

2021 INTERNAL AUDIT REPORT

Sewer System Management Plan September 2019

CIWQS WDID: 2SSO10172

Audit Period:

July 2019 thru June 2021

Original SSMP Adoption Date June 2007

LRO Certification Date: December 27, 2021

In Consultation With:

Causey Consulting

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LRO Internal Audit Report Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Steve Moore, General Manager LRO

Dec. 24, 2021

Date

1.0 Purpose of the Internal Audit

The purpose of the Internal Audit (Audit) of the September 2019 Sewer System Management Plan (SSMP) is to focus on evaluating the effectiveness and implementation of the SSMP and the sewer program and District's compliance with the requirements in subsection D.13 including identification of any deficiencies and the steps to correct them.¹ The audit also serves as a guide to improvements to the sanitary sewer system program and also to inform senior management of current and future improvements for the program. It serves to identify program successes during the audit review period.

As part of the Audit, a review of the sanitary sewer overflow (SSO) data in California Integrated Water Quality System (CIWQS) Waste Discharge Identification Number (WDID) 2SSO10172 and the separate SSO event files for six events during the audit period were reviewed for compliance with the new reporting and recordkeeping requirements of the 2013 Monitoring and Reporting Plan (MRP) and the District's overflow emergency response plan (OERP). The purpose of the sanitary sewer overflow (SSO) recordkeeping review is to assure consistent and complete documentation is available and complies with the OERP and associated standard operating procedures of the District. This should assure the District of the ability to explain any event during a Regional Water Quality Control Board (RWQCB) field inspection, enforcement action or litigation resulting from an SSO from the sewer system. This is intended to reduce District risk and liability at a time when fines and settlements against sanitary sewer systems are escalating significantly and can cost an agency hundreds of thousands of dollars significant legal and staff time to properly address and resolve these non-compliant deficiencies.

1.1 Internal Audit Prepared by:

This internal audit report was prepared by the Audit Team (Team) which is composed of personnel from District's staff and the third-party consultant Paul Causey.

- Steve Moore, General Manager/District Engineer
- Ben Conner (interim operations manager – (kick-off meeting only)
- John Vogel (condition assessment supervisor)
- Noel Sandoval (pump station supervisor)
- Rafael Zarco (line maintenance supervisor)
- Manuel “Manny” Vigil (repair supervisor)
- Patrick Filipelli (business systems analyst/data manager)
- Matt Jazuk (line maintenance senior CSW)
- Paul Causey, Causey Consulting pursuant to Consultant Agreement No. 7565592.

¹ 2006 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR)

The Audit program and consultant agreement were managed by Steve Moore. The Audit covers the period from July 1, 2019 to June 30, 2021. The audit included a review of the SSMP compliance with the WDR requirements, interviews with employees, Central Marin Sanitation Agency (CMSA), review of staff provided documents and the District website and assessment of the SSMP and appendices for compliance. The results of the initial compliance checklist used to inform the staff interviews is attached as Attachment 1. This Audit Checklist review separately evaluates each of the eleven Elements of the SSMP and the Log to determine compliance, partial compliance or non-compliance with the WDR Section D.13 and each of the Element subsection requirements. In addition, it evaluates the program compliance with previous District definitions of the sanitary sewer collections program in the SSMP. Finally, all District references and attachments in the SSMP were reviewed along with the list of documents included identified Attachment No. 2.

1.2 Internal Audit Interviews:

The Audit included interviews with attorneys, administrators, managers, line staff and the CMSA FOG coordinator with direct knowledge and responsibilities for \ for the SSMP and sanitary sewer collection system regulatory compliance, operations, capital and emergency response programs. The following groups of individuals were interviewed and provided input for the Audit.

Table 1: Interview Summary

Sewer Program Groups	Interviewed Employees in Each Group
Field Crew (Conditions Assessment)	Corids, SanFilippo, Roos
Field Crews (Line Maintenance)	Benvenides, Stewart, Proschold, Coats
Operations Supervisors	Sandoval, Vigil, Vogel, Zarco, Dillingham (Inspector)
Senior Workers	Marcantonio, Jazuk
Engineering/Inspection	Benedetti, Dillingham, Guerrero
Administration	Newhouse, Velazquez
Business Analyst/IT	Filipelli, Cudia (IT Hub)
FOG Control Program	Koekemoer (CMSA)
Legal Counsel	Clark, Thorme

2.0 Regulatory Background

On May 2, 2006, the SWRCB adopted [Order No. 2006-0003](#), Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR). This Order requires that owners of sanitary sewer collection systems with more than one mile of pipe discharging to a publicly owned treatment works to have a SSMP, to comply with the terms of the Order, which is to reduce the number and severity of Sanitary Sewer Overflows (SSOs), to audit the program every two years, and revise the SSMP at least every five years from the original SSMP adoption date by the governing board of June 11, 2007. [The WDR](#) was amended by [Order No. 2008-0002-EXEC](#) on February 20, 2008 to rectify early notification deficiencies, and amended again on September 9, 2013, by [Order No. 2013-0058-EXEC](#) which added the Category 3 SSO, new reporting requirements to the State SSO database (CIWQS), clarified appearance points, required a Log and required new reporting and sampling requirements for Category 1 SSOs greater than 50,000 gallons.

In addition, the District has specific requirements stated in the CMSA National Pollution Discharge Elimination System Permit (NPDES) No. R2-2018-0003 and in Cease-and-Desist Order (CDO) No. R2-2013-0020 with the RWQCB. These documents include timeline schedules for the assessment and rehabilitation of certain District sewer assets, and regular annual and quarterly reporting to the RWQCB on progress on the requirements.

This biennial audit consists of sufficiency rankings of the SSMP Executive Summary, of the 11 elements of the SSMP, the Log and appendices. The ranking system is explained in the *Conduct of the Audit of the SSMP* section and is based on information provided and referenced to the WDR requirements.

The Order establishes the following goals:

- The SSMP must document the organization's legal authority to achieve the goals of the SSMP as demonstrated through ordinances, agreements and other legally binding instruments.
- The SSMP must identify a Legally Responsible Official(s) LRO(s) who is/are assigned to finalize and certify that an SSO event file is complete and that all required record keeping documents are included and well documented, especially start times and all volume estimation calculations.
- Define an organization and staff responsible for implementing and maintaining the SSMP and the sewer program.
- The SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system.

The SSMP must be updated every five (5) years from 2007, must contain any significant program changes in a Change Log since the last Board adopted SSMP, and be certified by the LRO. To complete the approval process, District LRO must certify the readoption in CIWQS, place a copy with all critical supporting documents on the District website or mail a hard copy with critical

supporting documents to the SWRCB. Thereafter any changes or revisions to the SSMP must be included in the required Log.

After reviewing and sharing the contents of the audit report, staff will create a list of proposed corrective actions, file the report, assign staff responsibilities and begin working to correct any deficiencies identified from the audit.

2.1 Description of District Sanitary Sewer System

The District sanitary sewer system serves a population of 47,000 through 15,792 service connections. The District owns and operates 193 miles of gravity sewer line four inches and larger, has nineteen (19) sewage lift/pump stations and 7.39 miles of pressure sewers. All service laterals and their connections are owned, maintained and repaired or replaced by the private property owners.

The sewer system includes approximately 5,700 pipe segments, 5,600 sewer manholes and access points located in a 26.75 square mile service area. All District sewer program infrastructure is owned, operated and maintained by the District.

2.2 Audit Schedule

The Audit was initiated on August 20, 2021, with a kick-off meeting with the General Manager and the Interim Operations and Maintenance Manager to outline the process, to identify the audit team and to address issues that could impact the schedule for the audit. Additionally, there was discussion of the requested documents to support the audit and a review of the SSO event recordkeeping summary from six overflow events. Next step involved the preparation of updates to historical tables and graphs of performance results for both SSO and operations along with reviewing of the requested documents, the District website including critical supporting documents and preparation of a draft audit plan (see Attachment 2).

Upon approval of the interview plan by the General Manager, separate interviews were conducted with the District legal team, with the FOG Control Manager at CMSA. These were then followed on October 28th and December 1st with the seven separate group interviews in Table 1. All interviews were used to evaluate staff understanding of the sanitary sewer requirements and to evaluate the implementation of the sewer program SSMP compared to each of the program Elements and the appendices of the 2019 SSMP. The results of the interviews helped inform the findings, recommendations, deficiencies, and corrective actions included below.

Upon completion of the interviews, Causey Consulting drafted the Internal Audit Report, submitted the report to the Audit Team for review and comment followed by a meeting to discuss comments and concerns and the handling of the deficiencies and corrective actions identified from the audit. Thereafter the final Audit Report was certified by the LRO and submitted to the Board of Directors and reviewed with District staff and the CMSA FOG coordinator.

2.3 Findings/Accomplishments during the Audit Period

This section of the Audit Report is intended to identify broad sewer program strengths and weaknesses during the audit period resulting from the interviews, the reviews of the adopted 2019 SSMP and the reference documents listed in Attachment 2. These findings here and for each Element of the SSMP resulted in several corrective action identified in the Corrective Action Items Section at the end of this Audit Report.

The 2019 SSMP is very detailed both in program definitions and descriptions for the District's medium sized sanitary sewer collection system. Many of the SSMP Elements and the appendices include details that are not required by the WDR. In addition, the SSMP must also identify all critical supporting documents and either make them available on the SSMP website or include them with the hard copy submittal to the SWRCB following governing board adoption.

2.4 Sewer Program Strengths

During the staff interviews the sewer program strengths and weaknesses were identified by some or all of those interviewed. The following two sections provide a summary of the sewer program strengths and weaknesses identified by those interviewed.

- SSMP critical supporting documents were found on the District webpage.
- Excellent comprehensive webpage associated with the sewer program.
- District Board receives monthly sewer program operations reports and performance metrics.
- District Board considers and adopts extensive annual capital plan and performance results reports
- The General Manager and CMSA regularly communicate sewer program activities to customers and dischargers.
- The District has been very proactive in completion of the infrastructure improvements required by the CMSA NPDES Permit and CDO.
- The District has completed almost all the required work in the CDO and CMSA NPDES Permit and is close to requesting termination of the CDO.
- The District updated the IAMP and extended the capital improvement program with prioritized projects thru FY 31/32.
- The District has an effective FOG Control Program managed by contract with CMSA
- The District completed the annexation of the Murray Park Sewer Maintenance District during the audit period.
- The District has a very active program of smart covers that alert the staff to potential sewage overflows and problems.

- The District was able to conduct and document substantial employee general training even during the pandemic.
- Impacts of the pandemic were well handled including COVID-19 Policy reviews and Exposure Control Plans.
- The District has a very active lateral replacement program funding the replacement of approximately 6 miles of private laterals during the period.
- Significant improvement in the SSO Rate/100 miles/year continued through the audit period.

2.5 Sewer Program Weaknesses

- SSMP Change Log has not been properly completed and managed during the Audit period.
- Emergency response and overflow event files requires expansion and enhanced documentation of event details for full conformance with SWRCB expectations.
- Regular annual emergency response training and field exercises were not completed as required in the SSMP.
- Employee classification titles were not properly referenced in the SSMP, OERP and WQMP e.g., District Engineer
- District employees are not generally familiar with the WDR requirements, or the processes and procedures stated in the SSMP and OERP.
- Regular training of all employees on the WDR and SSMP requirements is not occurring.
- The SSMP, OERP and WQMP are not generally utilized by field staff who rely mostly on directions during and following an overflow event from seasoned supervisors and managers.

3.0 Evaluation of SSMP Effectiveness

The District has been very proactive in improving its overall operations and maintenance of the sewer assets thereby continuing reductions in both numbers of overflows and volumes of sewage spilled during the audit period. In addition, the District has also significantly reduced the numbers of Category 1 overflows to waters of the US – all goals of the WDR. The District has placed a high emphasis on improving this area of the sewer program. These reductions can be traced to significant prioritized renewal and replacements of District pipelines including the evaluation of the improvement of resiliency in the prioritization process. The District SSO Rate/100 miles is also approaching comparable rates for enrolled agencies in RWQCB Region 2 and for all enrolled agencies in the State (See Attachment 7).

The District has established significant communications and outreach program with the Board and the District customers. The information and regular reporting of performance results is top notch and clearly a best management practice for sewer agency programs. In addition, the

General Manager prepares and circulates regular Monthly Bulletins regarding District activities and programs.

The only deficiencies of concern is in overflow event file documentation of sewer overflow events, the tracking of changes and modifications to policies and procedures in the Log and the broad training of all staff on the WDR requirements and the necessary understanding of avenues for full compliance. The Audit Team has identified several necessary corrective actions to address these deficiencies in Section 6.0. In addition, they will be assigning responsibility for the corrective actions and established schedules for the proper completion of the corrective actions in a separate Sewer Program Corrective Actions Program once the Audit Report is approved by the Board. Finally, each of the SSMP Elements also included suggested additions (Consider statements) to the Element that are best management practice inclusions that the SWRCB is known to evaluate in a fully compliant SSMP and may be included in the 2022 WDR replacement currently being promulgated by the SWRCB SSO Office staff. These last suggestions should be considered in the next revisions to the SSMP and OERP.

The Internal Audit must also evaluate the compliance of the SSMP and sewer program with the WDR. Section 4 below provides the details of this evaluation. The Audit Report evaluated each of the SSMP Elements against the WDR requirements and found eight Elements were directly compliant, two partially complied and one marginally complied with the requirements. The two partially compliant Elements require revisions for changes to the actual operations and maintenance program in Element 4 and enhanced level of documentation of sewer overflows in Element 6. The only area of concern was with the MRP required SSMP Change Log (Log). The log had few entries and did not include several changes that were made but not added to the Log. In addition, the entries were general in nature and not specific Element subsections modified or replaced. Each Element below provides recommendations for compliance and offers areas for improvement of the sewer program that may be expected by the regulators or enhance the sewer program for customers, elected officials, and regulators that the District should consider and determine then need for inclusion.

Overall, the District has exceeded the State sanitary sewer requirements in almost all areas especially as relates to the capital renewal and replacement program and the continued improvement in the numbers and volumes of overflows from the sewer system indicating a matured O&M program and condition assessment process for all sewer assets. Of particular importance is the noted reduction in Category 1 overflows to waters of the United States over the past several years that continued during the audit period.

4.0 Conduct of the Audit of the SSMP

As specified in the Order, the SSMP is to include eleven (11) Elements, a Change Log and identification of critical supporting documents. The SSMP requirements in Section D.13 of the Order, are as follows:

Table 2: SSMP Requirements

Element No.	WDR/MRP Reference Section	Element Heading
		Introduction
1	D.13.i	Goals
2	D.13.ii	Organization
3	D.13.iii	Legal Authority
4	D.13.iv	Operation and Maintenance Program
5	D.13.v	Design and Performance Provisions
6	D.13.vi	Overflow Emergency Response Plan
7	D.13.vii	FOG (fats, oils, grease) Control Plan
8	D.13.viii	System Evaluation and Capacity Assurance Plan
9	D.13.ix	Monitoring, Measurement and Program Modifications
10	D.13.x	SSMP Program Audits
11	D.13.xi	Communication Program
MRP Sec E3	MRP E3	SSMP Change Log
SSMP Appendices	Critical Supporting Documents (MRP Civ)	

The Audit is focused on the eleven Elements and the Log and the staff conformance with the stated policies and procedures in the 2019 SSMP. The evaluation of each element is standardized with an Element sufficiency ranking and the findings of audit evidence obtained from interviews, from the review of the September 2019 SSMP and critical support documents.

Recommendations have been provided when there is enough information to support them. Any recommendations or findings that begin with “consider” are for program improvement and not necessarily required by the WDR but can be expected by the enforcement office for a fully compliant sewer program. Whereas other recommendations are necessary for compliance with the Order.

The format for each of the required Element audit evaluations is as follows:

1. Element Title and WDR Section Number
2. Element Sufficiency Ranking
 - a. Complies – complies with all objectives
 - b. Partial Compliance – complies with basic objectives
 - c. Marginal Compliance
 - d. Not in Compliance

3. Findings
4. Recommendations

4.1 General SSMP Findings

In general, the September 2019 SSMP is broadly compliant with the WDR Requirements but includes much more information than necessary. The SSMP includes many District policy and procedural documents that go well beyond the WDR requirements. Many of the SSMP elements can be streamlined by eliminating multiple references to the same document, by removing expansive narratives and by only providing information stated in Section D13 of the WDR.

The following are the general findings that apply to all Elements of the SSMP.

- The SSMP uses the term SSO WDR which is incorrect and should be reduced to WDR as the correct title of the requirements are Waste Discharge Requirements for Sanitary Sewer Systems.
- Effective date of the MRP in the SSMP and on the SSMP webpage should be revised to 9/9/13 not 7/30/13.
- The staff regularly updates the Board of Directors on sewer program performance results and capital program activities.
- The Log was not fully updated during the audit period (MRP Section E3).
- The Log has not been properly utilized since the last Board adoption of the SSMP.
- The O&M program and capital replacements have resulted in continuing improvement in numbers and volumes of sewage overflows during the audit period.
- The District experienced the lowest and second lowest number and volume of SSOs during the audit period.

4.2 Audit of the SSMP Introduction

Sufficiency: Not required but Best Management Practice.

4.2.1 Findings:

- Tables I-1 and I-2 include only percent of the system and are outdated currently.
- System asset information is outdated both in the SSMP and on the District webpage under Field Operations.
- Service area maps are outdated resulting from recent annexation to the District service area of Murray Park.
- Service area map does not include satellite systems to District facilities.

4.2.2 Recommendation:

- 4.2.2.1 Revise service area maps to show new annexation and satellites to District service area.

- 4.2.2.2 Update all District asset information in the Introduction and throughout the SSMP.
- 4.2.2.3 Consider including number of pipe segments as well as total linear feet in both Tables I-1 and I-2.
- 4.2.2.4 Consider adding a new table for pipe age conforming to the information in the certified Annual Collection System Questionnaire in the CIWQS database.
- 4.2.2.5 Consider adding satellite service areas to the District service area maps.

4.3 Audit of Element i: Goals - Order D.13.i

Review the SSMP to determine if it complies with the Order by having goals to provide a plan to manage, operate, and maintain all parts of the DISTRICT Sanitary Sewer System.

Sufficiency: Complies

4.3.1 Findings:

- Goals appear appropriate for size of the system.
- Historical narrative regarding goals is not required by the WDR.

4.3.2 Recommendation:

- 4.3.2.1 Review goals and confirm appropriateness from historical performance results.
- 4.3.2.2 Remove introductory paragraph as relates to old RWQCB SSMP Development Guide requirements which are no longer applicable.

4.4 Audit of Element ii: Organization - Order D.13.ii

Review the SSMP to determine if it complies with the Order by having the names of authorized representatives published and updated in the SSMP along with reporting flow chart.

Sufficiency: Partial Compliance

4.4.1 Findings:

- Figure 2-1 and Table 2-1 are outdated, and classification titles have changed.
- Table 2-1 does not include responsibilities for the Introduction, Log and SSMP Appendices.
- The Element does not include narrative description of the District classifications responsible for the sewer program and designated under the WDR.
- Figure 2-1 does not include CMSA FOG and long-term service contractors used in the sewer program.
- Table 2-2 does not include the Dispatch Center for customer contact information.
- Table 2-2 outdated and includes responsibilities no longer required for the San Francisco RWQCB.

4.4.2 Recommendation:

- 4.4.2.1 Update Figure and tables for proper classification titles currently responsible for each Element, Log and Appendices.
- 4.4.2.2 Add CMSA and service contractors to Figure 2-1.
- 4.4.2.3 Revise Table 2-2 with current staff names and contacts and add the Dispatch Center contact information.
- 4.4.2.4 Revise Figure 2-2 to remove calls to OES for Cat 2 SSOs, for Faxes to the RWQCB and requirement for an annual report to the RWQCB (conform to OERP Section 6.13)
- 4.4.2.5 Consider adding narrative descriptions of the role and responsibilities of each District classification in the updated organization chart including designations of LRO and data submitters (DS).

4.5 Audit of Element iii: Legal Authority - Order D.13.iii

Review the SSMP to determine if it complies with the Order by having ordinances and agreements in place and updated to prevent illicit discharges, provide for proper design of upstream facilities, provide right of way and access to the Collection Systems, and enforce Ordinances.

Sufficiency: Complies

4.5.1 Findings:

- The District Board enacted six ordinances impacting the Sanitary Sewer Code during 2020 and 2021. These changes were for increases in service and connection charges, construction cost accounting requirements, private sewer lateral responsibilities and fats, oils and grease (FOG) discharges to the sewer system.
- The ordinance revisions will require revisions to the descriptions of the Sewer Code requirements in this Element.
- Ordinance revisions were not included in the Log.
- Section 3.3 is outdated resulting from recent annexations to the District service area.
- Satellite agreements referenced in SSMP Page III-6 and Section 3 were not able to be located – Sanitary District No. 2.
- Only the FOG ordinance revisions listed in the Log

4.5.2 Recommendation:

- 4.5.2.1 Revise the specific descriptions and Table 3-1 that were impacted by the six ordinance revisions adopted by the Board during the audit period.

- 4.5.2.2 Revise Section 3.3 to indicate that the Murray Park SSMP has been annexed into the service area and any other changes resulting from other service area revisions or satellite dischargers.
- 4.5.2.3 Determine if satellite agreements reference is appropriate or remove if not longer applicable.
- 4.5.2.4 Assure that ordinance revisions are always included in the Log following Board adoption and the Elements are revised appropriately.

4.6 Audit of Element iv: Operation and Maintenance Program - Order D.13.iv

Review the SSMP and activities of staff, consultants and contractors to determine compliance with the Order by having (a) an up to date map of the District sanitary sewer collection system that shows all pipe reaches, manholes, siphons, diversion structures, and laterals, (b) a routine preventative maintenance program and operations program, rehabilitation and replacement program, (c) operations and maintenance training program, and (e) part inventory program including identification of critical replacement parts.

Sufficiency: Partial Compliance.

4.6.1 Findings:

- Sanitary and storm water mapping is available on District GIS and available in the field for SSO response and maintenance activities.
- SSMP does not include listing of siphon asset information and District does not have defined cleaning and maintenance procedures for siphon maintenance and assessment (page iv-3). Many of the siphons, especially the small diameter siphons are cleaned using the published SOP for pipe cleaning. The large diameter siphons require techniques and equipment RVSD has not yet been obtained and it may be a good discussion to consider outside contracting for cleaning large diameter siphons.
- District has no manhole condition assessment program but was to be developing a new inspection form (Page IV-9). Since 2019 CCTV crews were assigned to MACP manholes based on requirements per the CSMA NPDES permit. The plan goals were based on volume which were met somewhere in 2019/20. The outcome of the reporting may have been lost when Katherine Hayden left RVSD.
- The SSMP does not include a listing of replacement parts as required by the WDR.
- Table 4-5 Local Contractors is not a WDR requirement
- Cleaning and condition assessment activities were trending down during the audit period.
- The downward trends in cleaning and condition assessment appear to result from the loss of two field crews currently stated in the SSMP. There is also crew size allocation which has trended down for cleaning and CCTV with more crew assigned to repair and pumps.

- Approximately 30% of District sewer lines are in easements that challenge staff O&M efforts for access and private property understanding of responsibilities
- The large percentage of lines in easements create significant challenges for cleaning crews especially as relates to property owner responsibilities for both access for cleaning and for lateral responsibilities.
- Maintenance activities and capital replacements continue to result in reduction of both SSOs and spill volumes.
- Significant online training was completed and documented during the period (see Attachment 3)
- District has an extensive training tracking module that tracks by employee all attended training and time in training See Attachment 3.
- District has a long list of standard operating procedures for the sewer program and have actively managed them during the audit period
- Element 4 requires contractor’s personnel to be trained on the District OERP. District OERP training has been inadequate.
- Efficiencies in cleaning and condition assessment continue to be implemented.
- New equipment and technology improved performance
- The District has completed most renewal and replacement commitments in the 2013 IAMP, NPDES and CDO.²
- The District spent \$33 million during the audit period replacing or repairing 12 plus miles of sewer system assets.
- The IAMP revision of September 2021 defines a risk/resiliency prioritization process for capital and in-house repairs and established short- and long-term prioritized capital program needs for the next ten years.
- The District’ CDO three year required rolling average for pipe replacement (4 miles/year) was exceeded during the audit period with actual replacement of almost 7 miles per year.
- Completed the full condition assessment of all pipelines, force mains and minor pump stations as part of the IAMP revisions.
- The District requires contractors to use the District OERP for overflow responses.

4.6.2 Recommendation:

- 4.6.2.1 Seek legal interpretation of the risk associated with the requirement that a contractor train on the District OERP – this may transfer risk and liability unreasonably to the District from actions and activities of the contractor.

² Year-End Capital Program Report FY B2020/2021, Page 6 or 35

- 4.6.2.2 Update the O&M Element program narratives to conform to actual field crews and performance expectations for maintenance frequencies.
- 4.6.2.3 Assure that regular and consistent staff training at least annually is completed on the WDR requirements and the SSMP including many of the terms and requirements contained therein – this training should be available to all District employees not just field crews.
- 4.6.2.4 Assure that regular field exercises for all emergency response personnel are conducted on simulated emergency response activities and proper event documentation especially as the number and volumes of SSOs continue to be reduced.
- 4.6.2.5 Consider the expansion of the customer easement outreach and communications program to assure customer understanding of District access needs and their lateral responsibilities especially upon sale of property and changes in ownership.
- 4.6.2.6 Consider developing a District SOP for the addition and removal of lines from the high frequency program including the notification to CMSA FOG coordinator responsible for the FOG Control Program.
- 4.6.2.7 Consider creating a training matrix by position classification and write a standard training operating procedure (SOP) eliminating the need for the list of training provided in Element 4 of the SSMP.

4.7 Audit of Element v: Design and Performance Provisions - Order D.13.v

Review the SSMP to determine if it complies with the Order by having design and construction standards and specifications for installation of new facilities, including coverage for testing of new facilities prior to acceptance.

Sufficiency: Complies

4.7.1 Findings:

- The District updated the Standard Specifications and Drawings, Approved Materials list and Side Sewer Requirements in June 2020.
- All References in Element 5 need to be updated for these revised standards.
- Log updated for broad changes to the Standard Specifications and Drawings, etc.

4.7.2 Recommendation:

- 4.7.2.1 Revise Element 5 to reflect changes from the adoption of the June 2020 revised standards.
- 4.7.2.2 Assure that the Log provides specific details of the changes to the revised standards or include a change log in the front of the standards for the 2020 changes.

4.8 Audit of Element vi: Overflow Emergency Response Plan - Order D.13.vi

Review the SSMP to determine if it complies with the Order by having an overflow emergency response plan that includes (a) proper notification procedures, (b) a program that assures proper response to all overflows, (c) procedures that ensure prompt notification of regulatory agencies and other affected entities, (d) proper procedures and training for staff and contractors named in the response plan, (e) procedures to address traffic control and crowd control, and, (f) implementation of steps to prevent SSOs from reaching waters of the United States.

Sufficiency: Partial compliance

4.8.1 Findings:

- Total numbers and volumes of sewage overflows continued trending down during the period.
- The District SSO Rate/100miles/Year showed substantial improvement and is comparable to the RWQCB and State Rates.
- CCTV inspection of lines following overflow events were completed as required.
- Each overflow event reviewed (6 of 25) had a separate event file that was made available.
- There were only 2 category 1, 1 category 2 and 22 category 3 overflows during the period.
- Forms in the two different Response Packets were used to document events.
- Not all forms required in the Response Packet were used as required especially the cover page chain of custody.
- CIWQS certified reports were properly completed and contain all required information except for pipe age.
- There were two different Overflow Response Packets utilized during the period and not stated in the Log or explained as to the differences in the two documents.
- The OERP and WQMP narratives were not updated when the Response Packets were revised,
- SSO Event documentation was consistent but does not completely document the event especially relating to start times and recovered volumes.
- Not all Response Packet forms were properly completed for each event reviewed.
- Event checklists were not completed by the data submitter or the employee completing the Response Packet.
- Most overflow event deadlines were met for the six reviewed event files.
- No documented field inspections following an after-hours overflow event.
- Event documentation did not always confirm information in the certified CIWQS report.
- Several No Spill reports were not certified in CIWQS by the LRO.

- Recovered volume assumptions, calculations or documentation not included in the event files.
- Each event had varying levels of photo and video documentation but did not include proper documentation of the pictures or video.
- Not clear how the final event file is reviewed and approved for completeness and accuracy by the LRO or management staff.
- The Log did not reflect the changes to Element 6 for the revised Response Packet Workbook.
- During the pandemic, no emergency response field training events were conducted.
- Only a single training event conducted on SSO response during the audit period not annually as required in the OERP.
- SSO Response Packet Form C-1 does not include documentation of notification of the GM and O&M Manager as required on the Packet cover page,
- Element states that the District Engineer is responsible for the SSO Technical Report but there is no District Engineer identified in Element 2 Organization
- Significant reductions in staff hours resulted from new equipment and improved maintenance planning and capital replacement.

4.8.2 Recommendation:

- 4.8.2.1 Proper and complete event documentation needs improvement.
- 4.8.2.2 The OERP narratives must be revised to conform to the current Response Packet and additional event documentation improvements.
- 4.8.2.3 Several of the forms in the Response Packet were not completed and should be removed if not to be used in the future.
- 4.8.2.4 Assure that each file is reviewed and complies with the CIWQS information prior to final certification of the event in CIWQS and event file completion by the LRO.
- 4.8.2.5 Assure through that all forms in the Response Packet are used and useful or removed if not of value to the documentation i.e. First Responder form or the Data Submitters Checklist.
- 4.8.2.6 Assure all forms completed in the event file identify the person or persons and dates of completion of the form.
- 4.8.2.7 Assure required annual emergency response training of both classroom and field exercises are conducted as stated in the OERP.
- 4.8.2.8 Conduct general WDR and SSMP training for all District staff at least annually to assure understanding of required regulatory compliance for the District.

- 4.8.2.9 Enhance the requirements for memos or narrative descriptions of decisions regarding start times, recovered volumes, differences of information in the certified report and the event file.
- 4.8.2.10 Require actual calculations and assumptions made of all volumes for both total spill and recovered volumes including identification of the person completing the calculations and approval of the final numbers by a supervisor or LRO.
- 4.8.2.11 Assure that any cross outs or revisions in the event file forms are at least initialed by the person altering the information – never use whiteout for revisions.
- 4.8.2.12 Establish a tickler file to assure that required No Spill Reports are timely certified in CIWQS as required.
- 4.8.2.13 Update the Log whenever changes are made especially to the Response Packets and assure conforming the OERP to any changes made in either document.
- 4.8.2.14 Assure that all required fields in CIWQS are completed or document why not included.
- 4.8.2.15 Modify form C-1 to include important staff notifications.
- 4.8.2.16 Consider establishing an event file documentation team that at least once-a-year reviews in detail the CIWQS Reports and the event files for accuracy, completeness and proper support in the event file also comparing the files to the required recordkeeping requirements in the District OERP.
- 4.8.2.17 Consider the use of a photo log and location map for all event photos and videos with date, time, viewing location, viewing direction and person taking the picture or video and file in the approved event file.
- 4.8.2.18 Consider creating a separate LRO Checklist for each event file indicating all documents that are in the file to support the response to the event.
- 4.8.2.19 Consider adding a form number and date on each of the forms in the Response Packet to assure employees are using the most current forms.
- 4.8.2.20 Consider developing a spreadsheet listing all required deadlines and when they were met.
- 4.8.2.21 Consider the need for the Data Submitters Section of the Response Packet Cover Page.
- 4.8.2.22 Consider the addition of comparative SSO Rate/100 miles/year to the annual performance metric report for the Board of Directors.

4.9 Audit of Element vii: Fats, Oils and Grease Control Plan- Order D.13.vii

Review the SSMP to determine if it complies with the Order by having a FOG Control plan with (a) a public education element, (b) FOG disposal facilities identified, (c) ordinances, rules and regulations to prevent FOG, (d) requirements to install FOG devices together with design

standards for FOG devices, owner maintenance requirements, BMP requirements, owner record keeping requirements and owner reporting requirements, (e) inspection authority and staffing, (f) FOG mapping for pipe reaches impacted by FOG, and (g) source control measures for sewer sections that are impacted by FOG.

Sufficiency: Complies

4.9.1 Findings:

- The District has contracted with CMSA for implementation of the FOG Control Program.
- District FSEs have expanded to 197 from 86 in last SSMP
- CMSA indicates that the FSEs in the FOG Control Program are only located where defined hot spots are defined from field maintenance results therefore not all FSE's are currently permitted.
- CMSA indicates that FSE inspections are conducted over a three-year period with critical areas being inspected annually
- RVSD and CMSA have extensive FOG websites including many videos on allowable discharges to sewers.
- CMSA has a separate private lateral page for lateral responsibilities of private owners.
- Element VII narratives are outdated.
- The CMSA General Manager publishes a monthly newsletter available to RVSD customers that frequently discusses FOG related issues and acceptable discharges to the sewer system. All historical newsletters are available on the CMSA website.
- There is regular communications and reporting by CMSA to RVSD on FOG program performance.
- The annual Program Metrics Report does not include any FOG Control Program metrics and performance results.
- Contract with CMSA for FOG program updated and approved by the two Districts

4.9.2 Recommendations:

- 4.9.2.1 Continue the program as currently defined and managed.
- 4.9.2.2 Revise the FOG Element to current information and practices.
- 4.9.2.3 Consider a permitting program for all FSEs in the service area not just those with known FOG problems identified by the field cleaning crews.
- 4.9.2.4 Consider adding FOG program metrics to the Board Annual Metrics Report.

4.10 Audit of Element viii: System Evaluation and Capacity Assurance Plan-Order D.13.viii

Review the SSMP to determine if it complies with the Order by having a Capital Improvement Plan (CIP) that considers (a) Evaluation of those portions of the sanitary sewer system that are experiencing SSO discharges due to hydraulic deficiency, (b) Design Criteria is reviewed in problem areas and corrective work is performed, (c) Capacity Enhancement Measures and steps to address short term and long term CIP goals and an implementation schedule, and (d) Schedule for completion of the corrective items that were developed in items D.13.viii (a) - (c) above.

Sufficiency: Complies

4.10.1 Findings:

- A complete update of the Infrastructure Asset Management Plan was pursued and completed just following the end of the audit period.
- Completed a substantial update to the IAMP including expensive project priority system for all sewer assets.
- IAMP update includes asset resiliency priorities especially as relates assets in and near Waters of the US.
- Complete a prioritized ten-year capital improvement program thru FY 31/32 for all sewer related assets identifying \$26.5 million in improvement needs.
- District completed approximately \$30 million of capital improvements during the period.
- District reports completion of most of the required renewal and replacement requirements from the CMSA NPDES permit and the CDO.
- Completed an updated flow monitoring assessment to confirm or revise earlier capacity studies.

4.10.2 Recommendation:

4.10.2.1 Streamline the narratives in this Element removing old information and update for the new information from the IAMP.

4.11 Audit of Element ix: Monitoring, Measurement, and Program Modification - Order D.13.ix.

Review the SSMP to determine if it complies with the Order by (a) maintaining relevant information that can be used to establish and prioritize appropriate SSMP activities, (b) monitoring the implementation and, where appropriate, measure the effectiveness of each element of the SSMP, (c) assessing the success of the preventative maintenance program, (d) updating program elements, as appropriate, based on monitoring or performance evaluations, and (e) identifying and illustrating SSO trends, including frequency, location and volume.

Sufficiency: Complies.

Findings:

- The District provides monthly and annual broad performance-based and capital completion reports on the sanitary sewer program on the Board of Directors public meeting agenda that are also available on the webpage.
- The tracked performance measures strongly support the Element 1 Goals for the SSMP and District sewer program.
- The District Year End Metrics and separate Capital Results Report are excellent and can be found on the District webpage and goes well beyond expected information by regulators
- The Metrics report provides excellent narrative background information regarding the performance results and that operational changes being made from these performance results
- Attachment 7 provides the Districts updated historical overflow and maintenance results during the audit period.
- Table 9-2 and the associated figures require updating to current (See Attachment 7 for updated graphs).
- No FOG Control Program metrics or performance results included in the annual metric report to the Board of Directors.

4.11.1 Recommendation:

4.11.1.1 Update and add revised performance results in the next SSMP revisions.

4.11.1.2 Consider expanding the historical performance results graphs and charts especially for overflow and cleaning related results to display at least ten years of history including trend lines – these may be required in the WDR replacement in 2022.

4.11.1.3 Consider adding metric results for the FOG Control Program and include a comparison of SSO Rate/100 miles to the Year-End Metrics Report to the Board of Directors.

4.12 Audit of Element x: SSMP Program Audits - Order D.13.x

As a part of the SSMP, the District shall conduct periodic audits. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. These audits shall focus on the effectiveness of the SSMP, compliance with Order requirements, identification of any deficiencies and steps to correct them.

Sufficiency: Complies.

4.12.1 Findings:

- The 2019 SSMP Audit included five corrective actions which were all completed during the period.
- The District has been very proactive in providing sewer program information on the effectiveness of the program and compliance with all WDR and RWQCB orders.

- Some sewer program changes and modifications made since 2019 were not noted in the Log as required.
- The past audits are not attached to the SSMP in Appendix I as stated.
- Past Audit Reports were not certified by the District LRO as required by WDR Section J1.

4.12.2 Recommendation:

4.12.2.1 Continue to complete the require audits using the original SSMP adoption date and include any identified correction actions or deficiencies not later than the end of the two-year period.

4.13 Audit of Element xi: Communication Program - Order D.13.xi

Review the activities of staff to determine if they have complied with the Order by (a) communicating the performance of the SSMP with the public and with tributary agencies, and (b) providing the public and the member agencies the opportunity to provide input.

Sufficiency: Complies.

4.13.1 Findings:

- District has far exceeded communication requirements with the Board and District customers.
- District website contains most SSMP critical supporting documents.
- The District webpage is regularly updated and modified.
- The General Manager prepares and provides a separate Monthly Report to registered service area customers and area agency officials that cover a broad range of issues impacting the District.
- The Board receives monthly performance reports and annually receives Year End Metric and Capital Program reports.
- The staff continually reports performance of the sewer program to the Board and the public and other surrounding issues.
- All Board meetings provide the opportunity for public input on program performance and issues facing the District.

4.13.2 Recommendation:

4.13.2.1 Continue with the current active communication program efforts including regular updates to the District webpage.

4.13.2.2 Consider adding the Year-End Metrics and Capital Program Reports to the SSMP webpage upon adoption of the report by the Board of Directors.

4.13.2.3 Consider changing the “SSMP Related Documents” to “SSMP Critical Supporting Documents.” Consider adding a hyperlink from the SSMP webpage to the IAMP webpage.

4.14 SSMP Change Log

MRP Section E3. States Records documenting all changes made to the SSMP **since its last certification** indicating when a subsection(s) of the SSMP was changed and/or updated and who authorized the change or update. These records shall be attached to the SSMP

Sufficiency: Marginal Compliance.

4.14.1 Findings:

- The Change Log includes only two changes since the last SSMP adoption in 2019.
- The Change Log entries do not provide sufficient details, only the Element designation, to comply with the MRP requirements.
- The Change Log does not include all ordinances adopted by the Board or the significant changes to the Overflow Response Packets made in 2020.

4.14.2 Recommendation:

4.14.2.1 Assure that the change log is regularly updated and includes the specific locations by Element section number where and when the change was made in each element or appendices of the SSMP.

4.15 SSMP Appendices

4.15.1 Findings:

- No listing of the appendices in the Table of Contents.
- Several of the appendices are placeholders for future but contain no documents.
- Many of the appendices are critical supporting documents already available on the District website.
- Many of the documents included in the appendices could be hyperlinked from the SSMP and on the SSMP webpage to help streamline the SSMP.
- Appendix A does not include the updated IAMP.
- Appendix B is complete as required.
- Appendix E Indirect Sanitary Sewer Overflow Policy dates to January 2014.
- Appendix E contains the old OERP and was not updated when the packets were revised.
- Appendix E cover page was not completed by management.
- Appendix D does not appear to be the Standards revision completed in the period.
- Appendix H should contain monitoring and measurement information or be eliminated in favor of the annual reports.
- Appendix I does not include the past Audit Reports and includes an outdated SSMP Audit Report outline.

- Appendices H and J do not contain any documents.

4.15.2 Recommendations:

- 4.15.2.1 Assure all critical supporting documents in the appendices are available from the SSMP webpage.
- 4.15.2.2 Consider elimination or revision to the Indirect SSO Policy.
- 4.15.2.3 Consider eliminating appendices with no documents if none to be added.
- 4.15.2.4 Consider reducing and streamlining the documents in the appendices using hyperlinks in the SSMP and on the SSMP webpage.
- 4.15.2.5 Hyperlink all critical supporting documents found on other webpages from SSMP page.

5.0 Recommendations and Opportunities for Improvement:

The following corrective action items have been identified to support the actions necessary to address the Findings earlier in this Audit Report. The completion of these action items should result in the Sanitary Sewer Program being in substantial conformance with the WDR and MRP requirements and regulator expectations identified since the original authorization of the WDR and amended MRP. Management will need to develop a schedule and assign responsibilities for the timely completion of these corrective action items once the Audit Report is approved and certified.

- CA-1: The District must improve the use of the SSMP Change Log with regular updates and changes in the sewer program resulting from observed and completed improvements since the last SSMP adoption.
- CA-2: The District must improve emergency response documentation and evaluations by additional written narratives and calculations of all event related volumes especially recovered.
- CA-3: Element 4 Operations and Maintenance Program must be revised to reflect actual program elements, staffing, maintenance activities and training.
- CA-4: The District needs to expand the operations and maintenance program for manholes and siphon maintenance activities.
- CA-5: The District needs to assure that regular annual training SSO/OERP and SSO/OERP field exercises are conducted and properly documented.
- CA-6: The District must expand training program to include at least a summary overview for all non-field staff members on the WDR, MRP, SSMP, OERP and WQMP.
- CA-7: Consider streamlining the SSMP to assure a more user-friendly document that will be used and not ignored by the staff eliminating extraneous and duplicative information and information that is not directly compliant with the WDR and MRP requirements.

CA-8: Consider hyperlinking all critical supporting documents from the SSMP Element and on the SSMP webpage.

CA-9: Consider annually reviewing and completing the SWRCB Pre-Inspection Questionnaire.

6.0 Conclusions

The District has been very proactive implementing its sewer program and SSMP during the audit period. The SSMP does require specific areas of updating or improvements to conform to current program policies and procedures as recommended in the audit reports for each element. The District has expended considerable funds during the audit period to comply with both the spirit and requirements of both their CMSA NPDES requirements and the CDO. The District completed sewer rehabilitation projects worth \$30 million and completed a substantial update of the IAMP. The IAMP update include revisions to the priority rating system to include resiliency and other important changes to enhance program improvements. The District has utilized many Smart Cover flow monitors in critical manholes to enhance the operation of the sewer system and assist with the protection from sewage overflows from the system.

The District and CMSA has established extensive communications tools for District customers to understand their role and responsibilities for use of the sewer system as well as the ongoing activities of the District's staff. The operations and maintenance program has resulted in a continuing reduction in both the numbers and volumes of sewage overflows with SSO Rates/100 miles continuing a trend of continuous improvement.

The District is very close to completing all requirements under the CDO and in the CMSA NPDES Permit and may soon be requesting recession of the CDO. This however has not ended the Districts efforts to continue needed renewal and replacement as evidenced by the expanded and updated IAMP which has established future short- and long-term capital projects for the next ten years.

The pandemic clearly limited some of the required SSO training identified in the SSMP. However, the District did adjust by providing much regular staff training online by Zoom and Teams as listed in Attachment 3.

While the District updated the OERP and the associated documents during the audit period to enhance reporting documentation. There are still areas where improvement is warranted especially as relates to start times and volume estimate documentation and full completion of required forms in the SSMP. Finally, the LRO must be very careful to assure that the certified information in CIWQS is properly supported or explained in the overflow event file. Several important discrepancies were identified during the review of the selected event certified overflows without explanation.

Overall, the District SSMP and sewer program have continued to improve during the audit period. As with any program, there are needed improvements and revisions that will recognize current policies and procedures practiced by District staff. These must be tracked and reported in the Log which provides the SWRCB an understanding of how the program is being continuously improved based upon actual responses to activities in the field and enhancements in the industry.

7.0 Acronyms Used in the Audit report

BMP	Best Management Practice
CA	Corrective Action
CCTV	Closed Circuit Television
CDO	Cease and Desist Order No. R2-2013-0020
CIP	Capital Improvement Program
CIWQS	California Integrated Water Quality System
CMMS	Computerized Maintenance Management System
CMSA	Central Marin Sanitation Agency
CSW	Collection System Worker
District	Ross Valley Sanitary District
DS	Data Submitter
FOG	Fats, Oils and Grease
FSE	Food Services Establishment
GIS	Geographic Information System
IAMP	infrastructure Asset Management Plan
Log	SSMP Change Log
LRO	Legally Responsible Official
MRP	Monitoring and Reporting Program
NPDES	National Pollution Discharge Elimination System CMSA Permit No. R2-2018-0003
OERP	Overflow Emergency Response Plan
RWQCB	Regional Water Quality Control Board, Region 2 San Francisco
SOP	Standard Operating Procedure
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow

SWRCB	State Water Resources Control Board
WDID	Waste Discharge Identification Number 2SSO11445
WDR	Sanitary Sewer Waste Discharge Requirements
WQMP	Water Quality Monitoring Plan

Attachment 1: WDR Section D.13 Compliance Checklist

Ross Valley Sanitary District
SSMP Audit Report Form

Audit Period Covered: July 2019 - June 2021

add list of Appendices to TOC

Introduction		Yes	No
Is the current system description complete and up to date? Are all infrastructure statistics current and complete?			✓
Discussion: Pipe lengths outdated; update table I-1 & I-2; add age & pipe section #'s & lengths; Fig I-1 update; Add CDO requirements here for Munny, etc & NPDES requirements & I-2 add lateral requirements			

Element 1 - Goals		Yes	No
A	Are the goals stated in the SSMP still appropriate and accurate?	✓	
Discussion: any changes needed?			

Element 2 - Organization		Yes	No
A	Is the Contact Information current?		✓
B	Is the Sanitary Sewer Overflow Responder List current?		✓
C	Is the Organization Chart in Figure 2-1 of the SSMP current?		✓
D	Are the position descriptions an accurate portrayal of staff responsibilities? None		✓
E	Is the chain of communication for reporting and responding to SSOs accurate and up-to-date?		✓
Discussion: Missing Business System Analyst; Table 2-1 outdated add LEO and DS designations to org & Tables; Table 2-2 revision needed due to retirements; need class descriptions			

Element 3 – Legal Authority		Yes	No
Does the SSMP contain current references to the District's Code documenting the District's legal authority to:			
A	Prevent illicit discharges?	✓	
B	Require proper design and construction of sewers and connections?		✓
C	Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the City?	✓	
D	Limit discharges of fats, oil and grease? <i>CMSA FOG ord 2021-1</i>	✓	✓
E	Enforce any violation of its sewer ordinances?	✓	
F	Were any changes or modifications made in the past year or since the last SSMP audit to District Ordinances, Regulations, or standards?	?	?
Discussion: <i>authoritative narratives are not required simple table is responsive; any ordinance revisions in period?; no narrative on design - if to streamline then OK; Ord 62 replaced Larkspur Annexation not needed; Murry Park Agreement outdated due to annexation; annexation docs to be removed</i>			

Element 4 – Operations and Maintenance		Yes	No
Collection System Maps <i>documentation of changes how?</i>			
A	Does the SSMP reference the current process and procedures for maintaining the District's sanitary sewer system maps? <i>Info Asset</i>	✓	
B	Are the District's wastewater collection system maps complete, current, and sufficiently detailed? <i>any outstanding; turn time?</i>	✓	?
Prioritized Preventive Maintenance <i>two new programs proposed done</i>			
C	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewer lines? <i>ref May 2013 update</i>		✓
D	Based upon the SSO information in CIWQS and the Annual SSO Report, are the District's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages? <i>see performance charts Ser Cat I especially</i>	✓	
Rehabilitation and Replacement Program			
E	Is there an ongoing condition assessment program sufficient to rank the condition of sewer pipes and schedule rehabilitation? Are the current components of this program documented in the SSMP? <i>No for >15" or force mains or M+ simple form?</i>	✓	✓
F	Does the rehabilitation and replacement plan include a capital improvement plan that addresses proper management and protection of the infrastructure assets? <i>10yr</i> Does the plan include a time schedule for implementing the short and long-term plans plus a schedule for developing the funds needed for the capital improvement plan? <i>dated 2013 when to be replaced SMARTool Risk of failure</i>	✓	
Contingency Equipment and Replacement Inventory			
G	Does the SSMP list the major equipment currently used in the operation and maintenance of the collection system? <i>updates needed?</i>	✓	

Info Asset upgraded 2019

IAMP last reviewed?

Training

✓

H	Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?		✓
Training			
I	Are the training records current?		
J	Does the SSMP document current training expectations and programs?	✓	
Discussion: large diameter cleaning & siphon program to be updated (IV-3) done?; IV-5 say 8.4 miles FM C was 7.9? QA/QC implemented (IV-6); Table IV-5 not required;			

Element 5 – Design and Performance Standards		Yes	No
A	Does the SSMP reference <u>current</u> design and construction standards for the installation of new sanitary sewer systems, pump stations and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?		✓
B	Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines?	✓	
Discussion: Current 2020 in SSMP Log;			

Element 6 – Overflow and Emergency Response Plan		Yes	No
A	Does the District's Overflow Emergency Response Plan (OERP) contain proper notification procedures so that the primary responders and regulatory agencies are informed of all sanitary sewer overflows (SSOs) as required by the WDR and MRP?	✓	
B	Does the OERP have a program to ensure an appropriate response to all overflows?	✓	
C	Does the OERP contain procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities of all SSOs that potentially affect public health or reach waters of the State in accordance with the MRP? Does the SSMP identify the officials who will receive immediate notification of such SSOs?	✓	
D	Are staff and contractor personnel aware of and appropriately trained on the procedures of the OERP?	✓	
E	Does the OERP contain procedures to address emergency operations such as traffic and crowd control and other necessary response activities?	✓	
F	Does the OERP ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge?	✓	

D	Do any proposed changes to the SSMP require Board approval as they have a substantial change in the policies and procedures for collection system operations and maintenance?	?	
Discussion: No Audit Attached from 18/19 or other; no statement of critical supporting or change log updates annually No change log attached create separate SSMP page rather than docs in disperse places Audit Form no longer applicable			

Element 11 – Communication Program		Yes	No
A	Does the District communicate on a regular basis with the public and other agencies about the development and implementation of the SSMP? Does the communication system provide the public the opportunity to provide input as the program is developed and implemented? Were annual progress reports and metrics of implementation of the SSMP provided to the District Board? Perf Reports yes	✓	
Discussion: Documents are in various locations add hyperlinks to other locations; great monthly bulletin full audit period – How many subscribers? website hits? who writes excellent monthly performance reports			

Change Log		Yes	No
A	Is the SSMP Change Log current and up to date?		
Discussion: just recent additions no contact changes since 2019 copy in SSMP blank			

No adoption docs attached for SSMP

Cover page:

Consider adding

1. WDID
2. Orig Adoption date
3. last adoption date
4. Resolution/Minute # or date – easy to find
5. add Sanitary Dist #1 of MC – official explain in intro

Attachment 2: Documents Reviewed During the Audit

- Ross Valley Sanitary District Sewer System Management Plan and Appendices, Revised September 2019
- San Francisco Regional Water Quality Control Board Cease and Desist Order R2-2013-0020
- RVSD Year End Metric Report July 2018 – June 2019
- RVSD Year End Metric Report July 2019 – June 2020
- RVSD Year End Metric Report July 2020 – June 2021
- RVSD SSMP Audit Fiscal year 2016-17 through FY 2018-19
- Train Tacks Completed Training July 2019 to June 2021 (10 pages)
- RVSD Infrastructure Tables (14 each)
- Listing of RVSD Standard Operating Procedures, 200 each
- CIWQS Certified Spill Reports, 6 each (see Attachment 6)
- Ross Valley Sanitary District Standard Specifications, Drawings and Approved Materials June 2020
- Central Marin Sanitation Agency NPDES System Permit R2-2018-0003
- RVSD SSMP Audit Fiscal Year 2016/17 thru 2018/19
- Fats, Oils and grease (FOG) Control Program Agreement, January 10, 2013
- Infrastructure Asset Management Program, October 1, 2013, V.W. Housen & Associates
- Infrastructure Asset Management Plan Summary Report, September 30, 2021, HDR
- Technical Memorandum Infrastructure Asset Management Plan Update, 9/3/2021, Allan Scott HDR to Steve More RVSD
- RVSD Annual Budget Fiscal Year 2021- 2022
- CMSA Joint Exercise of Powers Agreement dated December 2019
- Central Marin Sanitation Agency NPDES Permit R2-2018-0003
- RVSD 2019 Sewer Rate Study, Final Report, April 18, 2019, Hildebrand Consulting
- RVSD FY 2021/22 Business plan, July 21, 2021
- Listing of Smart Cover locations as of April 28, 2021
- Easements: What Do You Need to know?
- RVSD Overflow Emergency Response Plan May 2014

- RVSD SOP List 9/9/21
- RVSD COVID-19 Exposure Control Plan, June 21, 2021
- RVSD Ordinance No. 100 An Ordinance Repealing Ordinance 66 adopted August 21, 2013, and Enacting this Private Sewer Lateral Ordinance
- General Manager Monthly Reports from the Audit Period

Attachment 3: List of Training Completed During Audit Period

RVSD Training Conducted During Period 19/20 – 2021

- Covid Policy Review
- Covid 19 Exposure Control Plan
- Northern Safety Day – 2019
- Difficult Conversations
- Diversity and Inclusion
- Electric Safety Awareness
- Emergency Action Plan
- Eye Protection
- Hazardous Materials/Waste Training
- Maximizing Supervisory Skills
- Motor Control and Electrical Panels
- PACP Refresher Training (2 each)
- SSO Packet Review – 1/2020
- Seasonal Flu
- Sewer Summit
- Slips, trips and falls
- Tick bites
- Traffic Control Transitioning to Supervisor
- Tristate Seminar
- Verbal Judo
- Vehicle Accident Follow-up
- Worker Hydration
- Workers Comp for Supervisor
- Tailgate sessions
- Training by zoom mostly

Attachment 4: Summary of Status of 2018 Corrective Actions

Action #	Corrective Action	Status as of 9/2021	Causey Comments
		Steve Moore	
1	Ensure that information entered into the CIWQS system is correct and check reports prior to making them "final" in CIWQS, and certify SSO reports within required times.		Response Packet updated but not consistently completed various identified in the SSO documentation summary review
2	Revise the audit element in the SSMP and post completed audits on the District website after acceptance by the District Board.		Appears to have been completed with the 2019 SSMP revisions
3	Initiate annual SSMP refresher training for relevant staff.		1/30/20 only one listed no field exercises in training log provided; what impact to training from pandemic; no annual refresher training in 2021 listed
4	Maintain the change log in the future by adding any significant changes to the SSMP as they occur.		Only two entries and none for the 2019 SSMP revision; changes to the OERP and Response Packet not included; no ther entries during the audit period for ordinance revisions completed, etc.; what do they consider significant? Suggest removing "significant"
5	Change the main mileage figure so that the SSMP and CIWQS system figures are correct and consistent.	Done, part of SSMP update	This status was included in the Audit Report action item.

Attachment 5: Sample SSMP Audit Checklist

Ross Valley Sanitary District SSMP Audit Checklist Report Form

The purpose of the SSMP Audit is to evaluate the effectiveness of the RVSD SSMP and sanitary sewer program and to identify any needed for improvement. The information identified here will be used to inform the possible findings and necessary information to be evaluated during the biannual Internal Audit of the RVSD SSMP.

Directions: Please rank each item below utilizing the following sufficiency ranking system and add any comments to explain the ranking to the Comment Section of each SSMP Element:

- *Complies (C) – complies with all WDR objectives*
- *Substantially Complies (SC) – complies mostly with all WDR objectives*
- *Partially Complies (PC) – complies with basic WDR objectives*
- *Marginal Compliance (MC) – complies minimally with basic objectives of the WDR*
- *Does Not Comply – does not comply with WDR objectives*

Element 0 – Introduction/Executive Summary	
A.	
B.	
C.	
D.	
Element I – Goals	Rating
A. Are the goals stated in the SSMP Element I still appropriate and accurate?	
Discussion:	
Element II – Organization	Rating
A. Is the List of Staff Responsible for SSMP Elements current?	
B. Is the Sanitary Sewer Overflow Responder List current?	
C. Is the Organization Chart current?	
D. Are the Staff position descriptions an accurate portrayal of staff responsibilities? Are the LRO and DSs properly identified in the position descriptions?	

E. Is the Chain of Communication for Reporting and Responding to SSOs section/flow chart accurate and up to date?	
Discussion:	
Element III – Legal Authority	
Rating	
Does the SSMP contain current references to the Gilroy Municipal Code documenting RVSDs legal authority to:	
A. Prevent illicit discharges?	
B. Require proper design and construction of sewers and connections?	
C. Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the RVSD?	
D. Limit discharges of fats, oils and grease?	
E. Enforce any violation of its sewer ordinances?	
F. Were any changes or modifications made in the past year to Sewer Ordinances, Regulations or standards?	
Discussion:	
Element IV – Operations & Maintenance	
Collection System Maps	
Rating	
A. Does the SSMP reference the current process and procedures for maintaining RVSD’s wastewater collection system maps?	
B. Are the wastewater collection system maps complete, current and sufficiently detailed?	
C. Are storm drainage facilities of the City and County identified in the RVSD service area on the collection system maps? If not, are SSO responders able to determine locations of storm drainage inlets and pipes for possible discharge to waters of the state?	
Prioritized Preventive Maintenance	
Rating	
D. Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewers?	
E. Based upon information in the Annual SSO Report, are the RVSDs preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	
Scheduled Inspections and Condition Assessments	
Rating	

F.	Is there an ongoing condition assessment program sufficient to develop a capital improvement plan addressing the proper management and protection of infrastructure assets? Are the current components of this program documented in the SSMP?	
Contingency Equipment and Replacement Inventory		Rating
G.	Does the SSMP list the major equipment currently used in the operation and maintenance of the collection system and documents the procedures of inventory management?	
H.	Are contingency and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?	
Training		Rating
I.	Does the SSMP document current training expectations and programs for staff and contractors?	
Outreach to Plumbers and Building Contractors		Rating
J.	Does the SSMP document current outreach efforts to plumbers and building contractors?	
Discussion:		
Element V – Design and Performance Standards		Rating
A.	Does the SSMP reference current design and construction standards for the installation for new sanitary sewer systems, pump stations and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?	
B.	Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines?	
Discussion:		
Element VI – Overflow and Emergency Response Plan		Rating
A.	Does the RVSD Sanitary Sewer Overflow Emergency Response Plan establish procedures for the emergency response, notification, and reporting of SSOs?	
B.	Are staff and contractor personnel appropriately trained on the procedures of the Sanitary Sewer Overflow Emergency Response Plan?	
C.	Considering SSO performance data, is the Sanitary Sewer Overflow Emergency Response Plan effective in handling SSOs to safeguard public health and the environment?	

D. Are all SSO and claims reporting forms current or do they require revisions or additions?	
E. Does all SSO event recordkeeping meet the SSS GWDR and MRP requirements? Are all SSO event files complete and certified in the CIWQS system?	
F. Is all information in the CIWQS system current, and correct? Have periodic reviews of the data been made during the year to assure compliance with SSS GWDR? Have all Technical Report and Water Quality Sampling requirements been met and uploaded to the CIWQS data management system?	
Discussion:	
Element VII – Fats, Oils and Grease (FROG) Control Program	Rating
A. Does the FROG Control Program include efforts to educate the public on proper handling and disposal of FROG?	
B. Does the FROG Control Program identify sections of the collection system subject to FROG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?	
C. Are requirements for grease removal devices, best management practices (BMP), record keeping, and reporting established in the FROG Control Program?	
D. Does RVSD have sufficient legal authority to implement and enforce the FROG Control Program?	
E. Is the current FROG program effective in minimizing blockages of sewer lines resulting from discharges of FROG to the system	
F. Was required training on SSMP and OERP completed and documented? Were field exercises with field staff on SSO volume estimation conducted and documented?	
G. Did all public improvement plans and specifications that could impact collection system operations include requirements for OERP training or were contractor OERP programs at least as stringent as the RVSD OERP? Were regular items included in project meeting agendas to discuss emergency response procedures and communications?	
Discussion:	
Element VIII – System Evaluation and Capacity Assurance Plan	Rating

A. Does the RVSD Sewer System Master Plan evaluate hydraulic deficiencies in the system, establish sufficient design criteria and recommend both short and long-term capacity enhancement and improvement projects?	
B. Does the RVSD Capital Improvement Plan (CIP) establish a schedule of approximate completion dates for both short and long-term capacity improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity completed?	
Discussion:	
Element IX – Monitoring, Measurement and Program Modifications	Rating
A. Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?	
B. Is RVSD able to sufficiently evaluate the effectiveness of the SSMP elements based on relevant information?	
C. Do the performance metrics properly support the Goals in Element 1?	
Discussion:	
Element X – SSMP Audits	Rating
A. Will the SSMP Audit be completed, reviewed and filed in Appendix B based upon the required time intervals since the original SSMP adoption date?	
B. Was the last Audit Report certified by the RVSD LRO as required?	
C. Was the final Audit Report presented to the governing body at a publicly noticed meeting?	
D. Was the last Audit Report placed in the SSMP Appendix and added to the SCWD SSMP webpage?	
Discussion:	
Element XI – Community Program	Rating
A. Does RVSD effectively communicate with the public and other agencies about the implementation of the SSMP and continue to address any feedback?	
B. Did the RVSD Board receive and review the Annual Sewer System Report?	
C. Was the annual report uploaded to the RVSD Sewer Section website and added to Appendix C?	

D. Did staff conduct and document meetings with the Pebble Beach Community Services District's satellite collection systems?	
E. Are all agreements with satellite systems current or are changes necessary to these agreements?	
Discussion:	
Change Log	Rating
A. Is the Log current and up to date?	
Discussion:	

Audit Team: _____

Date: _____

Prepared By: _____

Date: _____

Reviewed By: _____

Date: _____

Certified By: _____

Date: _____

Approved for Filing On

Date: _____

Attachment 6: Summary of Overflow Event Recordkeeping Audit

**Ross Valley Sanitary District
Summary of SSO Event Review - Old Workbook
Causey Consulting
September 13, 2021**

Section/Reference	CIWQS Information/Event Number	860828	861614	866900
OES Control Number		N/A	N/A	N/A
Spill category		3	3	3
Location		Hawthorne, San Anselmo	Halzic Ct, Larkspur	Spruce Ave, San Anselmo
Start date		7/28/19	8/14/19	5/7/20
Start time		3:00:00 PM; page 2 16:00	7:45:00 PM; BP7-2 says 19:00	19:00
Notified date		16:52	20:11	7:18:00 PM; BP-7-6 says 19:25
Operator arrival		17:52	21:10	20:20
Spill end time		18:06	9:41:00 PM; BP7-2 says 21:15	21:15
Completion time		email says 19:30	10:00 PM on page 6	20:30 on overflow packet
Spill volume, gallons		30	232	30
SewerAsset		Main	Main	force main
Volume recovered		0	0	0
Volume to land		30	232	30
Volume reach surface water		0	0	0
Event draft report		None	None	None
Event certified date		8/30/19	9/30/21	5/21/20
LRO certified		Miksis	Miksis	Miksis
Spill cause		Roots	Debris/rags	Roots
Corrective actions		None provided	None provided	None
Volume method		eyeball 5 gal buckets	Duration & flow	5 gal bucket; eyeball on BP-7-3
Who reported; contact person		Jazuk	Jazuk	Zarco
OES notification time		N/A	N/A	N/A
Investigation		N/A	N/A	N/A
OES Notification ID		N/A	N/A	N/A
OES Notification email		N/A	N/A	N/A
WDR deadlines met		Yes	Yes	Yes
Phones/videos uploaded		No	No	No
Overflow Emergency Response Plan Recordkeeping				
Employee completing the workbook		Jazuk	Jazuk	Brody
Workbook date		7/28/19	8/14/19	5/7/20
Draft CIWQS Report		None	None	None
Final Certified Repprt		None	None	None
SWRCB Certification email		None	None	None
Response Packet Form - 2017		No old packet used	No old packet used	No old packet used
CCTV inspection		Say yes but no documentation of results in event file	5/18/19	Yes but no documentation
RN-2a	Cat 1 Reporting Checklist	N/A	N/A	N/A
RN-3	Unauthorized Discharge of Waste Report	N/A	N/A	N/A
	Incident Report	None	None	None
	Claims Form	N/A	N/A	N/A
	Photos/videos	5/1	6/1; owner video not in	10/5
	Photos properly documented	No	None	None
	Number of Signs posted	N/A	N/A	N/A
	Sign photos	N/A	N/A	N/A
	Impacted Water body	N/A	N/A	N/A
	Sampling photos	N/A	N/A	N/A
	Sampling Conducted	N/A	N/A	N/A
	Chain of Cutody in file	N/A	N/A	N/A
	Sample analysis	N/A	N/A	N/A
	Technical Report Completed	N/A	N/A	N/A
	Technical Report Uploaded to CIWQS	N/A	N/A	N/A

**Ross Valley Sanitary District
Summary of SSO Event Review - Old Workbook
Causey Consulting
September 13, 2021**

Section/Reference	CIWQS Information/Event Number	860828	861614	866900
	OES Control Number	N/A	N/A	N/A
	Spill category	3	3	3
	Debrief/Failure Analysis completed	None Cat 3	None Cat 3	None Cat 3
	Copy of infoNet Mobile Work Order in file	Yes	No	Stated but not attached - 2 each
	Sewer Back-up Contact Info	No	Yes	None
BP-3	First Responder Form (2 pages)	No	No	None
BP-4	Declination of Sewage Cleaning Services Form	N/A	N/A	N/A
BP-5	Lodging Authorization Form	N/A	N/A	N/A
BP-6	Sanitary Sewer Overflow Report (2 pages)	No	No	No
BP-7	RVSD SSO Response Field Documentation (8 pages)	No page 1; Pages 2-7 only	No page 1; Pages 2-7 only	Yes
BP-7-1		Yes SSO Response Checklist not completed	Yes checklist not completed	Yes No checklist
BP-7-2	Field Documentation/start time	0/0; owner video not in; form says start at 16:00	Start time stated 19:00 done 19:18	start time when noticed with no follow-up interview probably started earlier
BP-7-3	Spill location/volume worksheet	Yes 6-5 gallon buckets	Yes	Yes
BP-7-4	Methods worksheet	Yes; no recovered volumes discussed or soil absorption; soil removed	6-5 gallon buckets	Yes bucket eyeball for 5 gallon bucket
BP-7-5	Cause/containment	Yes CCTV was to be done; possible repair no documentation of follow-up activity	Removed 7 bags of debris; disinfected	CCTV no documentation; debris (soil?) removed 7 bags
BP-7-6	Clean-up/important milestones/reporting	Yes	Yes	Yes
BP-7-7	Notes	InfoAsset Report attached	2 notes stated but not found	See info asset sheets two each not included in file
BP-7-8	?????	None	None	None
BP-8	Claims Submittal Checklist	N/A	N/A	N/A
BP-9	Collection System Failure Analysis	N/A because Cat 3	N/A because Cat 3	N/A because Cat 3
CS-2	Claim Form	N/A	N/A	N/A
	Chain of Custody	N/A	N/A	N/A
	Total available document in file	10	10	17
	Comments	See documentation summary for site; using old packet forms	See documentation summary for site; using old packet forms	How were 6 bucket eyeball determined in middle of the night?

**Ross Valley Sanitary District
Summary of SSO Event Review - New Workbook
Causey Consulting
September 2021**

Section/Reference	CIWQS Information/Event Number	865789	867280	874681
OES Control Number		N/A	203015	N/A
Spill category		2	1	3
Location		732 Fawn Dr, Sleepy Hollow	College Ct, Kent Woodlands	Fawn Ct, San Anselmo
Start date		1/23/20	6/7/20	5/27/21
Start time		CIWQS none; WS-1 says 2/1/20	8:34:00 AM; D-2 says 8:35	7:00
Notified date		CIWQS none; D-2 says 3/22/20	9:57:00 AM; dispatch says 9:37	5/29/2021 9:30:00 AM; 9:28 in memo
Operator arrival		CIWQS none; D-2 says 8:57	10:41	10:56
Spill end time		CIWQS none; D-2 says 10:45	11:30:00 AM; WS-3 says 12:54	11:10
Completion time		CIWQS none; D-2 says 12:10	6/23/2020; D-2 says 6/7 @14:34	??? 12:30 on WS-3
Spill volume, gallons		1496	1732; D-1 says 1773	52 does not consider diurnal flows maybe less
SewerAsset		lateral from main backup	Main	Main
Volume recovered		0	200	0
Volume to land		1496; 2992+45+1040=4077 from packet calcs	200; D-1 says 73	52
Volume reach surface water		0	1532; D-1 says 1500	0
Event draft report		None	None	None
Event certified date		4/8/20	6/30/20; 7/2/20	6/28/21
LRO certified		Miksis	Miksis	Moore
Spill cause		Construction debris/roots	Grease; WS-3 says CCTV to determine	Roots; grease also on WS-3
Corrective actions		Add to PM program	Added to PM at 3 years	None
Volume method		Flow and Area	in SSO report; measured volume duration in report - 5 gpm for 175 minutes	Eyeball and duration
Who reported; contact person		Zarco	Zarco	Smith
OES notification time		N/A	11:28	N/A
Investigation		Yes	Yes no documentation in file	None
OES Notification ID		N/A	20-3015; not required by WDR	N/A
OES Notification email		N/A	None	N/A
WDR deadlines met		No	No almost 4 hours	Yes
Phones/videos uploaded		No	No	Yes
Overflow Emergency Response Plan Recordkeeping				
Employee completing the workbook		Shine	Garcia	Smith
Workbook date		3/25/20	6/8/20	6/8/21
Draft CIWQS Report		None	None	None
Final Certified Repprt		None	None	None
SWRCB Certification email		None	None	None
Response Packet Form - 2017		Yes; no data submitter info completed	Yes; no data submitter info completed	Yes; no data submitter info completed
CCTV Inspection		Yes 3/25/20 included	Yes	None
RN-2a Cat 1 Reporting Checklist		N/A	None	N/A
RN-3 Unauthorized Discharge of Waste Report		N/A	None	N/A
C-1 Sanitary Sewer Initial Reporting Form		Yes; no notification to Marin Health as per RN-1	Yes from CIWQS	Yes
D-1 SSO Initial Report/Start Time Determination		Yes, but no long/lat; no volumes by destination completed; form not fully completed	Yes from CIWQS; no long/lat; volume different than CIWQS 1773 - CIWQS 173	Yes, but no long/lat
D-2 SSO Time Milestones Form		Yes but not in CIWQS currently; not fully completed	Yes from CIWQS	None
D-3 SSO Location, Appearance, Destination Form		Yes	Yes	Yes
D-4 SSO Cause Form		Yes; just roots not construction	Yes check CCTV report - done?	None

**Ross Valley Sanitary District
Summary of SSO Event Review - New Workbook
Causey Consulting
September 2021**

D-5	SSO Response Activities Form	Yes but no pipe age	Yes no explanation, no pipe info added	Yes
D-6	SSO Corrective Actions Form	Yes; no investigation documentation	Yes	None
D-7	SSO WQ Samples and Volume Estimation Form	Yes N/A only	Yes just highlighter	None
	Recovered volume calculations	None	None	None
WS-1	SSO Estimation Method Calculations	Yes but not clear 5200, 2250 per say , final 1496 without description why; all calcs sum to 4077?	Yes but only 2 appearance points; some docs say 3 or 4 confusing.	Yes but no documentation for 7:00 start time
WS-2	SSO Containment Form	Yes	Yes	None
WS-3	SSO Clean-up Reporting Form	Yes; cause only roots on form CCTV done no documentation; no discussion of soil removal over 400 feet down hillside	Yes start 12:54	Yes
WS-4	SSO Volume Area Form	Yes	N/A	N/A
WS-5&6	SSO Volume by Area Form	N/A	N/A	N/A
WS-8	SSO Volume Area Estimation Worksheet Form	Yes who prepared sketch no date on sketch	Yes; confusing calculations not complete conflicts with CIWQS	Yes
WS-11	SSO Volume Area Worksheet Form	Yes but confuses how final volume determined	Yes but confusing none recovered	None
	Incident Report	2 emails	None	None
	Claims Form	N/A	N/A	None
	Photos/Videos	12/3	90/9	8/2
	Photos properly documented	No	yes	N/A
	Number of Signs posted	None	yes	N/A
	Sign photos	None	yes	N/A
	Impacted Water body	None but 400 feet of the hillside for 2 months	Corte Madera Creek; D-3 says CM Marsh and Tamalpais Creek	None
	Sampling photos	N/A	N/A	N/A
	Sampling Conducted	N/A	Yes	N/A
	Chain of Custody in file	N/A	No	N/A
	Sample analysis	N/A	Yes CMSA Lab	N/A
	Technical Report Completed	N/A	N/A	N/A
	Technical Report Uploaded to CIWQS	N/A	N/A	N/A
	Debrief/Failure Ananalysis completed	None	None	None Cat 3
	Copy of InfoNet Mobile Work Order in file	None	Yes but not in file - several stated	Yes couple
	Sewer Back-up Contact Info	None	None	Yes
BP-9	Collection System Failure Analysis	None as required by OERP Sec 6.12	Yes in CIWQS	N/A
CS-2	Claim Form	N/A	N/A	N/A
	Chain of Custody	N/A	No	N/A
	Total available document in file	26	108	14
	Comments	Collection system maps (2 each) included not sure purpose or who prepared for # edus probably from Property listing; no cleanup of the 400 ft hillside; cleanout and no box look strange not according to District standard; no documentation of the final volume;	No calculation of recovered volumes; volumes not clear	No consideration of diurnal flows for volume estimation - spill volume is lower

**Ross Valley Sanitary District
Sanitary Sewer Overflow Documentation Review
Causey Consulting
September 2021**

As one task associated with the Internal Audit of the District sanitary sewer program, a review of six selected events was conducted to determine if the District has followed the Overflow Emergency Response Plan and record keeping procedures included in the Sanitary Sewer Overflow Response Packets. The following six events of the twenty-four events during the audit period were selected to represent the District procedures and practices for overflow event documentation during the audit period of July 1, 2019 to June 30, 2021. They were selected to cover all State spill categories, sizes and impacted facilities.

Event ID	Start Date	Location	Spill Category	Spill Volume, gallons
860828	7/28/19	Hawthorne Ave	3	30
861614	8/14/19	Halzic Ct	3	323
866900	5/7/20	Spruce Ave	3	30
865789	1/23/20	Fawn Drive	2	1496
867280	6/7/20	College Ct	1	200
874681	5/27/21	Fawn Ct	3	52

During the review, it was determine that the District amended and revised the Response Packet forms sometime between January and May of 2020. As a result the attached summary sheets have been separated to include the form numbers used for the event documentation. The two attached tables are labels Old Workbook and New Workbook to distinguish the separate reporting requirements.

In general, the District utilized the forms from the Workbooks and completed the reports as required.

The following are the strengths and weaknesses identified during the review of the CIWQS certified reports and the full event documentation required by the State WDR and MRP and the District's own OERP. These observations are not listing in any particular order or priority but rather a general observation from the six chosen events.

Strengths Identified

- Each event had a separate documentation file based upon the category of the overflow event
- The proper reporting forms were used from each workbook based upon the specific details of the event
-
- Almost all required field in the certified CIWQS report were properly completed.

- None of the event resulted in property owner complaints
- A total spill volume over the three years was only 5,535 of which only 1,733 reach waters of the US.
- There were only 2 category 1 overflows to waters, one category 2 and the rest category 3 of very small volumes.
- The **SSMP Change Log indicated** the revision
-

Weaknesses Identified

- The forms in the OERP are follow the old form number formats and not the New Workbook numbering.
- Many fields in CIWQS are not supported by the information in the event file
- Two of the events were not certified timely
- Several of the files indicated that CCTV was done but the CCTV file was not in the file
- Almost all CIWQS start times were not supported by information in the file documentation
- There were no calculations of recovered volumes in any file indicating recovered volumes
- None of the files included copies of the draft and final CIWQS reports nor a copy of the State certification email which disappears sixty days following certification by the LRO.
- The first responder form was not completed or included in any of the files
- Generally, page one of the Response packet was not completed or included in the files provided for either Response Packet
- One file did not include any of the required event times in the certified report.
- Each of the six events found differences between many of the times in CIWQS and the times on the reporting forms completed by staff without proper documentation
- Failure analysis were not conducted on any of the Category 3 as stated in the OERP.
- The RN Forms in the OERP were not utilized or completed in the file.
- Marin Health not notified as required on the Cat 2 event
- Pipe age generally not completed in the certified CIWQS reports.
- Photo documentation missing on all photos and videos e.g. date, time, location, description and photographer.
- Spill volume estimations are not well supported by the file documentation especially in the case of the Cat 2 overflow –

Conclusions

Proper and complete event documentation needs to be improved

Create a photo log for each event

Assure all checklists are properly completed and approved when the final file is closed

Use the checklist of documents for each event (see attached)

Revise the OERP to match the most current Response Packet forms being used

Assure consistency between the file documentation and the certified reports
Assure all forms are signed off by the preparer and reviewed and approved by the LRO
Conduct similar event documentation audits with each internal audit at a minimum
Create and use a cover sheet for each event to list all involved in the event documentation
Assure that the file includes descriptions (memos or notes) that support the final volumes from the event
Assure any changes or cross outs in the file are initialed or credit given for the person making the change.

Working Draft

Attachment 7: Historical Sewage Overflow Information

Table 7-1: DISTRICT SSOs by Category

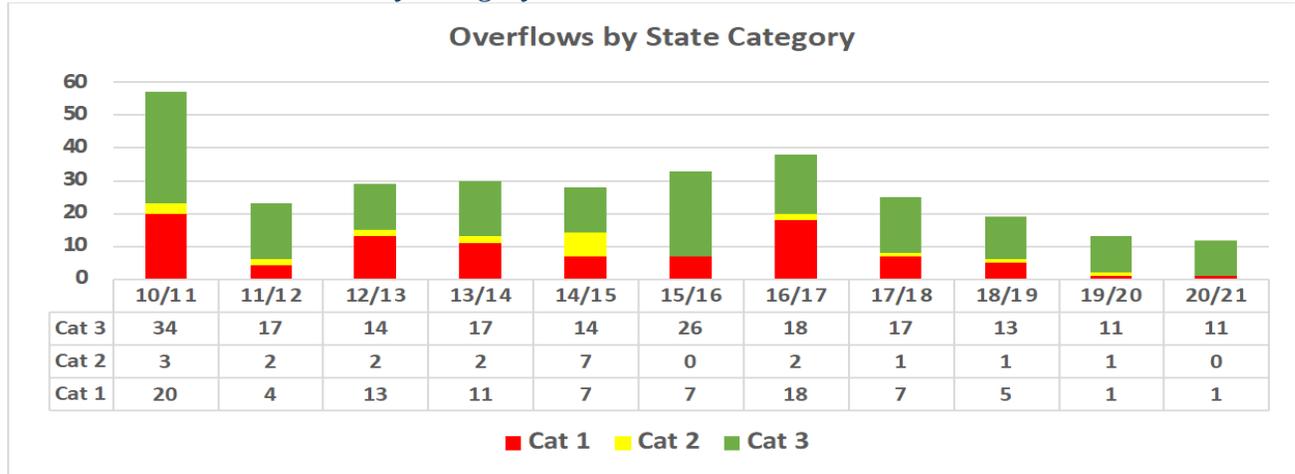


Table 7-2: History of Sanitary Sewer Overflows

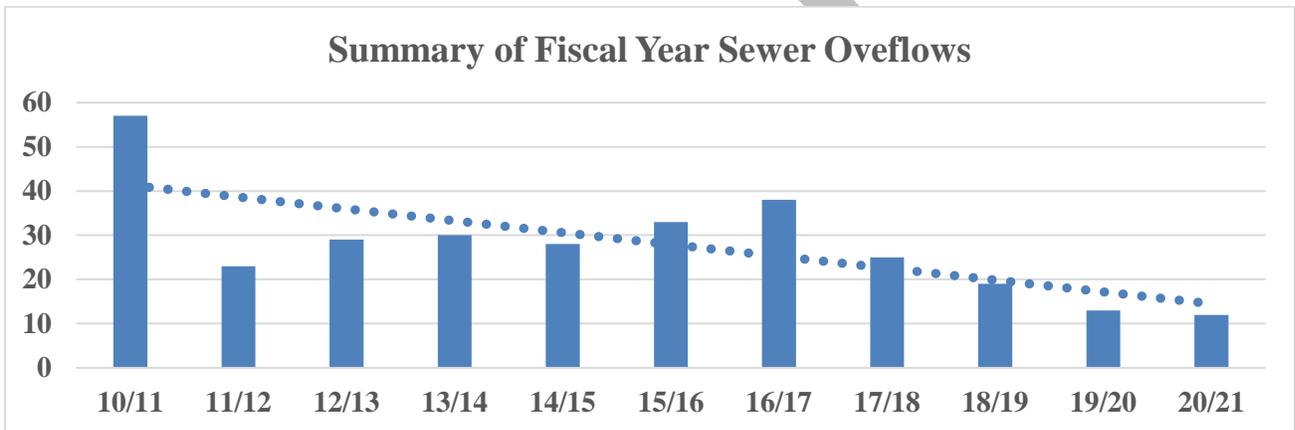


Figure 7-3: Annual Overflows by Cause

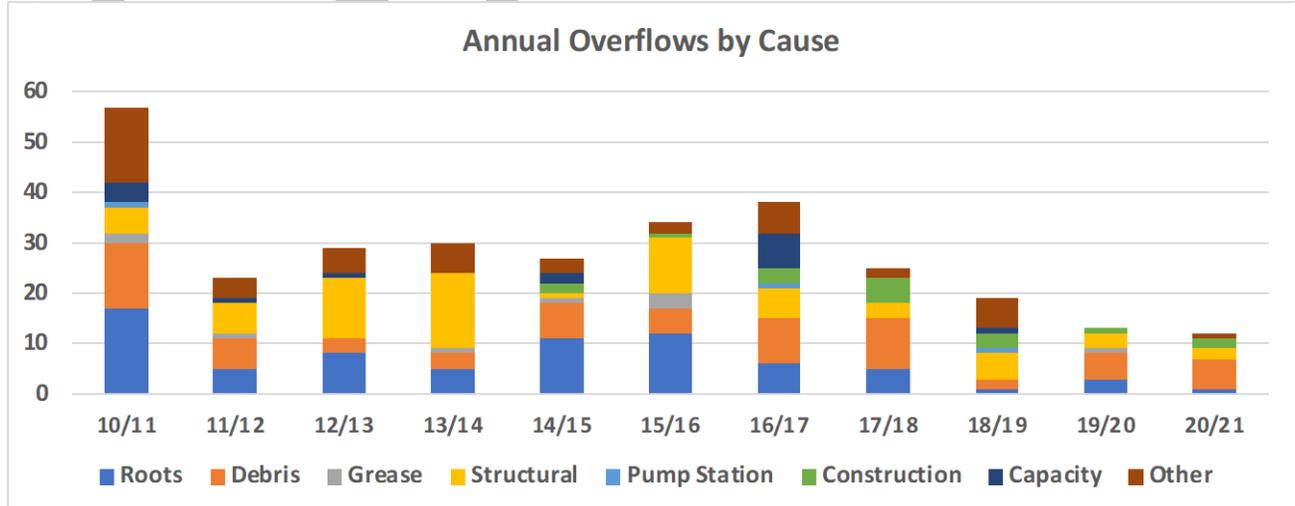


Figure 7-4: SSO Spill Volumes

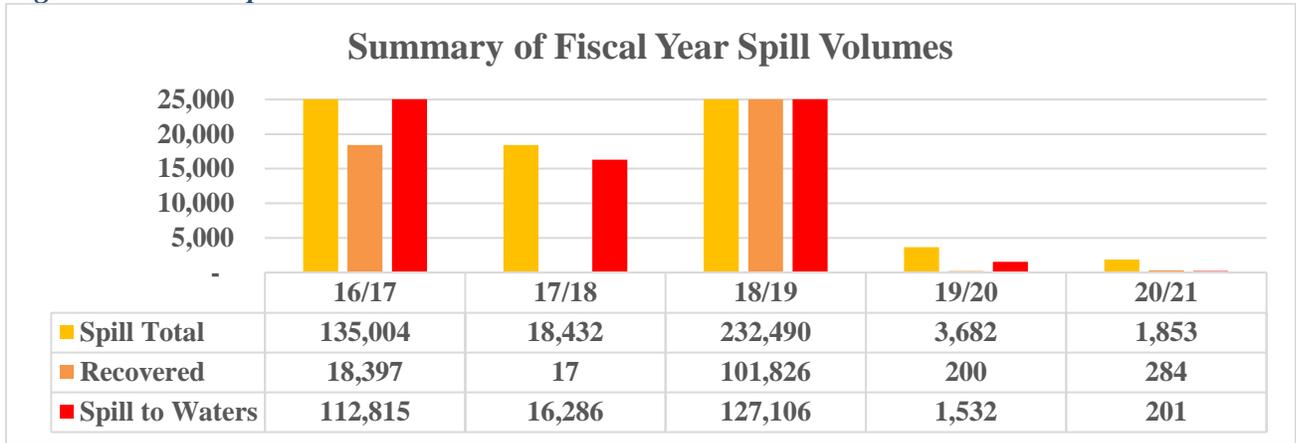


Figure 7-5: Spill Percentages – Recovered, to Waters

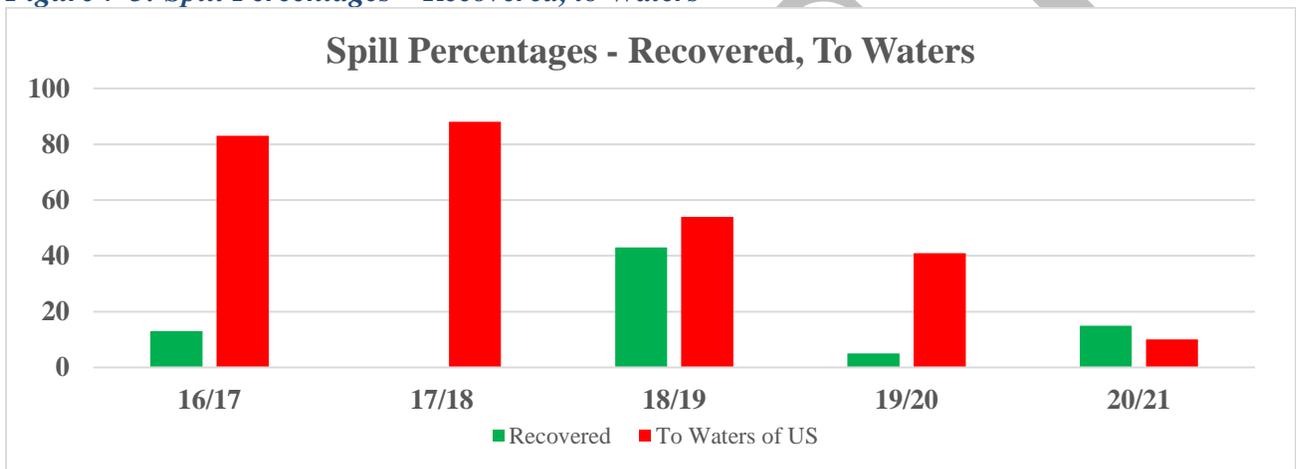


Figure 7-6: Comparison of SSO Rate/100 miles / year

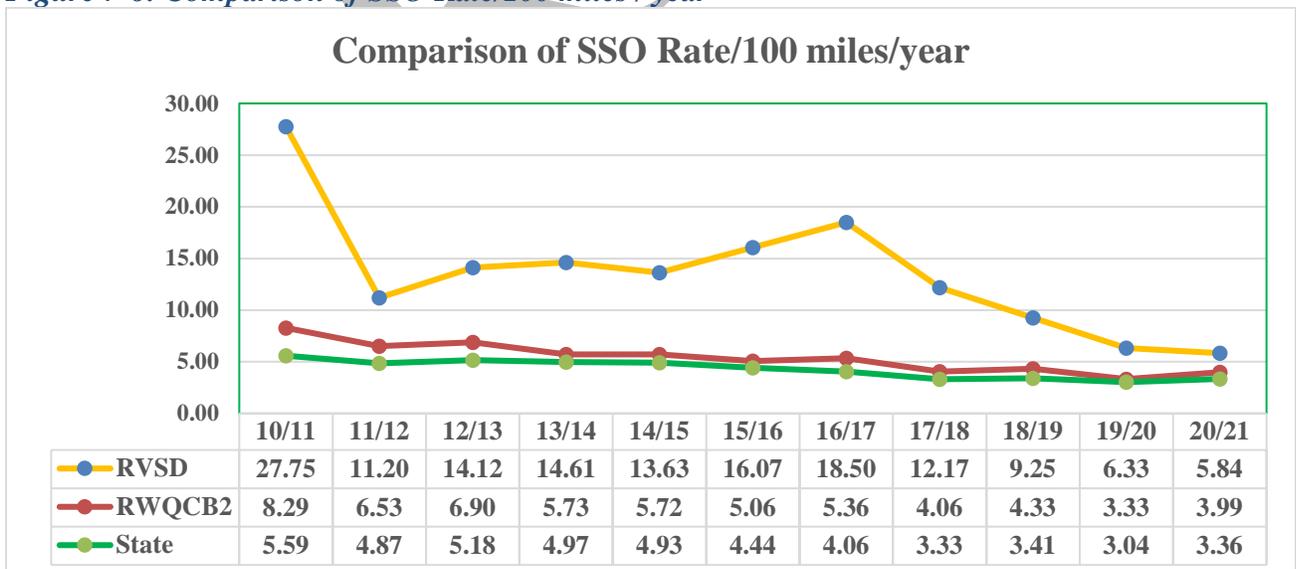


Figure 7-7: Sewer System Operational Performance Results

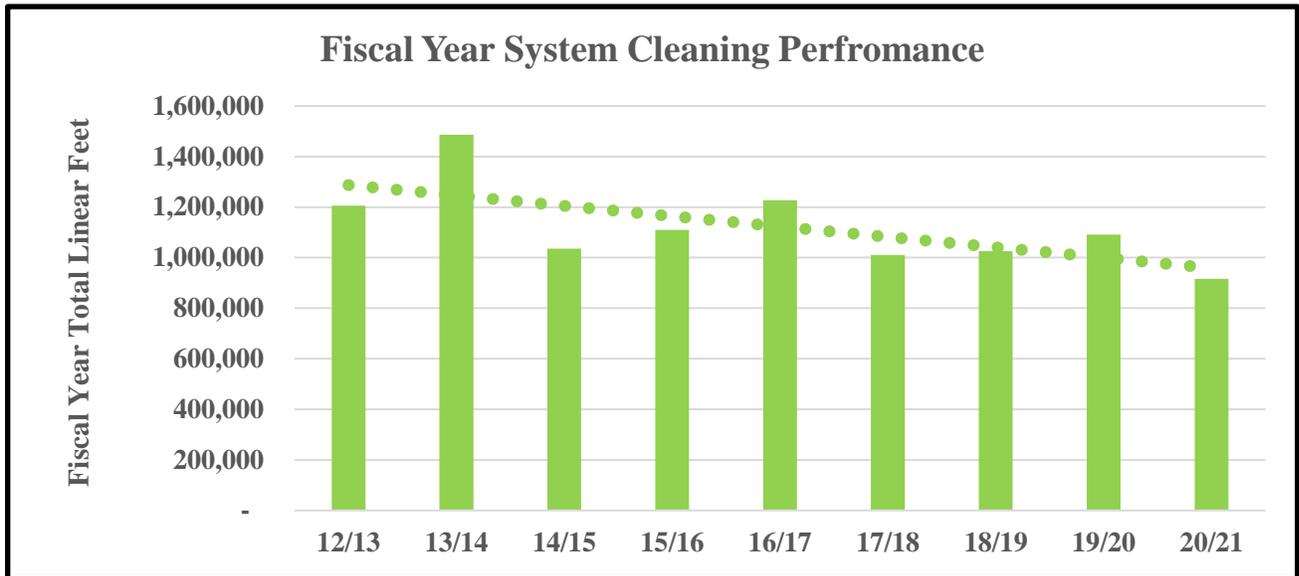


Figure 7-8: Fiscal Year CCTV Results

