

ELEMENT 9. MONITORING, MEASUREMENT, & PROGRAM MODIFICATIONS

This SSMP element describes the activities that the City will conduct in accordance with the Monitoring, Measurement, and Program Modifications (MMPM) element of the WDRs. The major items discussed in this element are as follows:

- Regulatory Requirements
- Performance Indicators
- Performance Monitoring
- Program Element Update
- Current SSO Trends
- Historical SSO Trends
- Monthly Reports
- State Incident Maps

REGULATORY REQUIREMENTS

The requirements for the MMPM element of the WDRs are listed in Table 9-1.

Table 9-1. Monitoring, Measurement, & Program Modifications Element Requirements

| WDR Paragraph Number | Description of Requirement | Required Component |
|----------------------|----------------------------|--|
| D-13-ix(a) | Performance Indicators | Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities |
| D-13-ix(b) | Performance Monitoring | Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP |
| D-13-ix(c) | Performance Monitoring | Assess the success of the preventative maintenance program |
| D-13-ix(d) | Program Element Update | Update program elements, as appropriate, based on monitoring or performance evaluations |
| D-13-ix(e) | SSO Trends | Identify and illustrate SSO trends, including: frequency, location, and volume |

PERFORMANCE INDICATORS

The City collects and monitors information to use as performance indicators including the items listed below:

- Location of SSO – (a) & (b)
- Volume of SSO – (a) & (b)
- Number (and frequency) of SSOs – (a) & (b)
- Number of SSOs by cause – (a) & (e)
- Percentage of sewage volume contained compared to total spilled – (c)
- Response time to stoppages and SSOs – (c)
- Number of sewer stoppages (non-SSO) – (c)
- Number of sewer stoppages (non-SSO) by cause – (c)
- Percentage of sewer length cleaned compared to goal – (d)
- Percentage of sewer length inspected by television compared to goal – (d)
- Number of SSO recurrences at each SSO location –(a) & (b)
- Number of sewer stoppage recurrences at each stoppage location – (c)

(a) Annual SSOs by Category Master Spreadsheet and Graphs (Binder)

(b) SSO 2007-2018 GIS Maps (Software)

(c) In the past, these indicators were not monitored. SSMP Manager will begin to monitor on a quarterly basis through a post-failure analysis process.

(d) Field Utilities Sewer Pipe Maintenance - 2015 through 2018 Flushed Pipe & CCTV Inspection Graph (Exhibit 9-I)

(e) SSO Causes 2007-2018 (Exhibit 9-H)

PERFORMANCE MONITORING

The City is monitoring the implementation of the SSMP by evaluating and measuring the effectiveness of the SSMP elements by maintaining copies of the SSO reports submitted via online reporting to the California Integrated Water Quality System (CIWQS) database. The SSO reports are kept in the SSMP-SSO CIWQS Reports binder where the data is tabulated.

The SSMP Program Manager conducts an annual review of performance indicators, including an Annual SSO by Category Spreadsheet using charts, and graphs to show performance indicator trends. The summary reporting table includes comparisons between prior and current program year performances, and any recommended program changes.

The SSMP Program Manager prepares a 2-year audit of implementation of the SSMP program and shares the results with both Public Works and Utilities Departments. This

provides an assessment of the success of the PM programs, CIP and DIF programs, and presents proposed improvements, if any. The next self-audit is due in 2020.

PROGRAM ELEMENT UPDATE

The City updates the SSMP program elements, as appropriate, based on monitoring or performance evaluations. Important updates were made to the 2014 SSMP to the following items; Legally Responsible Officials, New SSO Categories and Monitoring and Reporting requirements, Event of SSO into Surface Water/Water Quality Sampling Procedures, Required Regulatory SSO Notification Reporting Flowchart, and to the City SSMP website. For the 2019 SSMP recertification, all 11 elements were updated.

CURRENT SSO TRENDS

Exhibit 9-A and 9-B show the relationship between rain events and higher volume spills for 2018 and 2017. Also, by other analysis, Category 1 spills are more likely to occur during intense or prolonged rain events. Recently, Maintenance staff have been performing CCTV inspections shortly after the rain events to evaluate the magnitude of I&I and determine the appropriate Repair/Rehabilitation method.

Exhibit 9-C, 9-D, 9-E, and 9-F shows the overall volumes of spills for any Category. For 2018, 61% of the SSO spills were 50 gallons or less. For 2017, about 63% of the SSO spills were 50 gallons or less. For 2016 and 2015, 44% and 75%, respectively, of the SSO spills were 50 gallons or less.

Exhibit 9-C, 9-D, 9-E, and 9-F also provides performance indicators that when compared to the State's operational report (see Exhibit 9-J thru 9-N) comparing the City's collection system against regional and state wide collections systems, Vacaville's collection system has consistently been under the averages, which means that Vacaville operational performance is very good but the ultimate goal is to eliminate all SSO spills.

HISTORICAL SSO TRENDS

The City will continue identifying and analyzing SSO trends, including frequency, location, volume, and cause. Per the SSO 2007-2018 Maps, most spills occurred randomly, but SSO clusters are being identified which triggers a more focused observation and investigation efforts.

The SSO categories were updated September 2013 by the State Board with the issuance of WQ 2013-58-EXEC. The most current SSO Categories are defined as:

Category 1 is classified as spills of any volume that reach surface water.

Category 2 is classified as spills greater than or equal to 1,000 gallons that do not reach surface water.

Category 3 is classified as spills less than 1,000 gallons that do not reach surface water.

In addition, the reporting of Private Lateral Sewer Discharge is optional, but it is strongly encouraged to report discharges greater than or equal to 1,000 gallons.

Utilities Department staff recently verified SSO data from CIWQS and corroborated the conversion of pre-September 2013 SSO categories to the categories defined above. The City's records now match the data as exhibited in the CIWQS records.

Exhibit 9-G is a graph showing historical SSOs from 2007 through 2018. Over the course of eleven years, there have been six Category 1 SSO events. The average of the six SSO events is approximately 1,100 gallons. Category 2 SSOs events declined from 2008 through 2013 and there have not been any Category 2 SSOs since. Beginning in 2015 through the end of 2018, Category 3 SSOs have increased. Staff from Public Works and Utilities Department are addressing the causes and potential solutions during a monthly meeting.

In general, FOG and debris are the majority of causes of SSOs followed by root intrusion as shown in Exhibit 9-H. These three causes are currently being addressed with the revamping of pertinent inspections programs, such as FSE inspection goals and FOG outreach, sewer line cleaning and inspection program and forms, CCTV inspection certification, and other programs.

Exhibit 9-I depicts the CCTV inspection and sewer line flushing production rate for a 5-year target to complete the 249 miles (per Exhibit 8G, Page 168, Comprehensive Annual Financial Report, June 30, 2018) of sewer lines. Utilities Department staff noted a discrepancy in the total miles of sewer line reported in the Annual Financial Report against the 299 miles calculated in the GIS model. Staff will verify the actual sewer line mileage and report the correct amount in all of the State's questionnaires' and reports moving forward. Currently, both the CCTV inspection and flushing rate is 20 miles per year, but to reach the target of 299 miles, both production rates need to be between 50 and 60 miles per year. The flushing rate has consistently met the target. The CCTV inspection has not met the target. Staff will need to determine the most appropriate method to adjust the production rate which is both feasible and attainable.

MONTHLY REPORTS

Per the recommendations provided in Exhibit 4-G, UD staff is developing and will be distributing a Monthly Performance Report to several divisions and Departments highlighting FSE Inspections, Wastewater Treatment Plant Flow, Lift Station Maintenance, CCTV and Flushing, PW Service Calls, and SSO's along with other notable topics of concern. A draft Monthly Report is attached as Exhibit 9-O.

STATE INCIDENT MAPS

The State Board's Sewage Spill Incident Maps are also used by staff to monitor the location of SSOs, in addition to the City's SSO map. All SSOs are reported by the City to the State Board and can be found at the following internet address:

http://www.waterboards.ca.gov/water_issues/programs/sso/sso_map/sso_pub.shtml

The City will continue to review these maps annually for accuracy and then contact the State Board if any corrections are needed.

EXHIBIT 9-A

2018 SSOs and Rain Events

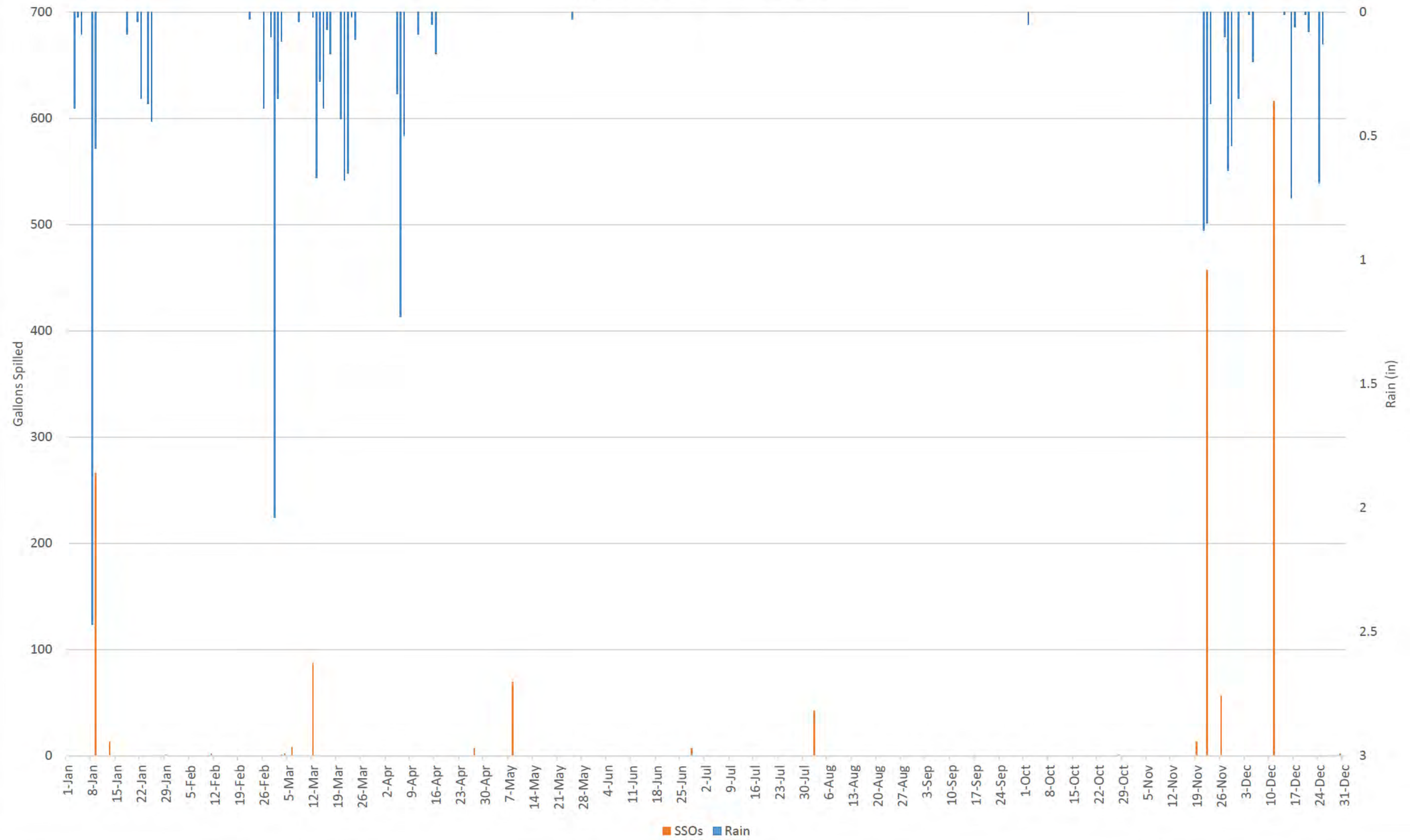


EXHIBIT 9-B

2017 SSOs and Rain Events

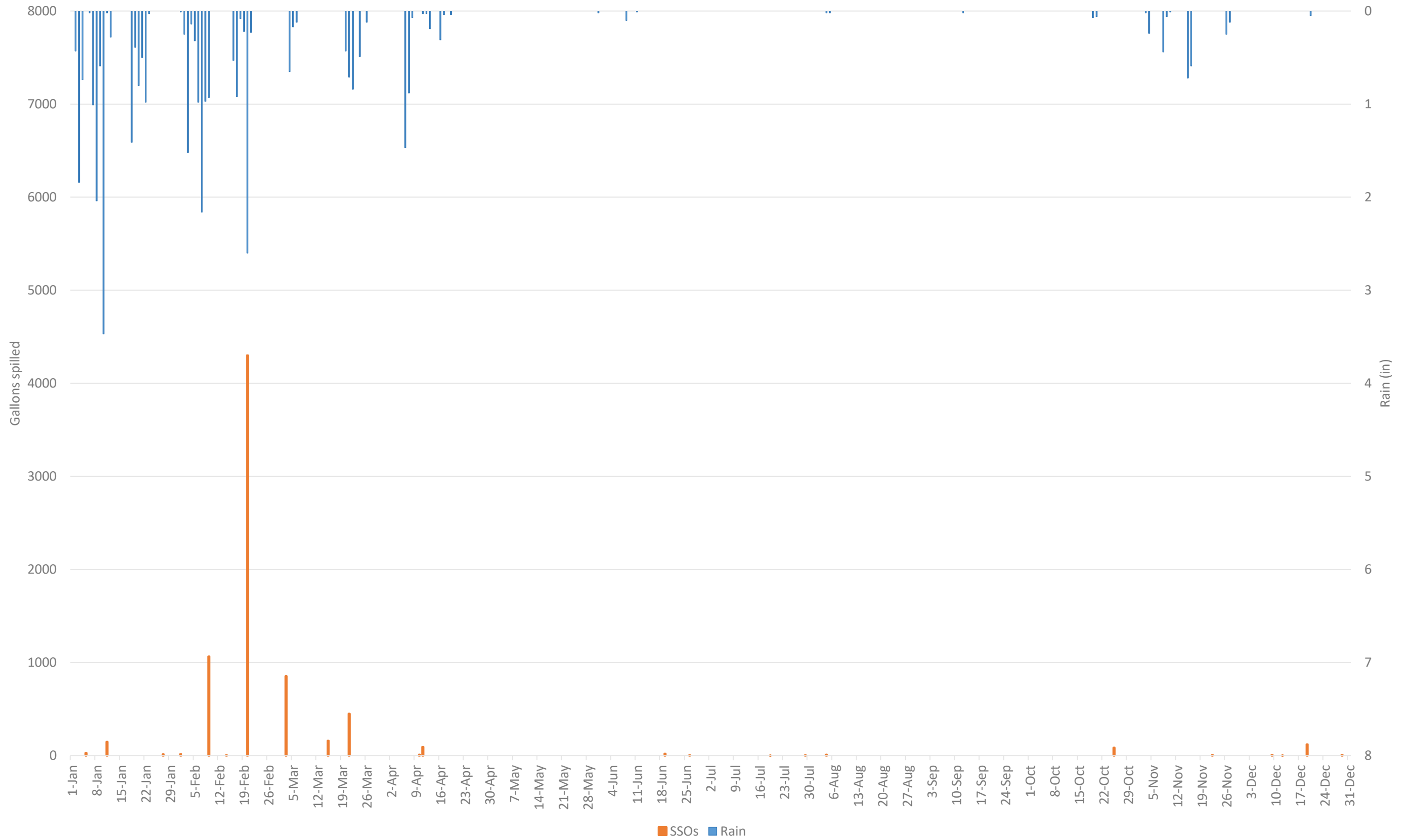


EXHIBIT 9-C

EXHIBIT 9-D

2017 Sanitary Sewer Overflows

Spills per 100 Miles **Gallons per 1,000 Capita**
Cat 1: 4 SSO's/467 miles = 0.43 spills per 100 miles 5,388 Gallons/96,803 Population = 55.65 Gallons per 1,000 Capita
Cat 2: 0 SSO's/467 miles = 0 spills per 100 miles 0 Gallons/96,803 Population = 0 Gallons per 1,000 Capita
Cat 3: 20 SSO's/467 miles = 1.29 spills per 100 miles 2,038 Gallons/96,803 Population = 21.05 Gallons per 1,000 Capita

62.5% of all SSO events were less than or equal to 50 gallons

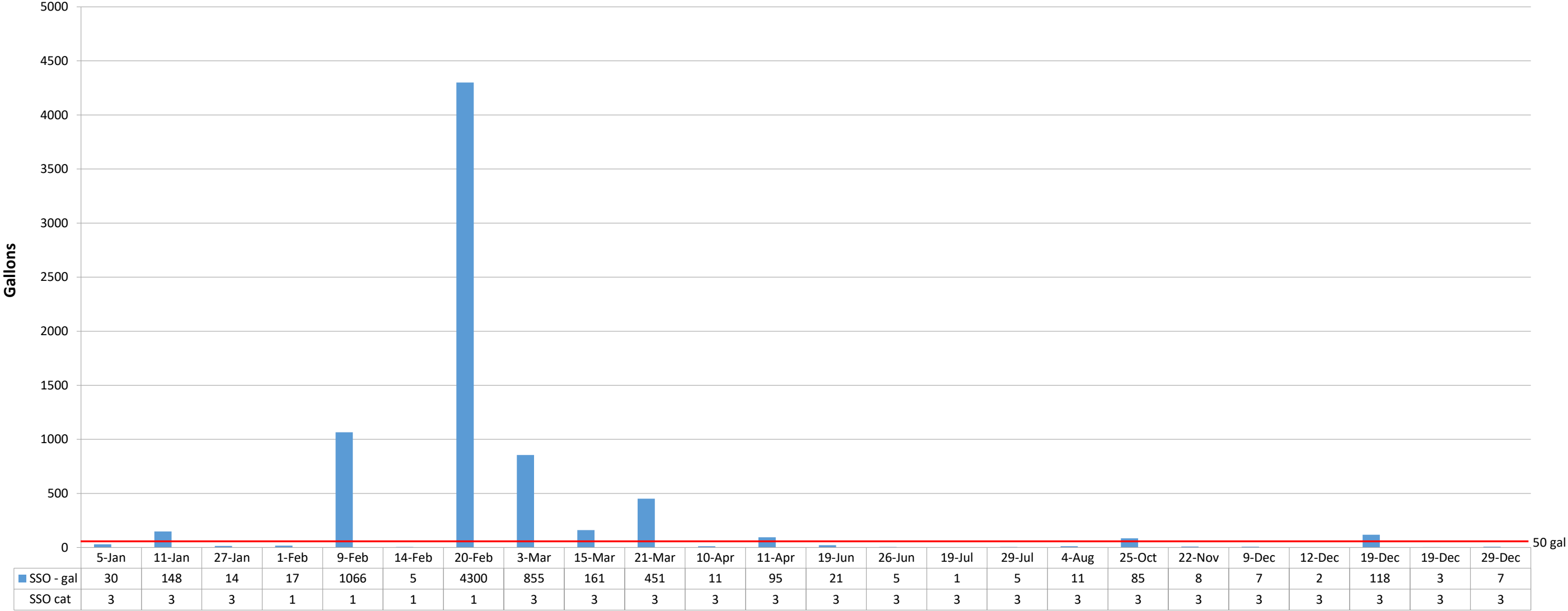


EXHIBIT 9-E

2016 Sanitary Sewer Overflows

Spills per 100 Miles

Cat 1: 2 SSO's/467 miles = 0.43 spills per 100 miles

Cat 2: 0 SSO's/467 miles = 0 spills per 100 miles

Cat 3: 7 SSO's/467 miles = 1.49 spills per 100 miles

Gallons per 1,000 Capita

1,220 Gallons/96,803 Population = 12.6 Gallons per 1,000 Capita

0 Gallons/96,803 Population = 0 Gallons per 1,000 Capita

549 Gallons/96,803 Population = 5.67 Gallons per 1,000 Capita

44% of all SSO events were less than or equal to 50 gallons

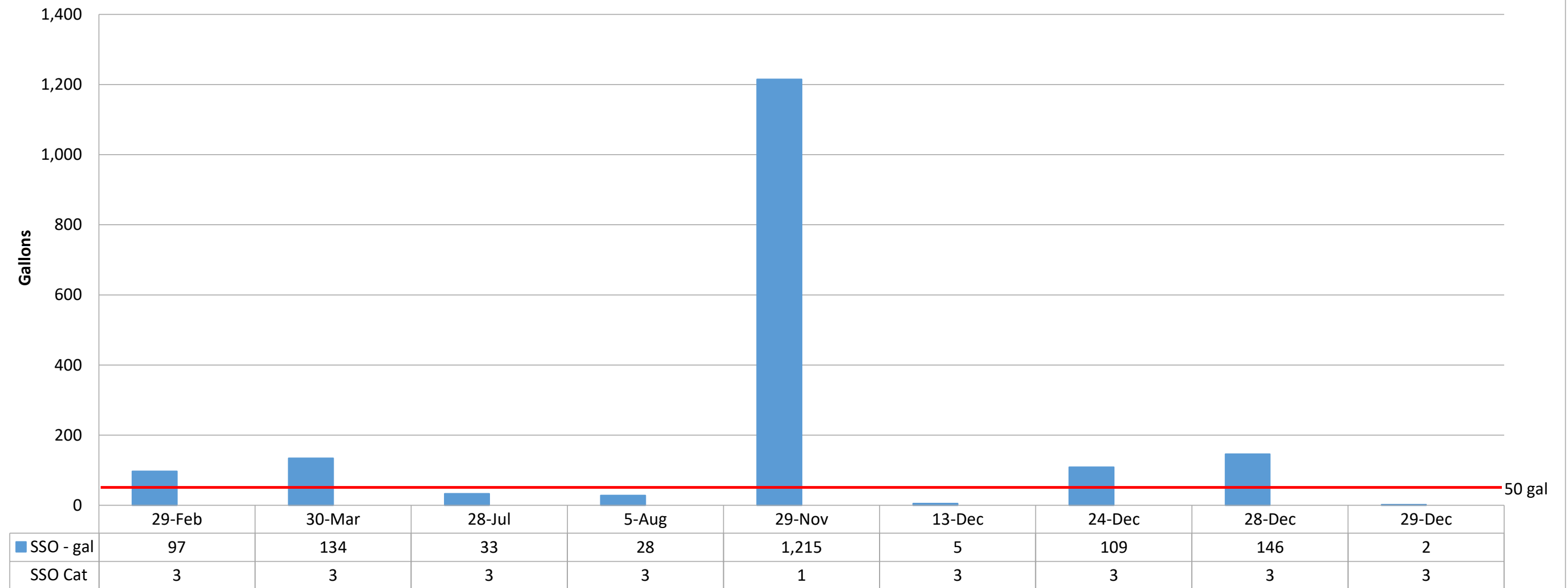


EXHIBIT 9-F

2015 Sanitary Sewer Overflows

Spills per 100 Miles

Cat 1: 0 SSO's/467 Miles = 0 spills per 100 miles
 Cat 2: 0 SSO's/467 Miles = 0 spills per 100 miles
 Cat 3: 4 SSO's/467 Miles = 0.86 spills per 100 miles

Gallons per 1,000 Capita

0 gallons/96,803 population = 0 gallons per 1,000 capita
 0 gallons/96,803 population = 0 gallons per 1,000 capita
 149 gallons/96,803 population = 1.54 gallons per 1,000 capita

75% of all SSO events were less than or equal to 50 gallons

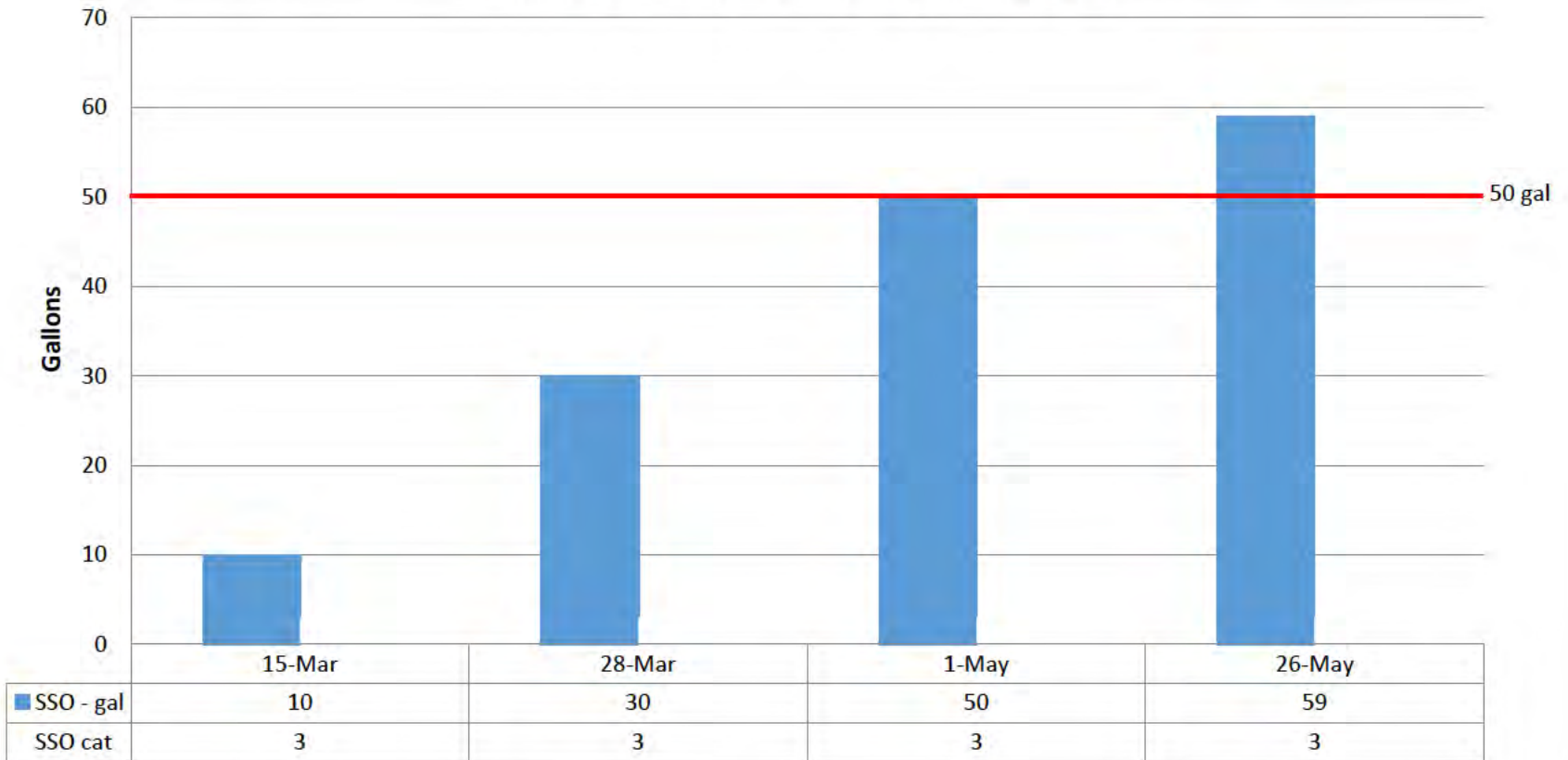
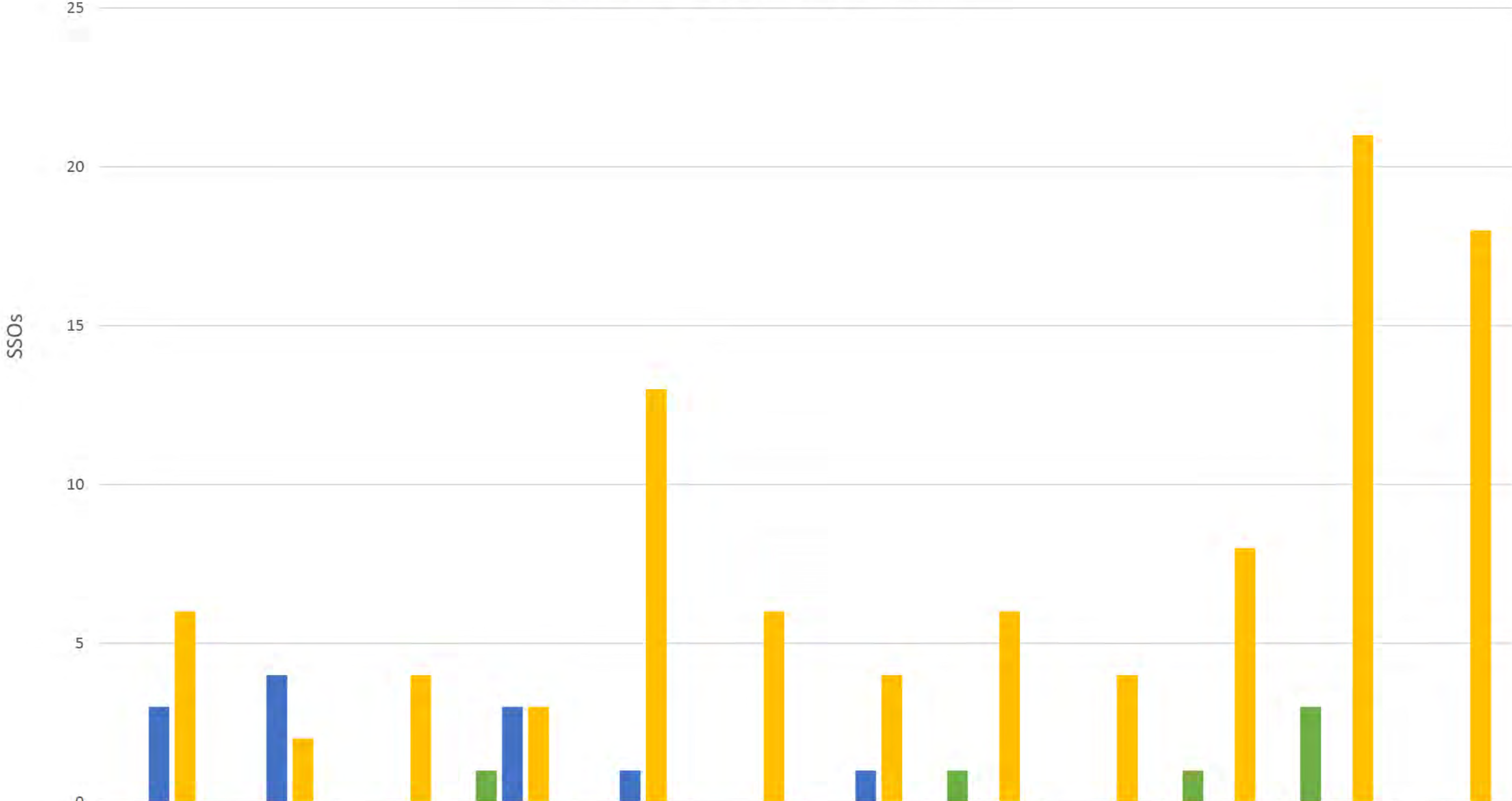


EXHIBIT 9-G

Historical SSOs 2007 - 2018



| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Category 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 0 |
| Category 2 | 3 | 4 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Category 3 | 6 | 2 | 4 | 3 | 13 | 6 | 4 | 6 | 4 | 8 | 21 | 18 |

EXHIBIT 9-H

SSO causes 2007 - 2018

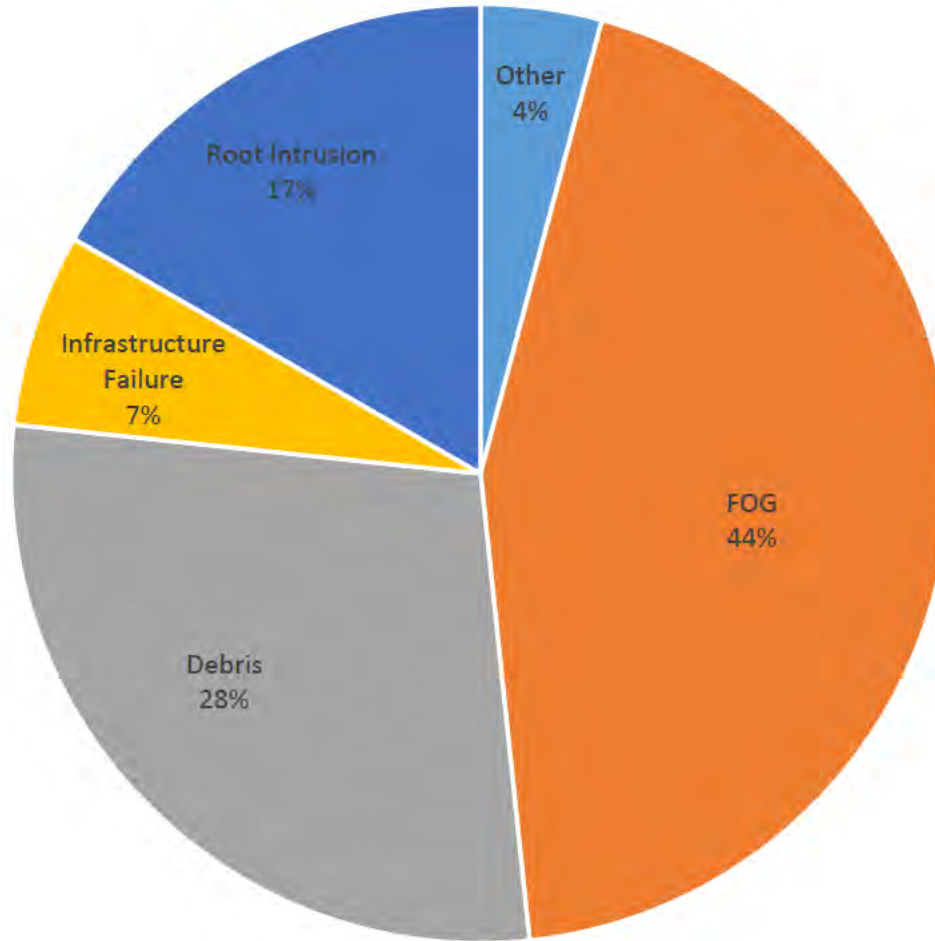
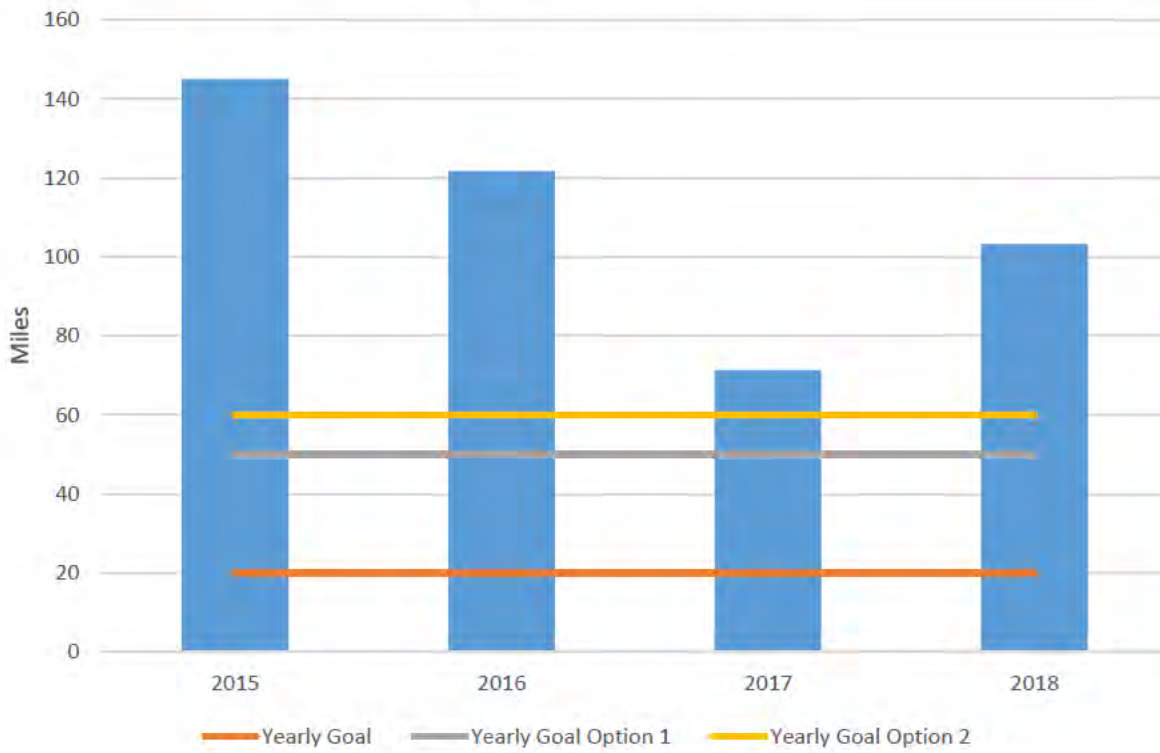


EXHIBIT 9-I

Miles of Sewer Flushed per Year



Miles of Sewer CCTV'd per Year

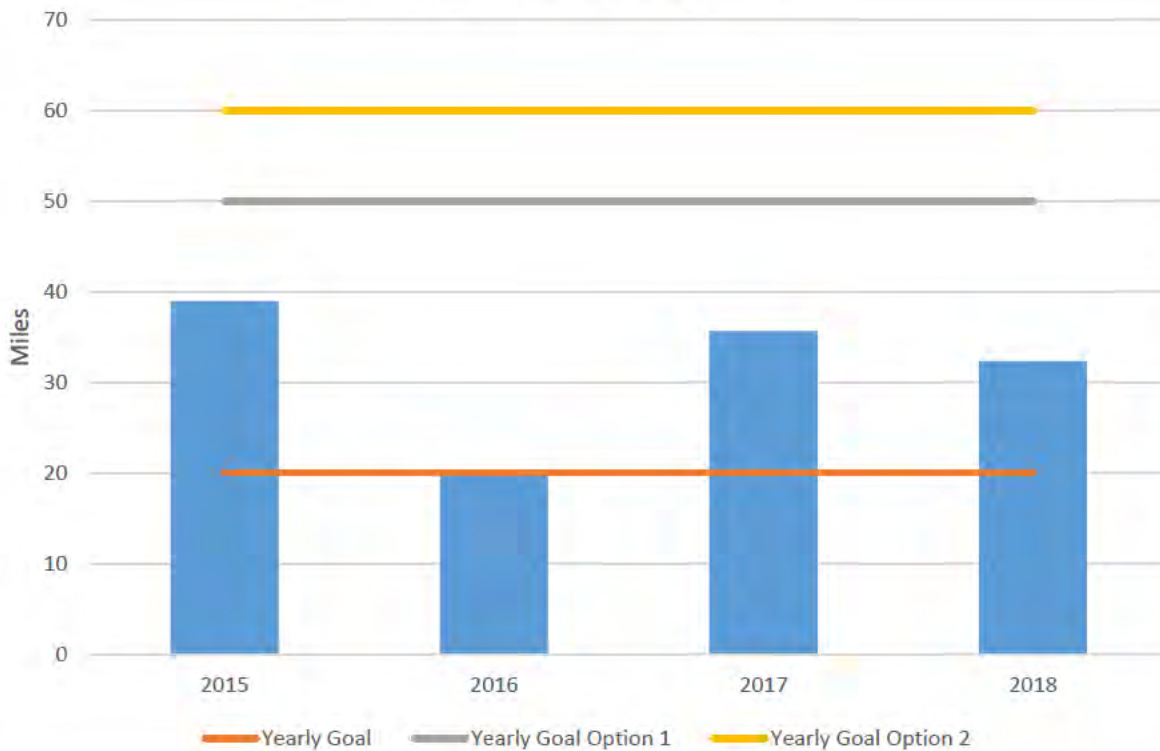


EXHIBIT 9-J



California Integrated Water Quality System Project (CIWQS)

COLLECTION SYSTEM OPERATIONAL REPORT

Please see the [Glossary of Terms](#) for explanations of the search results column headings. [More information about the report is found at the bottom of this page.](#)

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SEARCH CRITERIA: [\[REFINE SEARCH\]](#) [\[NEW SEARCH\]](#) [\[GLOSSARY\]](#)

Region ('5S')
 County ('Solano')
 Agency (Vacaville City DPW)
 Date Range: Start_Date (01/01/2015) End_Date (12/31/2018)

DRILLDOWN HISTORY: [\[GO BACK TO LISTING OF COLLECTION SYSTEMS\]](#)

Easterly CS
 Agency: Vacaville City DPW

General Information

| Region | Place ID | Place Name | CS Category | Place Address | Place County |
|--------|----------|-------------|--------------------|-----------------------------------|--------------|
| 5S | 630701 | Easterly CS | Municipal (Public) | 650 Merchant Vacaville, CA, 95688 | Solano |

Collection System Spill Summary

Operational Indices: Easterly CS

| | Spill Rate Index (spills/100mi/yr) | | | | | | | | |
|----------------------------------|------------------------------------|----------|---------------|------------|----------|---------------|------------|----------|---------------|
| | Category 1 | | | Category 2 | | | Category 3 | | |
| | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified |
| Easterly CS | 0.3 | 0.12 | 0.0 | 0.0 | 0.0 | 0.0 | 2.29 | 3.23 | 0.0 |
| State Municipal (Public) Average | 2.37 | 7.58 | 0.94 | 1.15 | 5.37 | 0.96 | 4.19 | 11.87 | 1.06 |
| Region Municipal Average | 3.04 | 12.77 | 2.34 | 1.74 | 1.74 | 0.97 | 5.08 | 13.59 | 1.51 |

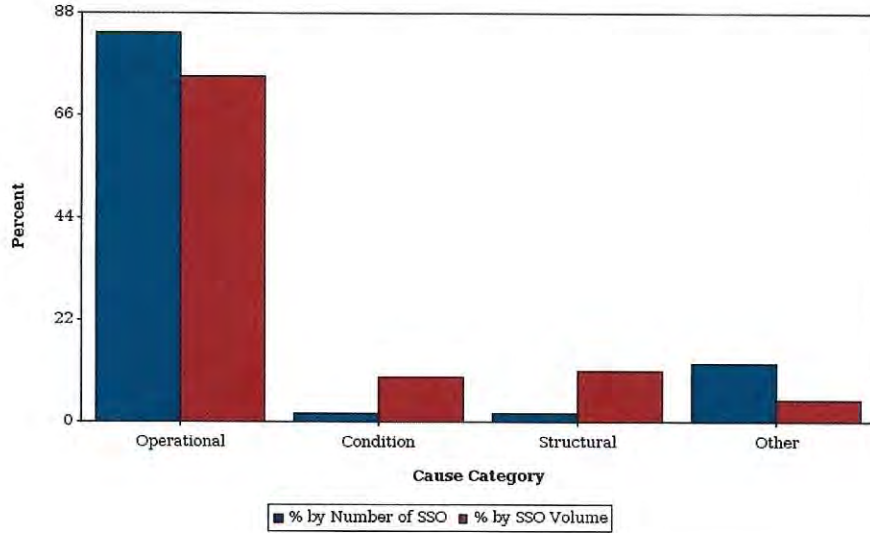
| | Net Volume Spills Index (gallons/1000 Capita/yr) | | | | | | | | |
|----------------------------------|--|----------|---------------|------------|----------|---------------|------------|----------|---------------|
| | Category 1 | | | Category 2 | | | Category 3 | | |
| | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified |
| Easterly CS | 16.45 | 0.04 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.01 | 0.0 |
| State Municipal (Public) Average | 1984.84 | 22.82 | 40184.1 | 440.4 | 74.46 | 316.64 | 32.26 | 3.35 | 44.52 |
| Region Municipal Average | 4298.36 | 25.98 | 179760.19 | 1343.92 | 41.69 | 682.79 | 48.72 | 3.56 | 122.1 |

Note: Click on hyperlinks to get comparison charts for CS, Region, and State grouped by 'Miles Of Pipe'.

- (1) The number of Category 1, 2 and 3 SSOs resulting from a failure in the Enrollee sewer system per 100 miles sewer system owned by the Enrollee per year.
- (2) Net Volume (volume spilled minus volume recovered) of SSOs, for which the reporting Enrollee is responsible, per capita (i.e. the population served by your agency's sanitary sewer system), per year.
- (3) Value calculated using miles of force mains and other pressure systems and miles of gravity sewers the agency is responsible for.
- (4) Value calculated using miles of laterals the agency is responsible for (Lower Only, Upper/Lower). For collection systems with no lateral responsibility a N/A is shown.
- (5) Value Calculated using total miles of collection system pipe the agency is responsible for.
- (6) Comparison made between similar collection systems type (e.g. municipal) and lateral responsibility for the entire state over the selected time period. Comparison indices are calculated for all similar collection systems and averaged for comparison.
- (7) Comparison made between similar collection systems type (e.g. Municipal) and lateral responsibility for collection systems in same region (e.g. Region 5S). Collection system indices are calculated for all similar collection systems and averaged for comparison. For airport, hospital, marinas, military, park, port, prison, school, and other collection systems facilities, only state comparison is shown.
- (8) For Criteria used and term definitions refer to the SSO Glossary of Terms.

Percentage of total Number and Volume of SSOs by Spill Cause

Collection System: Easterly CS



Percentage of total Volume of SSOs by Spill Cause

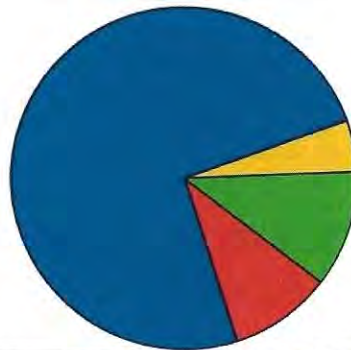
Operational: Debris from Construction, Debris from Lateral, Debris-General, Debris-Rags, Grease Deposition (FOG), Root Intrusion, Non - Dispersible Wipes

Condition: Flow Exceeded Capacity (Separate CS Only), Natural Disaster, Rainfall Exceeded Design, II (Separate CS Only)

Structural: Air Relief Valve (ARV)/Blow-Off Valve (BOV) Failure, Pipe Structural Problem/Failure, Pipe Structural Problem/Failure - Installation, Pump Station Failure-Controls, Pump Station Failure-Mechanical, Pump Station Failure-Power, Siphon Failure



Easterly CS



74.5% Operational 9.6% Condition 11% Structural 4.9% Other



Region 5S



State of California

Percentage of total Number of SSOs by Spill Cause

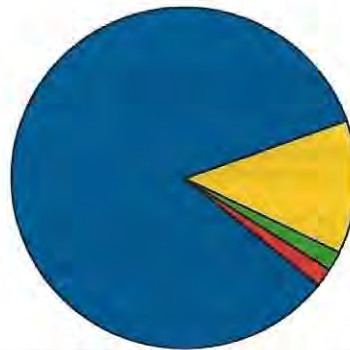
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Condition: Flow Exceeded Capacity (Separate CS Only), Natural Disaster, Rainfall Exceeded Design, II (Separate CS Only)

Structural: Air Relief Valve (ARV)/Blow-Off Valve (BOV) Failure, Pipe Structural Problem/Failure, Pipe Structural Problem/Failure - Installation, Pump Station Failure-Controls, Pump Station Failure-Mechanical, Pump Station Failure-Power, Siphon Failure



Easterly CS



83.6% Operational 1.8% Condition 1.8% Structural 12.7% Other

Region 5S
State of California

Collection System Questionnaire Data(*)

Collection System Information: Easterly CS

| | |
|--------------------------------------|-----------------------|
| Status | Active |
| Last Updated On | 2018-10-31 17:14:06.0 |
| Population Served | 100,032 |
| Miles of Force Main | 2.0 |
| Miles of Gravity Sewer | 249 |
| Miles of Laterals | 434 |
| Portion of Laterals Responsible | lower |
| Miles of Laterals Responsible | 217 |
| Number of Service Lateral Connection | 38200 |
| Sewer Constructed 2000 Current | 8 |
| Sewer Constructed 1980 1999 | 47 |
| Sewer Constructed 1960 1979 | 34 |
| Sewer Constructed 1940 1959 | 10 |
| Sewer Constructed 1920 1939 | 1 |
| Sewer Constructed 1900 1919 | 0 |
| Sewer Constructed Before 1900 | 0 |
| Inaccessible Sewer (Miles) | 2 |
| Sewer Clean Production (Miles/Yr) | 69.80 |
| Gravity Sewer Inspection (Miles/Yr) | 30.52 |

(*) The information presented above was provided by the Enrollee in the Collection System Questionnaire. Enrollees are required to update the questionnaire information at least once a year; therefore, the information presented above may not be the most current.

Sewer System Management Plan (SSMP) Completion (*)

SSMP Information: Easterly CS

| Task and Associated Section | Completed |
|---|-----------|
| Development Plan and Schedule | Yes |
| Section I - Goal | Yes |
| Section II - Organization | Yes |
| Section III - Legal Authority | Yes |
| Section IV - Operation Maintenance Program | Yes |
| Section V - Design Performance Provisions | Yes |
| Section VI - Overflow Emergency Response Plan | Yes |
| Section VII - FOG Control Program | Yes |
| Section VIII - System Evaluation Capacity Assurance Plan | Yes |
| Section IX - Monitoring, Measurement, and Program Modifications | Yes |
| Section X - SSMP Program Audits | Yes |
| Section XI - Communication Program | Yes |
| Complete SSMP implementation | Yes |

(*) Under the Statewide General WDRs for Sanitary Sewer Systems, WQO No. 2006-0003, enrollees are required to develop and implement a written Sewer system Management Plan (SSMP) and must make it publicly available. The SSMP must be approved by the deadlines in the SSMP Time Schedule presented in the Sanitary Sewer Systems WDR.

Additional Information:

- Data used for the Operational report is reported by the enrollees through the CIWQS (California Integrated Water Quality System) SSO module.
- Indices are calculated for the date range specified (default is past 4 months) and using data available since reporting was required for all enrollees as specified in the Sanitary Sewer Systems WDR. Reporting was required to begin for Regions 4,8,9 on 1/2/2007, Regions 1,2,3 on 5/2/2007, and, Regions 5,6,7 on 9/2/2007.

- Comparisons are made between similar collection systems type (e.g. Municipal), and lateral responsibility for the entire state and region. Indices are calculated for all similar collection systems and averaged for comparison.
- Category 1 and 2 spills are required to be fully certified 15 calendar days after SSO response conclusion and Category 3 spills are required to be fully certified 30 Calendar days after end of calendar month which SSO occurred. Therefore, spill records for the past approximately 60 days may be incomplete.
- Average Number of Spills per 100 miles: Measures the number of sewer overflows per 100 miles of sewer lines. Notice that these indices are strongly influenced by the length of collection system owned by the enrollee.
 - For instance, an enrollee that owns and operates a collection system of one (1) mile in length having only one (1) spill (analyzing data for ONE year) will have a Operational indice of 100.0 spills/100mi/yr. On the other hand, an enrollee that owns and operates a collection system of one hundred (100) miles in length having only one (1) spill (analyzing data for ONE year) will have a Operational indice of 1.0 spills/100mi/yr.
- Average Net Volume (volume spilled minus volume recovered) of Spills per Capita: Measures the volume in gallons of SSOs, for which the reporting Enrollee is responsible, per capita (the population served by your agency's sanitary sewer system). Where the volume recovered is greater than the volume spilled, the net volume will be considered to be zero.
- The "agency" or Enrollee listed on a SSO report is responsible for the data presented in this report and should be contacted directly for questions related to their Data.
- More information on the Sanitary Sewer Overflow Reduction program is available at: http://www.waterboards.ca.gov/water_issues/programs/ssso/index.shtml
- The Sanitary Sewer Overflows Incident Map is available at: http://www.waterboards.ca.gov/water_issues/programs/ssso/ssso_map/ssso_map_pub.shtml
- The Interactive SSO report: https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportSSOServlet?reportAction=criteria&reportId=ssso_main

The current report was generated with data as of: Thursday, April 18, 2019
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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EXHIBIT 9-K



California Integrated Water Quality System Project (CIWQS)

COLLECTION SYSTEM OPERATIONAL REPORT

Please see the [Glossary of Terms](#) for explanations of the search results column headings. [More information about the report is found at the bottom of this page.](#)

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SEARCH CRITERIA: [\[REFINE SEARCH\]](#) [\[NEW SEARCH\]](#) [\[GLOSSARY\]](#)

Region ('5S')
 County ('Solano')
 Agency (Vacaville City DPW)
 Date Range: Start_Date (01/01/2018) End_Date (12/31/2018)

DRILLDOWN HISTORY: [\[GO BACK TO LISTING OF COLLECTION SYSTEMS\]](#)

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 Agency: Vacaville City DPW

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Collection System Spill Summary

Operational Indices: Easterly CS

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|----------------------------------|------------------------------------|----------|---------------|------------|----------|---------------|------------|----------|---------------|
| | Category 1 | | | Category 2 | | | Category 3 | | |
| | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified |
| Easterly CS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 4.16 | 0.0 |
| State Municipal (Public) Average | 3.91 | 44.28 | 2.83 | 2.05 | 1.25 | 3.51 | 6.84 | 15.08 | 3.97 |
| Region Municipal Average | 4.43 | 76.71 | 4.81 | 1.75 | 0.07 | 0.38 | 8.99 | 14.62 | 4.2 |

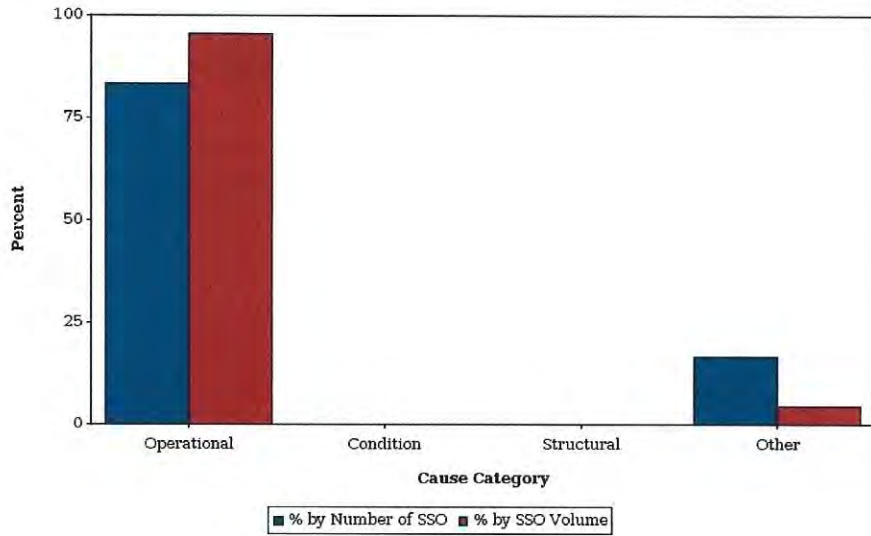
| | Net Volume Spills Index (gallons/1000 Capita/yr) | | | | | | | | |
|----------------------------------|--|----------|---------------|------------|----------|---------------|------------|----------|---------------|
| | Category 1 | | | Category 2 | | | Category 3 | | |
| | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified |
| Easterly CS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| State Municipal (Public) Average | 861.04 | 33.68 | 6493.32 | 603.27 | 0.0 | 803.11 | 49.59 | 3.27 | 106.61 |
| Region Municipal Average | 1358.68 | 22.03 | 14997.13 | 160.81 | 0.0 | 39.84 | 25.5 | 0.91 | 33.75 |

Note: Click on hyperlinks to get comparison charts for CS, Region, and State grouped by 'Miles Of Pipe'.

- (1) The number of Category 1, 2 and 3 SSOs resulting from a failure in the Enrollee sewer system per 100 miles sewer system owned by the Enrollee per year.
- (2) Net Volume (volume spilled minus volume recovered) of SSOs, for which the reporting Enrollee is responsible, per capita (i.e. the population served by your agency's sanitary sewer system), per year.
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- (6) Comparison made between similar collection systems type (e.g. municipal) and lateral responsibility for the entire state over the selected time period. Comparison indices are calculated for all similar collection systems and averaged for comparison.
- (7) Comparison made between similar collection systems type (e.g. Municipal) and lateral responsibility for collection systems in same region (e.g. Region 5S). Collection system indices are calculated for all similar collection systems and averaged for comparison. For airport, hospital, marinas, military, park, port, prison, school, and other collection systems facilities, only state comparison is shown.
- (8) For Criteria used and term definitions refer to the SSO Glossary of Terms.

Percentage of total Number and Volume of SSOs by Spill Cause

Collection System: Easterly CS

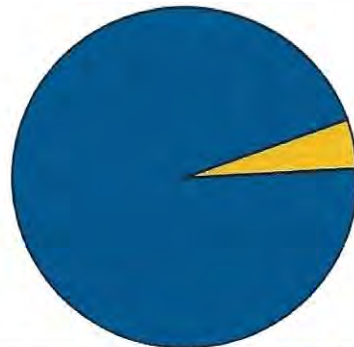


Percentage of total Volume of SSOs by Spill Cause

Operational: Debris from Construction, Debris from Lateral, Debris-General, Debris-Rags, Grease Deposition (FOG), Root Intrusion, Non - Dispersible Wipes
Condition: Flow Exceeded Capacity (Separate CS Only), Natural Disaster, Rainfall Exceeded Design, II (Separate CS Only)
Structural: Air Relief Valve (ARV)/Blow-Off Valve (BOV) Failure, Pipe Structural Problem/Failure, Pipe Structural Problem/Failure - Installation, Pump Station Failure-Controls, Pump Station Failure-Mechanical, Pump Station Failure-Power, Siphon Failure

[-]

Easterly CS



■ 95.4% Operational ■ 0% Condition ■ 0% Structural ■ 4.6% Other

[+]

Region SS

[+]

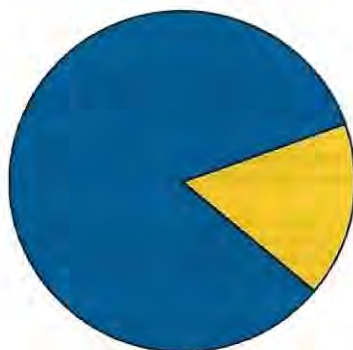
State of California

Percentage of total Number of SSOs by Spill Cause

Operational: Debris from Construction, Debris from Lateral, Debris-General, Debris-Rags, Grease Deposition (FOG), Root Intrusion, Non - Dispersible Wipes
Condition: Flow Exceeded Capacity (Separate CS Only), Natural Disaster, Rainfall Exceeded Design, II (Separate CS Only)
Structural: Air Relief Valve (ARV)/Blow-Off Valve (BOV) Failure, Pipe Structural Problem/Failure, Pipe Structural Problem/Failure - Installation, Pump Station Failure-Controls, Pump Station Failure-Mechanical, Pump Station Failure-Power, Siphon Failure

[-]

Easterly CS



■ 83.3% Operational ■ 0% Condition ■ 0% Structural □ 16.7% Other



Region 5S



State of California



Collection System Questionnaire Data(*)

Collection System Information: Easterly CS

| | |
|--------------------------------------|-----------------------|
| Status | Active |
| Last Updated On | 2018-10-31 17:14:06.0 |
| Population Served | 100,032 |
| Miles of Force Main | 2.0 |
| Miles of Gravity Sewer | 249 |
| Miles of Laterals | 434 |
| Portion of Laterals Responsible | lower |
| Miles of Laterals Responsible | 217 |
| Number of Service Lateral Connection | 38200 |
| Sewer Constructed 2000 Current | 8 |
| Sewer Constructed 1980 1999 | 47 |
| Sewer Constructed 1960 1979 | 34 |
| Sewer Constructed 1940 1959 | 10 |
| Sewer Constructed 1920 1939 | 1 |
| Sewer Constructed 1900 1919 | 0 |
| Sewer Constructed Before 1900 | 0 |
| Inaccessible Sewer (Miles) | 2 |
| Sewer Clean Production (Miles/Yr) | 69.80 |
| Gravity Sewer Inspection (Miles/Yr) | 30.52 |

(*) The information presented above was provided by the Enrollee in the Collection System Questionnaire. Enrollees are required to update the questionnaire information at least once a year; therefore, the information presented above may not be the most current.



Sewer System Management Plan (SSMP) Completion (*)

SSMP Information: Easterly CS

| Task and Associated Section | Completed |
|---|-----------|
| Development Plan and Schedule | Yes |
| Section I - Goal | Yes |
| Section II - Organization | Yes |
| Section III - Legal Authority | Yes |
| Section IV - Operation Maintenance Program | Yes |
| Section V - Design Performance Provisions | Yes |
| Section VI - Overflow Emergency Response Plan | Yes |
| Section VII - FOG Control Program | Yes |
| Section VIII - System Evaluation Capacity Assurance Plan | Yes |
| Section IX - Monitoring, Measurement, and Program Modifications | Yes |
| Section X - SSMP Program Audits | Yes |
| Section XI - Communication Program | Yes |
| Complete SSMP Implementation | Yes |

(*) Under the Statewide General WDRs for Sanitary Sewer Systems, WQO No. 2006-0003, enrollees are required to develop and implement a written Sewer system Management Plan (SSMP) and must make it publicly available. The SSMP must be approved by the deadlines in the SSMP Time Schedule presented in the Sanitary Sewer Systems WDR.

Additional Information:

- Data used for the Operational report is reported by the enrollees through the CIWQS (California Integrated Water Quality System) SSO module.
- Indices are calculated for the date range specified (default is past 4 months) and using data available since reporting was required for all enrollees as specified in the Sanitary Sewer Systems WDR. Reporting was required to begin for Regions 4,8,9 on 1/2/2007, Regions 1,2,3 on 5/2/2007, and, Regions 5,6,7 on 9/2/2007.

- Comparisons are made between similar collection systems type (e.g. Municipal), and lateral responsibility for the entire state and region. Indices are calculated for all similar collection systems and averaged for comparison.
- Category 1 and 2 spills are required to be fully certified 15 calendar days after SSO response conclusion and Category 3 spills are required to be fully certified 30 Calendar days after end of calendar month which SSO occurred. Therefore, spill records for the past approximately 60 days may be incomplete.
- Average Number of Spills per 100 miles: Measures the number of sewer overflows per 100 miles of sewer lines. Notice that these indices are strongly influenced by the length of collection system owned by the enrollee.
 - For instance, an enrollee that owns and operates a collection system of one (1) mile in length having only one (1) spill (analyzing data for ONE year) will have a Operational indice of 100.0 spills/100mi/yr. On the other hand, an enrollee that owns and operates a collection system of one hundred (100) miles in length having only one (1) spill (analyzing data for ONE year) will have a Operational indice of 1.0 spills/100mi/yr.
- Average Net Volume (volume spilled minus volume recovered) of Spills per Capita: Measures the volume in gallons of SSOs, for which the reporting Enrollee is responsible, per capita (the population served by your agency's sanitary sewer system). Where the volume recovered is greater than the volume spilled, the net volume will be considered to be zero.
- The "agency" or Enrollee listed on a SSO report is responsible for the data presented in this report and should be contacted directly for questions related to their Data.
- More information on the Sanitary Sewer Overflow Reduction program is available at: http://www.waterboards.ca.gov/water_issues/programs/sso/index.shtml
- The Sanitary Sewer Overflows Incident Map is available at: http://www.waterboards.ca.gov/water_issues/programs/sso/sso_map/sso_pub.shtml
- The Interactive SSO report: https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportSSOServlet?reportAction=criteria&reportId=sso_main

The current report was generated with data as of: Thursday, April 18, 2019
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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EXHIBIT 9-L



California Integrated Water Quality System Project (CIWQS)

COLLECTION SYSTEM OPERATIONAL REPORT

Please see the [Glossary of Terms](#) for explanations of the search results column headings. [More information about the report is found at the bottom of this page.](#)

[\[VIEW PRINTER FRIENDLY VERSION\]](#)

SEARCH CRITERIA: [\[REFINE SEARCH\]](#) [\[NEW SEARCH\]](#) [\[GLOSSARY\]](#)

Region ('5S')
 County ('Solano')
 Agency (Vacaville City DPW)
 Date Range: Start_Date (01/01/2017) End_Date (12/31/2017)

DRILLDOWN HISTORY: [\[GO BACK TO LISTING OF COLLECTION SYSTEMS\]](#)

Easterly CS
 Agency: Vacaville City DPW

General Information

| Region | Place ID | Place Name | CS Category | Place Address | Place County |
|--------|----------|-------------|--------------------|-----------------------------------|--------------|
| 5S | 630701 | Easterly CS | Municipal (Public) | 650 Merchant Vacaville, CA, 95688 | Solano |

Collection System Spill Summary

Operational Indices: Easterly CS

| | Spill Rate Index (spills/100mi/yr) | | | | | | | | |
|----------------------------------|------------------------------------|----------|---------------|------------|----------|---------------|------------|----------|---------------|
| | Category 1 | | | Category 2 | | | Category 3 | | |
| | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified |
| Easterly CS | 0.8 | 0.46 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 7.39 | 0.0 |
| State Municipal (Public) Average | 5.55 | 2.0 | 3.03 | 2.67 | 0.19 | 2.03 | 5.96 | 16.1 | 3.47 |
| Region Municipal Average | 9.88 | 2.25 | 7.14 | 4.23 | 0.19 | 2.84 | 7.92 | 17.02 | 4.98 |

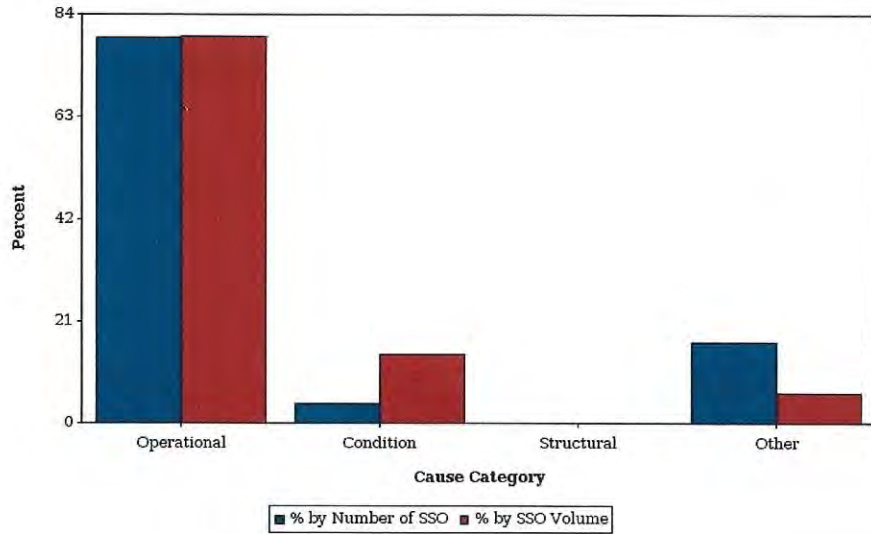
| | Net Volume Spills Index (gallons/1000 Capita/yr) | | | | | | | | |
|----------------------------------|--|----------|---------------|------------|----------|---------------|------------|----------|---------------|
| | Category 1 | | | Category 2 | | | Category 3 | | |
| | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified |
| Easterly CS | 53.79 | 0.17 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| State Municipal (Public) Average | 9257.98 | 111.87 | 294761.9 | 1741.64 | 3.06 | 1619.67 | 86.59 | 3.96 | 451.86 |
| Region Municipal Average | 25219.09 | 122.47 | 1409949.22 | 6670.05 | 3.06 | 4819.08 | 92.19 | 1.44 | 1206.8 |

Note: Click on hyperlinks to get comparison charts for CS, Region, and State grouped by 'Miles Of Pipe'.

- (1) The number of Category 1, 2 and 3 SSOs resulting from a failure in the Enrollee sewer system per 100 miles sewer system owned by the Enrollee per year.
- (2) Net Volume (volume spilled minus volume recovered) of SSOs, for which the reporting Enrollee is responsible, per capita (i.e. the population served by your agency's sanitary sewer system), per year.
- (3) Value calculated using miles of force mains and other pressure systems and miles of gravity sewers the agency is responsible for.
- (4) Value calculated using miles of laterals the agency is responsible for (Lower Only, Upper/Lower). For collection systems with no lateral responsibility a N/A is shown.
- (5) Value Calculated using total miles of collection system pipe the agency is responsible for.
- (6) Comparison made between similar collection systems type (e.g. municipal) and lateral responsibility for the entire state over the selected time period. Comparison indices are calculated for all similar collection systems and averaged for comparison.
- (7) Comparison made between similar collection systems type (e.g. Municipal) and lateral responsibility for collection systems in same region (e.g. Region 5S). Collection system indices are calculated for all similar collection systems and averaged for comparison. For airport, hospital, marinas, military, park, port, prison, school, and other collection systems facilities, only state comparison is shown.
- (8) For Criteria used and term definitions refer to the SSO Glossary of Terms.

Percentage of total Number and Volume of SSOs by Spill Cause

Collection System: Easterly CS



Percentage of total Volume of SSOs by Spill Cause

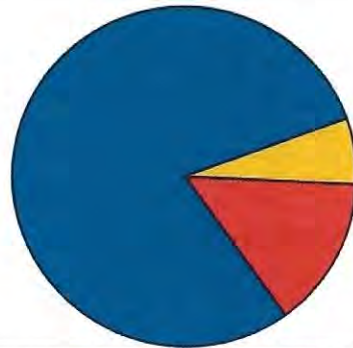
Operational: Debris from Construction, Debris from Lateral, Debris-General, Debris-Rags, Grease Deposition (FOG), Root Intrusion, Non - Dispersible Wipes

Condition: Flow Exceeded Capacity (Separate CS Only), Natural Disaster, Rainfall Exceeded Design, II (Separate CS Only)

Structural: Air Relief Valve (ARV)/Blow-Off Valve (BOV) Failure, Pipe Structural Problem/Failure, Pipe Structural Problem/Failure - Installation, Pump Station Failure-Controls, Pump Station Failure-Mechanical, Pump Station Failure-Power, Siphon Failure



Easterly CS



79.4% Operational 14.3% Condition 0% Structural 6.2% Other



Region 5S



State of California

Percentage of total Number of SSOs by Spill Cause

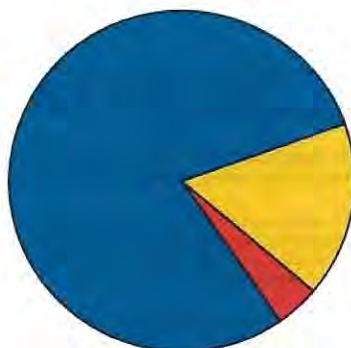
Operational: Debris from Construction, Debris from Lateral, Debris-General, Debris-Rags, Grease Deposition (FOG), Root Intrusion, Non - Dispersible Wipes

Condition: Flow Exceeded Capacity (Separate CS Only), Natural Disaster, Rainfall Exceeded Design, II (Separate CS Only)

Structural: Air Relief Valve (ARV)/Blow-Off Valve (BOV) Failure, Pipe Structural Problem/Failure, Pipe Structural Problem/Failure - Installation, Pump Station Failure-Controls, Pump Station Failure-Mechanical, Pump Station Failure-Power, Siphon Failure



Easterly CS



■ 79.2% Operational ■ 4.2% Condition ■ 0% Structural □ 16.7% Other



Region 5S



State of California



Collection System Questionnaire Data(*)

Collection System Information: Easterly CS

| | |
|--------------------------------------|-----------------------|
| Status | Active |
| Last Updated On | 2018-10-31 17:14:06.0 |
| Population Served | 100,032 |
| Miles of Force Main | 2.0 |
| Miles of Gravity Sewer | 249 |
| Miles of Laterals | 434 |
| Portion of Laterals Responsible | lower |
| Miles of Laterals Responsible | 217 |
| Number of Service Lateral Connection | 38200 |
| Sewer Constructed 2000 Current | 8 |
| Sewer Constructed 1980 1999 | 47 |
| Sewer Constructed 1960 1979 | 34 |
| Sewer Constructed 1940 1959 | 10 |
| Sewer Constructed 1920 1939 | 1 |
| Sewer Constructed 1900 1919 | 0 |
| Sewer Constructed Before 1900 | 0 |
| Inaccessible Sewer (Miles) | 2 |
| Sewer Clean Production (Miles/Yr) | 69.80 |
| Gravity Sewer Inspection (Miles/Yr) | 30.52 |

(*) The information presented above was provided by the Enrollee in the Collection System Questionnaire. Enrollees are required to update the questionnaire information at least once a year; therefore, the information presented above may not be the most current.



Sewer System Management Plan (SSMP) Completion (*)

SSMP Information: Easterly CS

| Task and Associated Section | Completed |
|---|-----------|
| Development Plan and Schedule | Yes |
| Section I - Goal | Yes |
| Section II - Organization | Yes |
| Section III - Legal Authority | Yes |
| Section IV - Operation Maintenance Program | Yes |
| Section V - Design Performance Provisions | Yes |
| Section VI - Overflow Emergency Response Plan | Yes |
| Section VII - FOG Control Program | Yes |
| Section VIII - System Evaluation Capacity Assurance Plan | Yes |
| Section IX - Monitoring, Measurement, and Program Modifications | Yes |
| Section X - SSMP Program Audits | Yes |
| Section XI - Communication Program | Yes |
| Complete SSMP Implementation | Yes |

(*) Under the Statewide General WDRs for Sanitary Sewer Systems, WQO No. 2006-0003, enrollees are required to develop and implement a written Sewer system Management Plan (SSMP) and must make it publicly available. The SSMP must be approved by the deadlines in the SSMP Time Schedule presented in the Sanitary Sewer Systems WDR.

Additional Information:

- Data used for the Operational report is reported by the enrollees through the CIWQS (California Integrated Water Quality System) SSO module.
- Indices are calculated for the date range specified (default is past 4 months) and using data available since reporting was required for all enrollees as specified in the Sanitary Sewer Systems WDR. Reporting was required to begin for Regions 4,8,9 on 1/2/2007, Regions 1,2,3 on 5/2/2007, and, Regions 5,6,7 on 9/2/2007.

- Comparisons are made between similar collection systems type (e.g. Municipal), and lateral responsibility for the entire state and region. Indices are calculated for all similar collection systems and averaged for comparison.
- Category 1 and 2 spills are required to be fully certified 15 calendar days after SSO response conclusion and Category 3 spills are required to be fully certified 30 Calendar days after end of calendar month which SSO occurred. Therefore, spill records for the past approximately 60 days may be incomplete.
- Average Number of Spills per 100 miles: Measures the number of sewer overflows per 100 miles of sewer lines. Notice that these indices are strongly influenced by the length of collection system owned by the enrollee.
 - For instance, an enrollee that owns and operates a collection system of one (1) mile in length having only one (1) spill (analyzing data for ONE year) will have a Operational indice of 100.0 spills/100mi/yr. On the other hand, an enrollee that owns and operates a collection system of one hundred (100) miles in length having only one (1) spill (analyzing data for ONE year) will have a Operational indice of 1.0 spills/100mi/yr.
- Average Net Volume (volume spilled minus volume recovered) of Spills per Capita: Measures the volume in gallons of SSOs, for which the reporting Enrollee is responsible, per capita (the population served by your agency's sanitary sewer system). Where the volume recovered is greater than the volume spilled, the net volume will be considered to be zero.
- The "agency" or Enrollee listed on a SSO report is responsible for the data presented in this report and should be contacted directly for questions related to their Data.
- More information on the Sanitary Sewer Overflow Reduction program is available at: http://www.waterboards.ca.gov/water_issues/programs/ssoi/index.shtml
- The Sanitary Sewer Overflows Incident Map is available at: http://www.waterboards.ca.gov/water_issues/programs/ssoi/ssoi_map/ssoi_map.shtml
- The Interactive SSO report: https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportSSOServlet?reportAction=criteria&reportId=sso_main

The current report was generated with data as of: Thursday, April 18, 2019
Regional Boards are in the process of entering backlogged data,
As a result, data may be incomplete.

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EXHIBIT 9-M



California Integrated Water Quality System Project (CIWQS)

COLLECTION SYSTEM OPERATIONAL REPORT

Please see the [Glossary of Terms](#) for explanations of the search results column headings. [More information about the report is found at the bottom of this page.](#)

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SEARCH CRITERIA: [REFINE SEARCH](#) [NEW SEARCH](#) [GLOSSARY](#)

Region ('55')
 County ('Solano')
 Agency (Vacaville City DPW)
 Date Range: Start_Date (01/01/2016) End_Date (12/31/2016)

DRILLDOWN HISTORY: [GO BACK TO LISTING OF COLLECTION SYSTEMS](#)

Easterly CS
 Agency: Vacaville City DPW

General Information

| Region | Place ID | Place Name | CS Category | Place Address | Place County |
|--------|----------|-------------|--------------------|-----------------------------------|--------------|
| 5S | 630701 | Easterly CS | Municipal (Public) | 650 Merchant Vacaville, CA, 95688 | Solano |

Collection System Spill Summary

Operational Indices: Easterly CS

| | Spill Rate Index (spills/100mi/yr) | | | | | | | | |
|----------------------------------|------------------------------------|----------|---------------|------------|----------|---------------|------------|----------|---------------|
| | Category 1 | | | Category 2 | | | Category 3 | | |
| | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified |
| Easterly CS | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.99 | 1.38 | 0.0 |
| State Municipal (Public) Average | 4.89 | 3.35 | 4.17 | 3.83 | 31.48 | 5.33 | 7.09 | 18.81 | 2.22 |
| Region Municipal Average | 5.72 | 2.18 | 8.54 | 7.68 | 0.12 | 9.56 | 8.36 | 21.31 | 2.5 |

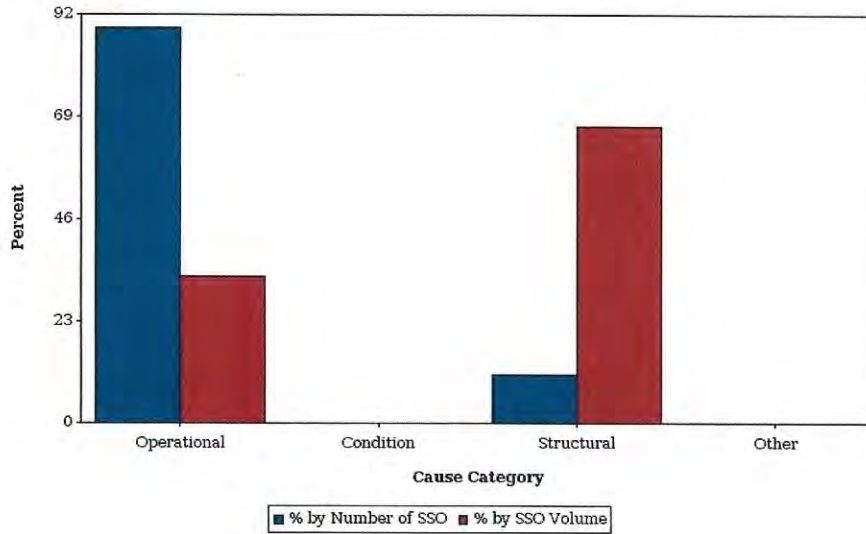
| | Net Volume Spills Index (gallons/1000 Capita/yr) | | | | | | | | |
|----------------------------------|--|----------|---------------|------------|----------|---------------|------------|----------|---------------|
| | Category 1 | | | Category 2 | | | Category 3 | | |
| | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified |
| Easterly CS | 12.15 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.05 | 0.0 |
| State Municipal (Public) Average | 2406.45 | 50.68 | 1659.28 | 426.52 | 396.15 | 1347.28 | 42.33 | 5.65 | 41.57 |
| Region Municipal Average | 1582.45 | 2.16 | 3569.18 | 1202.66 | 0.02 | 2662.73 | 79.66 | 4.63 | 122.92 |

Note: Click on hyperlinks to get comparison charts for CS, Region, and State grouped by 'Miles Of Pipe'.

- (1) The number of Category 1, 2 and 3 SSOs resulting from a failure in the Enrollee sewer system per 100 miles sewer system owned by the Enrollee per year.
- (2) Net Volume (volume spilled minus volume recovered) of SSOs, for which the reporting Enrollee is responsible, per capita (i.e. the population served by your agency's sanitary sewer system), per year.
- (3) Value calculated using miles of force mains and other pressure systems and miles of gravity sewers the agency is responsible for.
- (4) Value calculated using miles of laterals the agency is responsible for (Lower Only, Upper/Lower). For collection systems with no lateral responsibility a N/A is shown.
- (5) Value Calculated using total miles of collection system pipe the agency is responsible for.
- (6) Comparison made between similar collection systems type (e.g. municipal) and lateral responsibility for the entire state over the selected time period. Comparison indices are calculated for all similar collection systems and averaged for comparison.
- (7) Comparison made between similar collection systems type (e.g. Municipal) and lateral responsibility for collection systems in same region (e.g. Region 5S). Collection system indices are calculated for all similar collection systems and averaged for comparison. For airport, hospital, marinas, military, park, port, prison, school, and other collection systems facilities, only state comparison is shown.
- (8) For Criteria used and term definitions refer to the SSO Glossary of Terms.

Percentage of total Number and Volume of SSOs by Spill Cause

Collection System: Easterly CS

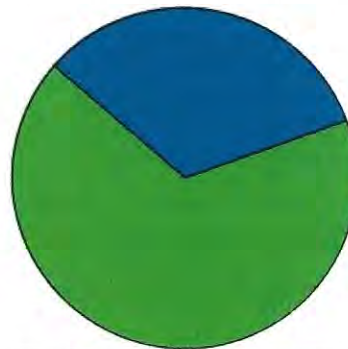


Percentage of total Volume of SSOs by Spill Cause

Operational: Debris from Construction, Debris from Lateral, Debris-General, Debris-Rags, Grease Deposition (FOG), Root Intrusion, Non - Dispersible Wipes
Condition: Flow Exceeded Capacity (Separate CS Only), Natural Disaster, Rainfall Exceeded Design, II (Separate CS Only)
Structural: Air Relief Valve (ARV)/Blow-Off Valve (BOV) Failure , Pipe Structural Problem/Failure, Pipe Structural Problem/Failure - Installation, Pump Station Failure-Controls, Pump Station Failure-Mechanical, Pump Station Failure-Power, Siphon Failure



Easterly CS



■ 33.1% Operational ■ 0% Condition ■ 66.9% Structural □ 0% Other



Region 5S



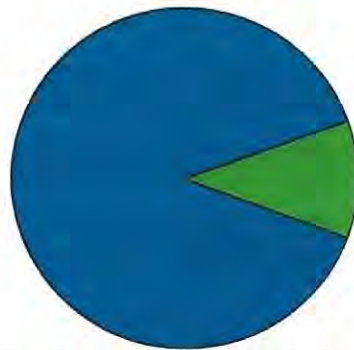
State of California

Percentage of total Number of SSOs by Spill Cause

Operational: Debris from Construction, Debris from Lateral, Debris-General, Debris-Rags, Grease Deposition (FOG), Root Intrusion, Non - Dispersible Wipes
Condition: Flow Exceeded Capacity (Separate CS Only), Natural Disaster, Rainfall Exceeded Design, II (Separate CS Only)
Structural: Air Relief Valve (ARV)/Blow-Off Valve (BOV) Failure , Pipe Structural Problem/Failure, Pipe Structural Problem/Failure - Installation, Pump Station Failure-Controls, Pump Station Failure-Mechanical, Pump Station Failure-Power, Siphon Failure



Easterly CS



■ 88.9% Operational ■ 0% Condition ■ 11.1% Structural ■ 0% Other



Region 5S



State of California



Collection System Questionnaire Data(*)

Collection System Information: Easterly CS

| | |
|--------------------------------------|-----------------------|
| Status | Active |
| Last Updated On | 2018-10-31 17:14:06.0 |
| Population Served | 100,032 |
| Miles of Force Main | 2.0 |
| Miles of Gravity Sewer | 249 |
| Miles of Laterals | 434 |
| Portion of Laterals Responsible | lower |
| Miles of Laterals Responsible | 217 |
| Number of Service Lateral Connection | 38200 |
| Sewer Constructed 2000 Current | 8 |
| Sewer Constructed 1980 1999 | 47 |
| Sewer Constructed 1960 1979 | 34 |
| Sewer Constructed 1940 1959 | 10 |
| Sewer Constructed 1920 1939 | 1 |
| Sewer Constructed 1900 1919 | 0 |
| Sewer Constructed Before 1900 | 0 |
| Inaccessible Sewer (Miles) | 2 |
| Sewer Clean Production (Miles/Yr) | 69.80 |
| Gravity Sewer Inspection (Miles/Yr) | 30.52 |

(*) The information presented above was provided by the Enrollee in the Collection System Questionnaire. Enrollees are required to update the questionnaire information at least once a year; therefore, the information presented above may not be the most current.



Sewer System Management Plan (SSMP) Completion (*)

SSMP Information: Easterly CS

| Task and Associated Section | Completed |
|---|-----------|
| Development Plan and Schedule | Yes |
| Section I - Goal | Yes |
| Section II - Organization | Yes |
| Section III - Legal Authority | Yes |
| Section IV - Operation Maintenance Program | Yes |
| Section V - Design Performance Provisions | Yes |
| Section VI - Overflow Emergency Response Plan | Yes |
| Section VII - FOG Control Program | Yes |
| Section VIII - System Evaluation Capacity Assurance Plan | Yes |
| Section IX - Monitoring, Measurement, and Program Modifications | Yes |
| Section X - SSMP Program Audits | Yes |
| Section XI - Communication Program | Yes |
| Complete SSMP Implementation | Yes |

(*) Under the Statewide General WDRs for Sanitary Sewer Systems, WQO No. 2006-0003, enrollees are required to develop and implement a written Sewer system Management Plan (SSMP) and must make it publicly available. The SSMP must be approved by the deadlines in the SSMP Time Schedule presented in the Sanitary Sewer Systems WDR.

Additional Information:

- Data used for the Operational report is reported by the enrollees through the CIWQS (California Integrated Water Quality System) SSO module.
- Indices are calculated for the date range specified (default is past 4 months) and using data available since reporting was required for all enrollees as specified in the Sanitary Sewer Systems WDR. Reporting was required to begin for Regions 4,8,9 on 1/2/2007, Regions 1,2,3 on 5/2/2007, and, Regions 5,6,7 on 9/2/2007.

- Comparisons are made between similar collection systems type (e.g. Municipal), and lateral responsibility for the entire state and region. Indices are calculated for all similar collection systems and averaged for comparison.
- Category 1 and 2 spills are required to be fully certified 15 calendar days after SSO response conclusion and Category 3 spills are required to be fully certified 30 Calendar days after end of calendar month which SSO occurred. Therefore, spill records for the past approximately 60 days may be incomplete.
- Average Number of Spills per 100 miles: Measures the number of sewer overflows per 100 miles of sewer lines. Notice that these indices are strongly influenced by the length of collection system owned by the enrollee.
 - For instance, an enrollee that owns and operates a collection system of one (1) mile in length having only one (1) spill (analyzing data for ONE year) will have a Operational indice of 100.0 spills/100mi/yr. On the other hand, an enrollee that owns and operates a collection system of one hundred (100) miles in length having only one (1) spill (analyzing data for ONE year) will have a Operational indice of 1.0 spills/100mi/yr.
- Average Net Volume (volume spilled minus volume recovered) of Spills per Capita: Measures the volume in gallons of SSOs, for which the reporting Enrollee is responsible, per capita (the population served by your agency's sanitary sewer system). Where the volume recovered is greater than the volume spilled, the net volume will be considered to be zero.
- The "agency" or Enrollee listed on a SSO report is responsible for the data presented in this report and should be contacted directly for questions related to their Data.
- More information on the Sanitary Sewer Overflow Reduction program is available at: http://www.waterboards.ca.gov/water_issues/programs/sso/index.shtml
- The Sanitary Sewer Overflows Incident Map is available at: http://www.waterboards.ca.gov/water_issues/programs/sso/sso_map/sso_pub.shtml
- The Interactive SSO report: https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportSSOServlet?reportAction=criteria&reportId=sso_main

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EXHIBIT 9-N



California Integrated Water Quality System Project (CIWQS)

COLLECTION SYSTEM OPERATIONAL REPORT

Please see the [Glossary of Terms](#) for explanations of the search results column headings. [More information about the report is found at the bottom of this page.](#)

[\[VIEW PRINTER FRIENDLY VERSION\]](#)

SEARCH CRITERIA: [\[REFINE SEARCH\]](#) [\[NEW SEARCH\]](#) [\[GLOSSARY\]](#)

Region ('5S')
 County ('Solano')
 Agency (Vacaville City DPW)
 Date Range: Start_Date (01/01/2015) End_Date (12/31/2015)

DRILLDOWN HISTORY: [\[GO BACK TO LISTING OF COLLECTION SYSTEMS\]](#)

Easterly CS
 Agency: Vacaville City DPW

General Information

| Region | Place ID | Place Name | CS Category | Place Address | Place County |
|--------|----------|-------------|--------------------|-----------------------------------|--------------|
| 5S | 630701 | Easterly CS | Municipal (Public) | 650 Merchant Vacaville, CA, 95688 | Solano |

Collection System Spill Summary

Operational Indices: Easterly CS

| | Spill Rate Index (spills/100mi/yr) | | | | | | | | |
|----------------------------------|------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|----------------------|
| | Category 1 | | | Category 2 | | | Category 3 | | |
| | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified |
| Easterly CS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 |
| State Municipal (Public) Average | 3.97 | 2.39 | 2.53 | 3.07 | 6.77 | 2.74 | 7.75 | 24.37 | 3.59 |
| Region Municipal Average | 5.03 | 0.7 | 9.07 | 4.93 | 6.77 | 2.03 | 11.58 | 38.28 | 8.33 |

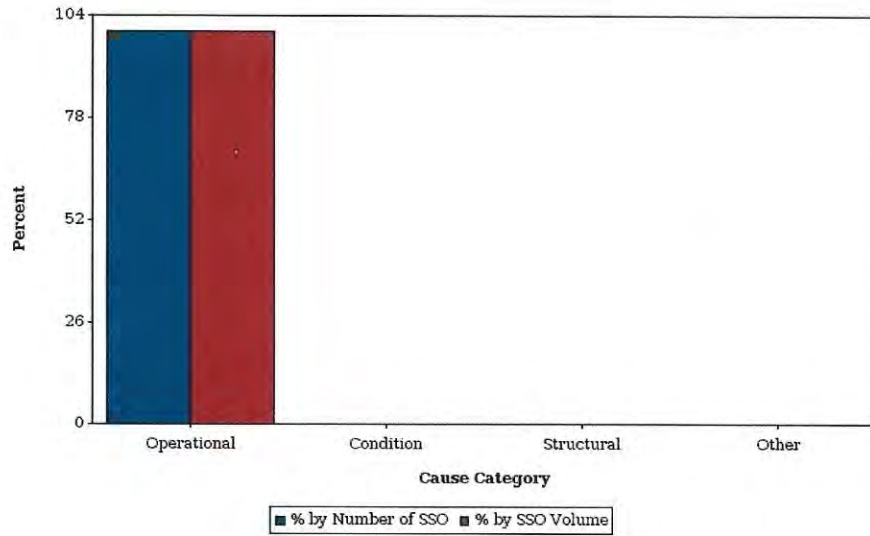
| | Net Volume Spills Index (gallons/1000 Capita/yr) | | | | | | | | |
|----------------------------------|--|----------------------|--------------------------|-------------------------|------------------------|-------------------------|------------------------|-----------------------|----------------------|
| | Category 1 | | | Category 2 | | | Category 3 | | |
| | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified | Mainlines | Laterals | Not Specified |
| Easterly CS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| State Municipal (Public) Average | 1611.15 | 3.38 | 13143.42 | 1588.1 | 165.16 | 435.81 | 56.17 | 8.18 | 5.36 |
| Region Municipal Average | 1561.86 | 1.97 | 68598.09 | 6326.24 | 165.16 | 1373.95 | 149.54 | 17.79 | 0.53 |

Note: Click on hyperlinks to get comparison charts for CS, Region, and State grouped by 'Miles Of Pipe'.

- (1) The number of Category 1, 2 and 3 SSOs resulting from a failure in the Enrollee sewer system per 100 miles sewer system owned by the Enrollee per year.
- (2) Net Volume (volume spilled minus volume recovered) of SSOs, for which the reporting Enrollee is responsible, per capita (i.e. the population served by your agency's sanitary sewer system), per year.
- (3) Value calculated using miles of force mains and other pressure systems and miles of gravity sewers the agency is responsible for.
- (4) Value calculated using miles of laterals the agency is responsible for (Lower Only, Upper/Lower). For collection systems with no lateral responsibility a N/A is shown.
- (5) Value Calculated using total miles of collection system pipe the agency is responsible for.
- (6) Comparison made between similar collection systems type (e.g. municipal) and lateral responsibility for the entire state over the selected time period. Comparison indices are calculated for all similar collection systems and averaged for comparison.
- (7) Comparison made between similar collection systems type (e.g. Municipal) and lateral responsibility for collection systems in same region (e.g. Region 5S). Collection system indices are calculated for all similar collection systems and averaged for comparison. For airport, hospital, marinas, military, park, port, prison, school, and other collection systems facilities, only state comparison is shown.
- (8) For Criteria used and term definitions refer to the SSO Glossary of Terms.

Percentage of total Number and Volume of SSOs by Spill Cause

Collection System: Easterly CS



Percentage of total Volume of SSOs by Spill Cause

Operational: Debris from Construction, Debris from Lateral, Debris-General, Debris-Rags, Grease Deposition (FOG), Root Intrusion, Non - Dispersible Wipes

Condition: Flow Exceeded Capacity (Separate CS Only), Natural Disaster, Rainfall Exceeded Design, II (Separate CS Only)

Structural: Air Relief Valve (ARV)/Blow-Off Valve (BOV) Failure, Pipe Structural Problem/Failure, Pipe Structural Problem/Failure - Installation, Pump Station Failure-Controls, Pump Station Failure-Mechanical, Pump Station Failure-Power, Siphon Failure



Easterly CS



■ 100% Operational ■ 0% Condition ■ 0% Structural ■ 0% Other



Region 5S



State of California

Percentage of total Number of SSOs by Spill Cause

Operational: Debris from Construction, Debris from Lateral, Debris-General, Debris-Rags, Grease Deposition (FOG), Root Intrusion, Non - Dispersible Wipes

Condition: Flow Exceeded Capacity (Separate CS Only), Natural Disaster, Rainfall Exceeded Design, II (Separate CS Only)

Structural: Air Relief Valve (ARV)/Blow-Off Valve (BOV) Failure, Pipe Structural Problem/Failure, Pipe Structural Problem/Failure - Installation, Pump Station Failure-Controls, Pump Station Failure-Mechanical, Pump Station Failure-Power, Siphon Failure



Easterly CS



■ 100% Operational ■ 0% Condition ■ 0% Structural □ 0% Other



Region 5S



State of California



Collection System Questionnaire Data(*)

Collection System Information: Easterly CS

| | |
|--------------------------------------|-----------------------|
| Status | Active |
| Last Updated On | 2018-10-31 17:14:06.0 |
| Population Served | 100,032 |
| Miles of Force Main | 2.0 |
| Miles of Gravity Sewer | 249 |
| Miles of Laterals | 434 |
| Portion of Laterals Responsible | lower |
| Miles of Laterals Responsible | 217 |
| Number of Service Lateral Connection | 38200 |
| Sewer Constructed 2000 Current | 8 |
| Sewer Constructed 1980 1999 | 47 |
| Sewer Constructed 1960 1979 | 34 |
| Sewer Constructed 1940 1959 | 10 |
| Sewer Constructed 1920 1939 | 1 |
| Sewer Constructed 1900 1919 | 0 |
| Sewer Constructed Before 1900 | 0 |
| Inaccessible Sewer (Miles) | 2 |
| Sewer Clean Production (Miles/Yr) | 69.80 |
| Gravity Sewer Inspection (Miles/Yr) | 30.52 |

(*) The information presented above was provided by the Enrollee in the Collection System Questionnaire. Enrollees are required to update the questionnaire information at least once a year; therefore, the information presented above may not be the most current.



Sewer System Management Plan (SSMP) Completion (*)

SSMP Information: Easterly CS

| Task and Associated Section | Completed |
|---|-----------|
| Development Plan and Schedule | Yes |
| Section I - Goal | Yes |
| Section II - Organization | Yes |
| Section III - Legal Authority | Yes |
| Section IV - Operation Maintenance Program | Yes |
| Section V - Design Performance Provisions | Yes |
| Section VI - Overflow Emergency Response Plan | Yes |
| Section VII - FOG Control Program | Yes |
| Section VIII - System Evaluation Capacity Assurance Plan | Yes |
| Section IX - Monitoring, Measurement, and Program Modifications | Yes |
| Section X - SSMP Program Audits | Yes |
| Section XI - Communication Program | Yes |
| Complete SSMP Implementation | Yes |

(*) Under the Statewide General WDRs for Sanitary Sewer Systems, WQO No. 2006-0003, enrollees are required to develop and implement a written Sewer system Management Plan (SSMP) and must make it publicly available. The SSMP must be approved by the deadlines in the SSMP Time Schedule presented in the Sanitary Sewer Systems WDR.

Additional Information:

- Data used for the Operational report is reported by the enrollees through the CIWQS (California Integrated Water Quality System) SSO module.
- Indices are calculated for the date range specified (default is past 4 months) and using data available since reporting was required for all enrollees as specified in the Sanitary Sewer Systems WDR. Reporting was required to begin for Regions 4,8,9 on 1/2/2007, Regions 1,2,3 on 5/2/2007, and, Regions 5,6,7 on 9/2/2007.

- Comparisons are made between similar collection systems type (e.g. Municipal), and lateral responsibility for the entire state and region. Indices are calculated for all similar collection systems and averaged for comparison.
- Category 1 and 2 spills are required to be fully certified 15 calendar days after SSO response conclusion and Category 3 spills are required to be fully certified 30 Calendar days after end of calendar month which SSO occurred. Therefore, spill records for the past approximately 60 days may be incomplete.
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- The Interactive SSO report: https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportSSOServiet?reportAction=criteria&reportid=ss0_main

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EXHIBIT 9-0



City of Vacaville
Utilities Department

Performance Metrics Monthly Report
April 2019

Prepared by: Lauren Graves
Engineering Intern

Prepared: May 2019

Reviewed by: Manuel Vasquez, PW Manager
Public Works Maintenance

Miguel Medina, SSMP Manager
Utilities Department

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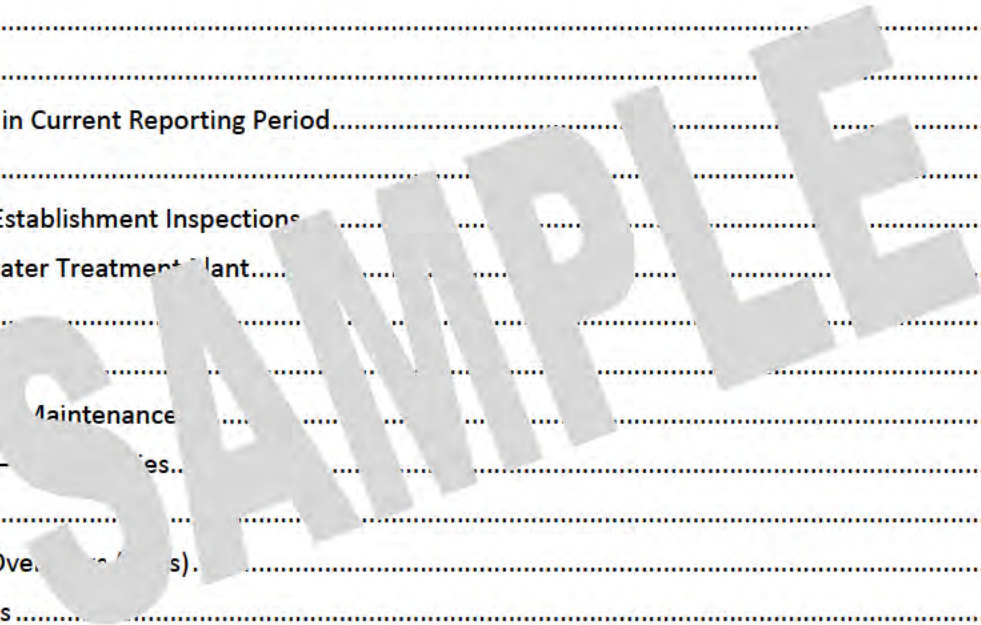
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Introduction

Purpose

The purpose of this report is to present and discuss the management and performance of the wastewater collection system.

Items of Note in Current Reporting Period

The following items of note occurred within this reporting period:

- Utilities department instrumentation and controls completed their assessment of Grandview Lift Station

Water Quality

Food Service Establishment Inspections

FSEs completed for the month of April: 23

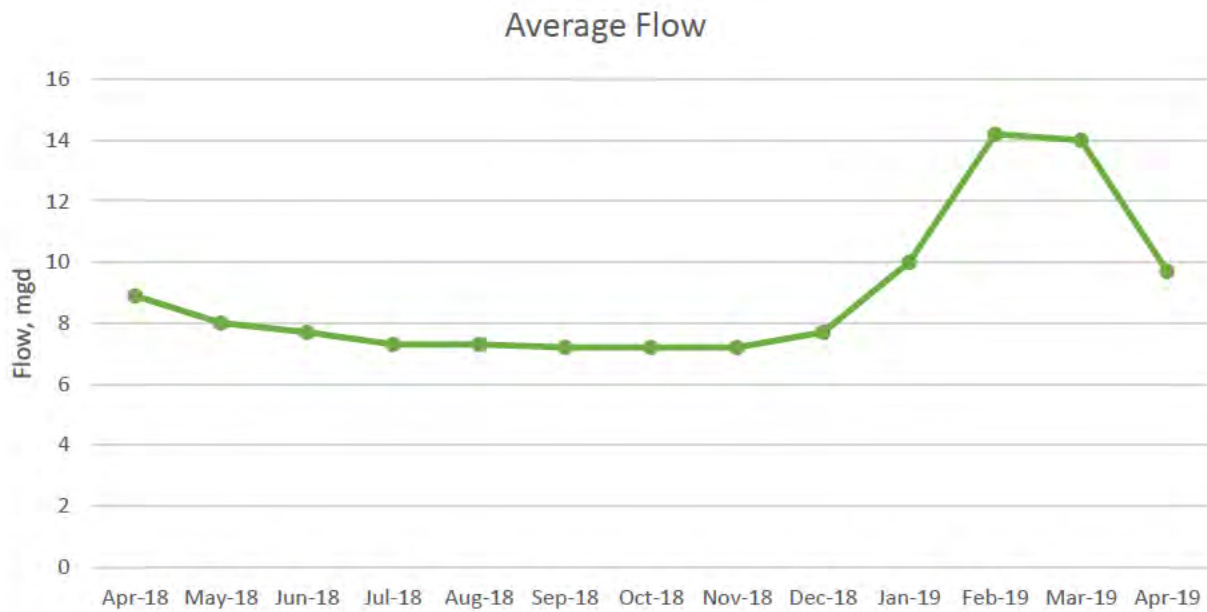
Easterly Wastewater Treatment Plant

Flow

The dry weather period is from May to September and the wet weather period is from October to April.

| Flow | |
|---|----------|
| Average Monthly Flow | 9.7 mgd |
| Average Yearly Flow | 9.0 mgd |
| Average Dry Weather Flow (ADWF) | 7.5 mgd |
| Peak Wet Weather Flow ¹ (PWWF) | 29.7 mgd |
| Wet Weather Peaking Factor (PWWF/ADWF) | 4 |

¹Occurred on 2/27/2019



Lift Station Maintenance

Wastewater flow is conveyed through the force main network to Easterly Wastewater Treatment Plant through one of seven lift stations: Allison LS, B Street LS, Brown Street LS, Grandview LS, Leisure Town LS, Vaca Valley LS, and Horse Creek LS. Regular maintenance and monitoring of lift stations are critical for the continued operation of the collection system.

| Maintenance | |
|--------------------------------------|--|
| Planned Work Orders Completed | 100% |
| Notable Activities | |
| 1. Wet wells cleaned | B Street (4/3/19), Horse Creek (4/10/19) |
| 2. Air Relief Valve Maintenance | |
| Lift Stations | |
| > Horse Creek | HCL0-ARV-92.11 (6/15/18), HCL0-ARV-92.12 (6/15/18) |
| > Vaca Valley | VVL0-ARV-92.11 (6/11/18) |
| > Leisure Town | LT0-ARV-92.11 (6/11/18) |
| Force Mains | |
| > Leisure Town 12" | Completed |
| > Leisure Town 10" | Buried |
| > Horse Creek 18" | Recently found w/ gate in "off" position |

Collection System Maintenance

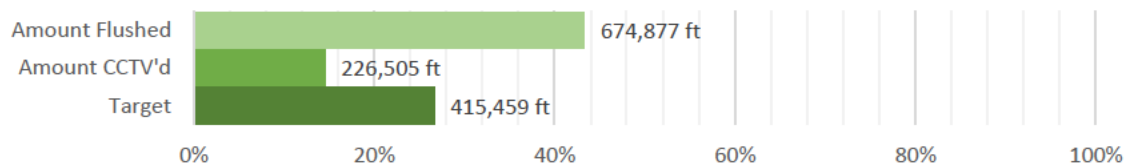
Public Works – Field Utilities

Regular maintenance and cleaning of the gravity and force mains prevent SSOs, protect public health, and extend service life. CCTV inspections are used to monitor and assess the condition of the pipes. Smoke testing reveals possible sources of inflow and infiltration into the system.

| Activity | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|----------|--------|--------|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|------------|
| CCTV | 6,196 | 16,238 | 19,722 | 13,639 | | | | | | | | | 55,795 ft |
| Flushed | 42,123 | 12,450 | 35,450 | 40,030 | | | | | | | | | 130,053 ft |
| Smoke | - | - | - | - | | | | | | | | | - |

In order to reach the city’s goal of inspecting and flushing the entire sewer network in a five year period, crews must CCCTV and flush an average of 26,000 ft of pipe per month. The current cleaning cycle began January 2018 and ends December 2022.

Total Pipe CCTV'd/Flushed Since January 2018



Notable Activities

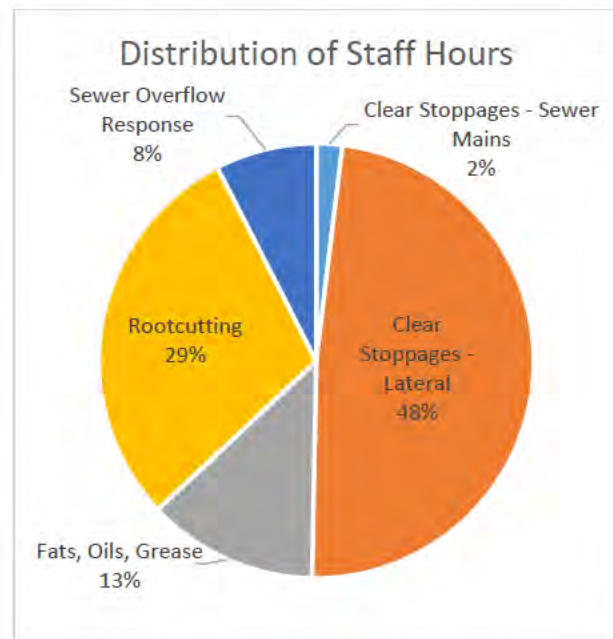
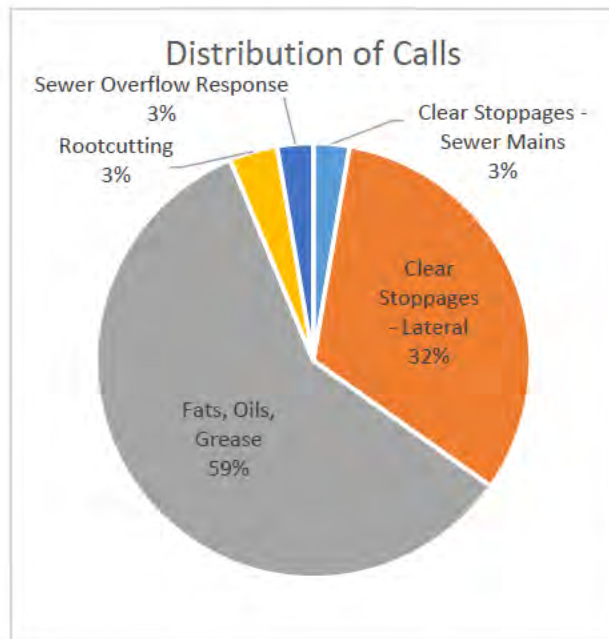
- [Major rehabs/repairs]
- [Misc. items]

Service Calls

NUMBERS INCLUDED HERE ARE ONLY AN EXAMPLE PENDING DEVELOPMENT OF NEW CODES IN THE NEW ASSET MANAGEMENT SYSTEM

High numbers of service calls reduces the availability of O&M resources for preventative maintenance and scheduled repairs. Understanding the causes of service calls allows for more effective planning of O&M activities.

| Service Calls | | |
|-------------------------------|------------|-------------|
| Task | # of Calls | Staff Hours |
| Clear Stoppages - Sewer Mains | 3 | 9 |
| Clear Stoppages - Lateral | 36 | 225 |
| Fats, Oils, Grease | 66 | 59 |
| Rootcutting | 4 | 137 |
| Sewer Overflow Response | 3 | 35 |
| TOTAL | 112 | 465 |



Sanitary Sewer Overflows (SSOs)

Preventing SSOs protects public health and the environment and is crucial to the proper operation of Vacaville’s wastewater collection system. Public SSOs are categorized by the California State Water Resources Control Board and reported to the Regional Water Quality Control Board.

SSO Categories

Category 1: Discharge of untreated or partially treated wastewater of any volume from a sanitary sewer system failure or flow condition that either

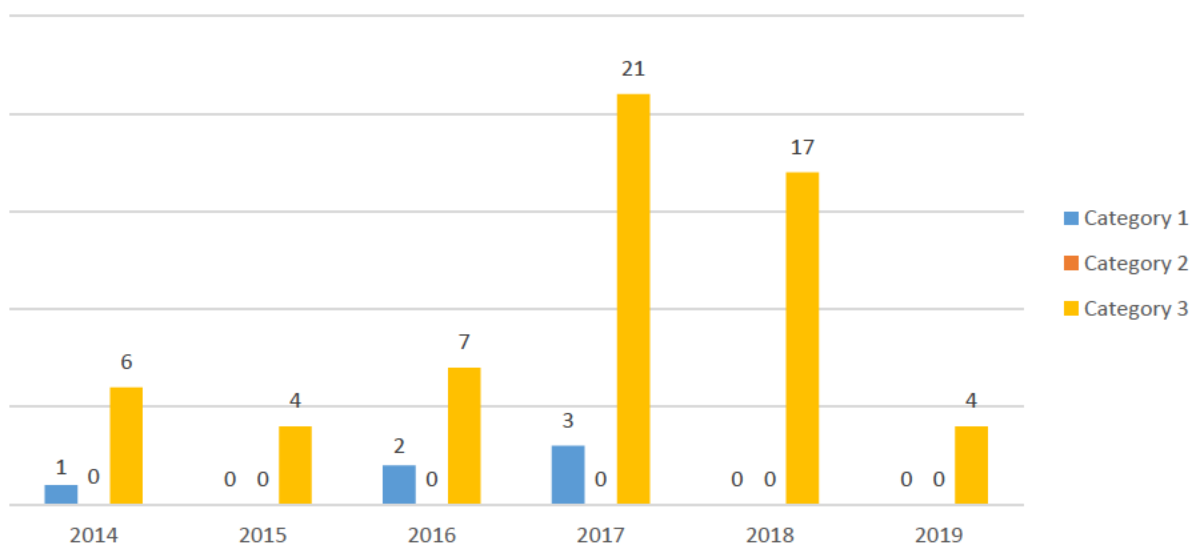
- Reaches surface water and/or a drainage channel tributary to surface water
- Reached a municipal separate storm sewer system and was not fully recaptured and returned to the sanitary sewer system or otherwise captured and disposed of properly

Category 2: Discharge of untreated or partially treated wastewater of 1,000 gallons or greater resulting from a sanitary sewer system failure or flow condition that either

- Does not reach surface water or a municipal separate storm sewer system
- Was entirely discharged to the storm drain system and was fully recovered and disposed of properly

Category 3: All other discharges of untreated or partially treated wastewater resulting from a sanitary sewer system failure or flow condition

Total SSOs by Category Year to Date



SSOs by Month

The following table shows the volume of sewage lost by cause per month.

| Cause | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|--------------|------------|----------|-----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|----------------|
| FOG | 0 | 0 | 0 | 0 | | | | | | | | | 0 gal |
| Root | 155 | 0 | 19 | 0 | | | | | | | | | 174 gal |
| Debris | 0 | 0 | 0 | 0 | | | | | | | | | 0 gal |
| Other | 0 | 0 | 0 | 0 | | | | | | | | | 0 gal |
| Total | 155 | 0 | 19 | 0 | | | | | | | | | 174 gal |

The following table shows the number of SSOs by category per month.

| Category | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|--------------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|----------|
| 1 | 0 | 0 | 0 | 0 | | | | | | | | | 0 |
| 2 | 0 | 0 | 0 | 0 | | | | | | | | | 0 |
| 3 | 2 | 0 | 2 | 0 | | | | | | | | | 4 |
| Total | 2 | 0 | 2 | 0 | | | | | | | | | 4 |

Certified No Spill Months for 2019

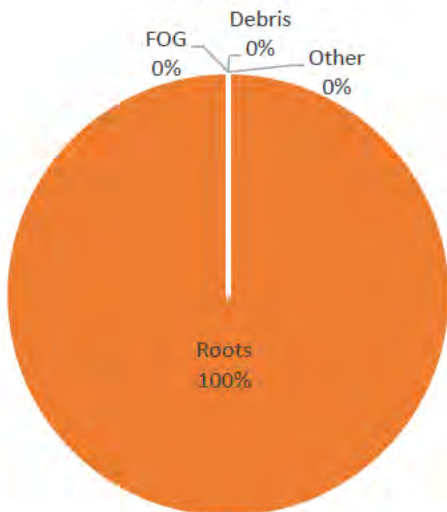
| No Spill Months | Confirmation Number |
|-----------------|---------------------|
| February | 2540879 |
| April | |

SSOs Year to Date

| SSOs by Category | | |
|------------------|----------|--------------|
| Category | # SSOs | Volume (gal) |
| 1 | 0 | 0 |
| 2 | 0 | 0 |
| 3 | 4 | 174 |
| TOTAL | 4 | 174 |

| SSOs by Cause | | |
|---------------|--------|--------------|
| Cause | # SSOs | Volume (gal) |
| FOG | 0 | 0 |
| Roots | 4 | 174 |
| Debris | 0 | 0 |
| Other | 0 | 0 |

SSOs by Cause



Volume Distribution by Cause

