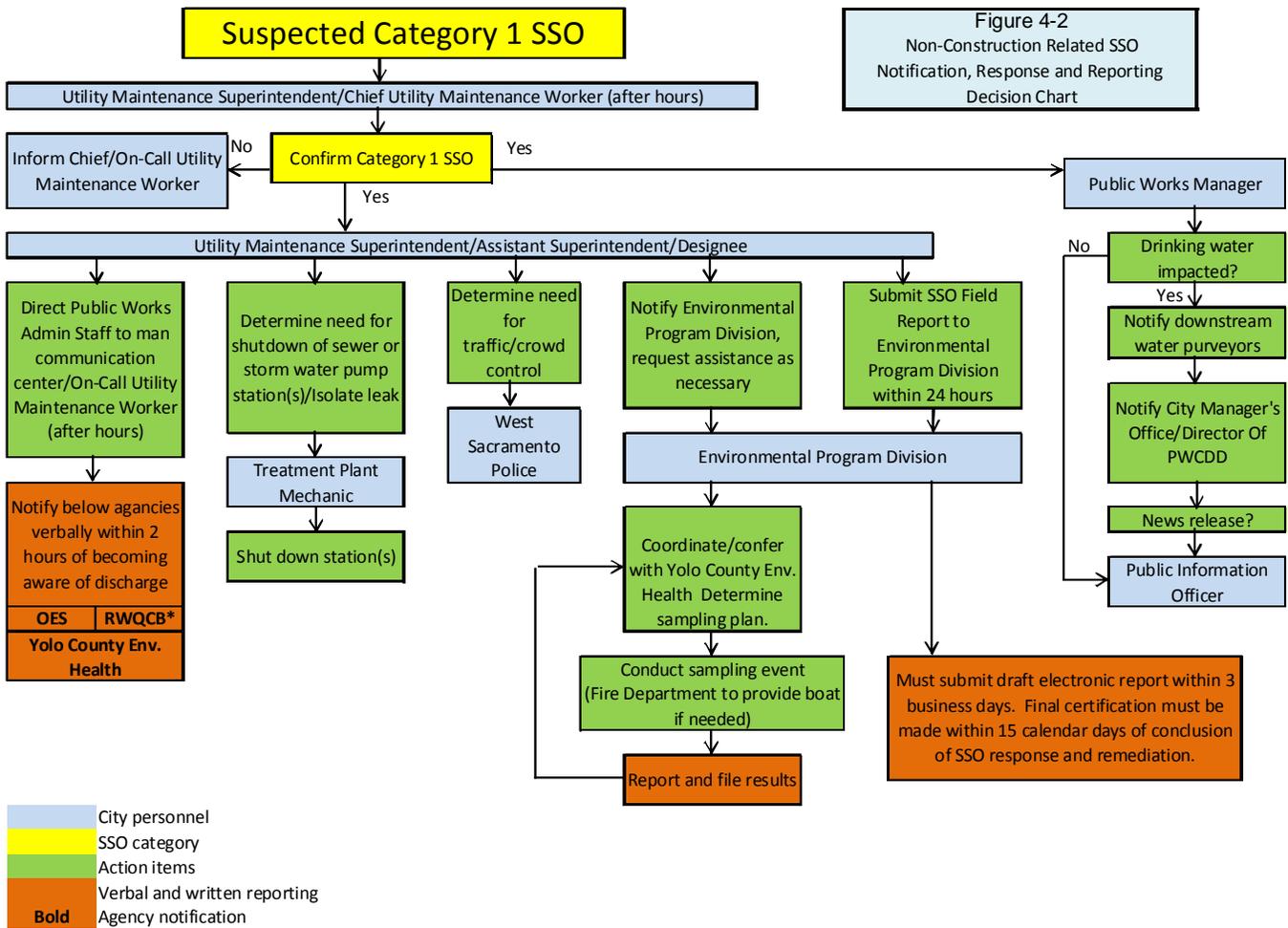
**Reporting:** Complete field SSO report form.  
Online electronic reporting at the discretion of the City if not Category 1 or 2 SSO.

## **Section 4 Notification, Response and Reporting Procedures**

### **4.1 Procedures**

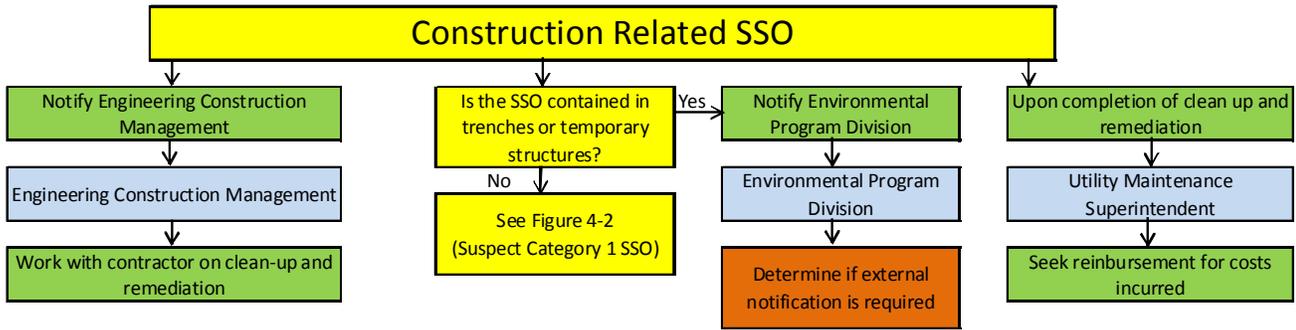
The procedures listed in Figures 4-1 and 4-2 will aid in providing an appropriate response to SSOs. For additional information regarding SSO clean-up, sampling and flow estimation, please see the Appendix section of this plan.





\* Additionally, must submit certification (see Appendix F) within 24 hours stating that OES and Environmental Health were notified.

Figure 4-3  
Construction Related SSO  
Notification, Response and Reporting  
Decision Chart



- City personnel
- SSO category
- Action items
- Verbal and written reporting

## 4.2 Description of Responsibilities

Public Works Clerk / Secretary	Receive initial call and dispatch staff for response Staff communication center
On-Call Utility Maintenance Worker	Provide initial response for after hour calls. Investigate and assess SSO Contact additional staff for assistance Correct cause Contain SSO Post signs Clean-up Update communication center
Utility Maintenance Worker	Investigate and assess SSO Contact additional staff for assistance Correct cause Contain SSO Post signs Clean-up Update communication center
Chief Utility Maintenance Worker	Dispatch response staff Investigate and assess SSO Direct response staff Communicate with City Divisions SSO documentation Correct cause Contain SSO Initiate SSO report requirements Clean-up Update communication center Submit SSO field report
Engineering Construction Management Staff	Work with contractor on construction related SSOs Update communication center
Utility Maintenance Superintendent	Confirm Category 1 SSO Direct staff Update communication center
Assistant Utility Maintenance Superintendent	Staff communication center Direct staff Update communication center
On-Call Treatment Plant Mechanic	Operation of sanitary/storm pump stations SCADA Update communication center

Public Information Officer (PIO)	Issues news release Media notification
Public Works Manager	Determine whether drinking waters are impacted from SSO Provide information to PIO/City Manager/Public Works and Community Development Director
West Sacramento Fire Department	Provide boat Emergency response
West Sacramento Police Department	Traffic and crowd control
Environmental Program Manager	Review SSO field reports Complete certify electronic SSO reports Preparation of additional requirements involving SSO Coordinate with Yolo County Environmental Health Direct sampling operations as necessary Finalize Report
Environmental Program Specialist	Provide requested information on SSO Collect / analyze samples Route samples for analyses Initiate SSO electronic report requirements Finalize Report

## 4.3 Signage

Contamination warning signs shall be posted at SSO sites when the SSO is in a public area and/or enters a waterway or based on requirements issued by outside regulatory agencies until the site is determined to be cleaned. Contamination warning signs shall be posted by Utility Maintenance personnel and by the contractor if the SSO is construction related. The warning signs serve to provide a warning of potential health risks due to sewage contamination. If signage is required the Public Works Manager shall notify the Public Information Officer.

## 4.4 Downstream Notification

In the event of an SSO discharge to surface water a determination will be made by the Public Works Manager whether drinking water for water purveyors downstream will become impacted. Table 4-3 identifies downstream water purveyors. If necessary, contact should be made and information regarding the SSO relayed.

**Table 4-1 Downstream Water Purveyors**

<b>Purveyor Name</b>	<b>Phone Number</b>
<b>City of Rio Vista</b>	Main: (707) 374-6451
<b>Solano County Water Agency</b>	Main: (707) 451-6090
<b>Contra Costa Water District</b>	Main (925) 688-8000
<b>East Bay Municipal Utility District</b>	Eric Mische (916) 226-8332

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## Section 5 Impact Mitigation

### 5.1 Standard Operating Procedures

When an SSO occurs, all feasible steps must be taken to prevent impacts including controlling or limiting the amount of wastewater to the storm drain system, terminating the discharge and recovering and properly disposing of as much of the SSO as possible including wash down water that is used. Standard Operating Procedures (SOPs) have been developed and implemented covering cleanup and remediation of SSOs. These SOPs are found in the Appendix section of this Plan.

### 5.2 Collection System Failures

In the event of a failure on a sewer main line, sewer forced main, pump station or any other portion of the sanitary sewer collection system, it may be necessary to notify upstream industrial dischargers of the situation and request that they reduce their sewer discharge. Additionally, some sanitary sewer pump stations are fed by other sanitary sewer pump stations within the system. Should this be the case, upstream pump stations will need to be turned off so repairs can be made. Continuous monitoring of pump station wet well levels shall be conducted to ensure that the capacity is sufficient for the time the pump station is off. Large failures may require an extended amount of time for repair. Bypass pumping (manhole to manhole) and/or mobile sewage collection may be necessary with prolonged repair. If necessary, City staff will coordinate with commercial septage haulers for assistance. See Appendix G for listing of septage haulers.

### 5.3 Discharges to Storm Drains or Surface Waters

If an SSO has entered or is entering a storm drain, steps should be taken to prevent further discharge from entering and isolate the impacted portion of the storm drain system to prevent the wastewater from reaching a waterway. It may be possible to isolate the SSO by switching storm water pumps off. The contained wastewater can then be collected and discharged back into the sanitary sewer system.

Once an SSO reaches surface waters it might not be possible to contain and remove the wastewater. Focus should be made on limiting the amount entering the surface waters, debris removal and sampling to determine the extent of the contamination.

Procedures for responding to SSO discharges to storm drains or surface waters can be found in Appendix B. The sampling SOP can be found in Appendix D.

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## 5.4 Traffic and Crowd Control

Traffic and crowd control measures vary based on the size of the SSO and its location. When appropriate, local police, fire department and other city personnel should be notified and requested to assist in traffic and crowd control.

## 5.5 Cleanup

SSO sites must be thoroughly cleaned after the SSO such that no identifiable residue remains, such as rags, sewage solids and other debris. Solids and debris must be collected and disposed of properly. Several actions must be taken to properly cleanup and mitigate potential effects, including but are not limited to:

- Application of absorbent material;
- Removal of contaminated soil and used absorbent;
- Flushing the SSO site with relatively clean water;
- Return of all wash-down water to the sanitary sewer.

## 5.6 Public Interaction

The public may be present during an SSO. Access to the affected area should be restricted to authorized personnel only. Efforts should be made to warn the public as to the dangers of coming into contact with raw sewage (see Section 4.3 Signage).

## 5.7 Media Notification

If necessary, when public health could be affected the City's PIO will issue a news release related to the SSO.

## 5.8 Residential Claims

If an SSO in the City's maintained system resulted in a flooded home or structure the City's insurance carrier will be the lead on any claims.

# Appendix A



## Sanitary Sewer Overflow

SOP No: EPD-1

Page

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*Public Works Department*

### Administrative Staff

1. Upon receipt of call, staff shall document applicable information on Work Order form.
2. Staff will dispatch applicable utility crew for response.

### Responding Staff

1. Staff responding to the incident shall promptly investigate the cause and stop the sanitary sewer overflow. **Appropriate safety procedures shall be observed.**
2. Staff responding should make every attempt to protect storm drain inlets and entrances to waterways from the overflow material.
3. If extra help is necessary, staff should immediately notify their Superintendent or the utility worker in-charge in their absence, and call for extra help (Mechanics, Utility Workers or Environmental Program Staff). The number of extra help depends on the severity of the incident.
4. Staff responding to the incident must complete the **Sanitary Sewer Overflow Report (attached)**. This report will be submitted to the Environmental Program Division **no later than 24 hours after the incident**.
  - a. In the event that the sewer overflow occurs on a weekend or holiday, the Sanitary Sewer Overflow Report will be submitted to the Environmental Program Division on the next scheduled workday.

### Environmental Program Division

1. Once the Sanitary Sewer Overflow (SSO) Report has been received it must be electronically entered into the State Water Resources Control Board's Sanitary Sewer Overflow database, which is accessed through California Integrated Water Quality System (CIWQS) <http://ciwqs.waterboards.ca.gov>, based on category of spill.
  - a. Category 1 spills/overflows must go through "Draft Submittal" (SSO database) within 3 days after overflow occurred and must be certified (finalized) by the Legally Responsible Official within 15 days of the conclusion of the response and remediation. Upon conclusion, ensure that "Ongoing Investigation" item is correctly answered in the SSO database.
  - b. Category 2 spills/overflows must be reported within 30 days after the month in which the spill occurred.
  - c. If no spills occurred in the month, a "No Spill Certification" must be completed within 30 days of the end of that month.
2. Environmental Program Division (EPD) staff will submit a copy of completed reports to the Public Works Manager.
3. EPD staff will file original report in the Sanitary Sewer Overflow binder.
4. EPD staff will prepare a confidential council newsletter at the beginning of the month, summarizing all reportable SSO's for the previous month.
5. After determining the responsible party, (i.e., contractor, engineering, etc.), EPD staff will prepare a letter/invoice to the appropriate party requesting reimbursement of costs incurred by the city.

**Utility Superintendent** During SSO event, Superintendent or designee will direct notification to outside agencies when necessary.

# Appendix A



## Sanitary Sewer Overflow

SOP No: EPD-1

Page

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*Public Works Department*

### Completion of Sanitary Sewer Overflow Report

#### Definitions/Instructions as they appear on Report

**SSO** – Sanitary Sewer Overflow, any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system.

**Estimate Volume of discharge** – Total volume of SSO.

**Location** – Physical address of SSO.

**Description** – Type of area where SSO is located.

**Source** – Where is the SSO coming from?

**Cause** – What was the cause of the blockage?

**Route of Flow** – Describes the direction of flow and the area(s) that the wastewater flowed over and/or through.

**Destination** – Final destination, describes the area that the wastewater ultimately reached.

**Clean Up /Recovery**– Describes procedures, equipment used and estimated volume of recovered material.

**Remediation** – What was done to correct the SSO? Who did repair/cleared blockage? Who inspected job?

**Ways to Prevent Recurrence** - What can be done to prevent the event from happening again?

**Was the blockage/problem in the City owned collection system** – (e.g., Forced Mains, Lift Stations, etc.)

**Category 1 SSO** – Meets at least one (yes) of the questions listed SSO Category 1 Determination table.

**Category 2 SSO** – Sewer overflow that does not meet any of the requirements of a Category 1 SSO, but caused by problems in the City owned collection system.

**SSO Volume** – Estimated volume, reference item 4 of report. The sum of the three lines should equal the total volume.

**Response** – What was done to SSO and the cause of SSO?

**Samples Taken** – If samples are necessary, contact the Environmental Program Division.

**Notification** – Notify the following individuals/agencies according to the following:

**OES – Category 1 overflow**, must be notified **within 2 hours** of becoming aware of discharge.

**Yolo County Env. Health – Category 1 overflow**, must be notified **within 2 hours** of becoming aware of discharge.

**Regional Board – Category 1 overflow**, must be notified **within 2 hours** of becoming aware of discharge.

*Additionally, certification must be submitted within 24 hours of discharge stating that OES and Env. Health were notified.*

**Environmental Program Division** - As necessary to aid in remediation.

**Utility Supervisor** – As necessary to aid in remediation and cleanup.

**Mechanics** – If necessary to shut down sanitary sewer lift station.

**RD 900** – If overflowed material reaches canal/ditch/channel that they are responsible for.

**Business/Contractor** – As necessary to aid in remediation and cleanup.

# Appendix B



## Sanitary Sewer Overflow Clean up & Remediation

SOP No: EPD-2

Page

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*Public Works Department*

### Responding Staff

#### Dispatch and arrival on scene.

5. Note the time of dispatch and arrival on scene.
6. Upon arrival promptly investigate the cause and stop the sanitary sewer overflow. **Appropriate safety procedures shall be observed.**
  - a. Note the start and stop time that the overflow occurred.
7. Contact additional help as necessary to aid the clean up/remediation efforts.
  - a. The Vactor truck(s) should be dispatched immediately.
  - b. If necessary, contact City Mechanics to shut down sanitary sewer pump stations.
  - c. If necessary, contact staff to bring appropriate protection mechanism(s) from Corp Yard.
8. Determine the direction of flow.
  - a. Determine whether overflow has entered storm drain collection system, ditch or canal.
    - i. Determine the final destination.
  - b. Install appropriate mechanism to divert or contain the flow to protect storm drain inlets.
    - i. Make every effort to contain overflow above ground

#### Spill contained above ground

*(Streets, Sidewalks, Driveways)*

1. Protect public from the area.
2. Immediately begin collecting overflowing/overflowed material with Vactor Truck.
3. Wash down the impacted area.
  - a. Collect all wash water.
  - b. Dispose of wash water into sanitary sewer.

*(Soil, Equipment)*

1. Collect any debris.
2. Wash equipment with bleach solution.
  - a. Collect wash down water and dispose of into sanitary sewer.
3. Remove or decontaminate contaminated soil/plants.
  - a. Collect wash down water and dispose of into sanitary sewer.

## Appendix B



# Sanitary Sewer Overflow Clean up & Remediation

SOP No: EPD-2

Page

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*Public Works Department*

### **Spill entering/entered storm drain collection system**

1. Protect public from the area.
2. Immediately begin collecting overflowing/overflowed material with Vector Truck.
3. Install mechanism to prevent SSO from further entering storm drains or surface waters.
4. Determine how far downstream the overflowing/overflowed material has reached.
  - a. Once determined, go to next manhole downstream.
5. Turn off storm water pump station(s).
  - a. This item might not be possible during rain event.
6. Install pipe plugs at the determined downstream location.
7. Collect all material contained within the impacted storm drain collection system.
8. Wash down the impacted area.
  - a. Collect all wash water with Vector truck.
9. Once overflow has ceased and clean up is complete remove all plugs and dams used to contain flow.

### **Spill has entered a waterway**

1. Protect public from the area.
2. Make every effort to stop the flow from entering the waterway.
3. Begin collecting the wastewater.
4. Contact the Environmental Program Division.
5. Remove debris.
6. Remove or decontaminate contaminated soil/plants.
  - a. Collect wash down water and dispose of into sanitary sewer.
7. Place warning signs around the impacted area.
8. Collect water samples for analysis. See sampling guidelines contained within the SSO Response Plan.
  - a. This item will usually be conducted by Environmental Program Staff.

# Appendix C

## SSO Flow Estimation Methods

Volume of the SSO can be determined using a variety of approaches. The following sections will discuss two methods that are often employed. The person preparing the estimate shall use the method most appropriate to the SSO in question. Every effort shall be made to make the best possible estimate of the volume.

### Method 1 Measured Volume

This method can be used on small spills if it is not raining.

Step 1: Sketch the shape of the spill that is contained.

Step 2: Measure the length and width.

Step 3: Measure the depth in several locations.

Step 4: Convert all dimensions to feet.

$$\text{Feet} = \text{inches}/12$$

Step 5: Calculate the area using the following formulas.

$$\text{Rectangle Area} = \text{Length} \times \text{Width}$$

$$\text{Circle Area} = \text{Diameter} \times \text{Diameter} \times 0.785$$

$$\text{Triangle} = \text{Base} \times \text{Height} \times 0.5$$

Step 6: Multiply the area times the depth to get the volume.

$$\text{Volume ft}^3 = \text{Area} \times \text{Depth}$$

Step 7: Multiply the volume by 7.5 gallons/ft<sup>3</sup> to convert it to gallons.

$$\text{Gallons} = \text{Volume} \times 7.5 \text{ gallons/ft}^3$$

### Method 2 Duration and Flow Rate

**Duration:** The duration is the total elapsed time from when the SSO started until it stops.

**Flow Rate:** The rate at which the SSO is flowing. Usually expressed as gallons per second (GPS) or gallons per minute (GPM) or gallons per hour (GPH).

**Open channel flow:** Often overflows run into nearby dry ditches or street gutters. Total volume, gallons, of flow can be quantified by measuring the cross-sectional area and speed of the flow. Measure a set distance paralleling the SSO flow route. Measure, in inches, the midway width and depth of the flow over this distance. Then measure the time, in seconds, it takes a float to travel the set distance. Record total time of the SSO flow.

Calculate the total SSO volume of the following example:

## Appendix C

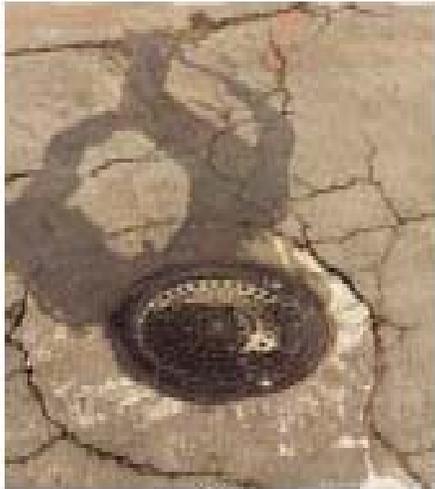
*Example:* After measuring off a set distance of 20 feet, it was determined that the float took 20 seconds to travel this 20 feet. The width and depth at the midway point of the flow was 28 inches and 3 inches, respectfully. The total time of the SSO flow was 20 minutes. What is the total volume, gallons, of this SSO event?

$$\begin{aligned}\text{Total Volume (gal)} &= \text{Velocity (ft/sec)} \times \text{Area (ft}^2\text{)} \times \text{total time (seconds)} \times 7.5 \text{ gal/ ft}^3 \\ &= 20\text{ft}/20\text{sec.} \times (28 \times 3)/144 \text{ ft}^2 \times (20\text{min.} \times 60\text{sec. /min.}) \times 7.5 \text{ gal/ ft}^3 \\ &= 1 \times 0.58 \times 1200 \times 7.5\text{gal} \\ &= 5,220 \text{ gallons}\end{aligned}$$

**Pump Stations:** SCADA systems can provide flow or pump run time data for sewer and storm water pump stations. Pump curves may need to be obtained to determine flow rates. The flow rates can be used to determine flow volumes. Contact the city's Treatment Plant Mechanics to obtain SCADA data.

**SSO Flow Estimation Pictures (see next page):** Provides pictures of sewage flowing from a manhole cover at a variety of flow rates. Observations by the responding utility maintenance crew are used to select the appropriate flow rate from the chart.

# Appendix C



5 gpm



25 gpm



50 gpm



100 gpm



150 gpm



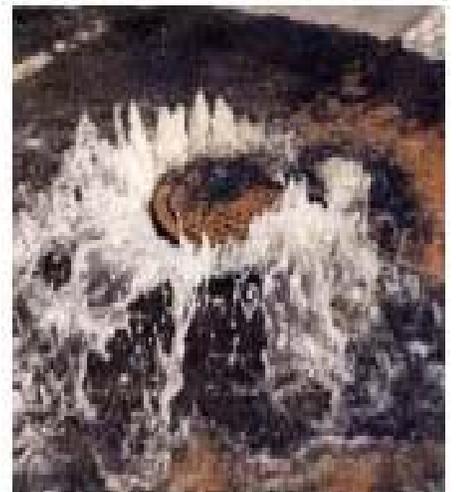
200 gpm



225 gpm



250 gpm



275 gpm

## Appendix D

# SSO Sampling Procedures Sampling for Coliform (Total & e Coli), BOD and Ammonia

When sampling a SSO a minimum of three separate sample sets must be collected. One upstream of the discharge location, one at the discharge location and one downstream of the discharge location.

### What you will need:

- Personnel protective equipment including latex/nitrile gloves and eye protection.
- Sub Surface Grab Sampler (used for sampling surface waters)
- \*6 – 100 mL sterile plastic containers for coliform analysis. 3 for samples with 3 extra.
- \*6 -1 Liter Poly containers for BOD. 3 for samples with 3 extra.
- \*6 – 500 mL Poly containers preserved with H<sub>2</sub>SO<sub>4</sub> for Ammonia analysis. 3 for samples with 3 extra.
- 3 – 1 Liter soda lime bottles
- 3 – 1 Liter glass jars
- 3 – funnels
- Cooler with ice packs
- Chain of Custody

\*Ensure that there are adequate amount of sample equipment if known more than three sample locations.

### Procedure:

1. Put on all required protective equipment including latex/nitrile gloves and eye protection.
2. Use the 100 mL sterile container for coliform, 1-liter poly container for BOD and 500mL poly container for ammonia.
  - Three sets of samples are collected for each incident: up stream, entry point, downstream.
  - One set is one 1-liter bottle for BOD, one 100 mL container for coliform, and one 500 mL bottle for Ammonia (preservation with H<sub>2</sub>SO<sub>4</sub> required)..
  - All samples are grabs and are collected at 6" below the surface. Samples shall be placed in coolers on ice packs during transport to the lab.
3. Once the lid is opened, the inside surface of the bottle or lid should not be touched. Care should be taken with the sample containers that contain a preservative to keep the preservation in the container.
4. Get into position to collect the sample. Try to collect the sample in the middle of the flow.
5. Once in position,
6. Avoid sampling debris or scum layer from the surface. To avoid this, the surface may need to be agitated before sampling.
7. Use a glass jar for spills and flowing material and use the Sub Surface Grab Sampler when sampling surface waters.
8. Rinse the sample collection container (glass jar, soda lime bottles).
9. Collect sample in sample collection container.
10. Transfer sample from sample collection container to individual sample bottle(s). Leave approximately one inch of head space in individual sample bottles. Do not overfill.
11. Immediately, place all samples on ice and cool to 4°C.
12. Complete Chain of Custody form and take samples to contracted environmental laboratory.



# Appendix E

SSO Category 1 Determination	Yes	No
Was the volume 1000 gallons or more?	<input type="checkbox"/>	<input type="checkbox"/>
Was there a discharge to surface water?	<input type="checkbox"/>	<input type="checkbox"/>
Was there a discharge to a storm drain/RD-900 drainage channel that was not fully captured and returned to the sanitary sewer system?	<input type="checkbox"/>	<input type="checkbox"/>
<b>If any "Yes" response, complete the rest of this form. If all are "No", skip to item #19.</b>		

**16. SSO Volume:**

to surface water	_____	Gallons
to storm drain/drainage channel	_____	Gallons
not recovered from storm drain/drainage channel	_____	Gallons

**17. Response:**

<input type="checkbox"/> Cleaned Up	<input type="checkbox"/> Inspected to Determine Cause (CCTV)	
<input type="checkbox"/> Contained	<input type="checkbox"/> Returned All/Part of SSO to Sanitary Sewer	
<input type="checkbox"/> Restored Flow	<input type="checkbox"/> Other _____	

**18. Samples taken?**                      Y / N

**19. Notification:** (\* If category 1 SSO, agency notification required)

Contacted	Date:	Time:	Left Message	Initial
<input type="checkbox"/> * OES (800) 852-7550	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> * Regional Board (916) 464-4761 fax (916) 464-4645 Certification Notification Required?      Y    N	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> * Yolo County Env. Health (530)666-8646	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> Utility Supervisor (916) 617-4849	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> Env. Program Division (916) 617-4825	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> Mechanics (916) 799-3890	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> RD - 900 (916) 371-1483	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> Business/Contractor	_____	_____	<input type="checkbox"/>	_____

**Send this report to Environmental Program Division within 24 hours.**

**Prepared by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

# Appendix F

DATE

Patricia Leary  
California Regional Water Quality Control Board  
11020 Sun Center Drive, #200  
Rancho Cordova, CA 95670-6114

Subject: [Sanitary Sewer Overflow Notification Certification](#)

Dear Ms. Leary:

On **DATE**, at **TIME** the City of West Sacramento experienced a Category 1 sanitary sewer overflow which resulted in sewage discharged to surface water or drainage channel. In accordance with state-mandated reporting requirements, the following agencies were notified.

Office of Emergency Services:                      DATE/TIME  
Control # \_\_\_\_\_

Yolo County Environmental Health:                      DATE/TIME

If I may be of assistance, please call me at (916) 617-4855.

Sincerely,

[Greg Fabun](#) (RR)  
Public Works Manager

cc:    File

# Appendix G

## **Septage Haulers**

<b>Company Name</b>	<b>Phone Number</b>
A-1 Septic Service	(916) 371-4160
BCM Company	(916) 383-4533
G&C Septic Tank Service	(916) 366-1111
Yolo Pumping Services, Inc.	(530) 662-5534