



PERFORMANCE METRICS MONTHLY REPORT

OPERATIONS & MAINTENANCE – JANUARY 2017

Prepared by: Stephen Miksis
 Operations & Maintenance Manager

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Reviewed by: Greg Norby
 General Manager

Katherine Hayden, P.E.
 Infrastructure Assets Manager

DISTRICT MISSION

We provide our customers with high quality wastewater collection service, through a system that has no avoidable sanitary sewer overflows, at the lowest sustainable cost, in order to protect public health and the environment.

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INTRODUCTION

Purpose

The purpose of this performance metric report is to present and discuss the management and performance of the collection system. Reports will be prepared on a monthly, quarterly, and annual basis

Definitions

Performance metrics provide information on the collection system management and performance. A list of acronyms, abbreviations, terms, and definitions related to the District's collection systems, O&M, and performance metrics is provided at the end of this document.

Items of Note in Current Reporting Period

The following items of note were in this performance metrics reporting period:

Flow. Flows increased in January as compared to December due to approximately 24 inches of rain.

Storm Patrol. Heavy rainfall diverted many staff hours away from regularly scheduled maintenance.

Condition Assessment. Smoke testing by the Condition Assessment crew confirmed a significant I&I source from an abandoned 18" pipe near San Anselmo Creek. The source has been plugged.

SmartCovers. The repair crews removed, reinstalled, and performed preventative maintenance on 35 SmartCovers. The data collected gives us a better understanding of I&I in the system.

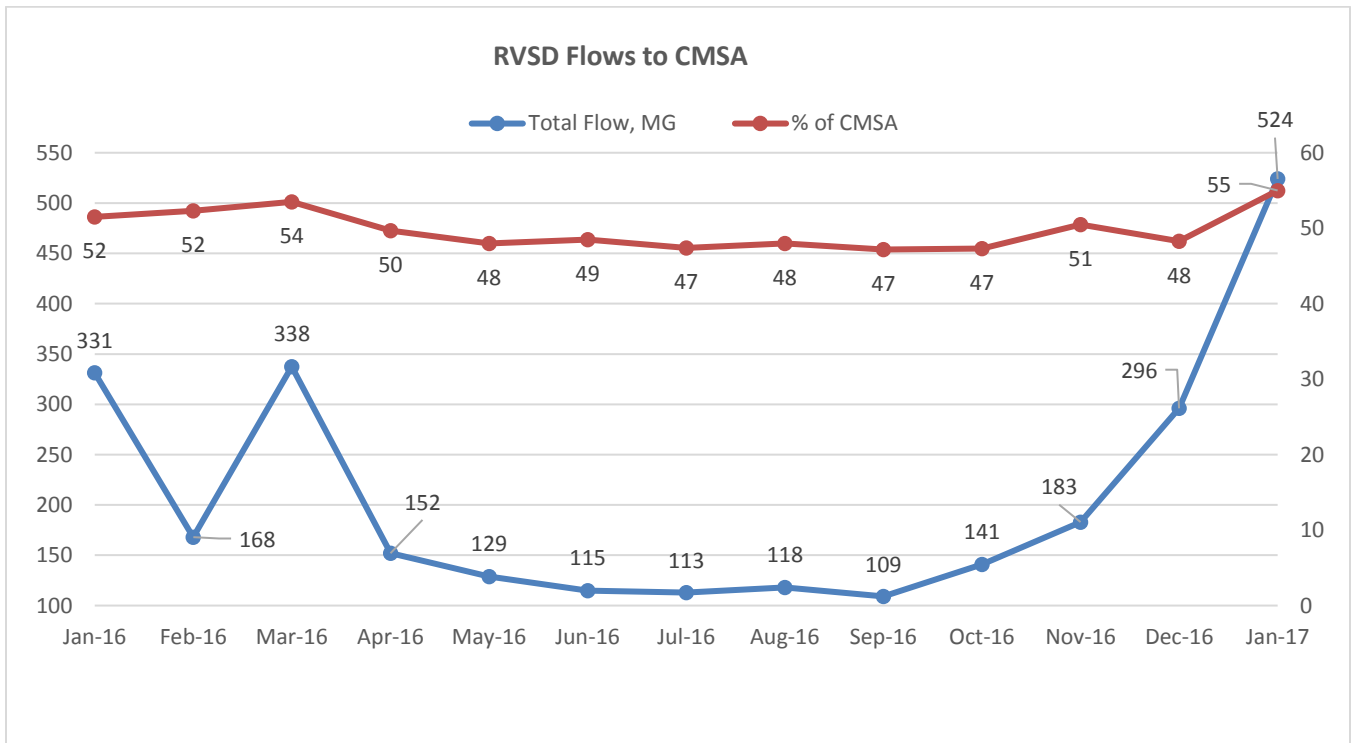
PUMP STATIONS

Pump stations convey wastewater collected by gravity through force mains to points downstream in the system or to the WWTP. Maintenance and monitoring of the pump stations and related assets is critical in managing the collection system. The metrics categories in this report for Pump Stations are Flow, Maintenance, and Energy.

Flow

All of RVSD's flow is conveyed in the force main network to CMSA, through one of seven pump stations: PS 15 Kentfield, PS 24 630 S Eliseo, PS 25 1350 S Eliseo, PS 14 Larkspur, PS 12 Bon Air, PS 13 Greenbrae, or PS 10 Landing B. Pump stations are the primary location where flow data is collected. Maintenance and energy needs directly relate to flow conditions in the system.

Flow	
Total Flow Volume	524 MG
ADWF	9.1 mgd
Total Flow Volume versus Calculated ADWF Volume	1.9
PWWF	57 mgd
Wet Weather Peaking Factor (PWWF/ADWF)	6.8



Maintenance

Maintenance at pump stations is essential for operational reliability and efficiency. The many electrical, mechanical, and structural components at pump stations require regular preventative maintenance, which reduces overall costs, protecting or extending service life and improving reliability.

PS Maintenance Activities	
Planned Work Orders Completed	100%
Notable Activities	
1. VFD #2 Overhaul	PS 15
2. PS 20 Pump #2 Replacement	PS 20
3. Pure Technology Force Main Condition Assessment	Force Main

Energy

The highest energy users in the collection system are the pump stations.

Pump Station Power Usage	
Total Energy used	NA Information will be on Quarterly Report
Energy per MG of Flow	NA Information will be on Quarterly Report

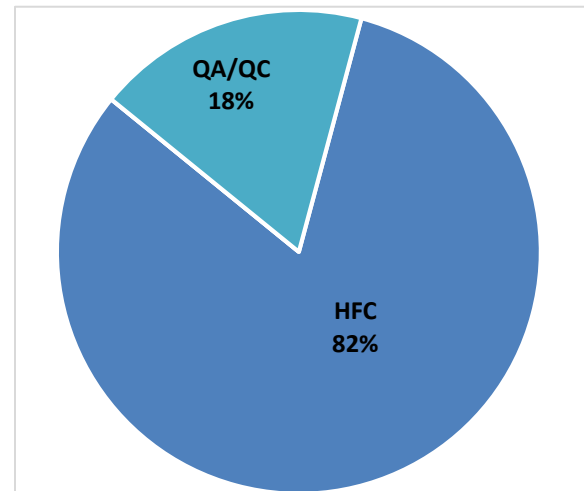
GRAVITY SEWER LINES

Gravity sewer lines collect and convey wastewater downstream. Maintenance and assessments can prevent avoidable SSOs, protect public health and the environment, and minimize costs. The metrics categories in this report for Gravity Sewer Lines are the Pipe Cleaning and Condition Assessment.

Pipe Cleaning

Pipe cleaning is the fundamental preventative maintenance activity for gravity sewer pipelines and can prevent SSOs, reduce service calls, and extend the life of the assets. The District has implemented a quality assurance program to provide a higher level of service using CCTV cameras.

Planned Cleaning Activities Completed		
Cleaning Schedule	Planned, ft	Actual, ft
HFC	0	0
1 yr	100,000	50,121
3 yr	0	0
≥ 5 yr	0	0
CCTV QA/QC	0	11,228
TOTAL	100,000	61,349
Planned Work Orders Completed		61%

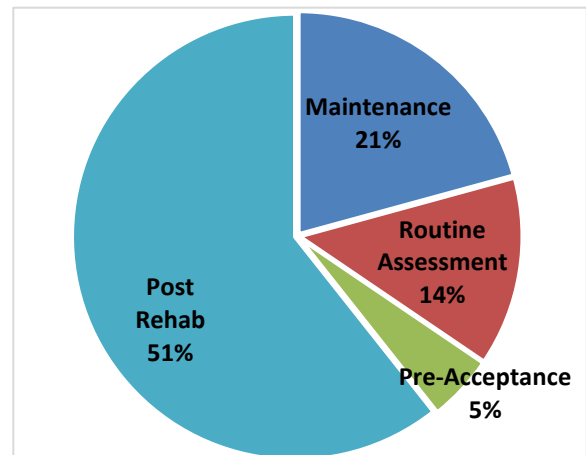


Cleaning and QA/QC Completed by Schedule

Condition Assessment

Condition assessment is used to understand and monitor the condition of infrastructure assets.

CCTV Inspection Lengths by Purpose		
CCTV Purpose	Planned, ft	Actual, ft
Maintenance	0	2,032
Routine Assessment	1,500	1,345
Pre-Acceptance	500	475
Post Rehab	6,000	5,939
TOTAL	10,000	9,791
Planned CCTV Completed		98%



CCTV Completed by Purpose

SERVICE CALLS

Service calls are by nature unplanned activities, and can be a measure of the quality of wastewater collection service. A high number of service calls reduces the availability of O&M resources to complete preventative maintenance and scheduled repairs. The metrics categories in this report for Service Calls are the Number of Calls and Staff Hours and Distribution by Cause.

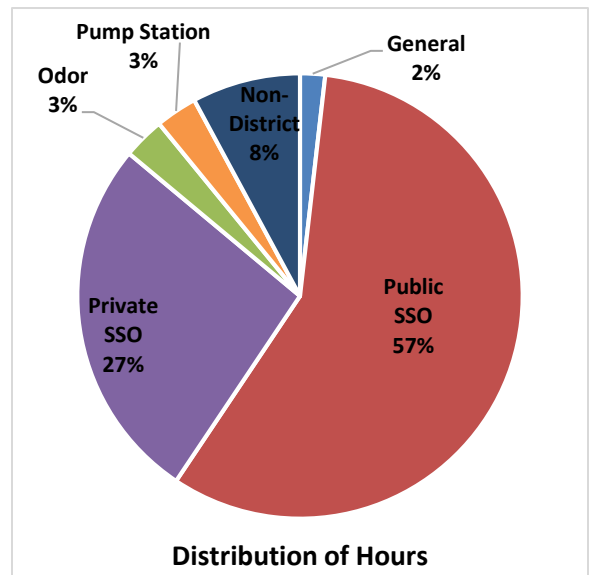
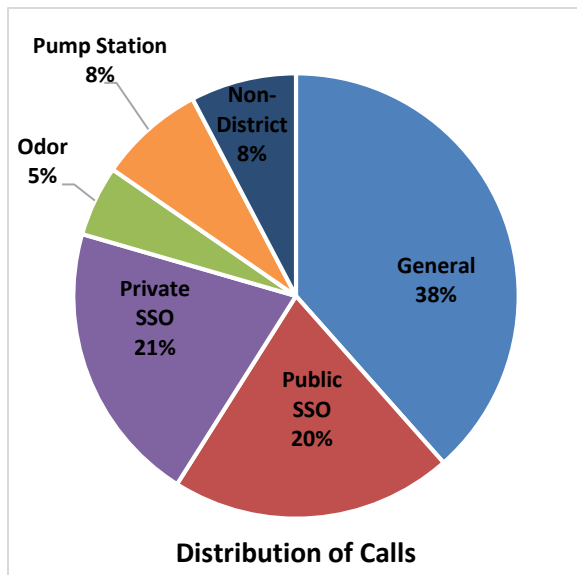
Number of Calls and Staff Hours

Service calls both during normal hours and after hours take a considerable amount of staff resources. To provide a high level of service to customers, the District is committed to comprehensive management of all calls.

Calls and Hours by Cause of Service Call		
Cause	# Calls	Staff Hours
General	15	3
Public SSO	8	95
Private SSO	8	44
Odor complaints	2	5
Noise complaints	0	0
Pump Station Alarms	3	5
Non-District incidents	3	13
TOTAL	36	165

Distribution by Cause

Understanding service call distribution by cause allows more effective planning of future O&M activities.



SANITARY SEWER OVERFLOWS

SSOs affect public health and the environment. Preventing SSOs is fundamental to the proper operation of the collection system. The metrics categories in this report for Sanitary Sewer Overflows are the Public SSOs by Category, Public SSOs by Cause, Distribution of SSOs by Cause, and SSO Volume versus Conveyance to WWTP.

SSO Categories

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

- Reaches surface water and/or drainage channel tributary to a surface water; or
- Reached a Municipal Separate Storm Sewer System (MS4) and was not fully captured and returned to the sanitary sewer system or otherwise captured and disposed of properly.

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

- Does not reach surface water, a drainage channel, or an MS4, or
- The entire SSO discharged to the storm drain system 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.

Public SSOs by Category

Public SSOs are categorized for regulatory purpose by the State of California and reported through CIWQS to the RWQCB.

SSOs by CIWQS Category		
Category	# SSOs	Volume, gal
1	5	69,055
2	0	0
3	3	585
TOTAL	8	69,640

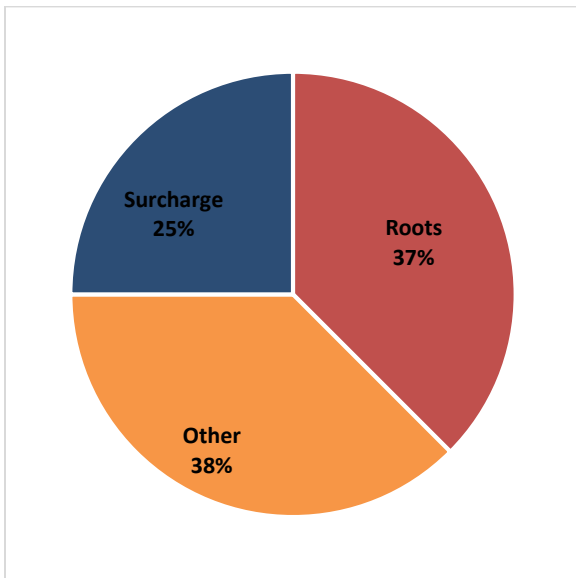
Public SSOs by Cause

Tracking the cause of SSOs is a regulatory requirement for CIWQS SSO reporting. The data is used in planning, O&M, capital improvement, and enforcement activities.

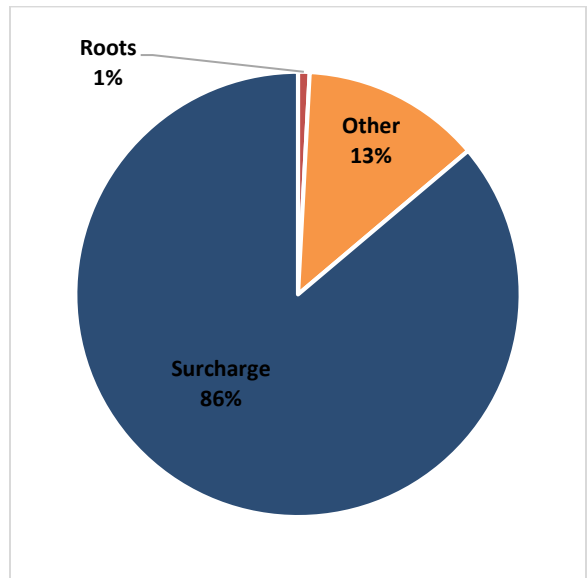
SSOs by Cause		
Category	# SSOs	Volume, gal
Structural	0	0
Roots	3	585
Debris	0	0
FOG	0	0
Construction	0	0
Other	3	9,055
Surcharge	2	60,000

Distribution of SSOs by Cause

Understanding how SSOs are distributed by cause allows more effective planning of future O&M, capital improvement, and enforcement activities.



Distribution of SSOs



Distribution of SSO Volume

SSO Volume versus Conveyance to WWTP

SSOs are wastewater that could not be conveyed by the collection system.

SSO Volume versus WWTP Influent			
Month	SSO, gal	WWTP, gal	%
January	69,640	524,000,000	.01%

ACRONYMS, ABBREVIATIONS, TERMS, AND DEFINITIONS

ADWF	Average Dry Weather Flow
CCTV	closed circuit television
CDO	Cease and Desist Order
CIP	Capital Improvement Plan or Program
CIWQS	California Integrated Water Quality System
CMMS	Computerized Maintenance Management System
CMSA	Central Marin Sanitation Agency
COF	Consequence of Failure
District	Ross Valley Sanitary District or Sanitary District No. 1 of Marin County
F _c	Consequence of Failure
F _L	Likelihood of Failure
FM	force main
FOG	Fats, Oil, and Grease
ft	feet
FY	Fiscal Year
gal	gallons
GIS	Geographic Information Systems
GPS	Global Positioning System for satellite-based location information
HFC	High Frequency Cleaning, <1 year
hr	hour
IAMP	Infrastructure Asset Management Plan
I/I	infiltration/inflow
in	inches
InfoNet	District's CMMS software
kWh	kilowatt-hour; unit of energy
LF	linear feet
LOF	Likelihood of Failure
LOS	Level of Service
LS	Lift Station
MACP	Manhole Assessment and Certification Program ©
MG	million gallons; measure of flow volume.
mgd	million gallons per day; measure of flow rate
mi	miles
O&M	Operations and Maintenance
PACP	Pipeline Assessment and Certification Program ©
PS	Pump Station
PWWF	Peak Wet Weather Flow
QA/QC	quality assurance and quality control
RDI/I	rainfall-dependent infiltration/inflow
RVSD	Ross Valley Sanitary District or Sanitary District No. 1 of Marin County
RWQCB	Regional Water Quality Control Board
SCADA	supervisory control and data acquisition
SMARTool	Sewer Main Asset Replacement Tool; risk model
SOP	Standard Operating Procedure
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
yr	year