



# Overflow Emergency Response Plan

August 2014



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# Document Version Control

This Overflow Emergency Response Plan (OERP) is a living document that is anticipated change over time. This version control sheet is intended to support the City’s efforts to keep the copies of the OERP that have been assigned to City Staff current. Please contact Jesse Barajas at (510) 747-7900 prior to making copies for use by others, initiating changes, or for information regarding the current version of this document.

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## Background

This Overflow Emergency Response Plan (OERP) has been prepared in compliance with the State Water Resources Control Board (SWRCB) Order 2006-0003: Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (GWDR), as revised by Order No. WQ 2008-0002.EXEC on February 20, 2008 and amended by SWRCB Order No. WQ 2013-0058 EXEC in July of 2013. The GWDR prohibits sanitary sewer overflows (SSOs), requires reporting of SSOs using the statewide electronic reporting system, and requires the development and implementation of a Sewer System Management Plan (SSMP).

This OERP has been prepared by the City of Alameda (City) with assistance from RMC Water and Environment.

## Definitions, Acronyms, and Abbreviations

**Best Management Practices (BMP)** - Refers to the procedures employed in commercial kitchens to minimize the quantity of grease that is discharged to the sanitary sewer system. Examples include scraping food scraps into the garbage can and dry wiping dishes and utensils prior to washing.

**Calendar Year (CY)**

**California Integrated Water Quality System (CIWQS)** - Refers to the State Water Resources Control Board online electronic reporting system that is used to report SSOs, certify completion of the SSMP, and provide information on the sanitary sewer system. The electronic reporting requirement became effective on May 2, 2007 for Region 2.

**Capital Improvement Program (CIP)** - Refers to the document that identifies planned capital improvements to the City's sanitary sewer system.

**City** - Refers to the City of Alameda.

**Closed Circuit Television (CCTV)** - Refers to the process and equipment that is used to internally inspect the condition of gravity sewers.

**Computerized Maintenance Management System (CMMS)**

**East Bay Regional Parks District (EBRPD)**

**East Bay Municipal Utility District (EBMUD)**

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

**Feet per Second (fps)**

**First Responder** – Refers to the City employee who provides the City's initial response to a sewer system event.

**Fiscal Year (FY)**

**Food Service Establishment (FSE)** - Refers to commercial or industrial facilities where food is handled, prepared, and/or served that discharge to the sanitary sewer system.

**Force Main** - Refers to a pressure sewer used to convey wastewater from a pump station to the point of discharge.

**General Waste Discharge Requirements (GWDR)** - Refers to the State Water Resources Control Board Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006, as revised on February 20, 2008.

**Geographical Information System (GIS)** - Refers to the City's system that it uses to capture, store, analyze, and manage geospatial data associated with the City's sanitary sewer system assets.

**Global Positioning System (GPS)** - Refers to the handheld unit used to determine the longitude and latitude of sanitary sewer overflows for use in meeting CIWQS reporting requirements.

**Gallons per Day (GPD)**

**Grease Removal Device (GRD)** - Refers to grease traps or grease interceptors that are installed to remove FOG from the wastewater flow at food service establishments.

**Lateral** - See sewer service lateral.

**Legally Responsible Official (LRO)** - Refers to the individual who has the authority to certify reports and other actions that are submitted through CIWQS.

**Lower Lateral** – Refers to the portion of the sewer service lateral between the property line and the public sewer

**Manhole (MH)** - Refers to an engineered structure that is intended to provide access to a sanitary sewer for maintenance and inspection.

**Monitoring and Reporting Program (MRP)** – Refers to the Monitoring and Reporting Program associated with SWRCB Order No. 2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems

**National Pollution Discharge Elimination System (NPDES)**

**National Response Corporation (NRC)**

**Office of Emergency Services (OES)** - Refers to the California Governor's Office of Emergency Services which is part of the California Emergency Management Agency.

**Operation and Maintenance (O&M)**

**Overflow Emergency Response Plan (OERP)**

**Preventative Maintenance (PM)** - Refers to maintenance activities intended to prevent failures of the sanitary sewer system facilities (e.g. cleaning, CCTV, inspection).

**Public Works Supervisor** – Refers to the Sewer and Plumbing Operations Supervisor.

**Regional Water Quality Control Board (RWQCB)** - Refers to the San Francisco Bay Regional Water Quality Control Board.

**Sanitary Sewer Overflow (SSO)** - Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include:

Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;

Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and

Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

**Sanitary Sewer System** - Refers to the portion of the sanitary sewer facilities that are owned and operated by the City of Alameda.

**Sensitive Area** – Refers to areas where an SSO could result in a fish kill or pose an imminent or substantial danger to human health.

**Sewer Service Lateral** - Refers to the piping that conveys sewage from the building to the City's sewer system.

**Sewer System** – See Sanitary Sewer System.

**Sewer System Management Plan (SSMP)**

**State Water Resources Control Board (SWRCB)** - Refers to the California Environmental Protection Agency (EPA) State Water Resources Control Board and staff responsible for protecting the State's water resources.

**Surface Waters** – See *Water of the State*.

**Wastewater Collection System** - See Sanitary Sewer System.

**Water Body** – A water body is any stream, creek, river, pond, impoundment, lagoon, wetland, or bay.

**Water of the State** – Water of the State means any water, surface or underground, including saline waters, within the boundaries of California. In case of a sewage spill, storm drains are considered to be waters of the State unless the sewage is completely contained and returned to the sewer system and that portion of the storm drain is cleaned.

**Work Order** - Refers to a document (paper or electronic) that is used to assign work and to record the results of the work.

# **Section 1. Introduction**

## **1.1. Purpose**

The purpose of the Overflow Emergency Response Plan (OERP) is to support an orderly and effective response to sanitary sewer overflows (SSOs). The OERP provides guidelines for City personnel to follow in responding to, cleaning up, and reporting SSOs that may occur within the City's service area.

## **1.2. Regulatory Requirements for OERP Element of SSMP**

The collection system agency shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

- (a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;
- (b) A program to ensure appropriate response to all overflows;
- (c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, regional water boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the Monitoring and Reporting Program (MRP). All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board Waste Discharge Requirements or National Pollutant Discharge Elimination System (NPDES) permit requirements. The Sewer System Management Plan should identify the officials who will receive immediate notification;
- (d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;
- (e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and
- (f) A program to ensure that all reasonable steps are taken to contain untreated wastewater and prevent discharge of untreated wastewater to waters of the United States and minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

## **1.3. Goals**

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

- Respond quickly to minimize the volume of the SSO;
- Contain the spilled wastewater to the extent feasible;
- Eliminate the cause of the SSO;
- Minimize public contact with the spilled wastewater;
- Mitigate the impact of the SSO; and
- Meet the regulatory reporting requirements.

## **Section 2. Spill Detection and Notification**

The processes that are employed to notify the City of the occurrence of an SSO include observation by the public, receipt of an alarm, or observation by City staff during the normal course of their work. The notification and response procedure flow chart is shown in **Figure 2-1**.

### **2.1. Public Observation**

Public observation is the most common way that the City is notified of blockages and spills. Contact information for reporting sewer spills and backups is in the phone book and on the City's website: [www.alamedca.gov](http://www.alamedca.gov). The City's telephone number for reporting sewer problems is (510) 747-7900. This is the phone number to the Maintenance Services Center which houses the maintenance staff and equipment. The local police, fire, and other city departments are instructed to forward any reports of sewer problems to the Maintenance Services Center for response. A summary of the response and notification process is shown in **Figure 2-1**.

#### **2.1.1. Normal Work Hours**

The City's regular working hours are Monday through Friday from 7:00 a.m. to 5:00 p.m., except holidays. When a report of a sewer spill or backup is made during normal work hours, the Maintenance Services staff receives the call, takes the information from the caller, and communicates it to the Sewer Shop Team Leader and Public Works Supervisor.

The information regarding the service call is documented on a paper form and then later entered into the Comcate work order management system by the on-call staff.

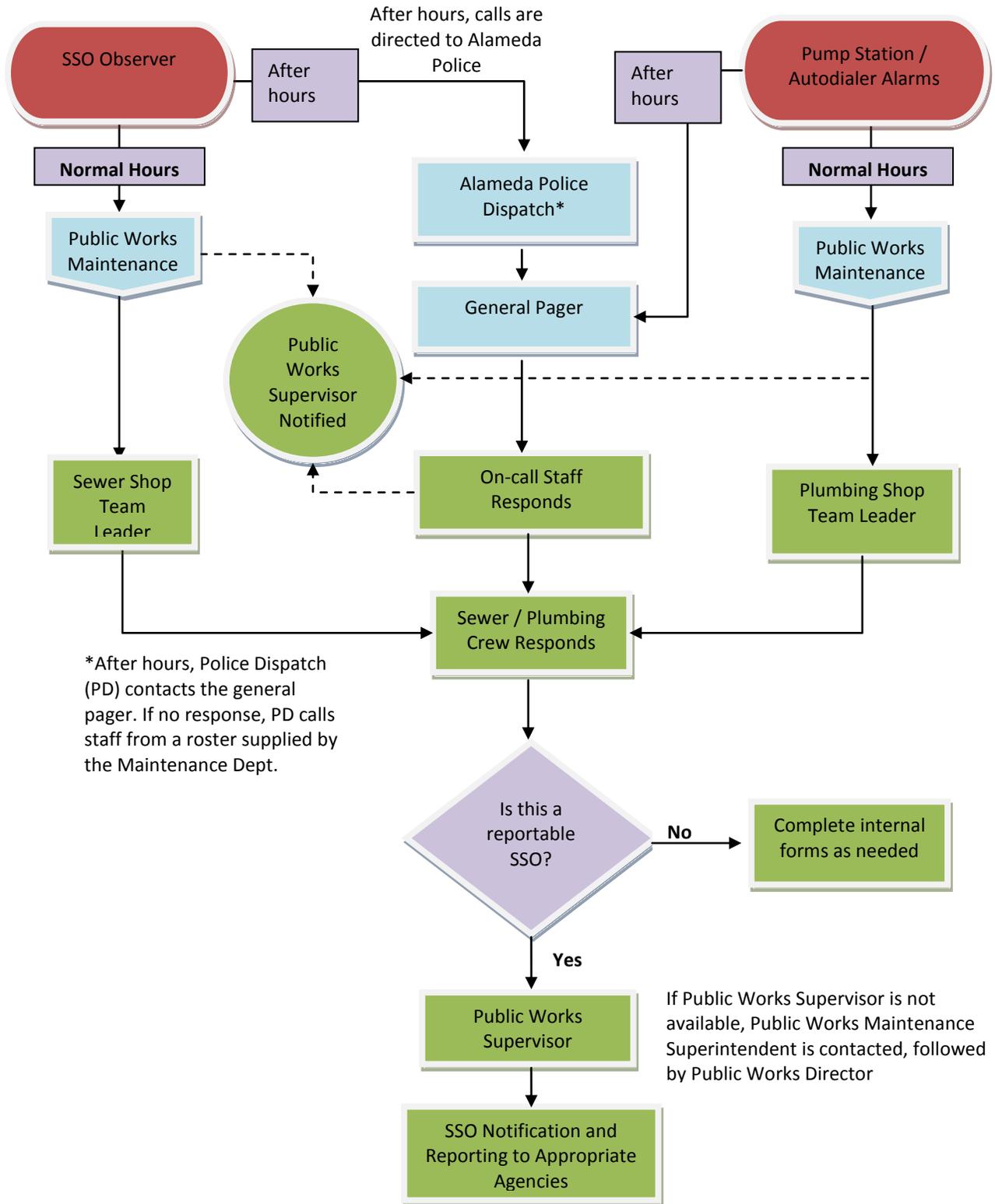
#### **2.1.2. After Hours**

After hours, callers to the sewer reporting number (510-747-7900) are directed to press a number to connect to police dispatch in the case of an emergency. The direct telephone number to the police dispatch for after hours reporting of sewer problems is (510) 337-8340. The Maintenance Service Center staff have an after hours pager (general pager) that receives alarm signals from the pump station SCADA monitoring system and all other emergency calls.

The police dispatcher who receives the call takes the information from the caller, and communicates it to the general pager number. If the pager holder on-call staff member does not respond back to the page, the police dispatcher has a backup list of phone numbers, including the Sewer Shop Team Leader and Public Works Supervisor. The Police Dispatcher continues to call Public Works staff until one can be reached to respond to the call.

After hours response information is also entered into the Comcate system by the on-call staff member.

**Figure 2-1: Notification and Response Procedure Flow Chart**



\*After hours, Police Dispatch (PD) contacts the general pager. If no response, PD calls staff from a roster supplied by the Maintenance Dept.

If Public Works Supervisor is not available, Public Works Maintenance Superintendent is contacted, followed by Public Works Director

## **2.2. City Staff Observation**

City staff may observe sewer system facilities emergencies while performing their routine activities. Any problems noted with the sewer system facilities are reported to Maintenance Service Center staff who, in turn, respond to emergency situations. The local police, fire, and other city departments are instructed to forward any reports of sewer problems to the Maintenance Services Center for response.

## **2.3. Alarms**

Pump station alarms are transmitted via autodialer to the Maintenance Service Center during working hours and to the general pager after hours.

## **Section 3. SSO Response Procedures**

Sewer service calls are considered high priority events that demand a prompt response. Responders follow a set of standard operation procedures (SOPs) which help staff provide prompt and responsible SSO response. These SOPs are provided in **Appendix A**. National Response Corporation (NRC), a contractor located at Alameda Point and specializing in hazardous material containment and clean up, is also available to assist the City with SSO response in the event of major spills.

### **3.1. First Responder Priorities**

The first responder's priorities are:

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

### **3.2. Safety**

The first responder is responsible for following safety procedures at all times. Special safety precautions must be observed when performing sewer work.

There may be times when City personnel responding to a sewer system event are not familiar with potential safety hazards peculiar to sewer work. In such cases it is appropriate to take the time to discuss safety issues, consider the order of work, and check safety equipment before starting the job.

### **3.3. Initial Response**

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

The first responder should:

- Note arrival time at site using SSO Report form. A sample report is included as **Appendix C**.
- Verify the existence of a sewer system spill or backup.
- Identify and assess the affected area and extent of spill.
- Take photographs and contact caller if time permits.
- Notify the Public Works Supervisor (working hours and after hours):
  - If the spill appears to be flowing to a storm drain, is in a sensitive area, or if there is doubt regarding the extent, impact, or how to proceed.
  - If additional help is needed.

If the spill is in a sensitive area, a responder's priority is to contain and stop the spill.

### **3.4. Initiate Spill Containment Measures**

The first responder should attempt to contain as much of the spilled sewage as possible using the following steps:

- Determine the immediate destination of the overflowing sewage.
- Plug storm drains, if applicable, using air plugs, sandbags, and/or plastic mats to contain the spill, whenever appropriate. If spilled sewage has made contact with the storm drainage system, attempt to contain the spilled sewage by plugging downstream storm drainage facilities.
- Contain/direct the spilled sewage using dike/dam or sandbags, if applicable.
- Pump around the blockage/pipe failure/pump station, if applicable.

### **3.5. Restore Flow**

Using the appropriate cleaning equipment, set up downstream of the blockage and hydro clean upstream from a clear manhole. Attempt to remove the blockage from the system and observe the flows to ensure that the blockage does not recur downstream.

If the blockage cannot be cleared within a reasonable time (15 minutes), or the sewer requires construction repairs to restore flow, then initiate containment and/or bypass pumping. If assistance is required, immediately contact the Public Works Supervisor who will contact other employees, contractors, and equipment suppliers.

### **3.6. Water Quality Sampling and Testing**

Water quality sampling and testing will be conducted for spills that reach surface waters. The City will perform water quality sampling for all spills to lagoons within the City and for spills larger than 5,000 gallons to surrounding water bodies (note: there are no streams or creeks in Alameda). The Public Works Department owns a boat (stored at Alameda Point) which can be used for sampling. Water quality sampling will be done within 48 hours after the City becomes aware of the SSO. Note: The East Bay Regional Park District (EBRPD) is responsible for sampling for overflows that occur along the Robert Crown State Beach shoreline.

The water quality sampling procedures are:

- The first responder should notify a trained Sewer Shop Team Member to collect samples. Samples should be collected as soon as possible after the discovery of the SSO event. Sample kits are stored in the SSO response vehicle at the maintenance yard for immediate use by responders.
- The water quality samples should be collected near the point of entry of the spilled sewage and 100 feet along the shore on either side of the spill location. A map should be created showing the location of each sample point. Sample labels and Chain of Custody forms should also be completed concurrent with the sampling. Field responders are responsible for taking water quality samples to the EBMUD laboratory for testing.
- The EBMUD laboratory will analyze the results to determine the nature and impact of the discharge. Additional samples will be taken to determine when posting of warning signs can

be discontinued. The basic analyses should include total coliform, fecal coliform, enterococcus, and ammonia nitrogen.

- For the lagoon systems, sampling should be continued until the test results are below the following daily maximum levels:
  - Total Coliform = 10,000 MPN per 100mL sample
  - Fecal Coliform = 400 MPN per 100mL sample
  - Enterococcus = 104 CFU per mL sample

Refer to the Water Quality Monitoring Program Plan in **Appendix I** for more detailed procedures on water quality sampling and analysis.

## **Section 4. Recovery and Clean-Up**

The recovery and clean-up phase begins when the flow has been restored and the spilled sewage has been contained to the extent possible. The SSO recovery and clean-up procedures are:

### **4.1. Estimate the Volume of Spilled Sewage**

To estimate the volume of spilled sewage, use the methods outlined on the back of the SSO Report Form (**Appendix C**) and refer to **Appendix F** if the Duration and Flow Method is needed. Wherever possible, document the estimate using photos of the SSO site before and during the recovery operation.

### **4.2. Recovery of Spilled Sewage**

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

### **4.3. Clean-up and Disinfection**

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

#### **4.3.1. Private Property**

After stopping or reducing flow entering a building, take photos and/or video to document the situation for the claims process. If an overflow occurs due to a blockage in a private lateral or private sewer system but has the potential to impact public property/infrastructure, the City will take action to contain and clean up the overflow.

If the spill was caused by a City-owned sewer, advise the customer of the City claims procedure for spill-related damages or cleaning costs. If the customer is not home, leave a City Door Hanger (**Appendix J**).

If the spill was caused by a private lateral problem, inform the customer that it will be the property owner's responsibility to clean and restore the site. Spills due to blockage in lower laterals in the public right-of-way are responded to by the City, but the City only maintains internal documentation of the response. Both upper and lower portions of the lateral are entirely the responsibility of the property owner to fix and maintain.

The incident will be documented using the Private Property Incident Form included as **Appendix D**.

#### **4.3.2. Hard Surface Areas**

Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms.

Wash down the affected area with clean water until the water runs clear. Take reasonable steps to contain and vacuum up the wastewater.

Disinfect all areas that were contaminated from the overflow using a disinfectant. Apply minimal amounts of the disinfectant using a hand sprayer. Data on the volume and application method of disinfectant employed will be recorded in Comcate for record keeping purposes.

Allow area to dry. Repeat the process if additional cleaning is required.

#### **4.3.3. *Landscaped and Unimproved Natural Vegetation***

Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms.

Wash down the affected area with clean water until the water runs clear. The flushing volume should be approximately three times the estimated volume of the spill.

Either contain or vacuum up the wash water so that none is released.

Allow the area to dry. Repeat the process if additional cleaning is required.

#### **4.3.4. *Natural Waterways***

The Department of Fish and Wildlife should be notified in the event an SSO impacts any riparian habitat. Fish and Wildlife will provide the professional guidance needed to effectively clean-up spills that occur in these sensitive environments.

Clean-up should proceed quickly in order to minimize negative impact. Any water that is used in the clean up should be de-chlorinated prior to use.

#### **4.3.5. *Manmade Waterways (Lagoons)***

Install barricades with caution tape to keep the public from entering the lagoons. Post signs as discussed in Section 4.4 and perform sampling as in Section 3.6.

#### **4.3.6. *Wet Weather Modifications***

Omit flushing and sampling during heavy storm events with heavy runoff where flushing is not required and sampling would not provide meaningful results.

### **4.4. *Public Notification***

Post signs and place barricades to keep vehicles and pedestrians away from contact with spilled sewage. Do not remove the signs until spill clean-up is completed. A sample warning sign is included in **Appendix G**.

Lagoons, streams and beaches that have been contaminated as a result of an SSO should be posted at visible access locations until the risk of contamination has subsided to acceptable background levels. The warning signs (see Appendix G), once posted, should be checked every day to ensure that they are still in place.

In the event that an overflow occurs at night, the location should be inspected first thing the following day. The field crew should look for any signs of sewage solids and sewage-related material that may warrant additional clean-up activities.

Major spills may warrant broader public notice. The Public Works Director will authorize contact with local media when significant areas may have been contaminated by sewage.

#### **4.5. Failure Analysis Investigation**

The objective of the failure analysis investigation is to determine the “root cause” of the SSO and to identify corrective action(s) needed that will reduce or eliminate future potential for the SSO to recur.

The investigation should include reviewing all relevant data to determine appropriate corrective action(s) for the line segment. The investigation should include:

- Reviewing and completing the SSO Report form,
- Reviewing and completing the EBMUD Grease SSO and Blockage Reporting Form (if applicable),
- Reviewing past maintenance records,
- Reviewing available photographs,
- Conducting a CCTV inspection to determine the condition of the line segment immediately following the SSO and reviewing the video and logs, and
- Interviewing staff that responded to the spill.

The product of the failure analysis investigation should be the determination of the root cause and the identification of corrective actions. The Collection System Failure Analysis Form (**Appendix E**) should be used to document the investigation.

## Section 5. SSO Documentation and Reporting

All SSOs should be thoroughly investigated and documented for use in managing the sewer system and meeting established notification and reporting requirements. The procedures for investigating and documenting SSOs are as follows.

### 5.1. SSO Categories

The California State Water Resources Control Board (SWRCB) has established guidelines for classifying and reporting SSOs. Reporting and documentation requirements vary based on the type of SSO.

There are three categories of SSOs as defined by the SWRCB<sup>1</sup>:

**Table 5-1: Spill Categories and Definitions**

CATEGORIES	CATEGORY DEFINITIONS
<b>CATEGORY 1</b>	Discharges of untreated or partially treated wastewater of <b>any volume</b> resulting from an enrollee's sanitary sewer system failure or flow condition that: <ul style="list-style-type: none"> <li>• Reach surface water and/or reach a drainage channel tributary to a surface water, or</li> <li>• Reach a municipal separate storm sewer system 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 municipal separate storm sewer system is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or ground water infiltration basin (e.g., infiltration pit, percolation pond).</li> </ul>
<b>CATEGORY 2</b>	Discharges of untreated or partially treated wastewater of <b>1,000 gallons or greater</b> resulting from an enrollee's sanitary sewer system failure or flow condition that <b>do not</b> reach surface water, a drainage channel, or a municipal separate storm sewer system unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.
<b>CATEGORY 3</b>	All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.
<b>PRIVATE LATERAL SEWAGE DISCHARGE (PLSD)</b>	Discharges of untreated or partially treated wastewater resulting from blockages or other problems <b>within a privately owned sewer lateral</b> connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be <u>voluntarily</u> reported to the CIWQS Online SSO Database.

<sup>1</sup> Order No. WQ 2013-0058-EXEC (2013 amendment to Monitoring and Reporting Program associated with Order 2006-003-DWQ)..

## **5.2. Internal SSO Reporting Procedures**

### **5.2.1. Category 1 & 2 SSOs**

The Maintenance Service Center (working hours) or on-call staff (after hours) will immediately notify the Team Leader and Public Works Supervisor.

The field crew will fill out the SSO Report form and turn it in to the Team Leader. The Team Leader will forward the report to the Public Works Supervisor.

In the event of a Category 1 overflow or an overflow in a sensitive area, the Public Works Supervisor or the Public Works Maintenance Superintendent may notify the Public Works Coordinator and Public Works Director. The Public Works Director may notify the City Manager and City Council.

### **5.2.2. Category 3 SSOs**

The field crew will fill out the SSO Report form and turn it in to the Team Leader. The Team Leader will forward the report to the Public Works Supervisor.

## **5.3. External SSO Reporting Procedures**

The California Integrated Water Quality System (CIWQS) electronic reporting system should be used for reporting SSO information to the SWRCB whenever possible. A summary table on reporting procedures is included below in **Table 5-2**. A flow chart is included as **Figure 5-1** showing the external reporting response requirements based on the type of SSO.

If an SSO reaches one of the lagoon systems in the City or the Robert Crown State Beach shoreline, additional notification to the impacted homeowner association or EBRPD, respectively, is required (see contact list in **Appendix B**).

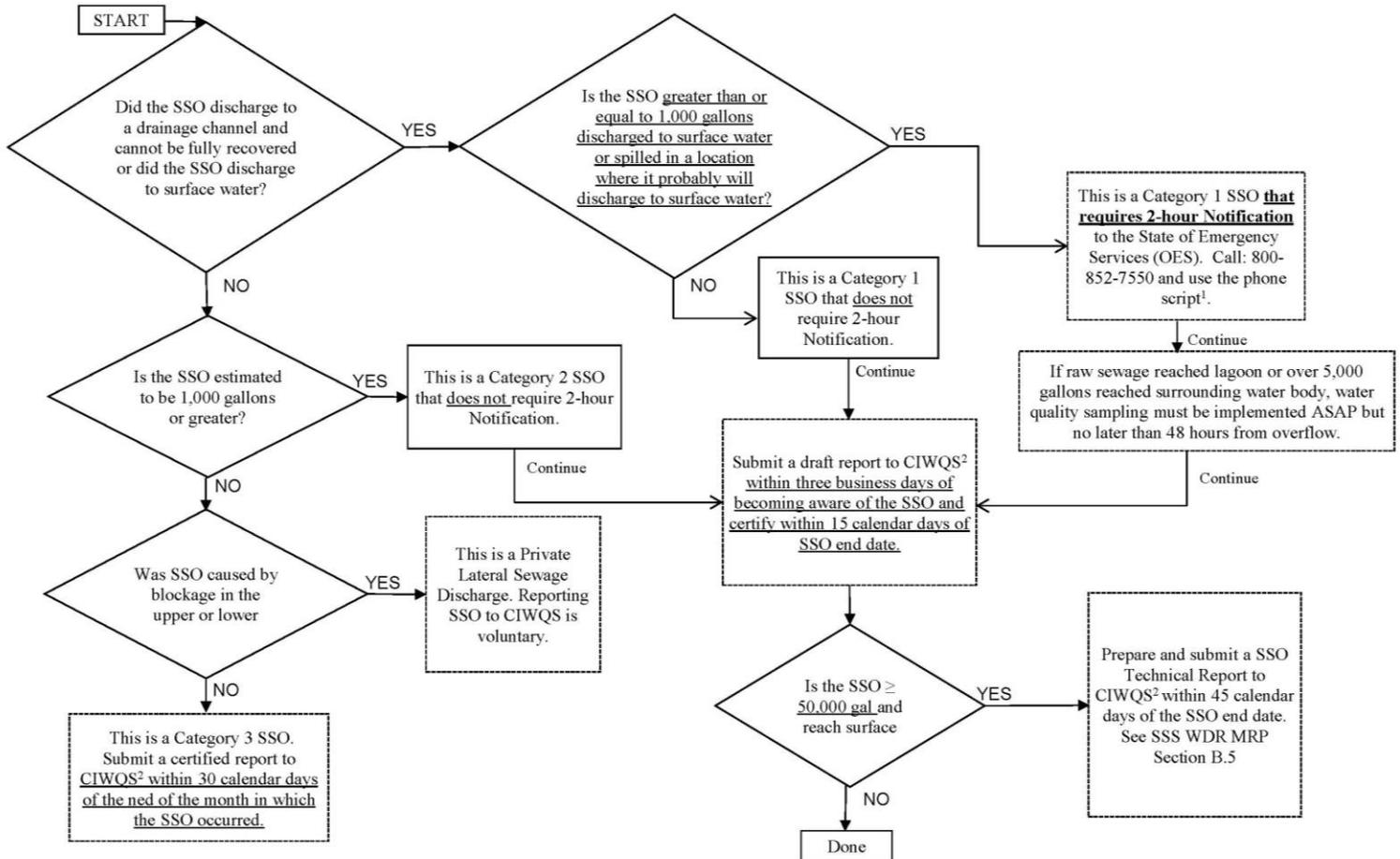
**Table 5-2: Notification, Reporting, Monitoring, and Record Keeping Requirements**

ELEMENT	REQUIREMENT	METHOD
<b>NOTIFICATION</b> (see Section B*)	<ul style="list-style-type: none"> <li>• Within 2 hours of becoming aware of any <b>Category 1 SSO greater than or equal to 1,000 gallons</b>, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.</li> </ul>	Call Cal OES at: <b>(800) 852-7550</b>
<b>REPORTING</b> (see Section C*)	<ul style="list-style-type: none"> <li>• <b>Category 1 SSO</b>: Submit Draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date.</li> <li>• <b>Category 2 SSO</b>: Submit Draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date.</li> <li>• <b>Category 3 SSO</b>: Submit Certified report within 30 calendar days of the end of month in which SSO occurred.</li> <li>• <b>SSO Technical Report</b>: Certify within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater is spilled to surface waters.</li> <li>• <b>“No Spill” Monthly Certification</b>: Certify that no SSOs occurred within 30 calendar days of the end of the month in which no SSOs occurred.</li> <li>• <b>Collection System Questionnaire</b>: Update and Certify every 12 months.</li> </ul>	Enter data into the California Integrated Water Quality System (CIWQS) Online SSO Database ( <a href="http://ciwqs.waterboards.ca.gov/">http://ciwqs.waterboards.ca.gov/</a> ), certified by enrollee’s Legally Responsible Official(s).
<b>WATER QUALITY MONITORING</b> (see Section D*)	<ul style="list-style-type: none"> <li>• Conduct water quality sampling <b>within 48 hours</b> after initial SSO notification for <b>Category 1 SSOs</b> in which <b>50,000 gallons or greater</b> is spilled to surface waters.</li> </ul>	Water quality results are required to be uploaded into CIWQS for <b>Category 1 SSOs in which 50,000 gallons or greater</b> is spilled to surface waters.
<b>RECORD KEEPING</b> (see Section E*)	<ul style="list-style-type: none"> <li>• SSO event records.</li> <li>• Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to SSMP.</li> <li>• Records to document <b>Water Quality Monitoring for SSOs of 50,000 gallons or greater</b> spilled to surface waters.</li> <li>• Collection system telemetry records if relied upon to document and/or estimate SSO Volume.</li> </ul>	Self-maintained records shall be available during inspections or upon request.

\*Refers to section in Order No. WQ 2013-0058-EXEC (2013 amendment to Monitoring and Reporting Program associated with Order 2006-003-DWQ).

**Figure 5-1: Regulatory Reporting Flow Chart**

**Sanitary Sewer Overflow Regulatory Notification and Reporting**



- NOTES:**
1. Notification Phone Script: "This is (name) from the City of Alameda. There has been a sanitary sewer overflow that requires notification to OES. The overflow occurred at (date, time, location) and the estimated amount of the overflow is (#gallons). A city crew was dispatched on site at (time) to alleviate the stoppage and mitigate impacts." Make sure you obtain a OES control number for the call. Also, note if surface water was impacted and a spill rate, if applicable.
  2. Report SSOs to CIWQS at <http://ciwqs.waterboards.ca.gov/>.

version September 2014

**5.3.1. Category 1 SSOs that reach Waters of the State**

If a Category I SSO results in a discharge to **waters of the State** (a drainage channel or a surface water, if not fully recovered), the following reporting requirements apply:

**Within two hours** of being notified of the spill event, the Public Works Supervisor, or their designee, will:

- Notify California Office of Emergency Services (CalOES) and obtain spill number for use in other reports;

**Within 3 business days** of being notified of the spill event, the Public Works Supervisor, or their designee, will submit a draft SSO report using CIWQS.

**Within 15 calendar days** of the SSO end date, the Public Works Superintendent, or their designee, will certify the final report using CIWQS.

The Public Works Superintendent, or their designee, will update the certified report as new or changed as information becomes available. Reports can only be amended within 120 calendar days after SSO end date. Amended report needs to be certified by the LRO.

### **5.3.2. Category 2 SSOs**

**Within 3 business days** of being notified of the spill event, the Public Works Supervisor, or their designee, will submit a draft SSO report using CIWQS.

**Within 15 calendar days** of the SSO end date, the Public Works Superintendent, or their designee, will certify the final report using CIWQS.

The Public Works Superintendent, or their designee, will update the certified report as new or changed information becomes available. Reports can only be amended within 120 calendar days after SSO end date. Amended report needs to be certified by the LRO.

### **5.3.3. Category 3 SSOs**

**Within 30 calendar days** after the end of the calendar month in which the SSO occurs, the Public Works Supervisor, or their designee, will submit an electronic report using CIWQS. The Public Works Superintendent, or their designee, will certify the report. The report will include the information to meet the GWDR requirements.

### **5.3.4. SSO Technical Report**

The City will submit an SSO Technical Report in the CIWQS Online SSO Database within 45 calendar days of the SSO end date for any SSO in which 50,000 gallons or greater are spilled to surface waters. This report will include the following:

#### **Causes and Circumstances of the SSO:**

- a) Complete and detailed explanation of how and when the SSO was discovered.
- b) Diagram showing the SSO failure point, appearance point(s), and final destination(s).
- c) Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.
- d) Detailed description of the cause(s) of the SSO.
- e) Copies of original field crew records used to document the SSO.
- f) Historical maintenance records for the failure location.

#### **City's Response to SSO:**

- a) Chronological narrative description of all actions taken by enrollee to terminate the spill.
- b) Explanation of how the City's OERP was implemented to respond to and mitigate the SSO.
- c) Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.

#### **Water Quality Monitoring:**

- a) Description of all water quality sampling activities conducted including analytical results and evaluation of the results.
- b) Detailed location map illustrating all water quality sampling points.

### **5.3.5. Private Lateral Sewage Discharges**

The Public Works Supervisor may report private lateral SSOs to the SWRCB (using CIWQS) **at the City's discretion**, specifying that the sewage discharge occurred and was caused by a private lateral and identifying the responsible party (other than the City), if known. Voluntary Private Lateral Sewage Discharge (PLSD) reports in CIWQS do not require certification.

### **5.3.6. No Spill Certification (Monthly)**

If there are no SSOs during the calendar month, the Public Works Supervisor will submit an electronic report that the City did not have any SSOs. The Public Works Superintendent or his/her designee will certify the report **within 30 calendar days after the end of each calendar month**.

### **5.3.7. CIWQS Not Available**

In the event that CIWQS is not available, the Public Works Supervisor will call the RWQCB Spill Hotline and leave a voice message with all required information in accordance with the time schedules identified above. In such event, the City will submit the appropriate reports using CIWQS as soon as practical. The RWQCB Spill Hotline is (510) 622-2369.

### **5.3.8. SSO enters Lagoon Systems**

Each of the lagoon systems under the City's management has gate barriers that separate the lagoon water from the Bay water body. The City can control these gates in order to contain the water or discharge the water to the Bay, and therefore has the capability to prevent any spilled wastewater from entering the Bay by keeping the gates closed. In the case of overflow to a lagoon, the City has a response plan that involves containment, drainage, and treatment of lagoon waters.

#### **5.3.8.1. South Shore Lagoon System**

In the event an SSO enters the South Shore Lagoon, the Public Works Supervisor will notify the Alameda West Home Owners Association (HOA) President.

Contact information is included in Appendix B of this OERP.

#### **5.3.8.2. Bay Farm Island Lagoon System**

In the event an SSO enters one of the Bay Farm Island Lagoons, the Public Works Supervisor will notify Harbor Bay Security. The Harbor Bay Security number is (510) 865-0417.

## **5.4. Internal SSO Documentation**

### **5.4.1. Category 1, 2, & 3 SSOs**

The first responder will complete a work order and the SSO Report form and provide copies to the Team Leader. The Team Leader will forward the report to the Public Works Supervisor.

The Public Works Supervisor will complete the Private Property Incident Form (**Appendix D**) if an SSO has occurred in a residence or building.

The Public Works Supervisor will create and maintain a file for each individual SSO. The file should include the following information:

- Initial service call information
- SSO Report form
- EBMUD Grease SSO and Blockage Reporting Form (if applicable)
- Copies of the CIWQS report forms
- Volume estimate
- Failure analysis investigation results

The following are for Category 1 and 2 SSOs, but optional for Category III SSOs:

- Appropriate maps showing the spill location
- Photographs of spill location
- Water quality sampling and test results, if applicable

#### **5.4.2. Private Lateral SSOs**

The first responder will complete the Private Property Incident Form and provide it to the Team Leader.

A separate file will be prepared for each individual SSO, at the Public Works Supervisor's discretion. The file should include any relevant information from the above list.

### **5.5. SSO Record Keeping Requirements<sup>2</sup>**

The GWDR and MRP require that individual SSO records be maintained by the City for a minimum of **five years** from the date of the SSO. This period may be extended when requested by a Regional Water Quality Control Board Executive Officer.

All records shall be made available for review upon SWRCB or RWQCB staff's request during on-site inspection or through an information request. Records shall be retained for all SSOs, including but not limited to the following when applicable:

- Service call records and complaint logs of calls received by the City, documenting how the City responded to all notifications of possible or actual SSOs (including complaints that do not result in SSOs), including:
  - Date, time, and method of notification
  - Date and time the complainant or informant first noticed the SSO
  - Narrative description of the complaint, including any information the caller can provide regarding whether or not he/she knows if the SSO has reached surface waters, drainage channels, or storm drains
  - Follow-up return contact information for complainant or informant for each complaint received, if not reported anonymously

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<sup>2</sup> State Water Resources Control Board Monitoring and Reporting Program No. 2006-0003-DWQ (as revised by Order No. WQ 2008-0002.EXEC and WQ 2013-0058-EXEC), Statewide General Waste Discharge Requirements for Sanitary Sewer Systems

- Final resolution of the complaint;
- Electronic monitoring records relied upon for documenting SSO events and/or estimating SSO volume discharged, including:
  - Supervisory Control and Data Acquisition (SCADA) systems
  - Alarm systems
  - Flow monitoring devices or other instruments used to estimate wastewater levels, flow rates, or volumes
- Records documenting steps and/or remedial actions take to control and terminate the SSO and recover as much of the discharged volume as possible;
- Records documenting how estimates of volume discharged and volume recovered were calculated.

If water quality samples are required by an environmental or health regulatory agency or State law or if voluntary monitoring is conducted by the City or its agent(s) as a result of any SSO, records of monitoring information shall include:

- The date, exact place, and time of sampling or measurements;
- The individual(s) who performed the sampling or measurements;
- The date(s) analyses were performed;
- The individual(s) who performed the analyses;
- The analytical technique or method used; and
- The results of such analyses.

## **5.6. Post SSO Event Debriefing**

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

As soon as possible after major SSO events, all of the participants, from the person who received the call to the last person to leave the site, should meet to review the procedures used and to discuss what worked and where improvements could be made in responding to and mitigating future SSO events. The results of the debriefing should be recorded and tracked to ensure the action items are completed. Items that have been reviewed in the past include methodologies for spill volume estimation and successful staging for adequate containment and cleaning.

## **Section 6. Equipment**

This section provides a list of specialized equipment that is required to support this Overflow Emergency Response Plan. The City has recently acquired a dedicated SSO Response Vehicle to improve its response capabilities. A more detailed list of SSO response equipment used for SSO response is provided in **Appendix H**.

***Closed Circuit Television (CCTV) Inspection Unit*** – A CCTV Inspection Unit is required to determine the root cause for all SSOs from gravity sewers.

***Camera*** -- A digital or disposable camera is required to record the conditions upon arrival, during clean up, and upon departure.

***Emergency Response Truck*** -- A utility body pickup truck is required to store and transport the equipment needed to effectively respond to sewer emergencies (backups). The equipment and tools should include containment and clean up materials.

***Global Positioning System (GPS) Unit*** -- A hand held GPS unit is required to determine the coordinates of spills for use in meeting RWQCB SSO reporting requirements.

***Portable Generators, Portable Pumps, Piping, and Hoses*** -- The list of portable equipment that is required to support this plan is included in the Sewer System Management Plan.

***Combination Sewer Cleaning Truck*** -- A combination high velocity sewer cleaning truck with vacuum tank is required to clear blockages in gravity sewers, vacuum spilled sewage, and wash down the impacted area following the SSO event.

***Backup Combination Vector Trucks*** – Also used to vacuum spilled sewage and wash down the impacted area following the SSO event.

## **Section 7. SSO Response Training**

This section provides information on the training that is required to support this Overflow Emergency Response Plan.

### ***7.1. Initial and Annual Refresher Training***

All City personnel who may have a role in responding to, reporting, and/or mitigating a sewer system overflow should receive training on the contents of this OERP. All new employees should receive training before they are placed in a position where they may have to respond. Current employees should receive annual refresher training on this plan and the procedures to be followed. Refresher trainings are typically scheduled for the June of every year. Any contractors utilized to respond to SSOs are required to comply with all legal requirements associate with SSO responses and have knowledge of the City's response procedures and requirements.

### ***7.2. SSO Response Drills***

Periodic training drills should be held to ensure that employees are up-to-date on the procedures, the equipment is in working order, and the required materials are readily available. The training drills should cover scenarios typically observed during sewer-related emergencies (e.g. mainline blockage, mainline failure, force main failure, pump station failure, and lateral blockage). The results and the observations during the drills should be recorded and action items should be tracked to ensure completion.

### ***7.3. SSO Training Record Keeping***

Records should be kept of all training that is provided in support of this plan. The records for all scheduled training courses and for each overflow emergency response training event and should include date, time, place, content, name of trainer(s), and names of attendees.

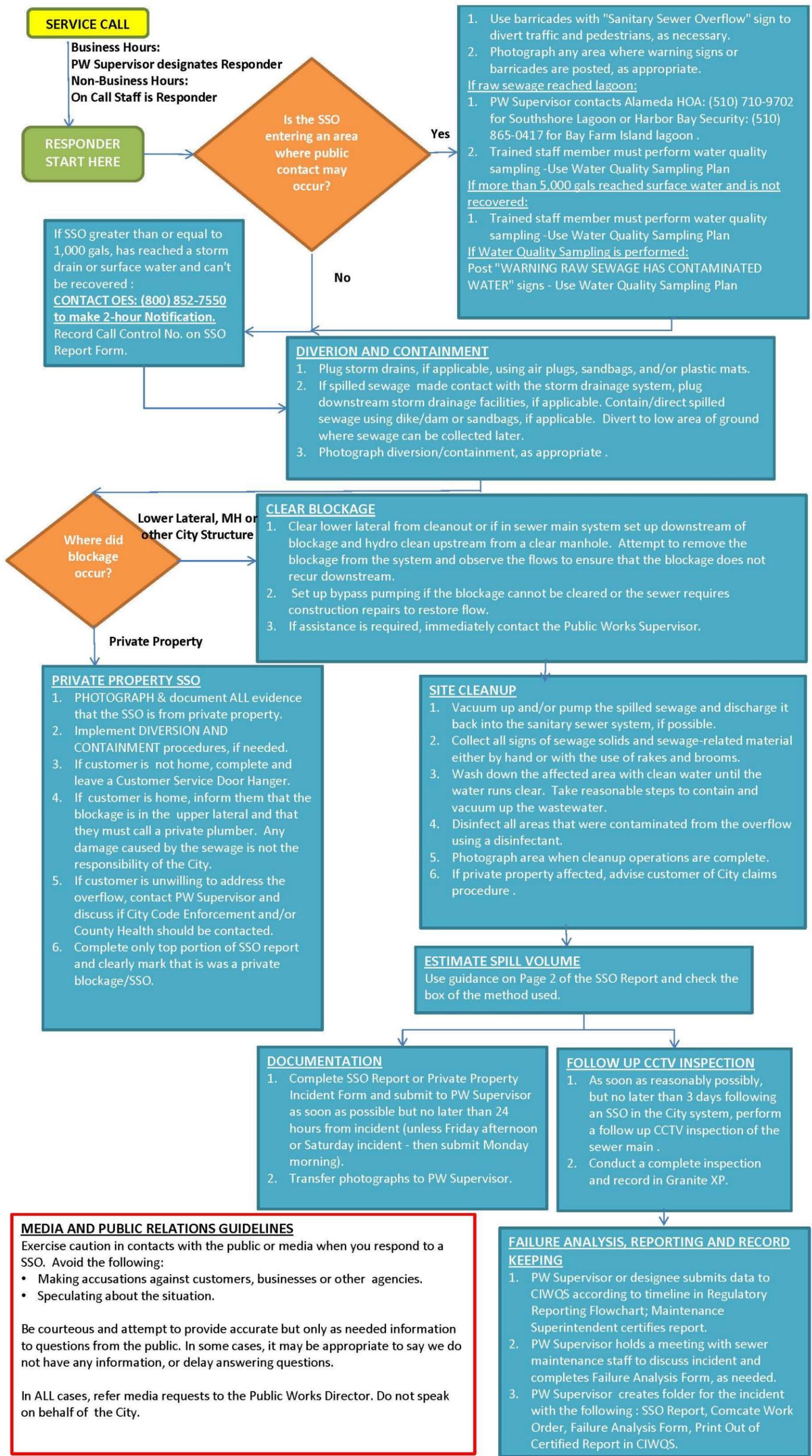
### ***7.4. Contractors Working on City Sewer Facilities***

All contractors working on City sewer facilities will be required to develop a project-specific OERP that is subject to City approval. All contractor personnel will be required to receive training in the contractor's OERP and to follow that OERP in the event that they cause or observe an SSO.

## **Appendices**

- A: SSO Standard Operating Procedure**
- B: Emergency Contact List**
- C: SSO Report Form**
- D: Private Property Incident Form**
- E: Collection System Failure Analysis Form**
- F: Duration and Flowrate Method for Estimating Spill Volume**
- G: Sample Warning Signs**
- H: SSO Response Equipment**
- I: Water Quality Monitoring Plan Program**

# Appendix A: SSO Standard Operating Procedure



This SOP is intended only as a condensed version of the procedures in the Overflow Emergency Response Plan

Alameda\_Sewer Emergency Response September 2014



## Appendix B: Emergency Contact List

<b>City of Alameda</b>	
Public Works Director: Bob Haun	(510) 747-7979; cell (510) 504-8905
Public Works Coordinator: Erin Smith	(510) 747-7938; cell (415) 812-3746
Public Works Maintenance Superintendent: Jesse Barajas	(510) 747-7924; cell (510) 846-5139
Public Works Supervisor: Max Arbios	(510) 747-7922; cell (510) 919-9326
Sewer Shop Team Leader: Patrick Papalagi	(510) 747-7900; cell (510) 908-3520
Plumbing Shop Team Leader: Victor Erdei	(510) 747-7900; cell (510) 506-6146
<b>San Francisco Bay Regional Water Quality Control Board</b>	
Michael Chee	(510) 622-2312 (Monday-Friday, 8am-5pm)
Spill Hotline (only if electronic reporting not available)	(510) 622-2369 (leave message with spill information)
<b>California Office of Emergency Services</b>	
Hazardous Spills Notification	(800) 852-7550
Randy Schullely, Chief of Warning Center	(916) 845-8911
<b>California Department of Fish and Wildlife</b>	
Bay Delta Regional Office	(707) 944-5500
<b>East Bay Regional Parks District</b>	
Public Safety Dispatch	(510) 881-1833
Hal Maclean ( <a href="mailto:hmaclean@ebparks.org">hmaclean@ebparks.org</a> )	(510) 285-7627
<b>East Bay Municipal Utilities District (EBMUD)</b>	
Nadia Borisova, FOG Program Coordinator	(510) 287-1065
<b>Water Quality Sampling (EBMUD Laboratories)</b>	
Monday-Friday, 8am-4:30pm	(510) 287-1796
After Hours	Ken Gerstman (415) 309-0782
Laboratory Address	2020 Wake Avenue Oakland, CA
<b>Alameda West Home Owners Association</b>	
President, Chad Kassirer	(510) 710-9702
<b>Bay Farm Island Lagoons</b>	
Harbor Bay Security	(510) 865-0417
<b>National Response Corporation</b>	
National Response Corporation	(510) 749-1390

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# Appendix C: SSO Report Form

CITY OF ALAMEDA, CA  
SANITARY SEWER OVERFLOW REPORT

1. Comcate Work Order ID: \_\_\_\_\_ Date of Notification: \_\_\_\_\_ Time of Notification \_\_\_\_\_ AM/PM
  2. Problem reported by: \_\_\_\_\_ Phone #: \_\_\_\_\_ Address of Problem: \_\_\_\_\_
  3. What was the Reported Problem/Situation: \_\_\_\_\_
  4. Spill/Blockage Appearance Point:  
 Building or structure  Upper lateral/bldg. cleanout  Lower lateral/ curb cleanout  
 Mainline  Manhole  Other System Structure  Other (Specify): \_\_\_\_\_
  5. Where did the Failure Occur: \_\_\_\_\_
  6. Is 2-hour Reporting to OES required? Y / N (Use Reporting Flow Chart)
  7. If OES contacted, Date of Call: \_\_\_\_\_ Time of Call: \_\_\_\_\_ Control No. \_\_\_\_\_
  8. Was all of the wastewater fully captured and returned to the sanitary sewer system? Y / N / NA
  9. Final Destination of Overflow:  
 Building or structure  Unpaved surface  Street/Curb/Gutter  Other Paved Surface  
 Storm drain system; if so was it fully recovered? Y / N  
 Surface Water (creek, the Bay, etc.) (if so, estimated vol. that reached surface water: \_\_\_\_\_ gallons)  
 Other (Specify) \_\_\_\_\_
  10. Estimated volume of overflow: \_\_\_\_\_ gals 10a. Is the Volume Estimation (Page 2) Complete: Y / N
  11. Estimated volume of overflow recovered: \_\_\_\_\_ gals
  12. Estimated overflow start DATE: \_\_\_\_\_ Estimated overflow start TIME: \_\_\_\_\_ AM/PM
  13. Estimated DATE operator arrived at scene: \_\_\_\_\_ Estimated TIME arrived at scene: \_\_\_\_\_ AM/PM
  14. Estimated overflow end DATE: \_\_\_\_\_ Estimated overflow end TIME: \_\_\_\_\_ AM/PM
  15. If a main line overflow, what is the diameter and material of pipe that failed: \_\_\_\_\_
  16. Response Activities (check all that apply):  
 Restored Flow  Contained all or portion of spill  Returned all or portion of spill to sewer system  
 Inspected Sewer with CCTV  Site Cleaned-Up  Signs Posted  Barricades Placed
  17. Number of photos taken: \_\_\_\_\_ (try to document initial volume and site after cleanup)
  18. Determination of Overflow Cause (check all that apply and circle predominant cause):  
 Grease/FOG  Operator error  Pipe problem/failure  Vandalism  Roots  Debris-General  
 Debris-Rags  Flow exceeded capacity  Other (Specify): \_\_\_\_\_
  19. Follow up Activities:  
 CCTV  Increased Maintenance  Emergency Repair  Asset Failure Analysis  
 Other (Specify): \_\_\_\_\_
  20. Notes: \_\_\_\_\_
  21. Crew Name(s) and Hours: \_\_\_\_\_
  22. Form Completed By: \_\_\_\_\_ Date: \_\_\_\_\_
- Report Entry In CIWQS By : \_\_\_\_\_ Date: \_\_\_\_\_ CIWQS Event ID: \_\_\_\_\_  
Certification In CIWQS By: \_\_\_\_\_ Date: \_\_\_\_\_

## Methods for Estimating Spill Volume

The person preparing the SSO volume estimate should use the method most appropriate to the sewer overflow in question and use the best information available. Please check the method used and include any calculations, drawings and notes.

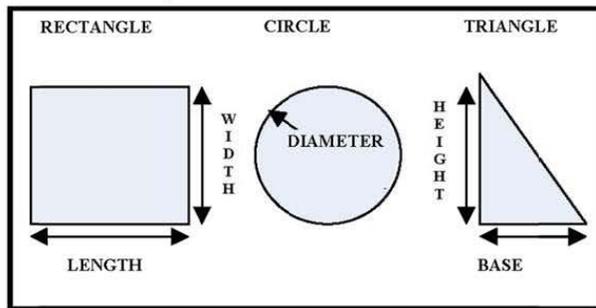
### ☐ Method 1 Eyeball Estimate

The volume of small overflows can be estimated using an “eyeball estimate”. To use this method imagine the amount of water that would spill from a bucket or a barrel. A bucket contains 5 gallons and a barrel contains 50 gallons. If the overflow is larger than 50 gallons, try to break the standing water into barrels and then multiply by 50 gallons. **This method is useful for contained overflows up to approximately 200 gallons.**

### ☐ Method 2 Measured Volume

This method can be used to estimate the volume of most small overflows that have been contained. The shape, dimensions, and the depth of the contained wastewater are needed. **SHOW ALL WORK INVOLVED IN CALCULATION.**

#### Common Shapes and Dimensions



Step 1 Sketch the shape of the contained sewage (see figure above).

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:

Rectangle: Area = length (feet) x width (feet)

Circle: Area = diameter (feet) x diameter (feet) x 0.79

Triangle: Area = base (feet) x height (feet) x 0.5

Step 6 Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet.

Step 7 Multiply the volume in cubic feet by 7.5 to convert it to gallons

Step 8 Write all computations down and attach them to this document.

### ☐ Method 3 Duration and Flowrate

Calculating the volume of larger overflows, where it is difficult or impossible to measure the area and depth, may require a different approach. See separate Duration and Flow Rate Worksheet (Appendix F of OERP).

## Appendix D: Private Property Incident Form

SEWER BLOCKAGE IN CITY SYSTEM - PRIVATE PROPERTY INCIDENT FORM		
Complete if blockage was in City system and caused an overflow in a building/private property.		
City Staff Arrived on-site: / /	Time: :	AM/PM (circle)
Resident Name:	Property Owner/Manager Name:	
Street Address:	Mailing Address:	
City and Zip: Alameda,	City and Zip:	
Phone:	Phone:	
# Of Bathrooms:	# Rooms Affected:	SqFeet of Outside Area Affected :
Approx. Amount of Spilled Sewage on Private Property:	(gals)	# Pictures Taken:
Approx. Time Sewage was Sitting:	mins	
Building Clean Out:	<input type="checkbox"/> Non-Existent	<input type="checkbox"/> Full <input type="checkbox"/> Empty
Notes:	_____	
Lower Clean Out:	<input type="checkbox"/> Non-Existent	<input type="checkbox"/> Full <input type="checkbox"/> Empty
Notes:	_____	
Location of blockage:	<input type="checkbox"/> Street Main	<input type="checkbox"/> Easement Main <input type="checkbox"/> MH# _____
	<input type="checkbox"/> Other:	Notes: _____
Damage From:	<input type="checkbox"/> Black Water	<input type="checkbox"/> Grey Water <input type="checkbox"/> Fresh Water
Cleaning Co. Contacted by Owner:	<input type="checkbox"/> No <input type="checkbox"/> Yes	Time Called: : AM/PM Time Arrived: : AM/PM
Cleaning Co. Name and Contact:		
Is first MH upstream from blockage visibly higher than Private Lateral/CO:	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Is Finished Floor 12" or Below Nearest Upstream MH:	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Does Affected Private Property have Backflow Prevention Device:	<input type="checkbox"/> No	<input type="checkbox"/> Yes
If Yes, Was Backflow Prevention Device Operational at time of incident:	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Type of Flooring in the Areas Affected:		
<input type="checkbox"/> Tile	<input type="checkbox"/> Carpet	<input type="checkbox"/> Wood <input type="checkbox"/> Other: _____
Describe Condition:		
Are there Baseboards:	<input type="checkbox"/> No	<input type="checkbox"/> Yes Material: _____
<input type="checkbox"/> Baseboard Bottom has Tight Seal with Floor	<input type="checkbox"/> Baseboard top has Tight Seal with Wall	
<input type="checkbox"/> Baseboard has Space Between Bottom & Floor	<input type="checkbox"/> Baseboard has Space Between Baseboard & Wall	
Has the Resident had any Plumbing Done Recently:	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> Unknown
Any Active Plumbing Projects Observed:	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Has the Area Been Remodeled:	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> Unknown
Has there been any previous spills at this location:	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> Unknown
Additional Information: _____		
Form Completed By: _____ Form Reviewed By: _____ Date: / /		

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# Appendix E: Collection System Failure Analysis Form

<b>COLLECTION SYSTEM FAILURE ANALYSIS FORM</b> Complete form as follow-up to a SSO incident.			
Comcate #:		Form Prepared by:	
Location of SSO:		Mainline ID:	
Total SSO Volume:	(gals)	Volume Recovered:	(gals)
SSO Cause: <input type="checkbox"/> Roots <input type="checkbox"/> Debris <input type="checkbox"/> FOG <input type="checkbox"/> Vandalism <input type="checkbox"/> Pipe Failure <input type="checkbox"/> Capacity <input type="checkbox"/> Pump Station Failure <input type="checkbox"/> Power Failure <input type="checkbox"/> Other: _____			
When was Affected Mainline Last Cleaned:			
<b>Summary of Historical SSOs, Backups, Service Calls, Other Problems</b>			
Records Reviewed By: _____		Record Review Date: _____	
Event Date	Cause/Problem	Date Previously Cleaned	Crew Responding to Call
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
<b>Summary of CCTV Information</b>			
CCTV Inspection Date: _____			
Applicable CCTV Observations: _____			
<b>Recommendations</b> (For each recommendation, include responsible person for implementation and completion deadline)			
<input type="checkbox"/> No Changes or Repairs Required			
<input type="checkbox"/> Change in Maintenance Frequency _____			
<input type="checkbox"/> Repair (Location and Type): _____			
<input type="checkbox"/> Add to Capital Improvement /Replacement List: _____			
<input type="checkbox"/> Change to Overflow Response Procedures: _____			
<input type="checkbox"/> Training: _____			
<input type="checkbox"/> Other: _____			
Additional Information: _____			
_____			
_____			
Form Reviewed By:		Review Date:    /    /	

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## Appendix F: Duration and Flowrate Method for Estimating Spill Volume

Calculating the volume of larger spills, where it is difficult or impossible to measure the area and depth, requires a different approach. In this method, separate estimates are made of the duration of the spill and the flowrate. The methods of estimating duration and flowrate are:

**Duration:** The duration is the elapsed time from the time the spill started to the time that the flow was restored.

**Start time:** The start time is sometimes difficult to establish. Here are some approaches:

1. Local residents can be used to establish start time. Inquire as to their observations. Spills that occur in rights-of-way are usually observed and reported promptly. Spills that occur out of the public view can go on longer. Sometimes observations like odors or sounds (e.g. water running in a normally dry creek bed) can be used to estimate the start time.
2. Changes in flow on a downstream flowmeter can be used to establish the start time. Typically the daily flow peaks are “cut off” or flattened by the loss of flow. This can be identified by comparing hourly flow data during the spill event with flow data from prior days.
3. Conditions at the spill site change over time. Initially there will be limited deposits of toilet paper and other sewage solids. After a few days to a week, the sewage solids form a light-colored residue. After a few weeks to a month, the sewage solids turn dark. The quantity of toilet paper and other materials of sewage origin increase over time. These observations can be used to estimate the start time in the absence of other information. Taking photographs to document the observations can be helpful if questions arise later in the process.
4. It is important to remember that spills may not be continuous. Blockages are not usually complete (some flow continues). In this case the spill would occur during the peak flow periods (typically 10:00 to 12:00 and 13:00 to 16:00 each day). Spills that occur due to peak flows in excess of capacity will occur only during, and for a short period after, heavy rainfall.

**End time:** The end time is usually much easier to establish. 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 flowmeters.

**Flow Rate:** The flowrate is the average flow that left the sewer system during the time of the spill. Estimate the flow rate based on the upstream connections. Once the location of the spill 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.

For example: 22 upstream connections x 9 gallons per hour per connection  
= 198 gallons per hour / 60 minutes per hour  
= 3.3 gallons per minute

**Spill Volume:** Once duration and flowrate have been estimated, the volume of the spill is the product of the duration in hours or days and the flowrate in gallons per hour or gallons per day.

For example: Spill start time = 11:00

Spill end time = 14:00

Spill duration = 3 hours

3.3 gallons per minute x 3 hours x 60 minutes per hour

= 594 gallons

Appendix G: Sample Warning Signs

# DANGER

## RAW SEWAGE HAS CONTAMINATED WATER

CONTACT MAY CAUSE ILLNESS

Keep Children and pets out of this area.



# PELIGRO

## AGUA CONTAMINADA

CONTACTO CON EL AGUA  
PUEDE CAUSAR ENFERMEDADES

Mantenga niños y mascotas fuera de esta área.

	<p>For more information – Para más información Contact: City of Alameda Department of Public Works (510) 747-7900</p>
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## Appendix H: SSO Response Equipment

- SSO Response Vehicle
  - Cab (one each unless noted)
    - SSO response book
    - Overflow Emergency Response Plan
    - Sewer map book
    - Storm map book
    - GPS unit hand held
    - Digital camera/Flashcard
    - 4 pack AA batteries
    - 2- Flash lights
    - Potable flood light (lighter adapter)
    - Lab Kit (EBMUD) with sample instructions
  - Cargo Area (one each unless noted)
    - First aid kit
    - 2-Box latex glove/ work gloves
    - 2" electric submersible pump ( Electric)
    - 2" Trash Pump ( Gas)
    - Fuels can (2.5 Gal)
    - 2- 20 feet 2 "suction hose
    - 2- 50 feet 2' discharge hose
    - Pig drain inlet blanket
    - Foss spill kit
    - 20- Sand bags
    - 2- Rolls 6 mil plastic 20' x 100 '
    - 8-12" pneumatic plug
    - 12-18" pneumatic plug
    - 10" mechanical plug
    - Speed air 5 gal 125 psi air tank
    - 1 ea-Round point shovel/ square shovel
    - 2- Push brooms
    - 2-Rolls caution tape 100 '
    - 4-Type 1 Barricade with reflective SSO sign attached
    - 20- 18" reflective cones
    - Generator Honda 2000 inverter
    - 2- 50" extension cords
    - 2- Portable light standards
    - Dechlor tabs

- Vac-Con Jetter / Vacuum
- Utility Truck (F-450)
- Mini Pick-Up (Ranger)
- Utility Truck (C-30)
- Wakers (2 ea)
- (2) Emergency Bypass Pump
- Emergency Lighting
- Gas Generators (4 ea)
- Sewer Snakes (4 ea)
- CCTV Lateral cameras (2 ea)
- Pipe Locator
- Standby Generator (2ea)
- Portable Generator (2ea)

# Appendix I: Water Quality Monitoring Program Plan

## Water Quality Monitoring – Key Elements

- **Trigger for Sampling.** Water quality sampling must be performed for sanitary sewer overflows (SSOs) that reach a lagoon in the City or if greater than 5,000 gallons 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 may include, but are not limited to, slippery and/or steep stream banks. When sampling is not possible due to safety considerations or access restrictions, document the conditions in writing and with photos if 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 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).
- **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. Consult with appropriate Environmental Health Department or local Fish & Wildlife representative if necessary.

## Water Quality Sampling – Protocol

### **SSO Sample Collection Kit Inventory:**

- Cooler
- Ice Packs (stored in freezer)
- 3 or more sample bottles for ammonia, labeled PLSTM
- 6 or more sample bottles for bacterial indicators, labeled BACTL
- Safety gloves
- Safety glasses
- Thermometer
- Laboratory Chain of Custody form (copy attached)
- Pen

### **Sampling Parameters:**

- Ammonia
- Bacterial indicators
  - Total coliform
  - Fecal coliform
  - Enterococcus bacteria

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

- Upstream of SSO<sup>3</sup>
- Immediate vicinity where SSO enters water body (“source”)
- Downstream of SSO<sup>3</sup>
- Sensitive locations as directed by City Environmental Health or others.

**Sample Collection Procedure:**

- 1) Retrieve SSO Sample Collection Kit (cooler and sample bags containing sample bottles for wastewater). Place an appropriate ID label on each bottle.
- 2) Obtain two ice packs from freezer and 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 or other factors, another method may be used to determine the “source” location at the discretion of the Legally Responsible Party (LRO).
- 6) **Upstream Sample Collection.** Collect the upstream samples first. Move approximately one hundred feet (100’) upstream of Source location.
  - a. Take a photo of the sample location, including a reference point in the photo. A diagram showing sample location may also be helpful.
  - b. Label the sample bottles with the location ID (description).
  - c. Put on safety gloves and safety glasses from the SSO Sample Collection Kit.
  - d. Remove the container cap without touching the inner surface, lip, or neck of the bottle. At each collection point, fill the three labeled bottles against the direction of the water flow, well away from the bank. Avoid sampling debris or scum layer from the surface. Fill without rinsing or splashing, and leave some air space in the bottle for mixing. Replace cap immediately after filling.

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<sup>3</sup> 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> >.

- e. Discard and re-sample if it is determined that the sample is not representative. Use a new bottle; do not use the same bottle to collect a re-sample.
- f. Place each sample bottle in zip-lock bag into the cooler after collection.
- g. Samples should be transported to the EBMUD Laboratory as soon as reasonably possible. The holding time for wastewater and receiving water samples is 6 hours.

**Source Sample Collection:** Collect the “source” samples next. Move approximately ten feet (10’) downstream of the Source location. Label the sample bottles with the location ID (description). Repeat steps above.

**Downstream Sample Collection:** Lastly, collect the downstream sample. Move one hundred feet (100’) downstream of the source location. Label the sample bottles with the location ID (description). Repeat steps above.

- 7) Complete a Chain of Custody form for each sample location. Be sure to complete *Sampled By*, *Sample Date and Time*, and *Sample from* (location). The location description must match that written on the sample bottle. Note: If you designate someone else to deliver the sample to the lab, then sign on the *Relinquished by* line and write the person’s name in the *Received by* line. That person would then sign on the next *Relinquished by* line when the samples are delivered to the EBMUD lab. This final field should be completed at the time the samples are dropped off.
- 8) Transport the cooler containing the samples and the completed Water Sample Form to the EBMUD Lab as soon as 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.

**Delivery to EBMUD Laboratory**

- 1. Contact the EBMUD Laboratory before dropping the samples off.
  - During normal business hours (8-4:30 M-F), contact:  
510-287-1796
  - During non-standard business hours, contact:  
Ken Gerstman - (415) 309-0782
- 2. Deliver the samples to the EBMUD Laboratory no longer than 6 hours from taking the samples:
  - 2020 Wake Ave
  - Oakland, CA 94607
  - (once through the gate, follow the signs to the left for Sample Receiving)
- 3. If it is non-standard business hours, use the refrigerator in the night drop room.
- 4. If it is between 8AM-4:30PM on the weekend, enter the laboratory through the night drop room (door is to the right of the main entrance to Sample Receiving) and use the phone on the wall to page a staff member (x 1571).
- 5. Complete the “Relinquished by” field on the Chain of Custody form with the individual who dropped the sample off at the EBMUD lab.

6. The standard turn-around time for laboratory results is 21 days. At the time of drop off - you must request a Rush Turn-Around Time of 10 days.
  
- 9) Restock the SSO Sample Collection Kit with the items listed on page 1.
- 10) After the analyses have been performed (see “Water Quality Analyses Protocols” below) and the results have been reviewed and finalized, check if any of the following conditions are satisfied:
  - Both the ammonia and bacteria levels downstream are approximately equal to or less than the upstream levels; or
  - The concentration of un-ionized ammonia is below 0.16 mg/l as N; or
  - The concentration of bacterial indicator levels are below the appropriate water quality objectives listed in the table below, which was excerpted from the Basin Plan. (Note: If you are unsure which beneficial uses apply to the water body, or the water body does not have beneficial uses listed in the June 2013 Basin Plan, use the enterococcus bacteria indicator, since it is the most human-specific pathogen of the options.)

**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)	
			Estuarine and Marine	Fresh Water
Water Contact Recreation	90th percentile < 400	no sample > 10,000	no sample > 104	Max at 89
Shellfish Harvesting	90th percentile < 43	90th percentile < 230	--	--
Non-contact Water Recreation	90th percentile < 4,000	--	--	--

As soon as one of the above conditions is 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 water body.

**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 Samples to Lab Immediately.** 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***

Water quality analyses are performed by an accredited Laboratory. The methods will be performed according to the laboratory's Standard Operating Procedures (SOPs).

### ***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 laboratory's SOPs to ensure their continued accuracy. The SSO Sample Collection Kit is checked by Public Works staff at least every 6 months and sample bottles are changed.

### **Reporting Requirements**

The LRO 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 LRO 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

# EBMUD Laboratory Chain of Custody Form

East Bay Municipal Utility District  
Laboratory Services Chain of Custody Record

Page 1 of 1

Prelog or Login No.: T887	Project Title ANALYTICAL SUPPORT FOR CITY OF ALAMEDA Account or Project: E051-0606-1	Client PM: MAX ARBIOS Tel No.: (510) 747-7922 Lab PM: KENNETH GERSTMAN	Sampled by: [REDACTED] Rcvd: [REDACTED] Sample Date: [REDACTED]
---------------------------	--------------------------------------------------------------------------------------------	------------------------------------------------------------------------------	-----------------------------------------------------------------------

Lab No.	Sample Type	Time	Site	Locator	Sample Matrix	Tests Required	Container ID Barcode	Chemical Preservative	Date pH	DueDate Initials
T887-1	GRAB	[REDACTED]	MISC	MISC	WasteH2O	AMMONIA: TITR COLI:MF SM 9222B;COLILERT 18 Q-T ENT:MF EPA 1600 MEI +REPORT		PLSTM Y BACTL Y BACTL Y		

ClientID: [REDACTED]  
Sample Comments: City of Alameda; Sample from: [REDACTED] Pricing: STD

Total containers received: 3

Signature	Print Name	Time	Date	Sample Type Descriptions:
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	GRAB - Instantaneous Grab
				Container Type Descriptions: PLSTM - Plastic, WM, 500 mL BACTL - Plastic, sterile, Na2S2O3, 290 mL
Relinquished by				
Received by				
Relinquished by				
Received by				
Relinquished by				
Received by				

Samples will be retained beyond the approval process only if requested by t

**EBMUD LAB SERVICES**

**T887-1**

S/L: MISC/MISC  
ENT:MF EPA 1600 MEI

**ID**

DATE: NONE [J]N03 [J]H2S04 [J]Na2S203  
PH  
[J]NaOH [J]HCl [J]OTHER  
COM: City of Alameda; Sample from:  
TYPE: Plastic, sterile, Na2S203  
BACTL - 290 mL MAT: 02 BOTTLE 2 of 1

**EBMUD LAB SERVICES**

**T887-1**

S/L: MISC/MISC  
COLI:MF SM 9222B  
COLILERT 18 Q-T

**ID**

DATE: NONE [J]N03 [J]H2S04 [J]Na2S203  
PH  
[J]NaOH [J]HCl [J]OTHER  
COM: City of Alameda; Sample from:  
TYPE: Plastic, sterile, Na2S203  
BACTL - 290 mL MAT: 02 BOTTLE 1 of 1

**EBMUD LAB SERVICES**

**T887-1**

S/L: MISC/MISC  
AMMONIA: TITR

**ID**

DATE: NONE [J]N03 [J]H2S04 [J]Na2S203  
PH  
[J]NaOH [J]HCl [J]OTHER  
COM: City of Alameda; Sample from:  
TYPE: Plastic, sterile, Na2S203  
PLSTM - 500 mL MAT: 02 BOTTLE 1 of 1

# Appendix J: Door Hanger

## City of Alameda

On (date) \_\_\_\_\_, at (location)

\_\_\_\_\_,  
we responded to a blockage of the sanitary sewer service near this residence.

We discovered a blockage in:

- The sanitary sewer main and cleared the line
- The lower lateral and cleared the line.
- The upper lateral, which is your responsibility to maintain.

If you require assistance to clear your portion of the lateral you can look in the Yellow Pages of your telephone book under "Sewer Contractors" or "Plumbing Drains & Sewer Cleaning". If you plan to hire a contractor we recommend getting estimates from more than one company.

City of Alameda representative notes: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

City of Alameda Representative: \_\_\_\_\_

**For questions or comments, please call  
City of Alameda Public Works  
(510) 747-7900**



## City of Alameda

On (date) \_\_\_\_\_, at (location)

\_\_\_\_\_,  
we responded to a blockage of the sanitary sewer service near this residence.

We discovered a blockage in:

- The sanitary sewer main and cleared the line
- The lower lateral and cleared the line.
- The upper lateral, which is your responsibility to maintain

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City of Alameda representative notes: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

City of Alameda Representative: \_\_\_\_\_

**For questions or comments, please call  
City of Alameda Public Works  
(510) 747-7900**

