APPENDIX Q2

SSO Response SOP

Revision History			
Revision	**Date**	**Approval**	**Reason**
0	12/16/09	J. Gonzalez	Original
	09/26/19	Jms. Cabral	• Reviewed – no changes
	09/26/22	Jms Cabral	• Reviewed – no changes
1	07/19/23	D. Stokes	• Reviewed – made changes according to 2022 SSS WDR Order.
2	3/11/25	EEC	• Updated per 2022 WDR Order
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COL-SOP-50-001	Sewer Spill Response	
Standard Operating Procedure (SOP)	Collections	Date: 5/28/25
Area – Collections System	Location: OC San Service Area	
Orange County Sanitation District	Approved By: Don Stokes Collections Manager	

Task Description: Responding to a Sewer Spill.

C - A - U - T - I - O - N
The SOP is subject to variations dependent on conditions and maintenance that may be occurring. Staff are encouraged to exercise judgement within the duty of care expectation. If you have questions or concerns consult with Supervision.

Overview

This SOP details the tasks performed in response to a sanitary sewer spill. The response is designed to protect the public's health and safety, minimize the impact to the environment, and satisfy all regulatory agency reporting and the Waste Discharge Requirement (WDR).

Safety & Other Precautions

- Notify Control Center upon arrival.
- Traffic Control (cones, delineators, arrow board, etc.)
- Personal Protective Equipment (PPE)
- Direct Reading Air Monitoring Equipment (Max XT II)
- Slip and Fall Danger (especially when working with sewage over bare soil surfaces, slopes and around water ways)
- Open Manhole Hazards
- Site Control

Tools & Equipment Needed

- Hand Tools
- Traffic Control Equipment
- Air Monitoring Equipment
- Handheld Radios
- Personal Protective Equipment (PPE)
- Spill Containment Materials (rubber mats, absorbent pillows, booms, etc.)
- Debris Catching Equipment (Rake)
- Camera
- Cleaning Materials (Broom, Shovel, Hoses, etc.)
- Notebook
- Combination Sewer Cleaning Truck (combo truck)
- Trunk Sewer Atlas - GIS
- Field Spill Report Form

Step 1: Notification & Mobilization

1. Upon receipt of a call from the Control Center, the supervisor will assign/dispatch a response team.
    a. If the spill is reported after normal business hours, the Control Center will contact the standby persons to respond.
2. Prior to the start of work, conduct a tailgate safety meeting to discuss safety precautions, review procedures, and assign responsibilities to each person on the crew.
3. Prior to mobilizing to the spill, identify the spill location on the Trunk Sewer Atlas to collect preliminary information. This information includes:
    a. OC San lines in the vicinity
    b. OC San line size(s)
    c. Direction the sewer line is flowing
    d. Distance between manholes
    e. Location of Diversion Structures
    f. Local storm drain entry points and path of travel
4. Select a vehicle and equipment appropriate for the spill location, typically a combination industrial sewer cleaning truck (combo truck).

NOTE: The line size located on the map will help determine the resources needed to respond to the spill.

Step 2: Spill Location Set-Up

1. Upon arrival at the spill location, the first responders typically perform multiple tasks within a relatively short amount of time. These tasks are listed below and described in further detail below and summarized in Attachment A: OC San Spill Response Flowchart.
   a. *Communication with Control Center.* The field personnel are to maintain communication with the Control Center to establish a timeline needed for reporting purposes. The key information that needs to be communicated are:
      i. arrival time
      ii. estimated spill volume
      iii. time spill containment was set
      iv. time the blockage was relieved, and
      v. time the containment was removed.
   b. *Spill Verification.* The field personnel are to determine whether the spill is a sewer spill or other type of spill.
   c. *Communication with Supervisor.* The field personnel are to maintain communication with a supervisor during work hours. The supervisor assigned is typically the person who dispatched the crew to the spill. Field personnel are to relay pertinent information to the Supervisor who will assign additional resources, as needed.

NOTE: If the spill occurs after hours, communicate directly with the Control Center.

Step 3: Spill Containment

1. *Traffic Control.* If the spill is located in an area where traffic control is needed, all traffic control setups should be consistent with the "Work Area Traffic Control Handbook (W.A.T.C.H.)" (Figure 1). 2. *Public Safety.* If additional resources are needed to manage or control the public safety, contact the Supervisor or Control Center and they will notify the appropriate agencies. Otherwise divert the traffic out of spill area.	 Figure 1: Traffic Control, Lane Closure (typical)
3. *Spill Containment.* Containment materials are to be set up in strategic locations to control and contain the spilled wastewater. These materials include: rubber mats, sand bags, absorbent materials (socks, pillows, broom), soil, or any materials located near the spill that can aid in spill containment. The containment materials should be set up to block the spill from entering (or continuing to enter) storm drains or other waterways (Figure 2). If possible, spills should be diverted to natural low areas where the materials can collect prior to removal. Refer to OC San SOP No. COL-SOP-GEN-003: Spill Containment for specific spill control procedures.	 Figure 2: Spill Containment Example
4. *Clean Up.* Vacuum/pump recovery of spilled wastewater. Wash down the site with clean water. Recover wash down water. Calculate the amount of fresh water used in cleanup and specify this amount on the report.	

Step 4: Spill Source Determination

Once spill containment is properly placed and working effectively, field personnel are to determine the source of the sewer spill (OC San, City, or private lateral) and relay that information to the Supervisor. If the spill is not an OC San sewer spill, continue with spill containment procedures until the responsible party or agency arrives. OC San will continue support, as needed.

NOTE: If the spill occurs after hours, communicate the spill source information to the Control Center

Step 5: Spill Volume Estimation

Document all assumptions made to get to an estimated volume. Use at least two methods to make the estimate. Take photos and video to document the situation and provide support for the given estimate.

1. Eyeball Estimation: Make a determination based on experience. Use for initial estimation only, use secondary estimation method for documentation.
2. Spill Volume Approximation Worksheet: Measure the height of the water exiting the vent holes or pick holes. Once the measurement is obtained, match the vent hole size and wastewater height on the and provide the Control Center with a preliminary spill volume assessment (small, medium, large). A copy of the Spill Volume Approximation Worksheet is included as Attachment B.

Figure 3: Manhole pick hole measurement

3. Upstream Connections: Duration x Flow Rate = Spill Volume.
4. Good for spills affecting a small portion of the collection system; must have reliable volume per household. Can be difficult to apply to areas with mixed use (residential, commercial, industrial).
5. Area/Volume: Size of the “Wetted Footprint” + Amount Captured/Contained, see Figure 3.
6. Area of a Right Triangle in Cubic Feet: Length x Width x 0.05 x Depth
7. Area of a Circle in Cubic Feed: Diameter Squared x 0.785 x Depth

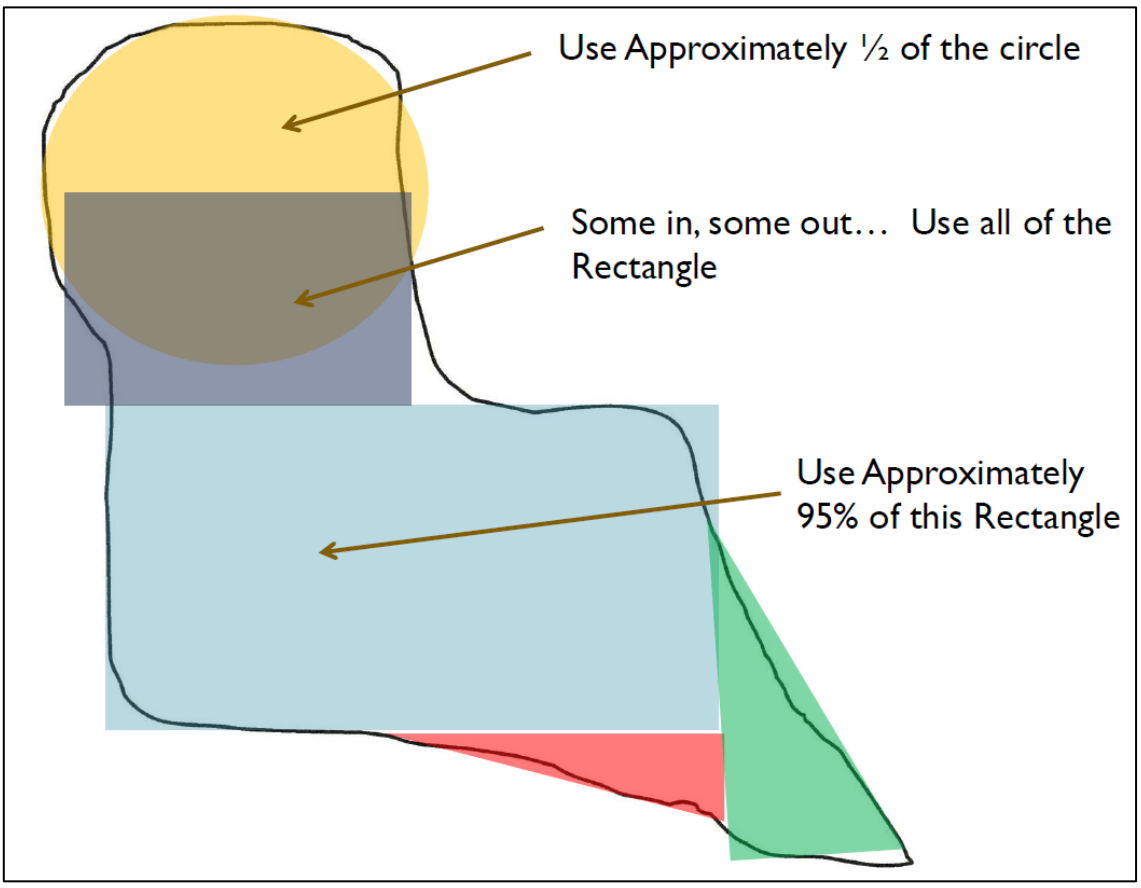

Figure 4: Spill Footprint Volume Estimation

8. Lower Lateral Estimator:
9. Lift/Pump Station Estimation: Use metered data to determine spill volume.
10. Spill Simulator/Photo Comparison: Determine the volume of a spill by increasing the volume (flow) on the simulator until it best resembles the actual flow.
11. Portable Flow Monitoring Equipment: Install the flow monitoring equipment in the same mainline segment that experience the spill after the event has concluded. Monitor for the same time (period/duration). Use the Average Flow Rate and apply it to the spill.

Step 6: Field Documentation

1. *Notes.* At a minimum, the field notes should include arrival time, time spill containment was set, time the blockage was relieved, departure time, and all persons and equipment mobilized to the scene. In addition, document any officials (law enforcement, health department, etc.) who are present. If any official gives direct orders that stray from the OC San spill response procedures, document that person's information (name, badge number, phone number) and notify the OC San supervisor; if the spill occurs after hours, relay the pertinent information to the Control Center.
2. *Sketch.* The field sketch should document the path of the flow, the height of the water coming from the manhole cover vent holes, the location of the sewage, storm drains, waterways, and the manhole or structure ID numbers.
3. *Photographs.* Photographs (preferably digital) should be taken of the spill area, spill containment measures, scene after cleanup, and any other information deemed pertinent (Figure 3).

Figure 3: Spill Area Documentation Photo (typical)

Step 7: Blockage Location Determination & Clearing

1. Field personnel are to determine the location of the blockage. The blockage location is determined by opening manhole covers downstream of the spill location to look for surcharge.
   - **Prior to opening the manholes (OC San or City), check for explosive or toxic gasses using a direct-reading air monitoring device by inserting tubing into the pick-holes. If explosive gases are present, DO NOT LIFT OR REMOVE the cover.**
2. Start by opening the first manhole downstream of the spill. If surcharge is observed, move to the next downstream manhole. When no surcharge is observed in a manhole, the blockage is located somewhere between that manhole and the spill location.
3. Once the blockage location has been determined, set up the combo truck on the first downstream manhole that was not surcharged.
4. Place one crew member on the downstream side of the combo truck with a rake or other device designed to catch the blockage.
5. Personnel at the combo truck are to run the penetrating nozzle upstream to relieve the blockage.
6. The crew member staged on the downstream side of the combo truck is to catch the blockage with debris catching equipment (i.e., rake). This minimizes the amount of blockage material traveling through the line to minimize future blockages. Identify blockage material to determine the cause of the obstruction and potential follow-up activities necessary. See Figure 4.

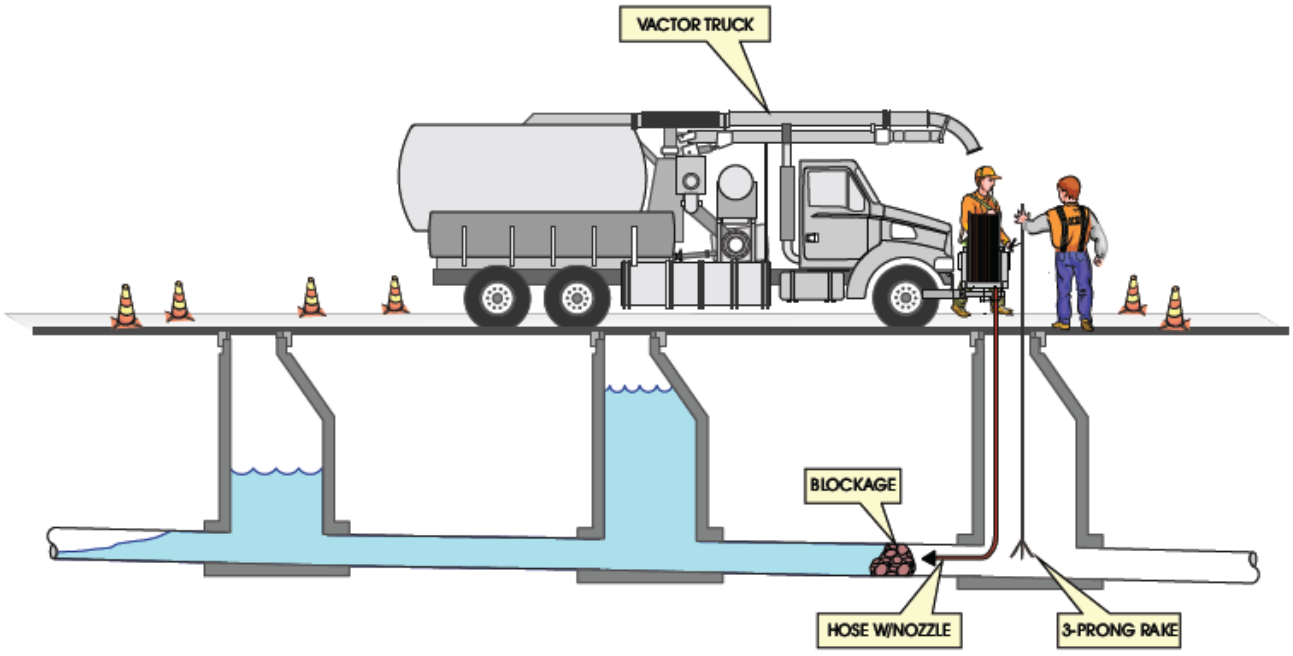

Figure 4: Clearing a Blockage Diagram

7. Once the blockage is cleared, document the time and relay the information to the Control Center as soon as possible. This information is extremely important in the final calculations used to determine the volume spilled.
    - If a blockage can't be relieved within a reasonable amount of time, contact the supervisor and/or Control Center to discuss response options (i.e., additional staff and equipment) or use of upstream diversion structures. It is important to contact the Control Center prior to diversion structure implementation to verify that potentially affected parties are notified.
8. Determine the further follow-up actions needed for the blockage area (i.e., root cutting if roots are collected on the rake, line cleaning if grease is observed, etc.). Follow-up procedures can include line cleaning, root cutting, line repairs, and CCTV.
9. Assess the flow in the line to verify that the blockage has not migrated to a downstream segment.
    - **Prior to opening the manholes (OC San or City), check for explosive or toxic gasses using a direct-reading air monitoring device by inserting tubing into the pick-holes. If explosive gases are present, DO NOT LIFT OR REMOVE the cover.**
10. If conditions are acceptable, open several downstream manholes and look for surcharge in downstream manholes. If no surcharge is present, the line segment is determined to be clear.

Step 8: Site Clean-Up

1. Once the blockage is cleared and the threat for additional related spills is relieved, use a combo truck to vacuum the wastewater that collected in the containment areas.
2. Wash down all areas covered by the spill, being sure to capture the wastewater.
3. Remove spill containment materials.
4. Return the wastewater to the OC San sewer system.
5. Notify the Control Center that the cleanup is complete.

Figure 5: Site Cleanup Documentation (typical)

Step 9: Spill Response Wrap-Up

1. Demobilize field response.
2. Complete the Collection System Problem Report – Field Spill Report form. A copy of the Field Report Form is presented in Attachment C.
3. Restock the vehicle of materials used to contain and clean the spill.
4. Document all activities/tasks in Maximo work order:
   a. Attach photos
   b. Attach field spill report
   c. Create appropriate log
5. Return the completed Spill Report to the Supervisor. The Supervisor will review and initial the report and distribute it to the appropriate OC San personnel.