

## WEST VALLEY SANITATION DISTRICT

# ANNUAL SSO REPORT FOR 2017

### **Introduction**

The Annual Sanitary Sewer Overflow (SSO) Report provides a summary of West Valley Sanitation District's (District) SSO performance during calendar year 2017. Prior to calendar year 2012 an annual SSO Report was required by the San Francisco Bay Regional Water Quality Control Board (RWQCB), but has since been discontinued per RWQCB's letter, dated October 3, 2012. In order to meet the District's obligation (Section II.D) cited in its Settlement Agreement with Northern California River Watch (NCRW) the District continues to submit the Annual SSO Report for NCRW's review. A Summary of Obligations showing the District's progress towards the completion of the Settlement Agreement tasks is provided along with the Annual SSO Report. In accordance with SWRCB Order No. 2006-0003-DWQ, a Sewer System Management Plan (SSMP) Audit is required every two years beginning on May 2, 2014. The SSMP Audit for 2018 is currently being performed and will be presented to the District Board in May 2018 for their acceptance. The 2018 SSMP Audit will be electronically submitted to NCRW after acceptance by the Board.

### **District Background**

The District owns and maintains a gravity sewer wastewater collection system serving the cities of Campbell, Monte Sereno, a portion of Saratoga, Town of Los Gatos, and intervening unincorporated portions of the County of Santa Clara. In total there are approximately 46,300 connections serving a population of approximately 111,100 people. The wastewater collection system is comprised of 415 miles of sewer main and 210 miles of sewer lateral (lower lateral) located within the public right-of-way. In 2017 WVSD's collection system transported an average daily flow of approximately 9.6 million gallons of wastewater, or about 3.5 billion gallons over the course of the year, to the San José-Santa Clara Regional Wastewater Facility for treatment, disposal, and reuse.

### **Description of SSO Events**

The description of SSO events are divided between those caused by sewer mainline blockages and those caused by sewer lateral (lower lateral) blockages. Sanitary sewer overflows caused by blockages or failures of a private sewer lateral or sewer system are not included. The District's 2017 SSO Summary Report for mainlines and laterals are included with this report to support the analysis conducted. The separation of information between sewer mains and sewer laterals facilitates the comparison of data with those agencies that own and maintain only sewer mainlines. In describing these SSO events, the number, volume and historical trends of the SSOs are discussed, along with the suspected causes of the blockages. One of the obligations of the NCRW Agreement (II.B.4.) requiring collection and delivery of samples from Category I SSOs for CAM17 toxic metals analysis ended on August 29, 2014.

## SEWER MAIN SSO Number, Size, and Historical Trend

There were a total of ten (10) sewer main SSO events experienced during 2017. One SSO was a Category 1 event, and nine were Category 3 events. There were no Category 2 events. There were no SSO samples collected in the Category 1 SSO events, since the storm drain carried the flow into an inaccessible concrete box culvert. The cause of the Category 1 SSO was the high intensity rainfall that occurred over the entire northern state of California in early February 2017.

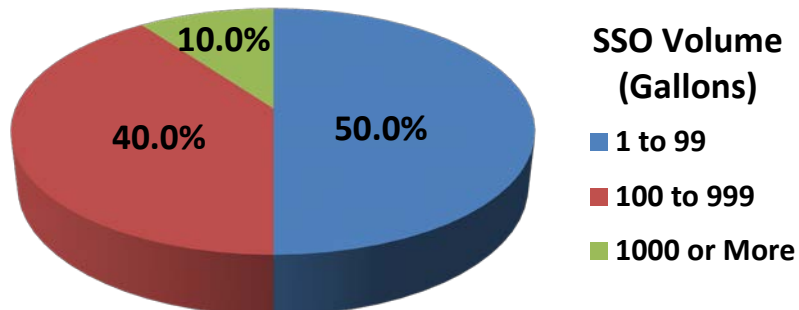
The Sewer Main SSOs experienced are distributed into one of three volume ranges and are summarized in Table 1 and illustrated in Figure 1.

**Table 1. Number of Sewer Main SSOs in 2017**

Gross SSO Volume (gallons)	Number	Percent of Total
Greater than or equal to 1,000	1	10.0 %
From 100 to 999	4	40.0 %
From 1 to 99	5	50.0 %
<b>Total</b>	<b>10</b>	<b>100.0 %</b>

**Figure 1. Sewer Main SSO Volume Distribution**

### 2017 SSO Volume Distribution



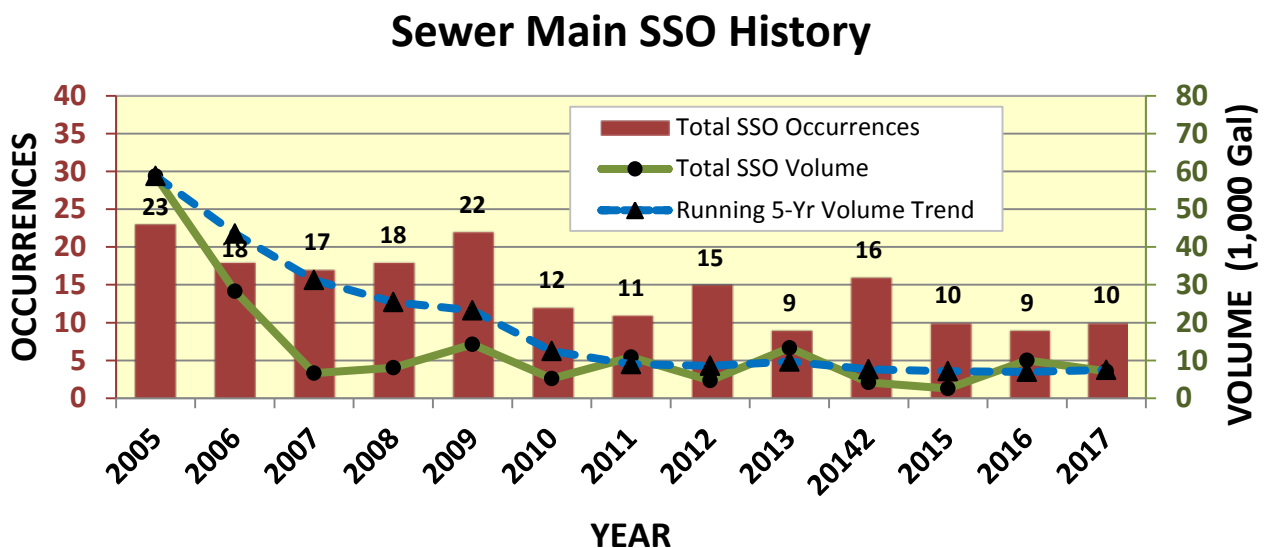
The total gross volume of sewer main SSOs is estimated to be 7,108 gallons, of which 1,624 gallons were recovered. The total volume of spills contained and returned to the system, including the volume not recovered, is shown in Table 2.

**Table 2. Volume of Sewer Main SSOs in 2017**

	<b>Volume (gallons)</b>	<b>Percent of Total</b>
Total volume contained and returned to sewer system for treatment	1,624	22.8 %
Total volume reaching a drainage channel, surface water, or storm drain but not recovered	5,250	73.9 %
Total volume not recovered and not reaching a drainage channel, surface water, or storm drain (everything else)	234	3.3 %
<b>Total SSO Volume</b>	<b>7,108</b>	<b>100.0 %</b>

The following graph presents two data sets representing thirteen years of the District's sewer main SSO history from calendar year 2005 to 2017. The two data sets shown in Figure 2 includes the number of annual SSO occurrences and annual SSO volumes. The continuing decline of the downward 5-year trend line illustrates the effectiveness of the District's increased O&M efforts.

**Figure 2. Sewer Main SSO Occurrence and Volume History**



### **Cause of Sewer Main SSOs**

There was no predominant cause of SSOs experienced during 2017, however, roots and or grease has typically been the primary causes in previous years. The causes for sewer main SSOs is illustrated in Table 3.

**Table 3. Causes of Sewer Main SSOs in 2017**

<b>Cause of SSO</b>	<b>Number</b>	<b>Percent of Total</b>
<b>Blockage:</b>		
Grease/Soap	2	20.0 %
Roots	1	10.0 %
Debris (paper/rags)	2	20.0 %
Other (Grit, etc.)	2	20.0 %
<b>Subtotal Blockages</b>	<b>7</b>	<b>70.0%</b>
<b>Other Causes:</b>		
Excess Flow	2	20.0 %
Construction Damage	1	10.0 %
<b>Subtotal Other Causes</b>	<b>3</b>	<b>30.0%</b>
<b>TOTAL</b>	<b>10</b>	<b>100.0 %</b>

## SEWER LATERAL SSO Number, Size, and Trend

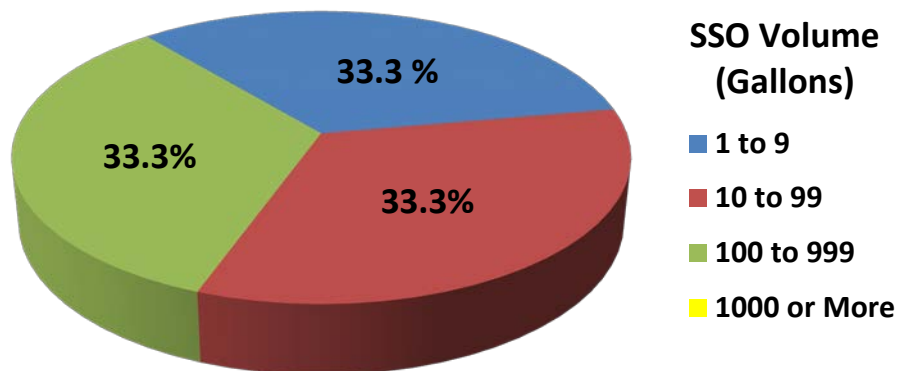
There were a total of five (5) sewer lateral SSOs experienced during 2017, two of which was designated as private lateral sewage discharges (PLSD) and three categorized as Category 3 events. Lateral SSO's determined to be PLSDs are not included in the tables or graphs below. The lateral SSOs experienced during 2017 are distributed into one of four volume ranges. These are summarized in Table 4 and illustrated in Figure 3.

**Table 4. Number and Size of Lateral SSOs in 2017**

Gross SSO Volume (gallons)	Number	Percent of Total
Greater than or equal to 1,000	0	0 %
From 100 to 999	1	33.3 %
From 10 to 99	1	33.3 %
From 1 to 9	1	33.3 %
<b>Total</b>	<b>3</b>	<b>100.0 %</b>

**Figure 3. Sewer Lateral SSO Event Distribution By Volume**

### 2017 SSO Volume Distribution

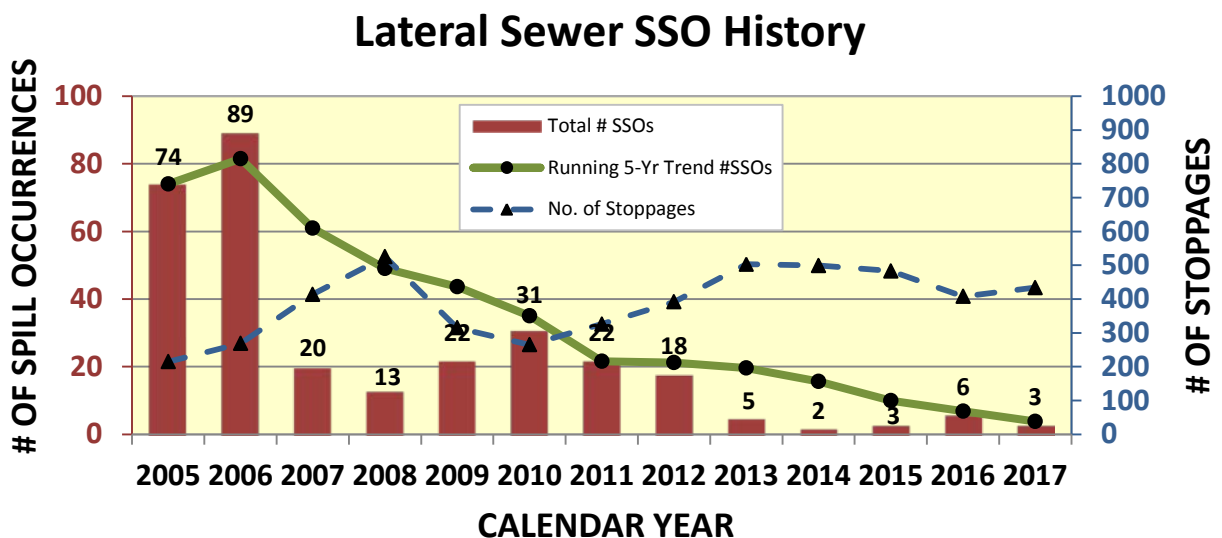


The total gross volume of sewer lateral SSOs is estimated to be 207 gallons, with 10 gallons recovered. The volume of these spills contained and returned to the system, as well as the volume not recoverable, is shown in Table 5.

**Table 5. Volume of Sewer Lateral SSOs in 2017**

	Volume (gallons)	Percent of Total
Total volume contained and returned to sewer system for treatment	10	4.8 %
Total volume reaching a drainage channel, surface water, or storm drain but not recovered	0	0.0 %
Total volume not recovered but not reaching a drainage channel, surface water, or storm drain (everything else)	197	95.2 %
<b>Total</b>	<b>207</b>	<b>100.0%</b>

The following graph presents two data sets representing thirteen years of the District's sewer lateral SSO history from calendar year 2005 to 2017. The two data sets shown in Figure 4 include the number of SSO occurrences and number of lateral stoppages experienced. The number of lateral stoppages experienced in 2017 was 434. The continuing decline of the downward 5-year trend line illustrates the effectiveness of the District's increased O&M efforts through the Lateral Maintenance Program.



**Figure 4. Sewer Lateral SSO Occurrence and Stoppage History**

### Cause of Lateral SSOs

In 2017 two lateral SSOs were caused by root intrusion and one was caused by grease/soap accumulation. The distribution of lateral SSOs by cause is shown in Table 6.

**Table 6. Causes of Sewer Lateral SSOs in 2017**

Cause of SSO	Number	Percent of Total
<b>Blockage:</b>		
Roots	2	66.7 %
Grease/Soap	1	33.3 %
Grit	0	0.0 %
Debris (paper & rags)	0	0.0 %
<b>Subtotal for Blockages</b>	<b>3</b>	<b>100.0 %</b>
<b>Other Causes:</b>		
Hydraulic Deficiency	0	0.0 %
Structural Deficiency	0	0.0 %
Maintenance Operation	0	0.0 %
<b>Subtotal for Other Causes</b>	<b>0</b>	<b>0.0 %</b>
<b>TOTAL</b>	<b>3</b>	<b>100 %</b>

### Benchmarking SSO Records

Traditionally, the common benchmark, or spill rate indices, utilized by wastewater collection agencies has been the total number of mainline SSOs per 100 miles of sewer main. In CIWQS (reference Table 7), they have compiled similar indices, but have broken this down into SSO spill categories for main lines and laterals. Similarly, CIWQS has also provided indices for SSO volumes in much the same manner, except they use net gallons (unrecovered volume) per 1,000 capita. For comparative purposes, they also provide sewer mainline and sewer lateral data for both statewide and regional indices (SFRWQCB – Region 2). This type of benchmarking is an important measure of the District's current and past performance as well as an indicator of future performance trending.

The total number of mainline SSOs the District experienced during 2017 was ten (10), resulting in an overall spill rate index of **2.41 SSOs/100 miles** compared to statewide and regional spill rate indexes of **14.07** and **16.18**, respectively. A spill rate index of 3.0 SSOs/100 miles, or less, is considered to be indicative of an excellent performing system. Similarly, the total volume of sewer mainline spill volume index of **48.6 Gallons/1000 Capita** compared to statewide and regional spill volume indexes of **11,375** and **4,258**, respectively. A very favorable indicator of the District's performance for sewer laterals is shown in the CIWQS table as well.

**Table 7. CIWQS Collection System Spill Summary for 2017**

**Operational Indices: West Valley Sd CS**

<b>Spill Rate Index (#spills/100mi/yr)</b>									
	Category 1			Category 2			Category 3		
	Mainlines	Laterals	Not Specified	Mainlines	Laterals	Not Specified	Mainlines	Laterals	Not Specified
West Valley Sd CS	0.24	0.0	0.0	0.0	0.0	0.0	2.17	1.43	0.0
State Municipal (Public) Average	<u>5.69</u>	<u>2.0</u>	<u>3.05</u>	<u>2.67</u>	<u>0.19</u>	<u>2.03</u>	<u>5.71</u>	<u>16.33</u>	<u>3.62</u>
Region Municipal Average	<u>6.22</u>	<u>0.0</u>	<u>1.37</u>	<u>2.74</u>	<u>0.0</u>	<u>0.0</u>	<u>7.22</u>	<u>17.99</u>	<u>3.93</u>

<b>Net Volume Spills Index (Net Vol in gallons/1000 Capita/yr)</b>									
	Category 1			Category 2			Category 3		
	Mainlines	Laterals	Not Specified	Mainlines	Laterals	Not Specified	Mainlines	Laterals	Not Specified
West Valley Sd CS	46.39	0.0	0.0	0.0	0.0	0.0	2.16	0.0	0.0
State Municipal (Public) Average	<u>9512.31</u>	<u>111.87</u>	<u>301060.97</u>	<u>1799.87</u>	<u>3.08</u>	<u>1633.7</u>	<u>62.94</u>	<u>3.3</u>	<u>550.56</u>
Region Municipal Average	<u>3893.05</u>	<u>27.05</u>	<u>3948.74</u>	<u>328.88</u>	<u>0.0</u>	<u>0.0</u>	<u>36.01</u>	<u>4.04</u>	<u>4.45</u>