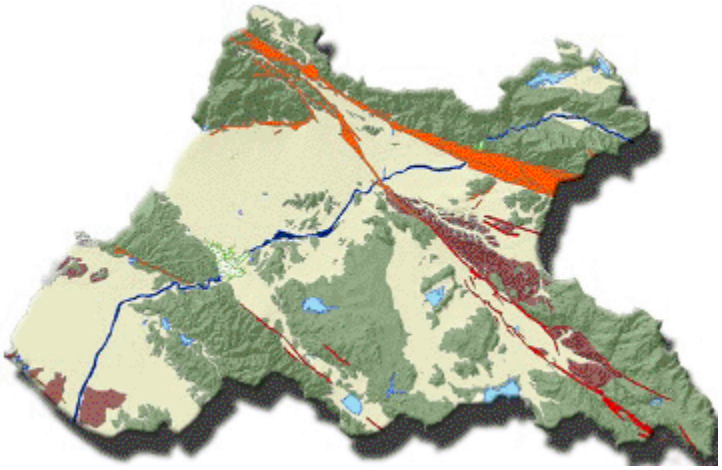
SANTA ANA WATERSHED PROJECT AUTHORITY

AUDIT REPORT FOR THE SEWER SYSTEM MANAGEMENT PLAN
APRIL 2011



MEMBER AGENCIES

WESTERN MUNICIPAL WATER DISTRICT
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
ORANGE COUNTY WATER DISTRICT
INLAND EMPIRE UTILITIES AGENCY
EASTERN MUNICIPAL WATER DISTRICT

AUDIT REPORT FOR THE
SANTA ANA WATERSHED PROJECT AUTHORITY
SEWER SYSTEM MANAGEMENT PLAN

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WITH THE AUDIT
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NOVEMBER 19, 2010

EXECUTIVE SUMMARY

Audit of the Sewer System Management Plan (SSMP)

SAWPA Commissioners adopted the SAWPA SSMP April 21, 2009 in compliance with State Order 2006-0003 issued May 2, 2006 to all publicly owned wastewater collection agencies having more than one mile of pipeline.

Included in the State Order is a requirement that all agencies audit their SSMP every two years to evaluate the effectiveness of the plan and staff member's compliance with the order. This first audit report due April 2011, documents the evaluation of each required category listed in the State Order with sufficiency, the measure of evidence collected during the audit. SAWPA staff initiated the audit far enough in advance of the due date to allow a thorough evaluation of performance.

As required by the State Order the audit included the examination of eleven major topics and over three-dozen subtopics dealing with the SARI system. The audit process involved staff members of SAWPA, Inland Empire Utilities Agency (IEUA) and Western Municipal Water District (WMWD) and the collection of data from each agency. Collectively, the staff members of SAWPA, IUEA and WMWD are sometimes referred to herein as the SARI O&M team.

SAWPA is in compliance with the State Order; both in effectiveness of the SSMP and adherence by the SARI O&M team to State Order requirements.

SAWPA staff members requested the preparation of recommendations and the development of an implementation plan for those recommendations. The recommendation list is attached as Appendix A. The State Order requires all deficiencies to be listed. There is no need for a list because there was only one deficiency, the FOG Control Program delegated to IEUA and WMWD, and the remedy has been addressed in the recommendations.

One of the major goals of the State Order is to prioritize awareness and reduction of SSO's, Sanitary Sewer Overflows, throughout California. There were no findings requiring immediate attention to prevent SSO's on the SARI system. However, SAWPA and WMWD staff members are acutely aware, and are tracking the risk of SSO's in the upper segment of Reach IV-B caused by an interior pipe scaling problem, the deposit of minerals on the interior of the pipe wall that effectively reduce the inside diameter of the pipe. SAWPA and WMWD staff members are actively searching for a remedy to the scaling.

INTRODUCTION

The California State Water Resources Control Board adopted Order No. 2006-0003 May 2, 2006 (State Order) to create an equitable statewide mechanism to manage all publicly owned wastewater collection agencies with more than a mile of pipeline, to reduce the number and severity of Sanitary Sewer Overflows (SSO's), and to set up a central depository for online reporting of SSO's when they do occur.

A principal element of the State Order is the requirement that the collection agencies adopt and maintain a management plan for the system, referred to as a Sewer System Management Plan or SSMP.

SAWPA Commissioners, after considering Commission Memorandum # 8117 and conducting a public hearing, adopted the SAWPA SSMP April 21, 2009, in accordance with the State Order.

The State Order establishes the following goals:

- The SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the SARI system.
- The SSMP must identify the SAWPA organization and staff members responsible for implementing and maintaining the SSMP.
- The SSMP must document the organization's legal authority to achieve the goals of the SSMP as demonstrated through SAWPA's ordinances, agreements and other legally binding instruments.

Additionally, the State Order requires SAWPA staff members perform periodic internal audits of the SSMP with focus on evaluating the effectiveness of the SSMP and staff member's compliance with its requirements, as shown in Section D-13 of the State Order. The internal audits must be performed at least every two (2) years with the audit report kept on file at SAWPA. Due date for this audit is April 2011.

The SSMP must be updated every five (5) years, must contain any significant program changes, and be re-certified by the SAWPA Commission. To complete the re-certification process, SAWPA staff members must enter the information on the Online SSO Database and mail a hard copy to the State Water Resources Control Board. Due date for re-certification of the SSMP is April 2014.

In general, the State's audit requirements of the SSMP are extremely complex with many overlapping topics. As described below, there are eleven major categories in the SSMP and over three-dozen subcategories. Additionally, a

comprehensive audit program includes such evaluation matters as document control, training, objectives, data management, audit procedures, and results approach outcomes. The SAWPA SSMP and audit requirements are more complex than most because of the numerous stakeholders in the SAWPA SARI System including the agencies forming SAWPA, the direct dischargers, the indirect dischargers in each agency, member agencies responsible for operation and maintenance and private contractors.

Responsibility for the SAWPA SSMP rests with SAWPA staff members; however, SAWPA management has delegated certain responsibilities to IEUA and WMWD within contracts for O&M services specifying that IEUA is responsible for approximately 5 miles of SARI Reach IV-A located within IEUA's jurisdiction and WMWD is responsible for the remaining 67 miles of SARI system. As such, recommendations listed herein have assignments naming the agency responsible for the work associated with the recommendation.

This is the first internal audit of the SSMP. No action by the Commission is required. After reviewing and sharing the contents of the audit report with the Commission, staff members will create a list of proposed remedies if deficiencies were found to exist, file the report, and begin working to correct the deficiencies. They will also evaluate each recommendation to determine what action should be taken, if any.

AUDIT OF THE SAWPA SSMP

As specified in the State Order, the SSMP is comprised of eleven (11) sections or subsets of Section D. 13 of the State Order, as follows:

D.13.i	Goals
D.13.ii	Organization
D.13.iii	Legal Authority
D.13.iv	Operation and Maintenance Program
D.13.v	Design and Performance Provisions
D.13.vi	Overflow Emergency Response Plan
D.13.vii	FOG (fats, oils, grease) Control Plan
D.13.viii	System Evaluation and Capacity Assurance Plan
D.13.ix	Monitoring, Measurement and Program Modifications
D.13.x	SSMP Program Audits
D.13.xi	Communication Program

This internal audit is focused on the above eleven categories as required by the State Order. The evaluation of each element in each category is herewith standardized with sufficiency, the measure of audit evidence obtained from SAWPA, WMWD and IEUA staff members. Compliance ranking has been based on State Order audit guidelines and sufficiency. A recommendation has been provided when there is enough information to support it.

Format for audit reporting is as follows:

- State Order Section/Subsection
- Sufficiency Ranking (Complies, Substantial Compliance, Partial Compliance, Marginal Compliance, and Not in Compliance)
- Findings
- Reference Information
- Recommendation when appropriate

1. Audit of Goals - State Order D.13.i

Review the SSMP to determine if it complies with the State Order by having a goal to provide a plan to manage, operate, and maintain all parts of the SARI System.

Sufficiency: Complies.

Findings:
SAWPA has established a list of goals in its SSMP that complies with the requirements established in the State Order.

SAWPA's Goals for the SSMP together with progress to date are as follows:

1. Track all SSO's by size, cause, and location in GIS.
   Complete. SAWPA staff members track and reports all SSO's.
2. Reduce number and volume of SSO's in the SARI.
   Complete. Adherence to the SSMP will help reduce SSO's, a never ending goal that the staff members of SAWPA, WMWD and IEUA will continuously address.
3. Update and train on the Overflow Emergency Response Plan yearly.
   Complete: SAWPA staff members updated the OERP. See detail of the updates hereafter in Section 6. The last training on the OERP took place December 15, 2009 at SAWPA. Additional training is provided at WMWD and IEUA on an continual basis as a part of their ongoing maintenance programs.
4. Review Ordinance No. 5 and successors yearly for compliance with WDR updates.
   Complete. There have been no updates to the State Order to date; however, SAWPA staff updated the SSMP with the latest change to SAWPA Ordinance 5 as noted below.
5. Legally secure all of the easements required for the operation and maintenance of the SARI.
   Complete: Surveys have been compared with actual encroachment to determine areas of encroachment outside easement boundaries with known encroachments eliminated.
6. Clean 100% of known Fats, Oils, and Grease (FOG) problem areas according to a schedule that maintains SARI capacity.
   Complete: The known problem area, the Schleisman Siphon, has been cleaned on a monthly basis. SAWPA staff members have directed its contract service providers, private contractors and WMWD, to remove accumulated solids from the intermediate areas of the siphon each month and from the bottom every three months.

7. Identify new dischargers that may contribute FOG and ensure implementation of FOG control devices and/or measures.

Complete: There have been no new FOG dischargers.

8. Place new FOG problem areas created by new dischargers or discovered by system reconnaissance on the known problem areas list.

Complete: Concentration of FOG can be detected in the discharges from Jurupa Community Services District (JCSD) in WMWD's jurisdiction but the highest reading in 2010 was 80 mg/l at the JCSD Celebration (a.k.a. 58th Street) connection, some 20% below the threshold of 100 mg/l. In a document prepared and published May 2010 by CDM Engineering, entitled "Santa Ana Watershed Salinity Management Program - Phase 3", it was reported that FOG currently collects in the upstream manhole of the Schleisman siphon with FOG thought to be originating from restaurants in JCSD territory. However, as noted by SAWPA staff members and reported by CDM Engineering the Schleisman siphon design may be a more significant contributor to the extra cleaning required upstream and at the Schleisman siphon. Goal 8 is complete because the siphon has been placed on the list of facilities requiring greater maintenance attention whether from FOG or from design deficiency.

9. Utilize standard drawings and specifications for all improvements on the SARI line, and create new standards where necessary.

Complete: Complete specifications and applicable standard drawings are used when requesting bids. The specifications and standard drawings are made a part of the contract documents for the work.

10. Complete development of Operations and Maintenance (O&M) Standard Operating Procedures (SOP's) that have been identified.

Complete: SARI O&M staff members have been preparing O&M SOP's and have drafted 14 chapters for the manual. The O&M SOP manual will be used as a key training tool, and a major reference source for the SARI-Specific Training Protocols found below in SAWPA Goal No. 17. Chapters in the O&M SOP manual are:

1. O&M Agreement between SAWPA and WMWD.
2. Confined Space Entry
3. Vactor Truck Operation
4. Meter Procedures
5. Sampling Procedures
6. Air Vacuum/Air Release Valves
7. USA Markings and DigAlert Response
8. Patrolling
9. Earthquake Preparedness
10. Maintenance Access Structures

11. Right of Way Maintenance
12. Pipeline Maintenance
13. Service Truck Operation
14. Staff members Training Program

WMWD staff members prepared the O&M SOP with the thought that all SARI O&M team members could use it. IEUA has not prepared a separate O&M SOP document for the SARI system in its jurisdiction but instead has incorporated the O&M of SARI into its overall O&M program for the entire IEUA system serving its member cities.

11. Clean Problem Areas as specified in SAWPA's line cleaning program.
    Complete: SAWPA has private contractors scheduled for routine line cleaning. WMWD also provides pipeline-cleaning services when the private contractors are not immediately available.
12. Clean laterals as specified in SAWPA's line cleaning program.
    Complete: SAWPA staff members track lateral cleaning activity, gathering information from its private contractors and from WMWD and IEUA. It was noted that the only IEUA lateral is only about 10 feet long downstream from the CIW meter. WMWD also keeps records of its cleaning activity. The lateral cleaning work is initiated from the SAWPA schedule, and then at WMWD the task is implemented using a "Service Order Generation Request" (a.k.a. Work Order). The field crew provides verification of cleaning activity and notable findings that get communicated to management with the "SARI Line Weekly Status Update".

    Statistics for CRC Lateral cleaning are documented with WMWD's "Collections Line Cleaning Project Summary". According to the SAWPA tracking sheet there are 10 active laterals needing routine cleaning schedules. It appears that all have been cleaned on a routine basis but according to the SAWPA tracking form four of the ten were not cleaned in accordance with the SAWPA Goal (SO-5 Meter to Pine Street Siphon, Temescal Desalter lateral, CIW lateral and the Rubidoux Community Services District ion exchange plant lateral (a.k.a. the Anita Smith Plant). It appears cleaning is taking place but information is not getting to the tracking sheet. Also, the SAWPA tracking form could be expanded to clarify financial and physical cleaning responsibilities. For example the CIW lateral is shown to be 300 feet in length but CIW is financially responsible for approximately 290 feet and SAWPA is responsible for approximately 10 feet, that portion of the lateral from the downstream side of the SAWPA meter to SARI Reach IV-A. IEUA cleans those ten feet of pipeline each time it maintains the meter in accordance with its

O&M agreement with SAWPA. The same is true of the CRC Lateral. It is shown to be approximately 16,000 feet in length with approximately 3400 feet of lateral below the SAWPA owned Greenbriar meter structure. WMWD maintains the entire lateral but the CRC is financially responsible for cleaning above the Greenbriar meter structure and SAWPA has historically been responsible for cleaning between the meter structure and SARI Reach IV-B. Generally the meter vault is set close the SARI pipeline as is the case with the CIW lateral but the CRC lateral meter vault is 3400 feet from the SARI. WMWD owns the entire 16,000 feet of CRC lateral but SAWPA, keeping with the practice of maintaining that portion of the lateral between the meter and the SARI pipeline has invested time and funds and in practice has accepted financial responsibility for the 3400 feet. But since there is no legal method for SAWPA to become the owner prescriptively, it would be prudent to clarify ownership or financial responsibility of the 3400 feet of lateral downstream from SAWPA's Greenbriar meter vault by separate agreement with WMWD.

13. Clean siphons as specified in SAWPA's line cleaning program.

    Complete: As evidenced in findings for goals 6 and 11 above, cleaning has been performed as required. Also refer to Section 6 for Operation and Maintenance findings relative to siphon cleaning schedules and overall pipeline cleaning program.

14. Perform SARI Reconnaissance at specified locations in order to determine system-cleaning requirements.

    Complete: Routine SARI system reconnaissance information is communicated to management using WMWD's "Collections Division Daily Work Report". Details of information include pipe reach, personnel safety test for breathing air, debris found, condition of structures, odor, wastewater clarity, footage cleaned and employee's performing the work. Status of the findings and corrections are communicated to management with the "SARI Line Weekly Status Update" and face-to-face weekly meetings using the status update form as the agenda for discussion. Pending work such as work waiting for material delivery or staffing scheduling, is tracked using the "SAWPA Weekly Meeting Follow Up Items" form. Information from the field is therefore transmitted to management for setting system cleaning requirements and priorities.

15. Perform cleaning as required.

    Complete: As evidenced in findings for goals 6 and 11 above, cleaning has been performed as required. Problem areas are known by staff members of SAWPA, WMWD, IEUA and the line-cleaning contractors and are given priority and greater attention.

16. Update Capital Replacement Program yearly as projects are completed.

Complete: The CIP was updated as part of the 2009 Rate Model.

17. Complete SARI-Specific Training Protocols that have been identified.

Partially Complete:

The most recent training for all staff members took place December 15, 2009. In addition to the SARI System training WMWD has been given the responsibility to develop Operation & Maintenance Protocols in a format that can be used in focused training sessions dealing with O&M. The recently completed O&M training protocols will fit into SAWPA's proposed overall training protocol development as one of several topics.

Overall training protocol development was in process prior to the start of the audit. The initial draft outline by SAWPA staff members, contains five major topics and seventeen subtopics. Major topics include:

1. Environmental Best Practices
2. Easements
3. Public Agency Coordination
4. Overflow Spill Response
5. SARI System Review

SAWPA staff members will continue to maintain responsibility for the above five topics and will provide periodic training to all SARI O&M team members

Additional topics and subtopics based on information contained in the SSMP including at a minimum O&M SOP, FOG, Legal Authority, CIP, Standard Specifications and Record Keeping will be the responsibility of IEUA and WMWD, as shown in Appendix A.

18. Have all SARI O&M staff members complete SARI-Specific Training Protocols yearly.

Substantially Complete: The SARI O&M team members consisting of SAWPA & WMWD & IEUA staff members receive training on a continual basis. The most recent training program took place December 15, 2009, hosted by SAWPA; however, ongoing training takes place at both WMWD and IEUA. For example, subjects at WMWD included training on the SAWPA SSMP September 1, 2009; sampling on September 2, 2009 and September 29, 2009; and, USA Dig Alert on September 29, 2009. IEUA provides OERP training twice each year to its staff members and the staff members of the member cities within IEUA. Both WMWD and IEUA

provide routine ongoing training on subjects common to all wastewater systems such as confined space entry, traffic control and equipment operation. WMWD documents training with its "Operations Department Training Documentation Form" that contains the trainer's name, date, type and description of training. Each person in the class signs the form to document attendance.

19. Update hydraulic model with existing and potential future users yearly.

Complete. The hydraulic model has been kept current and is used to answer specific questions. It consists of 1300 nodes and approximately 1300 pipe reaches and therefore has great flexibility to add potential future users in order to study the impact of changes.

20. Measure compliance with stated goals and make necessary modifications and adjustments on a yearly basis.

Complete. This SSMP Audit is measuring compliance with stated goals as well as with State Order requirements. Results of the audit will allow modifications and adjustments as needed.

21. Focus on preventive maintenance, including but not limited to, regular inspection of blow-off valves, air release valves, and maintenance access structures.

Complete. The SARI O&M team members have given primary priority to preventive maintenance, with significant effort in the area of inspections and patrolling. The effort has resulted in several successes. For example, on Reach IV-B several air vacuum valves were found in need of replacement. The existing valves were made for clean water applications and had deteriorated significantly. The old valves were replaced with manifolded valves made for wastewater applications. The manifold of valves provides redundancy. Another example was the finding from inspection that the valve position indicators on the isolation valves immediately downstream from Prado Dam were incorrectly installed. New correctly installed indicators now show the correct position of the valve, closed or open and degree of open. IEUA maintains the same level of effort with its inspection and patrolling. IEUA is responsible for Reach IV-A, approximately 4-5 miles of the total 72 miles of pipeline above the Riverside/Orange County line; so, the work is integrated into IEUA's preventive maintenance program for its entire system.

22. Establish a GIS-based system to keep track of all inspections (GIS asset management).

Complete. WMWD provides inspections and forwards information to the SAWPA GIS manager for input to the GIS system. WMWD created a FTP site to speed the transfer of information including large files containing photos. Inspection information is documented with GPS coordinates from the field inspector and then transferred to Nobel Systems, a private GIS contractor, to convert the data to a GIS format. The information is then forwarded to SAWPA for inclusion into its GIS database.

23. Establish priority indices for structures inspected (based on NASSCO guidelines for sewer lines)

Complete. IEUA and WMWD staff members have established priority indices for structure inspection. IEUA uses the NASSCO system and WMWD uses a system very similar to NASSCO with a numeric rating mechanism. The WMWD system includes a field sheet used by the operator on patrol and the operator performing inspections for reporting inspection findings, the "Collections Division Daily Work Report". The report includes pipeline, maintenance access structures (MAS, a.k.a. vaults and manholes), roadways, alleyways, easements and graffiti. While on patrol or on an inspection tour the operator also looks for any construction activity near the SARI and evidence that the USA DigAlert system has been utilized by the contractor.

24. Create a SARI file and photograph database.

Complete. SAWPA staff members maintain a photo file.

25. Establish procedures to follow-up with Dig Alert requests.

Complete: SARI O&M staff members have drafted procedures to follow-up with USA Markings and Dig Alert requests as Chapter 7 of the O&M SOP. Four major topics are covered including (1) Line Marking Requirements, (2) Notes and Procedures, (3) Record Keeping, (4) System Audits, together with two appendices, Appendix A "Government Code Section 4216-4216.9" and Appendix B "Dig Alert General Guidelines".

Reference the SSMP Volume I, page 19 of 61.

Reference: Operations and Maintenance Standard Operating Procedures Manual.

Note: SAWPA is in compliance with the "Goals" requirement of the State Order. However, SARI O&M staff members requested an audit and report of findings for each of SAWPA's 25 Goals, and recommendations when appropriate. The recommendations for SAWPA's 25 Goals are provided below and in Appendix A.

Recommendation: Before re-certifying the SSMP in April 2014, it is recommended that SAWPA Goal No. 3 "OERP Training" and SAWPA Goal No. 17 "Training Protocols" be consolidated into one SAWPA Goal as Goal No. 3 "All Inclusive Training" with the inclusion of all training required by the State Order as well as by SARI O&M team members, to have one reference point for all training. Each item of training should contain the frequency expected and the staff members to be trained.

The consolidation should reduce the redundancy between SAWPA Goals and State Order requirements. State Order D.13.iv, "Operations and Maintenance Program", contains subsection (d) that specifies an O&M training program including training and re-training of staff members, contractors and consultants on a regular basis. State Order D.13.vi, "Overflow Emergency Response Program", contains section (d) that specifies training for staff members and consultants named in the response plan.

Finally, it is recommended all aspects of SSMP training be referenced in one training document named the "SSMP Training Manual".

Recommendation: Use the O&M SOP prepared by WMWD in the program conducted by IEUA.

Recommendation: Expand the SAWPA lateral cleaning tracking form to clarify financial and physical cleaning responsibilities.

Recommendation: Clarify ownership or financial responsibility for the 3400 feet of CRC lateral downstream from the Greenbriar meter structure with an agreement between SAWPA and WMWD.

Recommendation: Add SSMP topics of FOG, legal authority, CIP, standard specifications and record keeping to list of training subjects.

Recommendation: Conserve training dollars at IEUA and WMWD by offering joint classes for common subjects.

2. Audit of Organization - State Order D.13.ii

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

Sufficiency: Complies.

Findings:
SAWPA has identified and kept updated the names of its authorized representative, management, administration, and maintenance personnel and

has shown the chain of communication for reporting SSO's. The OERP was updated May 14, 2010.

Reference Organization Chart:
Reference the SSMP Volume II, Appendix B-1, SAWPA Organization Chart.

Reference Chain of Command Chart:
Reference the SSMP Volume II, Appendix F-1, Overflow Emergency Response Plan (OERP), Page 19, Command and Management Organization Chart.

Reference Communication Chart:
Reference the SSMP Volume II, Appendix F-1, Overflow Emergency Response Plan, Page 20, Communications Protocol. The OERP was updated May 14, 2010 to add the new Pollution Liability Insurance Policy contact information.

Reference Response Procedure:
Reference the SSMP Volume II, Appendix F-1, SSO Response Procedure, Page 22. SAWPA has exceeded the requirement of the State Order by providing a SSO Response Procedure in its OERP.

Recommendation: Although not required it is suggested that the new insurance contact information be added to the OERP Response Procedure flow chart, Figure 3-3, SSMP Volume II, Appendix F-1, Page 22.

3. Audit of Legal Authority - State Order D.13.iii

Review the SSMP to determine if it complies with the State 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 SARI System, limit FOG, and enforce SAWPA regulations.

Sufficiency: Complies.

Findings:
The SAWPA Commission has adopted Ordinance No. 5, to establish regulations for the use of the SARI System. Staff members have updated the SSMP with the latest amendment to Ordinance No. 5, Amendment No. 1, dealing with discharges from liquid waste haulers.

SAWPA has in place a pretreatment agreement with criteria for wastewater quality from each member agency and requires that the wastewater be treated with properly designed and installed upstream facilities prior to discharge if it does not meet SAWPA's criteria. The criteria include FOG and sand/grit. SAWPA also issues discharge permits to direct dischargers within each member agency's jurisdiction for direct control over the wastewater source.

Additionally, SAWPA maintains files that document SAWPA's right to access its facilities. The file information is being correlated with actual field conditions and corrections are being made in the field when differences are found.

Reference the SSMP Volume II, Appendix C-1, SAWPA Ordinance No. 5.

Reference the SSMP Volume II, Appendix C-3, Pretreatment Agreements with member agencies and O & M Service Agreement with Western Municipal Water District.

Reference the SSMP Volume II, Appendix C-5, Easement Summary.

Reference the SSMP Volume II, Appendix C-8, Discharge Permits.

Recommendation: Replace the superceded WMWD Operations and Maintenance Service Agreement in SSMP Volume II, Appendix C-3 with the revised June 2007 agreement.

4. Audit of Operation and Maintenance Program - State Order D.13.iv

Review the SSMP and activities of staff members, consultants and contractors to determine compliance with the State Order by having (a) an up to date map of the SARI system that shows all pipe reaches, manholes, siphons, valves, and pumps if any, (b) a routine preventative maintenance program and operations program, (c) rehabilitation and replacement program, (d) operations and maintenance training program, and (e) part inventory program including identification of critical replacement parts.

Sufficiency: In Substantial Compliance.

Findings: SAWPA staff members began preparing for Section D.13.iv in the SSMP with the preparation in 2007 of a first draft O & M Program.

Findings specific to the elements of the required Operation and Maintenance Program are as follows.

(a) An up to date map of the SARI system that shows all pipe reaches, manholes, siphons, valves, and pumps if any.

SAWPA maintains and updates GIS mapping and data tables for SARI pipe reaches, manholes (with stationing). The maps have been made a part of the SSMP in Volume II, Appendix D-1. The most recent update has been provided to all SARI O&M team members on CD, dated 2010.

(b) A routine preventative maintenance program and operations program (patrolling and monitoring), including a system for scheduling maintenance, (line cleaning and siphon cleaning) that emphasizes more frequent maintenance of problem areas. The program shall have a work order system with a way to compare scheduled activities against conducted, accomplished activities.

SARI O&M team members (SAWPA, IEUA and WMWD) understand the seriousness of and liability associated with SARI SSOs and pipeline malfunctions and have place a high priority on the preventive maintenance program and operations program. SAWPA oversees the entire O&M program. IEUA integrates the five miles of SARI system it's responsible for into maintenance and operational activities for the IEUA system. WMWD has a dedicated program for the sixty-seven remaining miles of SARI system it's responsible for, with a maintenance system that includes work generation, implementation, tracking and reporting mechanisms.

From WMWD's Access Data Base for the SARI System, staff members produce an "Annual Maintenance Work Plan". This master work schedule includes estimates for the cost of labor and material. A "SARI Annual Work Plan Overview" is produced as a summary of major activity with an estimated annual cost for all O&M activity planned for the coming fiscal year with priorities identified. With an iterative approach the work and costs are revised then submitted for consideration by SAWPA management and Commissioners for the upcoming fiscal year budget.

Preventive maintenance tasks are implemented from the planned program, the Annual Maintenance Work Plan, or from operator inspection reports using the computer based "Service Order Request Form".

Progress of work is tracked on the "Service Order Update Form" with date the service order request was generated; dates assigned and scheduled; date work was completed and date the service order was closed. Significant work effort is reported by WMWD management to SAWPA management on the "SARI Line Weekly Status Update" form and priority projects are followed by SAWPA and WMWD management on the "SAWPA Weekly Meeting Follow Up Items" form that becomes the agenda for the weekly SARI O&M staff members meetings.

All aspects of the O&M program are covered in the WMWD maintenance documents, including meter maintenance, line and siphon cleaning performed by WMWD, patrolling, and monitoring,

(c) A rehabilitation and replacement program with a system to prioritize SARI deficiencies. The program shall include regular visual and TV inspections and method for ranking the condition of the facilities inspected. Finally, the

rehabilitation and replacement program should have a mechanism to feed into the CIP so that improvements can be scheduled and funds accumulated.

SAWPA staff members are responsible for the rehabilitation and replacement program, developing priorities from visual inspection data provided by IEUA and WMWD and regular TV inspections provided by private contractors hired by SAWPA. SAWPA staff members manage rehabilitation and replacement priorities using a variety of communication tools. Examples, as discussed above in Section 1, Goals 21,22, and 23, include the "Brine Line Reach Inspection Form" with reporting of the condition of air valves and cans; construction work by others near the SARI; graffiti; maintenance access structure (MAS) covers; right of way; together with the "Collections Division Maintenance Access Structure (MAS) Inspection Form" that includes four major topics of inspection (General, Structural, Hydraulic and SARI System) and with over two-dozen items in the four categories to inspect and report on for physical condition. The appropriate item is then marked to indicate physical soundness or need for maintenance. The "Collections Division Daily Work Report" contains a NASSCO type rating system with observable criteria numbered to allow overall ranking to be computerized. It is recommended that the ranking system be standardized and used by the entire SARI Operations and Maintenance Team. If the NASSCO system is adopted, computer programs can be purchased with the system in place. However, NASSCO membership and training are costly items that could be avoided by using a SAWPA standardization system. The SAWPA standards could then be entered into the access database and the access software expanded to include report generation with the SAWPA standard methodology.

Another significant tool used regularly by SAWPA for assessing the condition of SARI pipe interior is TV inspection. SAWPA staff members plan to have TV inspections completed in fiscal year 2010/2011 for SARI Reaches IV-A, IV-B and IV-E. SAWPA's private contractor(s) will perform TV inspections with WMWD providing field oversight.

When rehabilitation or replacement is needed, the information is communicated to SAWPA management with the "SARI Line Weekly Status Update" form and tracked to assure successful completion with the "SAWPA Weekly Meeting Follow Up Items" form. If replacement cost exceeds the current year fiscal year budget capability, the work is added to the SAWPA CIP and included in the following fiscal year budget cycle planning process.

(d) An operations and maintenance training program that includes training and re-training of staff members, contractors and consultants on a regular basis.

IEUA and WMWD have individual training programs as an ongoing part of their business activities. SAWPA also provides training as reported in Section 1, Goals 17 and 18, repeated here as excerpts for audit reporting purposes.
WMWD has been given the responsibility to develop Operation & Maintenance Protocols in a format that can be used in focused training sessions dealing with O&M. The O&M training protocols will fit into SAWPA's proposed overall training protocol development as one of several topics.

Overall training protocol development was in process prior to the start of the audit. The initial draft outline by SAWPA staff members, contains five major topics and seventeen subtopics. Major topics include:

1. Environmental Best Practices
2. Easements
3. Public Agency Coordination
4. Overflow Spill Response
5. SARI System Review

SAWPA staff members will continue to maintain responsibility for the above five topics and will provide periodic training to all SARI O&M team members

Additional topics and subtopics based on information contained in the SSMP including at a minimum O&M SOP, FOG, Legal Authority, CIP, Standard Specifications and Record Keeping will be the responsibility of IEUA and WMWD, as shown in Appendix A.

The most recent training program took place December 15, 2009, hosted by SAWPA; however, ongoing training takes place at both WMWD and IEUA. For example, subjects at WMWD included training on the SAWPA SSMP September 1, 2009; sampling on September 2, 2009 and September 29, 2009; and, USA Dig Alert on September 29, 2009. IEUA provides OERP training twice year to its staff members and the staff members of the member cities within IEUA. Both WMWD and IEUA provide routine ongoing training on subjects common to all wastewater systems such as confined space entry, traffic control and equipment operation. WMWD documents training with its "Operations Department Training Documentation Form" that contains the trainer's name, date, type and description of training. Each person in the class signs the form to document attendance. WMWD recently completed the O&M SOP. Upon final approval by management, all 14 O&M SOPs will be used as training documents.

(e) A parts inventory program including identification of critical replacement parts.

Both IEUA and WMWD have a parts inventory program. IEUA maintains parts and tracks availability for its entire system including the five miles of SARI Reach

IV-A. WMWD maintains parts for the SARI system along with its entire system but tracks the SARI system parts availability including critical replacement parts separately. WMWD reports the SARI system parts inventory levels on the "SAWPA Weekly Meeting Follow Up Items" form in detail with description, quantity on hand and photos of the parts so that all SARI O&M staff members know exactly the item being reported. The inventory on hand includes a broad spectrum of items. It's recommended that the inventory be made a part of the weekly meeting agenda on a quarterly basis to keep the subject in the forefront and to assure all agree with the levels of critical replacement parts needed to be stored.

Reference: SSMP Volume II, Appendix D-1, GIS Mapping.

Reference: WMWD computerized Access Data Base software for the "Annual Maintenance Work Plan".

Reference: SAWPA's TV Inspection File

Reference: WMWD Forms:

"Service Order Update Form".
"SARI Line Weekly Status Update"
"SAWPA Weekly Meeting Follow Up Items"
"Brine Line Reach Inspection Form"
"Collections Division Maintenance Access Structures Inspection…"
"Collections Division Daily Work Report" (NASSCO type form)
"Operations Department Training Documentation Form"

Reference: SSMP Volume II, Appendix H-4, Meter Reading

Recommendation: To avoid costly fees associated with NASSCO membership, SAWPA could develop its own NASSCO type assessment rating form with input from WMWD and IEUA. It's further recommended that SAWPA retain the current practice of requiring that private contractors be members and use the NASSCO system for rating the condition of SARI system components.

Recommendation: Add the following topics to the IEUA and WMWD training programs for the SARI system.

O&M SOP	Capital Improvement Program
FOG (fats, oils, grease)	Standard Specifications
Legal Authority	Record Keeping

Recommendation: Review parts inventory quarterly at the SAWPA SARI O&M Team, weekly meeting.

5. Audit of Design and Performance Provisions - State Order D.13.v

Review the SSMP to determine if it complies with the State 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: In Substantial Compliance

Findings:
The SSMP contains Standard Drawings (SSMP Volume II, Appendix C-2) and Technical Provisions/Specifications (SSMP Volume II, Appendix E-1) for construction of new facilities placing the element in substantial compliance.

The Technical Provisions of the specifications reference Special Rules and Regulations Applicable for Certain Sewer Service Connections (Section 19.0) and more specifically Traps (Section 19.1) wherein “As a condition to SAWPA approval for a requested sewer service connection and/or sewer service, where applicable as determined by SAWPA, grease, oil, and sand interceptor facilities, hereinafter referred to as "traps," shall be provided by the Applicant/Discharger at his expense”. Although the Technical Provisions describe “Traps” there is no standard drawing to provide the applicant specific guidance for optimal removal of FOG and sand/grit. The drawing would likely answer many questions the applicant may have about what is required.

Legal requirements for construction and major repair projects are documented in the “boiler plate” sections of the specifications and are made a part of all construction contracts. Although technical provisions of the specifications have been inserted in the SSMP as Appendix E-1, the “boiler plate”, legal section of the specifications have not been made a part of the SSMP.

Reference the SSMP Volume II, Appendix C-2, Standard Drawings

Reference the SSMP Volume II, Appendix E-1, Technical Provisions

Reference the SSMP Volume II, Appendix G-3, JCSD Interceptor Standard Drawings.

Recommendation: Add a standard drawing to the IEUA and WMWD FOG Source Control Program and insert the drawing into the SAWPA Technical Provisions for “Traps”. Use the standard found in the JCSD information (SSMP Volume II, Appendix G-3) with a three compartment “Trap”, having a primary, secondary and outlet, all accessible by manholes for pumping and sampling contents

Recommendation: Add the “boiler-plate” legal specifications to the SSMP Volume II, Appendix E-1 so that SAWPA and WMWD staff members have easy access to

both the technical provisions and the standard legal requirements for construction work.

6. Audit of Overflow Emergency Response Plan - State Order D.13.vi

Review the SSMP to determine if it complies with the State 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 training for staff members 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: In Substantial Compliance.

Findings specific to the elements of the required Overflow Emergency Response Program are as follows:

(a) Proper notification procedures
The Overflow Emergency Response Plan (OERP) is a part of the SSMP as Volume II, Appendix F-1. The OERP contains a flow diagram entitled "SAWPA OERP Communications Protocol" (PDF page 20). The original plan with proper notification procedures was updated March 2010, and republished with a note on the cover sheet to indicate the 2009 OERP was updated. The updated 2010 plan includes the proper insurance contact information as required in the Pollution Liability Policy, including the 24-hour emergency notification phone number 888-310-9553 and first notification fax number 877 201 6866, together with updated contact information for new staff members at WMWD. The text has also been updated (PDF page 18) to include instructions for notification of the insurance company.

(b) A program that assures proper response to all overflows.
The original and updated OERP (PDF page 52 & 53) contains an emergency contact list for all SARI direct dischargers (a.k.a. SARI Users). The OERP SSMP Appendix F-1, (PDF page 44) Section 6.2 "Follow-Up Plans" calls for annual updates. The original SSMP was adopted April 2009; therefore, updates should be completed about April each year with the first update around April 2010. The SARI Users Contact List was in the process of being updated again September 2010. The goal by SAWPA staff members to have the contact list updated every 6 months has been achieved.

(c) Procedures that ensure prompt notification of regulatory agencies and other affected entities.
The original and updated OERP contain the required information to assure

the program provides for proper response to all overflows and procedures that ensure prompt notification of regulatory agencies and other affected entities (OERP Updated March 2010, Section 4, pdf page 36, or Original OERP Section 4, PDF page 34, "Sanitary Sewer Overflow Reporting found in the SSMP Volume II, Appendix F-1).

(d) Proper training for staff members and contractors named in the response plan.

The OERP has been made a part of the "Training Protocol" document as Chapter 4, with subsections that include a table top exercise with member agencies and key dischargers, response procedures, mutual aide, and availability of equipment and contractor resources. The original and updated OERP specifies proper training for staff members and contractors named in the response plan and recognizes training of SAWPA response staff members November 2006. SAWPA staff members provided the most recent training December 15, 2009.

(e) Procedures to address traffic control and crowd control.

The original and updated OERP adequately addresses traffic and crowd control (PDF page 25, Section 3.4.4 "Traffic and Crowd Control"). The reference to traffic control could be strengthened with more specific direction by using a standard traffic control plan to guide responders in setting up safe delineators, cone spacing and taper, signs, work zones, emergency zone and other safety procedures and equipment.

(f) Implementation of steps to prevent SSOs from reaching waters of the United States.

The original and updated OERP adequately specifies procedures and steps to prevent SSOs from reaching waters of the United States and to protect public health and safety (Updated OERP Section 3.4, PDF pages 21-23, "Impact Mitigation and Containment Procedures" and Updated OERP 3.4.1 "Response Crew Responsibilities".

Reference: SSMP Volume II, Appendix F-1, Original OERP Final Report, March 2007.

Reference: SAWPA, Upper Santa Ana Regional Interceptor, Overflow Emergency Response Plan, March 2010 (updated by SAWPA).

Reference: SAWPA, SARI OERP, March 2010, PDF page 20 for Communications Protocol.

Reference: SAWPA, SARI OERP, March 2010, PDF page 52-53 for SARI Users Emergency Contact List.

Reference: SAWPA, SARI OERP, March 2010, PDF page 36 for SSO Reporting.

Reference: SAWPA, SARI OERP, March 2010, PDF pages 21-23, Section 3.4, Impact Mitigation and Containment Procedures and 3.4.1, Response Crew Responsibilities.

Recommendation: Add the WMWD standard traffic control plan to the OERP appendices and replace the original OERP with the March 2010 updated OERP in the updated SSMP, Volume II, Appendix F-1.

7. Audit of FOG (Fats, Oils and Grease) Control Plan- State Order D.13.vii

Review the SSMP to determine if it complies with the State 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 traps together with standard drawings for traps, owner maintenance requirements, owner record keeping requirements and owner reporting requirements, (e) inspection authority and staffing, (f) FOG mapping for SARI pipe reaches impacted by FOG, and (g) a source control plan for SARI reaches currently impacted by FOG.

Sufficiency: In Partial Compliance.

Findings:
The SSMP identifies the source of documentation that is needed for the FOG Control Plan. For example, source documentation includes SAWPA Ordinance No. 5, pretreatment agreements with SAWPA member agencies, the WMWD O&M program and the Jurupa Community Services District (JCSD) Food Service Establishment FOG Information Packet. Although the existence of various documents located in various places satisfied the SSMP, the documents need to be consolidated to satisfy the State Order. The following excerpt is from Section D 13 vii, page 13 of the State Order: If FOG is found to be a problem (and according to the report by CDM Engineering entitled Santa Ana Watershed Salinity Management Program - Phase 3, the presence of FOG and design deficiencies are potential causes of more frequent cleanings of the manhole upstream from and in the Schleisman siphon) then there is need for a FOG Control Plan. In the case of the Schleisman siphon, WMWD has the responsibility for O&M and for control of FOG from agencies within the WMWD jurisdiction.

The SSMP references the FOG control program in JCSD. The SSMP did not call out potential FOG generation at direct discharge sites including the California Rehabilitation Center (CRC), a prison housing 5994 inmates and 1169 staff members, the California Institute for Women (CIW), a prison housing 2597

inmates and approximately 800 staff members, the Green River Golf Course Club House and Del Real Foods, a food processing facility specializing in prepared Mexican processed meats, side dishes and soups, within the JCSD area but discharging directly to the SARI. These customers are all potential FOG generators discharging directly to SARI as opposed to generators discharging to a municipal system and ultimately to SARI. WMWD manages the CRC directly with site visits semi-annually. The CRC installed a FOG trap this year and will soon have a barscreen/grinder to treat large solids. JCSD manages Del Real Foods directly with oversight from WMWD for all JCSD direct and indirect dischargers quarterly. IEUA manages CIW and the Green River Golf Course directly. CIW has a solids removal system consisting of an auger in a wet well and has a FOG trap that is pumped twice per week. SAWPA staff members do not deal directly with potential FOG dischargers but instead rely on the contracts with WMWD and IEUA that specify those agencies deal with existing and potential FOG generators whether direct or indirect dischargers. It would be appropriate for IEUA and WMWD to have their own FOG control educational packets or they together could develop a packet that works in both jurisdictions that could be provided to direct and indirect dischargers.

Findings specific to the elements of the required FOG Control Program.
(a) A public education element.
As mentioned immediately above, IEUA and WMWD staff members and/or consultants frequently visit direct dischargers having FOG potential for purposes of inspection and education. Both IEUA and WMWD would use a FOG packet to provide visuals and to leave behind for reference after a visit. Direct discharger staff members are rotated, or changed as a result of organizational changes so its possible to visit with different personnel each time. A packet could be offered to each employee having anything to do with the production of FOG.

(b) FOG disposal facilities identified.
Because JCSD is within WMWD, the staff members of JCSD and WMWD work closely together to track potential FOG generators within JCSD, whether they be indirect or direct dischargers to the SARI.

As discussed above, there are four direct dischargers to the SARI system with potential FOG generation:

California Institution for Women (CIW)	Within IEUA
Green River Golf Course	Within IEUA
California Rehabilitation Center (CRC)	Within WMWD
Del Real Foods	Within JCSD & WMWD

Additionally there are indirect dischargers located in JCSD's retail service area within WMWD's jurisdiction. Indirect discharges are first collected within the JCSD sanitary sewer system and subsequently discharged to SARI in accordance

with regulations of WMWD and SAWPA. FOG generated within JCSD is discharged to the SARI within WMWD's jurisdiction.

(c) Ordinances, rules and regulations to prevent FOG.
SAWPA Ordinance No. 5 and the pretreatment agreements with member agencies provide SAWPA, IEUA and WMWD legal authority to control FOG.

(d) Requirements to install FOG traps together with standard drawings for traps, owner maintenance requirements, owner record keeping requirements and owner reporting requirements.
Although JCSD has design standards for devices to control FOG, IEUA and WMWD have not yet authored standards. However, SAWPA issued a requirement that the CRC install a FOG trap and the CRC complied with the installation of a SAWPA approved FOG trap in 2010. Therefore it is understood by all that SAWPA has the legal authority to require FOG traps be installed to SAWPA standards.

(e) Inspection authority and staffing.
SAWPA has the authority to inspect and with WMWD, IEUA and SAWPA staff members it has the necessary staffing to enforce FOG control requirements. The information should be recorded in a document named FOG Control Program.

(f) FOG mapping for SARI pipe reaches impacted by FOG.
SAWPA has identified pipe reaches subject to FOG and WMWD has placed them on the cleaning schedule. The cleaning schedule has been published using an excel spreadsheet and has been updated July 27, 2010. The information should be recorded in a document named FOG Control Program.

(g) A source control plan for SARI reaches currently impacted by FOG.
SAWPA and WMWD have identified source control measures for pipe reaches identified in (f) above. The information should be recorded in a document named FOG Control Program.

Reference: JCSD, Food Service Establishment FOG Information Packet.

Reference: SAWPA Ordinance No. 5, SSMP Volume II, Appendix C-1, and member agency Pretreatment Agreements, SSMP Volume II, Appendix C-3.

Reference: JCSD FOG and sand/grit trap standards.

Reference: WMWD Standard Operating Procedures for O & M and the SARI Cleaning Program, an excel spreadsheet updated July 27, 2010 by SAWPA staff members, with main pipelines, siphons, sand traps, laterals and flumes.

Reference CDM Engineering report entitled Santa Ana Watershed Salinity Control Program - Phase 3, May 2010 on file at SAWPA.

Recommendation: Consolidate FOG Source Control information from the various sources, create a standard drawing for traps and publish the FOG educational information and standard drawing as the SARI FOG Source Control Program and add the SARI FOG Source Control Program to the SSMP Volume II, Appendix G and either incorporate or remove the JCSD information.

Recommendation: Continue to monitor FOG coming from JCSD and look for ways to reduce cleaning frequency in and upstream of the Schleisman siphon.

8. Audit of the System Evaluation and Capacity Assurance Plan- State Order D.13.viii

Review the SSMP to determine if it complies with the State Order by having a Capital Improvement Plan (CIP) that considers (a) Evaluation of those portions of the SARI system that are experiencing SSO discharges due to hydraulic deficiency, (b) Design Criteria commensurate with the SARI system, (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 necessary things-to-do that were developed in items D.13.viii (a) - (c) above.

Sufficiency: Complies.

Findings:
SAWPA staff members comply with the requirements of the State Order by operating two computer models for its System Evaluation and Capacity Assurance Plan. The primary component of the plan, as directed in the State Order is its Capital Improvement Program (CIP). The other major element of the plan is the Design Criteria addressed in Section 5 above (State Order D.13.v).

Staff members operate a hydraulic computer model for the CIP that contains approximately 1300 pipe reaches and 1300 junctions. The hydraulic model can be operated to test impacts of new discharges to the system and evaluates average dry weather flow, peak dry weather flow and peak wet weather flow. The hydraulic model is updated on a continual basis and is GIS based for up to date mapping capability and color-coded results presentation. Specific scenarios can be considered, such as increases in flow to determine potential, future bottlenecks in the system and physical improvements needed prior to encountering those future flows.

Staff members also operate a financial computer model for the CIP that considers improvement costs and the distribution of those costs across the next 50 years to provide input for rate model scenarios. Financial expenditures are

categorized with priority (high, medium and low) and area of improvements (SAWPA vs. OCSD). The model can be run with both replacement projects and expansion projects but currently has only a need for replacement projects. The model distributes anticipated expenditures each year from now until the year 2060 and also provides a summary of 5-year CIP and 10 year CIP expenditures.

Findings specific to the elements of the required System Evaluation and Capacity Assurance Plan.

(a) *Evaluation of those portions of the SARI system that are experiencing SSO discharges due to hydraulic deficiency,*

A SSO occurred at manhole 4B-720 May 2009 as a result of a foreign object obstructing the line. There have been two SSO occurrences on Reach IV-B downstream from the Arlington Desalter as a result of mineral deposits building up on the interior of the pipe (a.k.a. scale build up). There have been no SSO's along the SARI System from a hydraulic deficiency, in other words, neither from a pipeline design deficiency nor as a result of higher hydraulic flows. Scale build up is the major concern because the scale builds up on the interior pipe wall, effectively reducing the pipe diameter. The pipeline scaling issue is being addressed aggressively by both SAWPA staff members and by desalter operators within SAWPA member agencies. SAWPA staff members have issued notices to desalter operators to eliminate the mechanisms, including but not limited to chemical solutions that are causing the buildup. WMWD has assigned an experienced Principal Engineer on staff to investigate and prepare a remediation plan to eliminate the scale build up problem.

(b) Design Criteria commensurate with the SARI system.

As reported in the SSMP, SAWPA maintains the appropriate design criteria to meet or exceed the requirements of the State Order. With continual updates SAWPA staff members closely monitor the life expectancy of the SARI system and adjust the CIP to meet the need. Its design criteria are more than adequate to support its System Evaluation and Capacity Assurance Plan.

(c) Capacity Enhancement Measures and steps to address short term and long term CIP goals and an implementation schedule.

The CIP financial model establishes project priorities and provides short term and long-term CIP goals, together with the implementation schedule required by the State Order. The results of the computer model are then used in rate studies to determine needed revenue streams as part of SAWPA's financial planning.

(d) Schedule for completion of the necessary things-to-do that were developed in items D.13.viii (a) - (c) above.

As discussed above, SAWPA has completed all aspects of this section and with continual updates has exceeded the requirements of the State Order.

Reference: SAWPA updated hydraulic computer model (2010), originally created with SAWPA's SARI Hydraulic Model and Capacity Assessment, 2006, Kennedy Jenks consultants (SSMP, Volume II, Appendix H-2).

Reference: SAWPA design criteria, Volume II, Appendix H-3 and Section 5 above, "Design and Performance Provisions" of the audit.

Reference: SAWPA SARI Line Financial Model, Capital Projects, from the CIP Planning Efforts Guide 2009, updated in 2010.

Recommendation: None

9. Audit of the Monitoring, Measurement, and Program Modification - State Order D.13.ix.

Review the SSMP to determine if it complies with the State 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: SSMP document control is maintained by SAWPA staff members with the SSMP Document Control Sheet, an excel spreadsheet that lists the documents in the SSMP and the appendix where the document can be found. The SSMP Document Control Sheet provides information about action taken such as whether the document has been added, replaced, modified or deleted; and, also provides the date of that action. Action has been taken relative to 21 separate documents, primarily added documents or updates with action dates ranging from May 2009 to July 2010.

(a) Maintaining relevant information that can be used to establish and prioritize appropriate SSMP activities.

SAWPA staff members maintain a SSMP Log to track all changes made to the SSMP and the date of the changes. SAWPA staff members also track all TV work and use the historical data to set schedules for the next pipeline reaches to have TV monitoring. WMWD maintains Access data base software to track all preventive maintenance activities using field sheet inspection data to set the annual maintenance work plan. The plan not only lays out the proposed preventive maintenance program for the upcoming fiscal year but also provides

an estimate of cost for each element and the accumulated cost for the entire program for 12 months. Photos taken by inspectors support field data sheets. The photos are uploaded to Western's FTP site for SAWPA staff member's exclusive use. SAWPA staff members download the photos to SAWPA's server to provide relevancy when viewing potential trouble spots month to month or year to year.

(b) Monitoring the implementation and, where appropriate, measuring the effectiveness of each element of the SSMP,
SAWPA staff members have initiated this audit with enough lead-time to allow effective evaluation of each element of the SSMP. Although the various elements of the SSMP are extremely complex because of the numerous stake holders including without limitation indirect private dischargers, direct private dischargers, municipalities with direct discharges, SAWPA member agencies, regulators, and the general public, SAWPA staff members have managed the SSMP effectively working with its team comprised of IEUA and WMWD staff members, consultants and contractors.

(c) Assessing the success of the preventative maintenance program,
Evidence supports the findings that the preventative maintenance program is a success with its patrolling and monitoring; TV inspections; maintenance scheduling based on evaluation of problem areas; system of communication to management; budgeting for rehabilitation needs; and prioritization of replacement projects with incorporation in the next budget preparation cycle.

The preventative maintenance program is structured enough to support training and individual learning curves yet flexible enough to account for variable conditions such as pressurized flow conditions along SARI Reach V as opposed to gravity flow conditions along other SARI reaches. Success stories include the replacement of aging clear water air vacuum/air release valves with a manifold of smaller wastewater air vacuum/air release valves to prevent a SSO caused by the aging clear water valves and improve operational effectiveness with the manifold of smaller valves having smaller, more responsive orifices and valve seats; the alert operator on patrol who spotted the start of a WMWD SSO on WMWD's riser at the abandoned Buchanan Truck Station; and the maintenance crew that found a problem with the valve position indicators on the Reach IV-A and Reach IV-B isolation valves below the Prado Dam.

The SAWPA SARI team has been innovative with the preventative maintenance program, developing methods/means and tools to provide maintenance at lower cost. One example was the development of the rubber hose with its clamps and shut-off valve that can be used to minimize emergency SSO response time and costs when an air vacuum/air release valve riser has been broken. The device allows the break to be temporarily repaired without shutting down the SARI

pipeline reach and without impacting customers. A planned approach can then be scheduled to make the permanent repair with minimal impact.

Another example is the replacement of air vacuum/air release valves on a pipeline under pressure using low cost shelf items and a method that avoids impact to the customers. The valves are changed out while the SARI is in full operation using the SAWPA SARI team technique. The procedure has been recorded on CD for training purposes, and involves the sliding of a new saddle and valve into position as the old saddle and valve are slipped out of position, all while the pipeline is under pressure.

Finally, when an SSO does occur the maintenance team can respond quickly with the necessary material and equipment in part because it has assembled a SSO response trailer that can be towed immediately to the site of the SSO.

(d) Updating program elements, as appropriate, based on monitoring or performance evaluations.

The SSMP was developed and adopted April 2009 as a complete program. Only recently has there been need to modify the program to place emphasis on a new area of concern, the finding of mineral deposits on the interior of pipelines downstream from groundwater desalters. Two SSOs resulted on Reach IV-B as a result of the scale build up, effectively reducing the inside diameter of the pipeline. Program modifications will be made to State Order Section 13.D.iv, Operation and Maintenance, when a remedy has been found to eliminate the scale build up. SAWPA SARI staff members responded in accordance with the SSMP by issuing directives to desalter owners to eliminate the condition. The procedures for monitoring desalter discharges, identifying the problem and issuing directives for correction will be expanded to include remedies that can be employed by desalter operators to correct deficiencies and then made a part of the SSMP.

(e) Identifying and illustrating SSO trends, including frequency, location and volume.

SAWPA staff members together with its team members from WMWD and IEUA have identified and communicated SSO trends. SAWPA staff members log the SSO, its location, date and volume and report the information as required by the State Order on the State web site.

There is one SSO trend; SSO's caused by contractors hitting the SARI system with construction equipment. Contractors are required to call for location markings prior to any digging. The notification system DigAlert provides SARI O&M team members with time of the proposed work so that an inspector from WMWD or IEUA can be present before and during the digging. But many contractors fail to call DigAlert and proceed to dig without knowing the pipeline is

in the way of the equipment. WMWD and IEUA operators are on the lookout for any construction activity in the vicinity of the SARI whether permitted or not but have little control over contractors working without permits and notifications. SAWPA's only recourse is to pursue each contractor causing a SSO vigorously using the legal system.

As mentioned above an issue was recently identified that could become a SSO trend, the scale build up of mineral deposits on the interior of pipelines downstream from groundwater desalting facilities. The member agencies operating the desalters are all aggressively researching the cause of and remedy for the mineral deposition.

Reference: SAWPA SSMP Document Control Sheet.

Reference: SAWPA, SARI Photo Library

Reference: SSO Listing for the State Web Site

Recommendation: Add findings and remedy to SSMP when available for scale build up on SARI pipe interior downstream from groundwater desalters.

10. Audit of the SSMP Program Audits - State Order D.13.x.

As a part of the SSMP, SAWPA 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 State Order requirements, identification of any deficiencies and steps to correct them.

Sufficiency: Complies.

Findings:

SAWPA has embarked on this audit of its SSMP with timeliness to allow the auditor adequate time to investigate, gather evidence, analyze and then report sufficiency and findings, and finally, to make recommendations when appropriate. The audit is due April 2011. The next audit will be due April 2013. The SSMP must be re-certified April 2014 after updating the SSMP with elements recommended by the 2011 and 2013 audits together with any program changes implemented by SAWPA.

Reference: This is the first audit of the SSMP. This April 2011 audit will become a reference for the April 2013 audit.

Recommendation: None.

11. Audit of the Communication Program - State Order D.13.xi.

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

Sufficiency: Complies

Findings specific to the elements of the Communication Program are presented as follows:

(a) Communicate the performance of the SSMP with the public and with SAWPA member agencies.

With the completion of each audit, SAWPA staff members will provide a report on audit findings to the SAWPA Commission where the information will be shared with member agencies and the general public with feedback encouraged. Subsequent to the Commission presentation, audit results will be shared with IEUA and WMWD staff members responsible for O&M. The SSMP Audit will be posted on the SAWPA website for general public review and comment. As noted in the State Order the SSMP Audit is the mechanism to be used to measure SSMP performance and the best document for communicating performance.

(b) Provide the public and the member agencies the opportunity to provide input.

As mentioned above in the introduction, State Order requirements are complex with eleven major categories and over three-dozen subcategories. The SAWPA SSMP has increased complexity with the various impacted stakeholders including the agencies forming SAWPA, IEUA and WMWD as providers of O&M Services and the general public. Because of the complexity and numerous stakeholders, SAWPA staff members provided thorough notification when developing the SSMP.

Prior to its adoption by the Commission, April 21, 2009, the draft SSMP was submitted to IEUA and WMWD for review and comment. The SSMP was also uploaded to the SAWPA website for general public review and comment. Finally, the Commission held a public hearing to receive comments from all interested parties prior to considering its adoption.

The general public and member agencies will have an opportunity to provide input with the completion of each audit every two years and certification every five years. That represents three times every five years for member agency and general public review and comment.

Recommendation: It is recommended as a part of each audit, SAWPA require the development of an implementation plan to address any recommendations and/or deficiencies identified during the audit. Progress can then be acknowledged with the next audit or certification. See Appendix A.

APPENDIX A
Audit of the Sewer System Management Plan (SSMP)
RECOMMENDATIONS
and
IMPLEMENTATION PLAN

Recommendations are provided when applicable after each of the eleven sections of the audit report as requested by SAWPA staff members and are listed again here for ease of reviewing, assessing and tracking activity related to each recommendation. Each section of the audit corresponds with a section in the State Order to link the recommendation to State Order requirements. The primary SARI O&M team members are shown in parentheses to designate lead responsibility for implementing the recommendations.

Audit Section 1
Recommendations for State Order Section D.13.i, Goals.

SAWPA is in compliance with the "Goals" requirement of the State Order. However, SARI O&M staff members requested an audit and report of findings for each of SAWPA's 25 Goals, and recommendations when appropriate.

R1.1. (SAWPA as lead with primary support from WMWD and secondary support from IEUA)
Before re-certifying the SSMP in April 2014, it is recommended that SAWPA Goal No. 3 "OERP Training" and SAWPA Goal No. 17 "Training Protocols" be consolidated into one SAWPA Goal as Goal No. 3 "All Inclusive Training" with the inclusion of all training required by the State Order as well as by SARI O&M team members, to have one reference point for all training. Each item of training should contain the frequency expected and the staff members to be trained.

The consolidation should reduce the redundancy between SAWPA Goals and State Order requirements. State Order D.13.iv, "Operations and Maintenance Program", contains subsection (d) that specifies an O&M training program including training and re-training of staff members, contractors and consultants on a regular basis. State Order D.13.vi, "Overflow Emergency Response Program", contains section (d) that specifies training for staff members and consultants named in the response plan.

Finally, it is recommended that all training topics be aggregated into one manual named the "SSMP Training Manual" or something similar, with all-inclusive content so that all aspects of SSMP training are referenced in one place.

R1.2. (IEUA)
Use the O&M SOP prepared by WMWD in the program conducted by IEUA.

R1.3. (SAWPA)
Expand the SAWPA lateral cleaning tracking form to clarify financial and physical cleaning responsibilities.

R1.4. (SAWPA as lead to initiate with support from WMWD)
Clarify ownership or financial responsibility for the 3400 feet of CRC lateral downstream from the Greenbriar meter structure with an agreement between SAWPA and WMWD.

R1.5. (WMWD as lead with support from IEUA)
Conserve training dollars at IEUA and WMWD by offering joint classes for common subjects.

Audit Section 2
Recommendations for State Order Section D.13.ii, Organization.

R2.1. (SAWPA)
Although not required it is suggested that the new insurance contact information be added to the OERP Response Procedure flow chart, Figure 3-3, SSMP Volume II, Appendix F-1, Page 22.

Audit Section 3
Recommendations for State Order Section D.13.iii, Legal Authority.

R3.1. (SAWPA)
Replace the superceded WMWD Operations and Maintenance Service Agreement in SSMP Volume II, Appendix C-3 with the revised June 2007 agreement.

Audit Section 4
Recommendations for State Order Section D.13.iv, O & M.

R4.1. (WMWD and IEUA to work together to develop a common rating system)
To avoid costly fees associated with NASSCO membership, SAWPA could develop its own NASSCO type assessment rating form with input from WMWD and IEUA. It's further recommended that SAWPA retain the current practice of requiring that private contractors be members and use the NASSCO system for rating MAS.

R4.2. (WMWD as lead with IEUA incorporating the work into its program)
Add the following topics to the IEUA and WMWD training programs for the SARI system.

O&M SOP	Capital Improvement Program
FOG (fats, oils, grease)	Standard Specifications
Legal Authority	Record Keeping

R4.3. (WMWD)
Review parts inventory quarterly at the SAWPA SARI O&M Team, weekly meeting.

Audit Section 5
Recommendations for State Order Section D.13.v, Design.

R5.1. (WMWD to prepare for SAWPA to insert into its Technical Provisions)
Add a standard drawing using the standard found in the JCSD information (SSMP Volume II, Appendix G-3) with a three compartment "Trap", having a primary, secondary and outlet, all accessible by manholes for pumping and sampling contents to the IEUA and WMWD FOG Source Control Program and insert the drawing into the SAWPA Technical Provisions for "Traps".

R5.2. (SAWPA)
Add the "boiler-plate" legal specifications to the SSMP Volume II, Appendix E-1 so that SAWPA, IEUA and WMWD staff members have easy access to both the technical provisions and the standard legal requirements for construction work.

Audit Section 6
Recommendations for State Order Section D.13.vi, OERP.

R6.1. (WMWD to produce the plan for SAWPA to insert into OERP and SSMP)
Add the WMWD standard traffic control plan to the OERP appendices and replace the original OERP with the March 2010 updated OERP in the updated SSMP, Volume II, Appendix F-1.

Audit Section 7
Recommendations for State Order Section D.13.vii, FOG.

R7.1. (WMWD as lead with edits from IEUA for SAWPA to enter into the SSMP)
Consolidate FOG Source Control information from the various sources, create a standard drawing for traps and publish the FOG educational information and standard drawing as the SARI FOG Source Control Program and add the SARI FOG Source Control Program to the SSMP Volume II, Appendix G and either incorporate or remove the JCSD information.

R7.2. (WMWD)
Continue to monitor FOG coming from JCSD and look for ways to reduce cleaning frequency in and upstream of the Schleisman siphon.

Audit Section 8
Recommendations for State Order Section D.13.viii, System Capacity.

R8.1. None

Audit Section 9
Recommendations for State Order Section D.13.ix, Monitoring.

R9.1. (WMWD to prepare findings for SAWPA to insert into SSMP)
Add findings and remedy to SSMP when available for scale build up on SARI pipe interior downstream from groundwater desalters.

Audit Section 10
Recommendations for State Order Section D.13.x, Audits.

R10.1. None

Audit Section 11
Recommendations for State Order Section D.13.xi, Communication.

R11.1. (SAWPA)
It is recommended as a part of each audit, SAWPA require the development of an implementation plan to address any recommendations and/or deficiencies identified during the audit. Progress can then be acknowledged with the next audit or certification. This Appendix A represents the implementation plan for this audit.