Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

2019 SSMP AUDIT REPORT

Prepared by:
Inland Empire Utilities Agency

Period Covered: May 2, 2017 to May 2, 2019
Analyzed Data up to March 1, 2019

WDID #8SSO10580

Agency 2019 Audit Team

Name	Position	Organization
Teresa Velarde	Manager of Internal Audit	IEUA
Julio Im	Senior Associate Engineer Environmental Compliance	IEUA
Ken Monfore	Deputy Manager of Maintenance	IEUA
Dan Dyer	Collection System Supervisor	IEUA
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Certified by: Legal Responsible Official (LRO)

"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."

Name	Position	Organization	Signature
Randy Lee	Executive Manager of Operations/AGM	IEUA	

Date Approved: April 17, 2019

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Abbreviations/Acronyms

BIS – Business Information Services
BMP – Best Management Practices
BSS – Brine Sewer System
Cal OES – California Office of Emergency Services
CAP – Contracts and Procurements
CBMWD – Chino Basin Municipal Water District
CCTV – Closed-Circuit Television
CCWRF – Carbon Canyon Water Recycling Facility
CDPH – California Department of Public Health
CFR – Code of Federal Regulations
CIP – Capital Improvements Plan
CIWQS – California Integrated Water Quality System Project
CMMS – Computerized Maintenance Management System
CSDLAC – County Sanitation Districts of Los Angeles County
CVWD – Cucamonga Valley Water District
CWEA – California Water Environment Association
DAMP – Drainage Area Management Plan
DMM – Deputy Manager of Maintenance
DS – CIWQS Data Submitter
DVD – Digital Versatile Disk
DWG – from Drawing
EA – External Affairs
ENV – Environmental
EWL – Etiwanda Water Line
FOG – Fats, Oils, and Grease
GIS – Geographic Information System
GPS – Global Positioning System
HVAC – Heating, Ventilation, and Air Conditioning
I/I – Inflow and Infiltration
IEBL – Inland Empire Brine Line
IEUA – Inland Empire Utilities Agency
JCSD – Jurupa Community Services District
KPI – Key Performance Indicators
LRO – Legally Responsible Official
MA – Mutual Aid
MMPM – Monitoring, Measurement, and Program Modifications
MRP – Monitoring and Reporting Program for WDR
MS4 – Municipal Separate Storm Sewer System
MWH – Montgomery Watson Harza Inc.
NASSCO – National Association of Sewer Service Companies
NIMS – National Incident Management System
NPDES – National Pollutant Discharge Elimination System
NRWS – Non-Reclaimable Wastewater System
O&M – Operations and Maintenance
OCSD – Orange County Sanitation Districts

OES – Office of Emergency Services
OERP – Overflow Emergency Response Plan
PDF – Portable Document Format
PLSD – Private Lateral Sewer Discharge
PM – Preventive Maintenance
PSERP – Pump Station Emergency Response Plan
PT/SC – Pre-treatment / Source Control
R&R – Repair and Replace
RCA – Regional Contracting Agencies
RP – Recycling Plant
RSS – Regional Sewer System
RWRP – Regional Water Recycling Plant
RWQCB – Regional Water Quality Control Board
SAP – Systems, Applications, and Products software
SARI – Santa Ana Regional Interceptor
SARWQCB – Santa Ana Regional Water Quality Control Board
SAWPA – Santa Ana Watershed Project Authority
SECAP – System Evaluation and Capacity Assurance Plan
SIU – Significant Industrial Users
SOP – Standard Operating Procedure
SSMP – Sewer System Management Plan
SSO – Sanitary Sewer Overflow
SWRCB – State Water Resources Control Board
TIFF – Tagged Image File Format
TYCIP – Ten Year Capital Improvement Plan
URGP – Unified Response Guidance Plan
WDID – Waste Discharge Identification Number
WDR – Wastewater Discharge Requirements
WFMP – Wastewater Facilities Master Plan
WQMP – Water Quality Monitoring Plan

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Introduction

On May 2, 2006, the State Water Regional Control Board (SWRCB) adopted Order No. 2006-0003 (Order), Statewide General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems . This Order requires that the owner of wastewater collection systems with more than a mile of pipeline have in place a Sewer System Management Program (SSMP) to comply with the terms of this 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 every five years. On February 20, 2008, the State Water Board Executive Director adopted Order No. 2008-0002-EXEC, a revised Monitoring and Reporting Program (MRP) for the WDR to rectify early notification deficiencies and ensure that first responders are notified in a timely manner of SSOs discharged into waters of the state. On September 9, 2013, the State Water Board Executive Director adopted Order No. 2013-0058-EXEC which amends the MRP of Order No. 2006-0003 by adding a third sanitary spill category - Category 3 SSO, sampling requirements within 48 hours and technical report within 45 days (for Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters), and new record keeping requirements. Therefore, the definitions for the three spill categories are now as follows:

CATEGORY 1	Discharges of untreated or partially treated wastewater of **any volume** resulting from an enrollee's sanitary sewer system failure or flow condition that: • Reach surface water and/or reach a drainage channel tributary to a surface water; or • Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).
CATEGORY 2	Discharges of untreated or partially treated wastewater of **1,000 gallons or greater** resulting from an enrollee's sanitary sewer system failure or flow condition that **do not** reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.
CATEGORY 3	All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.

The definition of Private Lateral Sewage Discharge (PLSD) and its reporting requirement has not been changed, i.e. PLSD discharges may be voluntarily reported.

A principal element of the 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.

On April 15, 2009, Inland Empire Utilities Agency (Agency) Board of Directors adopted the original Agency SSMP to comply with the Order.

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 Agency's ordinances, agreements, and other legally binding instruments.
- The SSMP must identify the Agency's organization and staff responsible for implementing and maintaining the SSMP.
- The SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the Agency's wastewater conveyance system.

Additionally, the Order requires Agency staff to perform periodic internal audits of the SSMP focusing on evaluating the effectiveness of the SSMP and staffs' compliance with its requirements, as shown in Section D.13(x) of the Order. The internal audits must be performed at least every two years with the audit report kept on file at the Agency. Due date for this audit is May 2, 2019. The 2019 Audit Team reviewed the last SSMP dated May 2, 2014.

The SSMP must be updated every five years, must contain any significant program changes, and be re-certified by the Agency's Board of Directors. To complete the re-certification process, Agency staff must enter the information on the Online SSO Database. The re-certification of the SSMP was completed on April 17, 2014. The next quinquennial review is due on April 17, 2019.

In general, the State's audit requirements of the SSMP are extremely complex with many overlapping topics. As described below, there are 11 major categories in the SSMP and over three dozen subcategories. Additionally, a comprehensive audit program includes evaluation elements such as document control, training, objectives, data management, audit procedures, and results approach outcomes. The Agency's SSMP and audit requirement does not cover its Regional Contracting Agencies (RCA), (namely the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland) as they have their own SSMPs and are responsible for their own operations and maintenance (O&M). However, the Agency communicates regularly with our RCAs regarding SSOs, discharges to the Agency's system, Overflow Emergency Response Plan (OERP), and on other related topics.

This is the fifth internal audit of the SSMP, covering the period between May 2, 2017 and May 2, 2019. However, in order to finish the audit by May 2, 2019, California Integrated Water Quality System Project (CIWQS) data will be analyzed up to March 1, 2019. After reviewing and sharing the contents of the audit report, staff will create a list of proposed remedies, if deficiencies were found to exist, file the report, and begin working to correct the deficiencies, if any.

This audit team was comprised of the following personnel:

Name	Position	Organization
Teresa Velarde	Manager of Internal Audit	IEUA
Julio Im	Senior Associate Engineer Environmental Compliance	IEUA
Ken Monfore	Deputy Manager of Maintenance	IEUA
Daniel Dyer	Collection System Supervisor	IEUA
Paul Causey	Consultant	Causey Consulting

Table 1: Agency 2019 Audit Team

Interviews Conducted:

Department	Name	Title
Agency Management	Randy Lee	Executive Manager of Operations/AGM
Operations & Maintenance	Chander Letulle	O&M Manager (South)
Operations & Maintenance	Kenneth Monfore	Deputy Manager of Maintenance (Collection/Facilities/Fleet)
Operations & Maintenance	Dan Dyer	Collection System Supervisor
Operations & Maintenance	Alex Arguelles	Collection System Operator
Operations & Maintenance	Edward Chavez	Collection System Operator
Engineering	Shaun Stone	Manager of Engineering
Engineering	Jerry Burke	Deputy Manager of Engineering
Engineering	Jason Marseilles	Senior Engineer
Engineering	Liza Munoz	Senior Engineer
Engineering	Michael Diaz	Associate Engineer
Engineering	Josh Biesiada	Project Manager I
Engineering	Michelle Reed	Assistant Engineer
Compliance	Pietro Cambiaso	Deputy Manager of Planning & Environmental Resources
Compliance	Julio Im	Senior Associate Engineer
Compliance	Bonita Fan	Senior Environmental Resources Planner
Compliance	Craig Proctor	Source Control/Environmental Resources Supervisor
Business Information Systems	Kanes Pantayatiwong	Manager of BIS
Business Information Systems	Gary Te	GIS Specialist
External Affairs	Andrea Carruthers	Manager of External Affairs
Laboratory	Nel Groenveld	Manager of Laboratories
Safety	Claudia Neighbors	Safety Officer
Contractor – West Coast	Jeff Krueger	Hauling Sales Representative
Contractor – KVAC	Diana Knifer	Owner

Table 2: Interviews Conducted

Documents Audited or Reviewed:

No.	Document
1	Agency Sewer System Management Plan (April 27, 2015)
2	2017 SSMP Biennial Audit Report (May 2, 2017)
3	Contact List in Case of Emergency SSO (February 1, 2018)
4	California Integrated Water Quality System Project (CIWQS) Online SSO Reports
5	Agency Ordinances 96, 97, 99, and 106
6	Sanitary Sewer Overflow Unified Response Guidance Plan (SSOURGP) July 1, 2007
7	Overflow Emergency Response Plan (OERP)
8	Pump Station Emergency Response Plans DRAFTs (PSERP)
9	Standard Operating Procedures DRAFTS (CCTV, GapVax, and Opening-Closing Manhole Lids)
10	Wastewater Facilities Master Plan Update Report Vol 1 & 2 (June 2015)
11	Non-Reclaimable Wastewater System Capital Improvements Program Plan (PBS&J Report - Mar 2006)

Table 3: Documents Audited or Reviewed

Summary

This biennial audit of the Agency's SSMP consists of evaluating all 11 elements and all appendices required by the WDR (refer to Table 4 below).

Element	WDR Reference Section	Heading
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

Table 4: SSMP Elements

Each element was assessed and given a sufficiency ranking and recommendations as deemed appropriate.

The format for audit reporting is as follows:

- Order Section/Subsection
- Sufficiency Ranking
  - A – Well Above Average
  - B – Above Average
  - C – Average
  - D – Below Average
  - F – Not in Compliance
- Findings
- Reference Information
- Recommendations

Table 5 below summarizes each element ranking, findings, and recommendations.

Element	Sufficiency Ranking	Findings	Recommendations
1: Goals	B	Achieved most of their current goals.	1. Re-evaluate goals & revise as necessary. 2. Tie goals to KPIs / metrics in Element 9.
2: Organization	D	1. Outdated organization charts. 2. Conflicts with other documents (URGP, OERP, Emergency Contact list). 3. Some material may belong in another section of SSMP. 4. No table of SSMP element responsibilities.	1. Update organization charts including date of chart. Add LRO and Date Submitter (DS) designations. 2. Add narrative & responsibility chart. 3. Conform all documents. 4. Remove material that belong elsewhere (i.e. OERP)
3: Legal Authority	B	1. No specific reference to ordinance sections required by WDR. 2. SSMP appendices contain full ordinances.	1. Add table of specific ordinance references. 2. Remove ordinances from appendices but ensure accessible via website.
4: Operation and Maintenance Program	D	1. No description of use of storm drain maps by the Agency emergency response personnel. 2. Element should contain specific narratives explaining cleaning (regular and hot spots – siphons) and closed-circuit television (CCTV) frequencies along with percentage of the system. Add a table of frequencies and lengths. 3. Provide explanation of the hot spot program, how large, how often and how lines are added or removed from the program. 4. Should have performance results, minimum of five years, from operations line cleaning, hotspot cleaning, CCTV inspection siphon cleaning, pump station and force main maintenance. 5. Lacks repair and rehabilitation process details for emergency and corrective repairs. 6. Need to formalize process for short- and long-term Capital Improvement Plan (CIP).	1. Include discussion on how the Agency uses storm drain maps. 2. Add narratives explaining cleaning (regular and hot spots – siphons) and CCTV frequencies along with percentage of the system. Add a table of frequencies and lengths. 3. Provide explanation of the hot spot program, how large, how often and how lines are added or removed from the program. 4. Include performance results, minimum of five years, from operations line cleaning, hotspot cleaning, CCTV inspection siphon cleaning, pump station and force main maintenance. 5. Formalize repair and rehabilitation process for emergency and corrective repairs. 6. Formalize Collection's and Engineering's pipe segment and manhole condition reviews in Geographic

		7. Need plan/process to ensure contractors are appropriately trained. 8. The lists of critical equipment and mutual aid resources (listed in the Mutual Aid (MA) Agreement) are outdated.	Information System (GIS); and, update short- and long-term CIP plans accordingly. 7. Create a plan/process to ensure contractors are appropriately trained. 8. Update critical equipment, parts, and MA resource lists.
5: Design and Performance Provisions	C	1. No specific discussion of inspection and testing of pipelines, force mains, or pump stations. 2. No specific statement of rehabilitation and testing standards.	1. Add discussion of inspection and testing of pipelines, force mains, and pump stations. 2. Add specific statement concerning rehabilitation and testing standards.
6: Overflow Emergency Response Plan	F	1. Created an OERP, replacing SSOURGP. 2. OERP is not approved and it is missing sections on traffic and crowd control. 3. MA Agreement is old (2004) and outdated. 4. Agency does not have a Water Quality Monitoring Plan (WQMP). 5. Pump Station Emergency Response Plan (SERP) and Standard Operating Procedures (SOPs) drafted.	1. Replace outdated SSOURGP with recently created OERP. 2. Add missing traffic and crowd control sections and approve OERP. 3. Update MA Agreement. 4. Create a WQMP. 5. Finish PSERPs and SOPs.
7: FOG (fats, oils, grease) Control Plan	A	1. Re-evaluated our service area and determined a FOG Control Program is not needed. 2. Regular meetings conducted with RCAs.	1. Continue cleaning/inspection program and re-evaluate need each audit cycle. 2. Continue regular meetings with RCAs.
8: System Evaluation and Capacity Assurance Plan	C	1. Conditions assessment is old (2006). However, hydraulic analysis on Regional Sewer System (RSS) is current (2015). No capacity evaluation of Brine Sewer System (BSS). 2. No discussion of pump stations or force main capacity evaluations.	1. Consider contracting a new conditions assessment on both systems and a capacity assessment of the BSS. 2. Prepare sewer system master plan for pump stations, force mains, RSS, and BSS system. 3. Formalize Collection's and Engineering's periodic GIS review.
9: Monitoring, Measurement, and Program Modifications	B	1. Many improvements: reduced SSOs, higher production, enhanced training. 2. CIWQS questionnaire requires significant updating.	1. Ensure update CIWQS data to match our data (pipe lengths, force main lengths, and number of pump stations).

		3. Operational performance metrics need to be added.	2. Develop additional O&M metrics. 3. Evaluate annually, briefing management annually and the Board of Directors after each audit. 4. Add metrics to sewer webpage following report to Board of Directors.
10: SSMP Program Audits	A	Internal audits conducted as required and most recent posted to web page.	Update internal audit as completed and post to website once signed by LRO and presented to Board of Directors.

11: Communication Program	C	SSMP and audits are communicated with public through website. No change log exists. No periodic presentation of collection system performance results.	Additionally, utilize social media (e.g. Facebook). Create a change log and regularly update. Publicize change log, repairs, and corrective action tracker. Create annual SSMP report and brief to management.
Appendices	N/A	The main SSMP document is currently 54 pages in length. The appendices add almost 600 pages resulting in a 647-page document.	Recommend making the following changes: 1. Remove non-required appendices to include: a. Appendix 1 – SWRCB Orders b. Appendix 2 – Emergency Contact list (add to Element 2) c. Appendix 3 – Ordinances (ensure available on website) d. Appendix 4 – Place projects, training, and parts inventory into respective SSMP Element 4. e. Appendix 5 – Remove and ensure available via website as necessary. f. Appendix 6 – Remove SSOURGP and replace with OERP. Update MA Agreement and make available on website. Remove Collections Chain of Command chart and SSO event reporting. Add to Element 2. g. Appendix 8 – Remove service maps & place in required SSMP Element. Make available on website as necessary. 2. Re-evaluate & implement new set of appendices.

Table 5: Summarized Sufficiency Rankings, Findings, & Recommendations Per Element

Table 5 findings and recommendations will be used to update the 2019 SSMP Revision. Those items that will not be completed within this revision will be tracked in the SSMP Deficiency Log, which will be included as an SSMP appendices. This log will track the deficiency, person responsible, corrective action, and expected completion date.

SSMP Implementation Effectiveness

Program effectiveness was evaluated based on the following three criteria:

1. *Agency's Element Sufficiency Rankings*
2. *Meeting our last Board certified SSMP (April 17, 2014) goals.*
3. *Attaining California State's overall goals*

Sufficiency Rankings

An overall sufficiency ranking was determined by assigning a number to each ranking (i.e. A = 4, B = 3, C = 2, D = 1, & F = 0). These scores were then summed and dividend by the 11 elements (refer to Table 6 below).

Element	Ranking	Score
Goals	B	3
Organization	D	1
Legal Authority	B	3
O&M	D	1
Design & Performance	C	2
OERP	F	0
FOG	A	4
SECAP	C	2
MMPM	B	3
SSMP Audits	A	4
Communication	C	2
Overall	**C**	**25/11 = 2.27**

Table 6: Overall Sufficiency Ranking

Table 6 shows that we attained an overall sufficiency ranking of average (C).

Table 7 below lists the scoring range for sufficiency ranking.

Scoring Range	Ranking
3.60 – 4.00	A – Well Above Average
2.60 – 3.59	B – Above Average
1.60 – 2.59	C – Average
0.60 – 1.59	D – Below Average
0.00 – 0.59	F – Not in Compliance

Table 7: Scoring Range

Meeting Agency's Goals

Attaining our April 17, 2014 SSMP goals were also measured by assigning the same sufficiency ranking and scoring above (refer to Table 8 below).

Agency's Goals	Ranking	Score
1. To reduce the number of SSOs	A	4
2. To mitigate and minimize the impact of SSOs	A	4
3. To document mitigation measures and cost estimates	C	2
4. To communicate the causes and effects of SSOs with member agencies	B	3
5. To inspect and assess the collection system using CCTV as needed	B	3
6. To develop CIP	C	2
7. To evaluate the capacity to convey base and peak flows to minimize the frequency and severity of SSOs using hydraulic modeling	B	3
8. To develop a list of present and future funding sources to achieve these goals	B	3
Overall	**B**	**24/8 = 3.00**

Table 8: Overall Goal Score

Overall goal attainment is substantially Above Average (B).

Attaining California State's Goals

The State's overall goals are to reduce the number of SSOs, mitigate them when they occur, and for Agencies to continually improve their program.

The State's first and second goal matched the Agency's first two goals and are therefore scored the same. Continual improvement was determined based on the following three criteria:

1. Sufficiency ranking comparison with last audit
2. Handling of recommendations from last audit
3. Other factors for consideration

Sufficiency Ranking Comparison

Element	2017 Ranking	2019 Ranking
Goals	A	B
Organization	A	D
Legal Authority	A	B
O&M	A	D
Design & Performance	A	C
OERP	A	F
FOG	A	A
SECAP	A	C
MMPM	A	B
SSMP Audits	A	A
Communication	A	C
Overall	**A**	**C**

Table 9: 2017 vs. 2019 Comparison

Table 9 above compares each element's sufficiency ranking from the last audit in 2017. This shows the program degraded in almost every category.

Note: Table 9 2017 & 2019 results are shown in the Agency's current sufficiency ranking system. Audits from 2017 and prior used the sufficiency ranking system below:

- *Complies (C) – complies with all objectives*
- *Substantial Compliance (SC) – complies mostly with all objectives*
- *Partial Compliance (PC) – complies with basic objectives*
- *Marginal Compliance (MC) – complies objectives minimally*
- *Not in Compliance (NC)*

Last Audit's Recommendations

The only recommendation from the 2017 audit was in Element 11 (Communication Program), which stated, "It is recommended after each audit that Agency staff develop an implementation plan to address any deficiencies identified during the audit. Progress can then be acknowledged with the next audit or certification." This has been developed and will be placed and tracked in an appendix in the 2019 SSMP.

Other Factors for Consideration

Although the sufficiency ranking comparison in Table 9 above shows a degradation in almost every element, two other factors should be considered. First, the 2019 audit was a much more robust evaluation. The 2017 audit was performed by one person; however, after receiving training on how to conduct and audit, a five-person evaluation team was formed for the 2019 audit. Not surprisingly, the findings were much more substantial and led to the lower scores. Second, other improvements were not originally set as goals in 2014. Those include the following:

- Increased inspection and cleaning production (refer to Element 9 – Graph 4 & Table 15)
- Continued needed engineering structural repairs (refer to Element 9 – Table 17)
- Attained 100% monthly hotspot preventive maintenance (refer to Element 9 – Graph 3)
- Increased training and certifications (refer to Element 9 – Table 16)
- Improved mutual aid relationships (re-established periodic Mutual Aid meetings with entire staffs and added semi-annual meetings with supervisors and managers)
- Added Documentation (three SOPs, an OERP, and drafted seven PSERP)
- Implemented formalized pipe segment and manhole GIS review process

A continual improvement of partially complies based on these two mitigating factors.

Table 10 below summarizes the Agency's overall assessment in meeting the state's goals

State's Goals	Ranking	Score
1. To reduce the number of SSOs	A	4
2. To mitigate and minimize the impact of SSOs	A	4
3. Continual improvement	C	2
Overall	B	**10/3 = 3.33**

Table 10: Overall State Goal Score

Agency overall achieved an Above Average (B) with regard to the state's goals.

Overall Effectiveness Evaluation

Table 11 below summarizes the overall effectiveness evaluation

Overall Effectiveness Evaluation	Ranking	Score
1. Element Sufficiency Rankings	C	2.27
2. Meeting Agency's Goals	B	3.00
3. Attaining California State Goals	B	3.33
Overall	**B**	**8.60/3 = 2.87**

Table 11: Overall Effectiveness Evaluation

Agency's SSMP program effectiveness is evaluated as Above Average (B).

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

The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.

Sufficiency: Above Average (B)

Findings: The Agency has established a list of goals in its SSMP. The goals established comply with the requirements of the SWRCB Order. The eight goals established with the first version of the Agency's SSMP are the following:

1. To reduce the number of SSOs
2. To mitigate and minimize the impact of SSOs
3. To document mitigation measures and cost estimates
4. To communicate the causes and effects of SSOs with member agencies
5. To inspect and assess the collection system using CCTV as needed
6. To develop CIP
7. To evaluate the capacity to convey base and peak flows to minimize the frequency and severity of SSOs using hydraulic modeling
8. To develop a list of present and future funding sources to achieve these goals

The Agency succeeded in attaining most of their current goals, detailed below.

1. To reduce the number of SSOs (Score = 4)
    - There was only one SSO since the last audit, which was due to a sister agency's contracted construction negligence damaging our force main. Additionally, average SSOs per year have continued a downward trend (refer to Element 9).

2. To mitigate and minimize the impact of SSOs (Score = 4)
    - Recovered volume spill was below the region and state in all categories (refer to Element 9).
    - Process, procedures, and training enhancements have been put in place to improve mitigating SSOs should they occur (refer to Element 4 (O&M) and Element 6 (OERP)).

3. To document mitigation measures and cost estimate (Score = 2)
    - Mitigation measures are documented with the formalization of the SSMP which provides a plan to mitigate SSOs and their impact. Other mitigation measures were to create an OERP, PSERPs, and SOPs. These documents have been created or are in draft form.
    - Little has been done to determine the cost estimates.

4. To communicate the causes and effects of SSOs with member agencies (Score = 3)
    - MA meetings were being done every 6-9 months; however, semi-annual staff meetings and semi-annual manager/supervisor meetings have been established.

These meetings are used to discuss challenges, ideas, and lessons learned (e.g. SSOs, SSMPs, etc.).

5. To inspect and assess the collection system using CCTV as needed (Score = 3)
    - Routine inspection continues (refer to Element 4: O&M)
    - Recommend formalizing plan to assess non-urgent pipe and manhole (MH) degradations (refer to Element 8: SECAP).

6. To develop CIP (Score =2)
    - Recommend conducting a new conditions assessment on both sewer systems (refer to Element 8: System Evaluation and Capacity Assurance Plan (SECAP)
    - Recommend formalizing plan to assess non-urgent pipe and MH degradations (refer to Element 8: SECAP) and determine adding to short- and long-term CIPs.

7. To evaluate the capacity to convey base and peak flows to minimize the frequency and severity of SSOs using hydraulic modeling (Score = 3)
    - Evaluation study performed 2015 Water Faculties Master Plan (WFMP) on RSS system. Pre-Treatment & Source Control regulate BSS system (refer to Element 8: SECAP).

8. To develop a list of present and future funding sources to achieve these goals (Score = 3)
    - This is done through the annual budget process. Additionally, the Agency continuously works to evaluate grant and loan funding for new and future programs.

Overall, the Agency's goal attainment is scored at 3.00, which equates to substantial compliance (refer to Table 8 in the program effectiveness evaluation section above).

References:

- 2014 SSMP Revision

Recommendations:

1. The audit team assessed the eight goals and recommends re-evaluating if new goals are needed to continue to further improve our SSMP in meeting the overall goals of reducing SSO events and their health and environmental impacts should they occur.
2. Tie goals to key performance indicators (KPIs)/metrics in Element 9.

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

Review the SSMP to determine if it complies with the Order in the following manner:

(a) The name of the responsible or authorized representative as described in Section J of this Order.
(b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and
(c) The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).

Sufficiency: Below Average (D)

Findings:

1. Outdated organization charts.
2. The SSOURGP was created in 2007, prior to the establishment of the Agency's SSMP (2009), and it was not updated to add JCSD in 2014. Contact information and actions within this document conflict with the SSMP and the newly created OERP.
3. Much of the information within this section (2014 SSMP) is more applicable in Element 6: OERP (e.g. definitions, SSO actions, etc.).
4. No table of SSMP responsibilities.

References:

- Agency's SSMP, SSOURGP, and OERP
- Concise Contact List in Case of Emergency (Agency's website)

Recommendations:

1. Update organization charts including date of chart.
2. Add Legally Responsible Official (LRO) and Data Submitter (DS) designations.
3. Add narrative and responsibility chart.
4. Conform all documents.
5. Remove material that belongs elsewhere (i.e. OERP).
6. Recommend considering adding the Mutual Aid partners contact information also on the Agency's website.

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

Review the SSMP to determine if it complies with the Order to:

(a) Prevent illicit discharges into its sanitary sewer system (examples may include inflow/infiltration (I/I), stormwater, chemical dumping, unauthorized debris and cut roots, etc.);
(b) Require that sewers and connections be properly designed and constructed;
(c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;
(d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and
(e) Enforce any violation of its sewer ordinances.

Sufficiency: Above Average (B)

Findings:
1. No specific reference to ordinance sections (required by WDR).
2. SSMP contains full ordinances, which nearly doubles the size of the SSMP document.
3. Ordinances were reviewed, and no revisions were recommended.
4. The Agency has in place pretreatment agreements with each of its RCAs which require that significant industrial users (SIUs) be properly permitted and required to meet Federal, State and local limits.
5. Per the 2015 Audit, the Agency maintains GIS with the Agency's right to access easements documents.

Reference:
- Inland Empire Brine Line (IEBL) Ordinance No. 96
- Regional Ordinance No. 97
- Non-Reclaimable Wastewater System (NRWS) Ordinance No. 99
- Pretreatment Agreements with member agencies
- Discharge Permit Tracking Database
- Easement Documents

Recommendation:
1. Add table of specific references to ordinance sections.
2. Remove ordinances from the appendices to reduce the size of the SSMP, making it more usable. However, it is recommended that these remain accessible via the Agency's website. Considered hyperlinking from the document.

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

Review the SSMP to determine if it complies with the Order to:

(a) Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities;
(b) Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventive Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;
(c) Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short- and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall 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;
(d) Provide training on a regular basis for staff in sanitary sewer system O&M, and require contractors to be appropriately trained; and
(e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

Sufficiency: Below Average (D)

Findings:

1. No description of use of storm drain maps by the Agency's emergency response personnel.
2. Element should contain specific narratives explaining cleaning (regular and hot spots – siphons) and CCTV frequencies along with percentage of the system. Add a table of frequencies and lengths.
3. Provide explanation of the hot spot program, how large, how often, and how lines are added or removed from the program.
4. Should have performance results, minimum of five years, from operations line cleaning, hotspot cleaning, CCTV inspection siphon cleaning, pump station and force main maintenance.
5. Lacks repair and rehabilitation process details for emergency and corrective repairs.
6. Need to formalize process for short- and long-term CIP.
7. Need plan/process to ensure contractors are appropriately trained.
8. The lists of critical equipment and mutual aid resources (listed in the MA Agreement) are outdated.

References:

- SSMP, GIS, and SAP
- Safety Officer's and Deputy Manager's Training Tracker
- MA Agreement

Recommendations:

1. Include discussion on how the Agency's uses storm drain maps.
2. Add narratives explaining cleaning (regular and hot spots – siphons) and CCTV frequencies along with percentage of the system. Add a table of frequencies and lengths.
3. Provide explanation of the hot spot program, how large, how often and how lines are added or removed from the program.
4. Include performance results, minimum of five years, from operations line cleaning, hotspot cleaning, CCTV inspection siphon cleaning, pump station and force main maintenance.
5. Formalize repair and rehabilitation process for emergency and corrective repairs.
6. Formalize Collection's and Engineering's pipe segment and manhole condition reviews in GIS; and, update short- and long-term CIP plans accordingly.
7. Create a plan/process to ensure contractors are appropriately trained.
8. Update critical equipment, parts, and MA resource lists.

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

Review the SSMP to determine if it complies with the Order by:

(a) Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and
(b) Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

Sufficiency: Average (C)

Findings:
1. No specific discussion of inspection and testing of pipelines, force mains, or pump stations.
2. No specific statement of rehabilitation and testing standards.

Reference:
- *Standard Specifications for Public Works Construction (GREENBOOK)*

Recommendations:
1. Add discussion of inspection and testing of pipelines, force mains, and pump stations.
2. Add specific statement concerning rehabilitation and testing standards.

6. Audit of 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 so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;
(b) A program to ensure an appropriate response to all overflows;
(c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, Regional Water Boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the MRP. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or National Pollutants Discharge Elimination System (NPDES) permit requirements. The SSMP should identify the officials who will receive immediate notification;
(d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;
(e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and
(f) A program to 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 the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

Sufficiency: Not in Compliance (F)

Findings:

1. The *Unified Response Guidance Plan (URGP)* is an agreement (July 2007) between the Agency and its member agencies to provide mutual assistance in case of an SSO. This is an outdated agreement (does not include Jurupa, who was added as a MA partner in 2014).
2. DKF Solutions Group was contracted to create, with the Agency's assistance, an updated OERP. This was completed in 2018, but it has not been approved. The OERP is missing a section on traffic and crowd control.
3. The MA agreement was originally created in 2004 and is outdated. The 2014 amendment added JCSD but did not update resources, rates, or contact information.
4. The Agency does not have a WQMP.
5. DKF Solutions Group and the Agency are in the process of completing PSERPs for each of their seven pump stations.
6. DKF and the Agency are in the process of completing SOPS (i.e. GapVax, CCTV, and manhole operations.)

References:

- SSO Unified Response Guidance Plan, Agency's SSMP
- Agency's OERP
- MA Agreement

Recommendations:

1. Replace outdated SSOURGP with recently created OERP.
2. Add missing traffic and crowd control sections and approve the OERP.
3. Update MA Agreement.
4. Create a WQMP.
5. Finish PSERPs and SOPs.

7. Audit of FOG (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 the following:

(a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;
(b) A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;
(c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;
(d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, best management practices (BMP) requirements, record keeping, and reporting requirements;
(e) Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;
(f) An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section; and
(g) Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified in (f) above.

Sufficiency: Well Above Average (A)

Findings:

1. Agency owns and operates the Regional Sewerage and Non-Reclaimable Wastewater Systems. These collection and conveyance systems are large diameter pipelines that collect all wastewater flows originating from the member agencies' sewer systems. As each member agency has a well-developed FOG program that is tailored specifically to address their cities' needs, including permitting and inspection of commercial and industrial dischargers as well as enforcement, public education and outreach programs, the Agency has determined that a formalized FOG Control Program is not needed. The Agency's Pre-treatment / Source Control (PT/SC) also conduct routine, "unannounced" inspections on NRW dischargers. Additionally, the Agency has an Ordinance in place prohibiting excessive FOG discharges and has a cleaning and maintenance schedule for areas prone to FOG build-up such as siphons and pipeline sections prone to sediment buildup or low scouring velocity.

2. There is only one related FOG spill which was over 10 years ago (December 7, 2007), which supports the Agency's evaluation of not needing a FOG program (refer to Table 13 and Graph 2 in Element 9).

References:

- IEBL Ordinance No. 96
- Regional Ordinance No. 97
- NRWS and Etiwanda Water Line (EWL) Ordinance No. 99

Recommendation:

1. Continue cleaning/inspection program and re-evaluate FOG Control Program each audit cycle.

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

Review the SSMP to determine if it complies with the Order by:

(a) Evaluation: Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events;

(b) Design Criteria: Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria; and

(c) Capacity Enhancement Measures: The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.

(d) Schedule: The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement plan developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D. 14.

Sufficiency: Average (C)

Findings:

1. Two major studies were completed to address the sewer systems' hydraulic capacities and the condition assessments which were the June 2015 Wastewater Facilities Master Plan (WFMP) and the March 2006 PBS&J report. The WFMP only evaluated the hydraulic capacity for the RSS. No further capacity study is required at this time for that system; however, a condition assessment should be considered for this system. The PBS&J report is nearly 13 years old and a capacity and condition assessment should be considered for the BSS.
2. Agency's Engineering department operates H2O Sewer®, a hydraulic computer model from MWH, which 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, as needed, to reflect changes in the collections system and is GIS-based for up-to-date mapping capability and color-coded results presentation. Both the RSS and the BSS have sufficient capacity per the model.
3. 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. These capacity improvement projects also help address and prevent SSOs. Graph 1 and 2 in Element 9 summarize the SSOs that have occurred historically and their cause.
4. Engineering also operates Primavera® (in conjunction with MS Excel® and SAP®) for tracking its projects and financial costs and the distribution of those costs across the duration of the project. Financial expenditures are categorized with priority (high, medium,

and low) and area of improvements. Table 17 in Element 9 summarizes the repair projects undertaken during this audit period.

5. No discussion of pump stations or force main capacity evaluations.

References:

- 2006 PBS&J Report
- 2015 WFMP

Recommendations:

1. Consider conducting new condition assessments on both the RSS and the BSS; and a capacity analysis for the BSS system.
2. Recommend creating a full SSMP for all pipelines, pump stations, and force mains once the condition assessments are completed.
3. Formalize and carry out a plan to Collection and Engineering to review GIS data for O&M and structural defects, adjusting short- and long-term CIP plans accordingly.

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

Review the SSMP to determine if it complies with the Order by:

- *(a) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;*
- *(b) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;*
- *(c) Assess the success of the preventive maintenance program;*
- *(d) Update program elements, as appropriate, based on monitoring or performance evaluations; and*
- *(e) Identify and illustrate SSO trends, including frequency, location, and volume.*

Sufficiency: Above Average (B)

Findings:

Analysis was performed using CIWQS data up to March 1, 2019. Some of the evaluations looked at all historical data (since May 1,2006), others focused on the last five years (since the last SSMP certification), and others used as much available Agency data as possible (refer to tables, graphs, and figure below).

Table 12 below summarizes the general MMPM findings, over the last five years, and lists the associated tables, figure, and/or graphs.

Finding	**Table / Figure / Graph**
Fewer SSOs	Table 13 / Graph 1
No Repeat Spill Locations	Figure 1
Lower Spill Rate Indices and Net Volume Spills Indices than State and Region	Table 14
Construction and Debris Only Two Spill Causes	Graph 2
Improved in PM Siphon/Hotspot Completion Rate	Graph 3
Improved Inspection and Cleaning Production	Graph 4 / Table 15
Increased Training and Certification	Table 16

Table 12: MMPM Findings Summary

Agency Historical SSOs

Table 13 below lists all Agency's historical SSOs recorded in CIWQS.

No.	Date	Location / City	Volume (gal)	Cat	Cause	Description
1	5/1/2006	Sierra & Slover Ave, Fontana	28,600	2	Construction	Utility conduit bored into sewer line.
2	3/6/2007	Grove Ave & Eighth St, Rancho Cucamonga	75	2	Human	IEUA contractor reported that a rock fell onto the pipe during a cave-in of an excavated construction area.
3	5/2/2007	Philadelphia St & Carlos Ave, Ontario	1,500	1	Human	CSDLAC worker dropped glass sample bottle into monitoring manhole, plugging the line.
4	9/9/2007	Philadelphia St btwn RP-1 Access Rd & Vineyard Ontario	10,000	1	Struvite	Blockage in 90° bend
5	11/7/2007	Chino Hills Pkwy & Monte Vista Ave, Chino Hills	47,869	1	FOG	Siphon blockage w/ grease & grit
6	12/11/2007	Prado Park Interceptor - MH No. 2, Chino	500	2	Roots	Root Intrusion
7	6/6/2009	Philadelphia Street & Town Square, Chino	2,000	1	Debris	The pumps at the Montclair Lift Station were working on a reduced pumping capacity as a result of excess debris/rags.
8	7/15/2009	8th Street between Buffalo & Milliken Ave, Rancho Cucamonga	2,500	1	Other / Equipment	The overflow event has been attributed to a failed gasket in the manhole lid caused by high pressure in the line.
9	7/25/2011	San Bernardino Sewage Lift Station, Fontana	6,000	1	Other / Equipment	Pump station failure
10	4/3/2012	San Bernardino Sewage Lift Station, Fontana	80,646	1	Other / Equipment	Equipment failure occurred on the primary and backup communication processors.
11	5/8/2012	Jurupa & Buena Vista Fontana	6	2	Other	Union Pacific Railroad Discharge
12	7/21/2013	Philadelphia St. East of Vineyard, Ontario	3	3	Other / Foaming	Foaming in the RP-1 Centrate discharge line at the gravity connection manhole.
13	8/31/2013	Philadelphia St East of Vineyard, Ontario	19	3	Other / Foaming	Centrifuge dewatering activity during normal operation had produced excess foam that surcharged from the NRW sewer line manhole on Philadelphia St.
14	3/18/2015	Live Oak Ave South of Woodland Dr (34.046 N, -117.481 W) Fontana	10,000	2	Construction	While driving 42 inch steel casing, the exisiting 21 inch gravity sewer line was compromised. It was determined that the elevation of the 21 inch sewer line was approximtely 1.5 feet lower than anticipated.
15	5/6/2015	Etiwanda Ave North of Santa Ana Ave (34.057 N, -117.524 W) Ontario	823	3	Debris	Debris in Gravity Mainline
16	8/1/2016	Francis St & Miliken Ave, Ontario	3,000	2	Debris	Debris found in IEUA's system immediately downstream of the connection point with the City of Ontario's system.
17	2/15/2018	Bon View Avenue & Francis Street, Ontario	139,500	2	Construction	City of Ontario contractor's excavating equipment hit a Non-Reclaimable Waste System pipeline.

Table 13: Agency SSOs in CIWQS (up to 3/1/2019)

The Agency has had 17 spills (since started recording in CIWQS 2006), 11 in the last 10 years, four in the last five years, and one in the last two years. In the last five years, we have had zero Category 1 (no spill reaching surface waters), three Category 2, and one Category 3 spills.

SSOs by Location

Historical spills are shown in Figure 1 below.

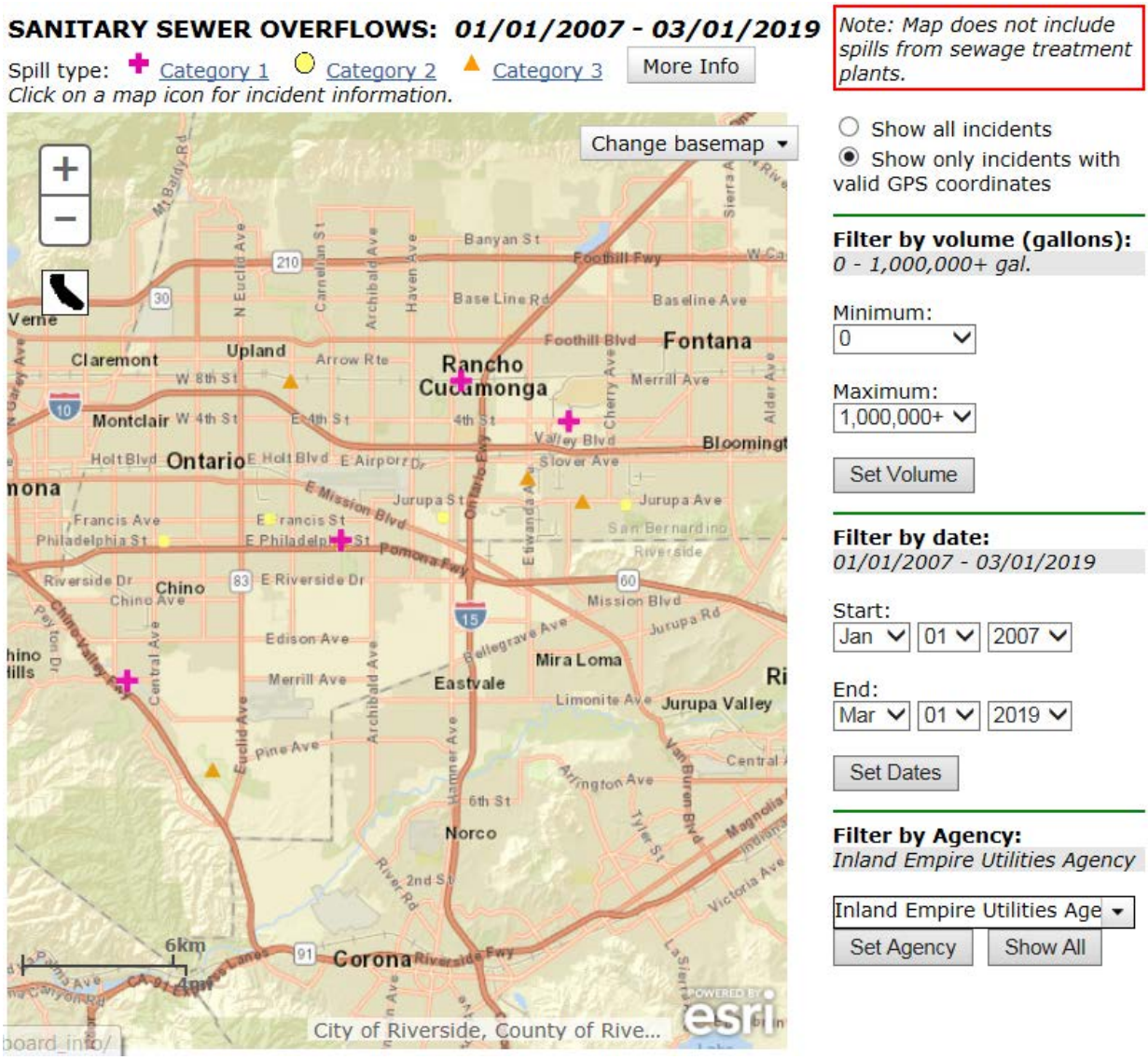
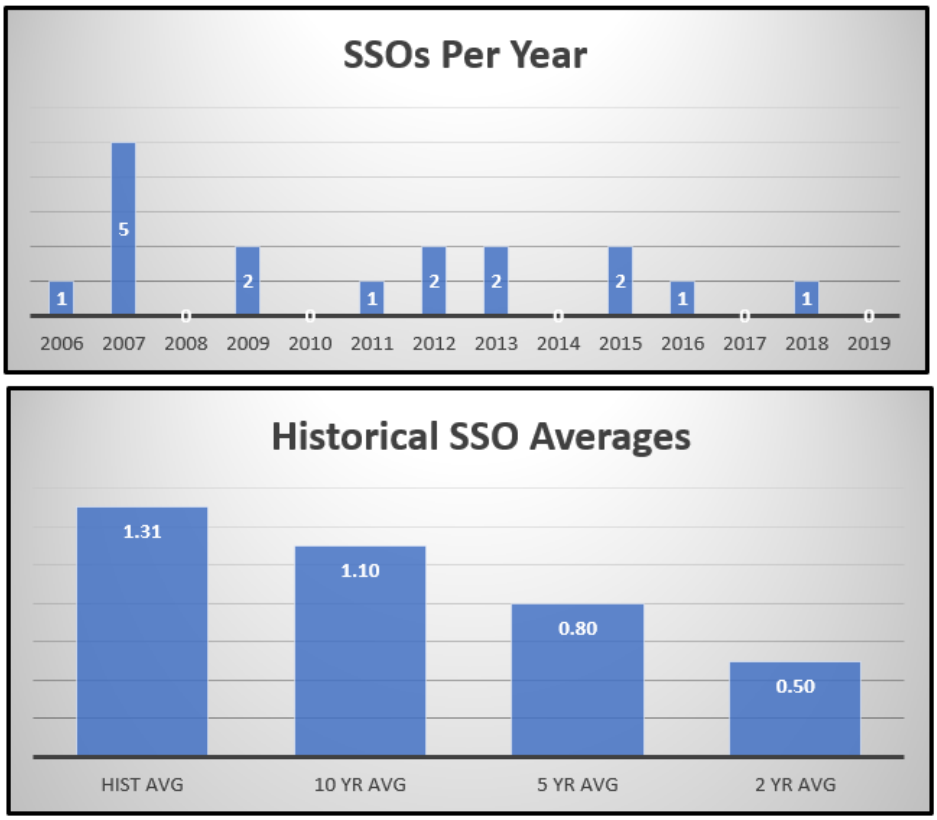


Figure 1: SSOs by Location (up to 3/1/2019)

Figure 1 data is from CIWQS, which does not give the option to look earlier than 2007; therefore, the Agency's 5/1/2006 spill is missing from the map; however, it is in the CIWQS database. Additionally, two spill locations (refer to Table 13 above), at San Bernardino List Station (#9 & #10) and outside the Regional Water Recycling Plant No. 1 (RP-1) (#12 & #13) had two spills each. Corrective actions were taken at both locations after their respective spills. The San Bernardino Lift Station had its SCADA communication system upgraded to mitigate future communications problems; and, Operations at RP-1 changed their process to minimize foaming, which was the cause of both of its spills. Neither location have had an SSO in over five years.

SSOs Per Year

Year	#/yr
2006	1
2007	5
2008	0
2009	2
2010	0
2011	1
2012	2
2013	2
2014	0
2015	2
2016	1
2017	0
2018	1
2019	0
Hist Total	17
10 yr Total	11
5 yr Total	4
2 yr Total	1
Hist Avg	1.31
10 yr Avg	1.10
5 yr Avg	0.80
2 yr Avg	0.50



Graph 1: Historical SSO Yearly Averages (up to 3/1/2019)

Graph 1 above shows the average SSOs per year have trended downward. The last five and two years have had an average of 0.80 and 0.50 spills per year respectively.

SSO Rate & Volume

Spill rate indices and net volume spilled (i.e. not recovered) data was taken from CIWQS and is shown in Table 14 below.

Collection System Spill Summary

Operational Indices: Inland Empire Utilities Agency CS

Spill Rate Indice (spills/100mi/yr)									
	Category 1			Category 2			Category 3		
	Mainlines	Laterals	Not Specified	Mainlines	Laterals	Not Specified	Mainlines	Laterals	Not Specified
Inland Empire Utilities Agency CS	0.0	N/A	0.0	0.35	N/A	0.0	0.12	N/A	0.0
State Municipal (Public) Average	2.28	N/A	0.9	0.99	N/A	0.77	4.1	N/A	0.89
Region Municipal Average	0.51	N/A	0.16	0.41	N/A	0.64	0.65	N/A	0.36

Net Volume Spills Indice (gallons/1000 Capita/yr)									
	Category 1			Category 2			Category 3		
	Mainlines	Laterals	Not Specified	Mainlines	Laterals	Not Specified	Mainlines	Laterals	Not Specified
Inland Empire Utilities Agency CS	0.0	N/A	0.0	0.0	N/A	0.0	0.0	N/A	0.0
State Municipal (Public) Average	1727.96	N/A	26997.85	402.03	N/A	691.28	30.02	N/A	28.84
Region Municipal Average	433.05	N/A	20.89	104.8	N/A	4.91	0.69	N/A	0.46

Table 14: Five Year Spill Rate & Net Volume Spilled Indices Comparison (3/1/2014 to 3/1/2019)

Table 14 above shows that the Agency's SSO spill rate and net volume spilled indices are below both the state and region municipal average in all categories.

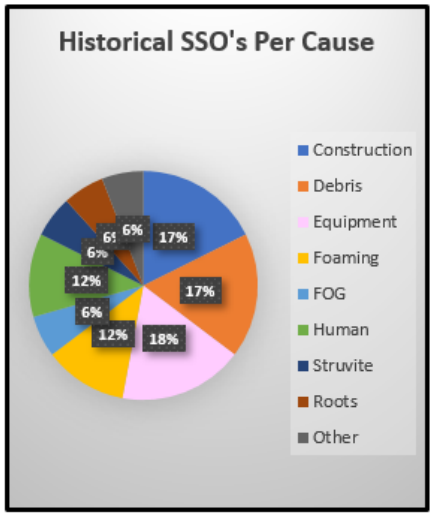
SSOs Per Cause

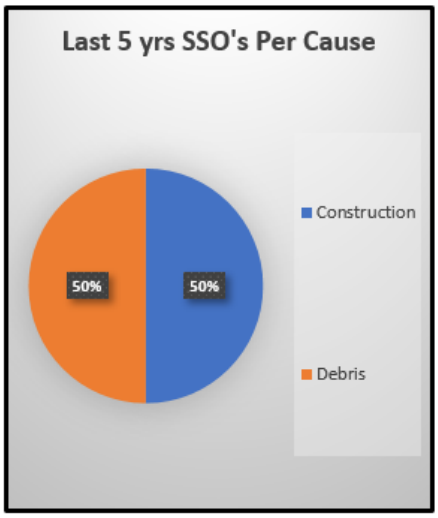
Historical

Cause	#
Construction	3
Debris	3
Equipment	3
Foaming	2
FOG	1
Human	2
Struvite	1
Roots	1
Other	1
Total	17

Last 5 years

Cause	#
Construction	2
Debris	2
Total	4



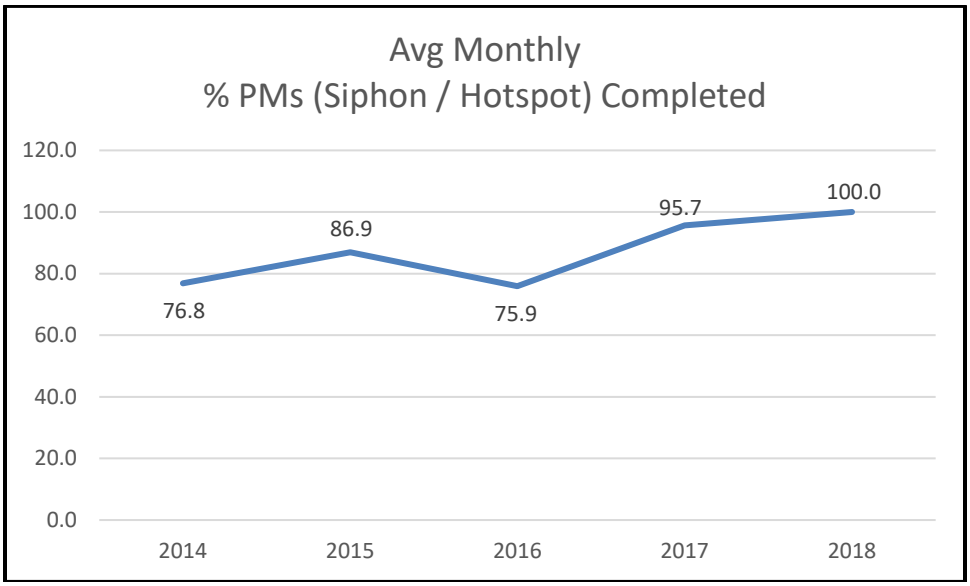


Graph 2: SSOs per cause (historical and last 5 years)

Graph 2 above shows that although various causes historically have resulted in SSOs, the last five years (four SSOs) were evenly split between construction and debris. FOG has not been an issue in over 11 years.

Siphon/Hotspot Completion Rate

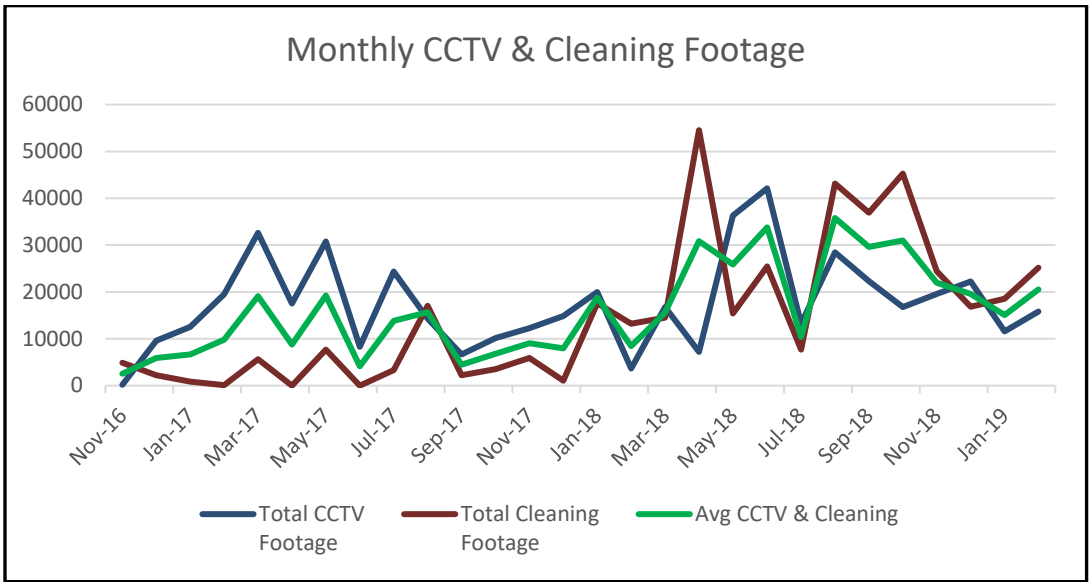
Graph 3 below shows the average monthly siphon / hotspot completion rate.



Graph 3: Average Monthly PM Completion Rate

As shown above, preventive maintenance (PM) completion rate has improved the last three years, and 100% siphon/hotspot completion was realized in 2018. Calendar year 2019 is also tracking at 100% as of 3/1/2019.

Inspection & Cleaning Production



Graph 4: Monthly Inspection and Cleaning Footage (all available information up to 3/1/2019)

Graph 4 above shows that over the last two years, the average monthly inspection and cleaning footage has gone up. Table 15 below shows that the combined inspection and cleaning monthly average footage has increased over two hundred percent from 2017 to 2018.

	Combined Inspection & Cleaning Monthly Average Footage
2017	10,461
2018	23,480
	224%

Table 15: Combined Footage

This improvement is mainly attributed to four main changes in the collection's division:

1. Increase in manpower - 40%
2. Contracted traffic control - 30%
3. Team expertise through certifications and training
4. Improved planning and scheduling efficiency (new Lead, Supervisor, and Deputy Manager leadership)

Training

CWEA Collection System Maintenance (CSM) certifications have increased in the last two years. There are 10, as of 2018, total eligible employees for certification (O&M Manager, Deputy Manager of Maintenance (DMM), Supervisor, and seven field staff). Four more personnel have attained a CSM IV certification, and one CSM I, II, and III each have been earned since 2017 (refer to Table 16 below).

Certification	2017	2018
CSM I	1	2
CSM II	5	2
CSM III	0	1
CSM IV	1	5

Table 16: Attained CWEA CSM Certifications

In addition to completing all required safety training, the following training was conducted since the last audit:

- SSMP Audit Training
- National Association of Sewer Service Companies (NASSCO) pipeline, manhole, and lateral assessment certification program (PACP, LACP, and MACP) training
- OERP
- Calculating Spill Volumes
- SSO Drills

Repairs

Table 17 below lists the system projects and costs.

Project	Title	Construction Start Date	Project End Date	Cost to Date	Original Budget	No. of Manholes	Description
EN07011.00	NRW System Upgrades.	Jun 2006	Jun 2007	$1,051.20	$1,853.22		
EN07011.02	Regional & NRW Collection System Repairs	Sep 2007	Oct. 2009	$781,713	&780,930.53	13	Access manholes on the pressurized NRW Lines in Philadelphia St. and Bon View Ave.
EN07011.03	West Edison NRW Repairs (EN07813)	Oct 2008	Jul 2008	$1,279,062.31	$1,305,601.08	43	Repair of pressure manholes of the West Edison Pipeline between locations Pine and Santa Fe and N. Council Ave & 5th St
EN07011.05	NRW Asset Management Phase II	Oct. 2009	Oct. 2010	$610,770	$619,896.17	5	Manhole rehabs
EN07011.07	NRW Asset Management Phase II	Sep 2009	Aug 2010	$371,687	$373,218.82	18	Manhole rehabs
EN11034.00	NRW Collection System Repair Phase III	Oct 2013	Mar 2014	$677,788	$800,000	6	Includes buried manholes, rehab and demo
EN14037.00	Sewer Collection System Manhole Rehab	Aug 2014	Apr 2015	$372,265	$1,477,000	40	Cities of Ontario and Fontana

EN15037.00	NRW Manhole Upgrades	Oct. 2014	Dec. 2014	$38,318	$37,100	2	City of Ontario
EN15038.00	Project Folder does not exist	Oct. 2014	Dec. 2014	$64,520	$63,000	6	Cities of Ontario, Rancho Cucamonga
EN15045.00	Collection System Manhole Upgrades FY15-16	Sep 2016	June 2016	$598,497	$620,000	44	Located in cities on Ontario, Chino, Chino Hills, Fontana. Replace with cast Iron/ GMI
EN15046.00	Collection System Manhole Upgrades FY15-16	Sep 2015	Jun 2016	$363,762	$436,086	22	Includes rehab of interior of 1 MH in city of Ontario
EN17014.00	NRW Manhole Upgrades FY16-17	Nov. 2016	Aug 2017	$198,130	$350,000	11	
EN17015.00	Collection System Upgrades FY 16-17	Apr. 2017	Jan 2018	$323,192	$500,000	38	
EN18014.00	NRWS Manhole Updates 17/18 Phase II	Aug. 2017	Sep. 2017	$102,491	$200,000		
EN18014.01	NRWS Manholes Upgrades 17-18 Phase II	Sep 2018	Feb 2019	$353,162.49	$17,939.98	9	Remove, dispose and replace 9 manhole covers within the SBC Flood Control
EN18015.00	Collection System Upgrades FY 18/19	Sep 2018	Jan 2019	$121,430	$500,000	79	Located in Chino and Ontario
EN18057.00	NRW Manhole Cover Removal	Nov 2018	In Progress	$8,353	$170,000		
EN19014.00	NRWS Manholes Upgrades	Aug 2019	In Progress	$582	$200,000	39	Design bid
EN19015.00	Collection System Upgrades	Feb. 2019	In Progress	$58,409	$500,000	79	Manholes pre-purchased. Located in Chino and Ontario
				$4,691,907	$5,853,186	446	

Table 17: System Repairs

References:

- GIS Data
- Archived SSO Data
- CIWQS Database

Recommendations:

1. Continue monitoring and evaluate annually.
2. Brief Management annually and the Board of Directors after each audit.

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

As part of the SSMP, the Agency shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and Agency's compliance with the SSMP requirements identified in this subsection (D.13), including identification of any deficiencies in the SSMP and steps to correct them.

Sufficiency: Well Above Average (A)

Findings: Table 18 below show the SSMP audit history.

Date	Note
May 2, 2009	Initial Plan
May 2, 2011	Biennial Audit
May 2, 2013	Biennial Audit
May 2, 2015	Biennial Audit
May 2, 2017	Biennial Audit
May 2, 2019	Next Required Audit

Table 18: IEUA SSMP Audit History

As shown in Table 18 above, the Agency has complied with the audit requirements. Neither the size of the system nor the number of SSOs, as determined by the overall lowering SSOs yearly average (refer to Element 9 – Graph 1 and Table 14), dictated more frequent internal audits. The original Board adoption date was April 15, 2009; but, the initial plan was set in place on May 2, 2009, which is used as the anniversary date for the biannual audits. However, the SSMP recertification date has been kept as mid-April to match the Board convening dates.

The last audit, May 2, 2017, can be found on the Agency's website (www.ieua.org). All required historical audits (last five years) are maintained on the Agency's server.

Refer to entire audit for evaluation of SSMP effectiveness, compliance, deficiencies, and corrective actions.

The only recommendation from the 2017 Audit was in Element 11 (Communication Program), which stated, "It is recommended after each audit that, Agency staff develop an implementation plan to address any deficiencies identified during the audit. Progress can then be acknowledged with the next audit or certification." This has been developed and will be placed and tracked in an appendix in the 2019 SSMP.

References:

- Current and previous audits

Recommendations:

1. Update Appendix B: Audit History for May 2, 2019 as completed and post audit on the Agency's website once certified by the LRO and presented to the Board of Directors.

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

The Agency shall communicate, on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the Agency as the program is developed and implemented.

The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.

Sufficiency: Average (C)

Findings:

1. The SSMP and the latest audits are posted to the Agency's website for public viewing. In addition, the Agency periodically communicates with its MA partners and Pre-Treatment Managers via quarterly meetings.
2. Emergency sewer related information is difficult to find on the website.
3. A SSMP change log is not utilized.
4. No discussion of regular communications with the Board of Directors on the development, implementation, and performance of the SSMP.
5. Previous audit was not presented to the Board of Directors as an agenda item.

References:

- SSMP
- Agency Web Page

Recommendations:

1. Make the website easier to navigate for emergency sewer related information.
2. Create a SSMP change log and regularly update.
3. Public communication could be improved by publishing SSMP Audit/Revision changes and updates using Agency supported social media (ex. Facebook) as well as its website. Pipeline and manhole cleaning, inspection, and repairs could also be communicated.
4. Present periodic collection system performance results to management and the Board of Directors.
5. It is recommended after each audit that, Agency staff develop an implementation plan to address any deficiencies identified during the audit. Progress could also be planned and tracked via an after-action log.
6. Consider publishing community outreach events that focus on educating the public.

* * *

12. Audit of the SSMP Appendices

Sufficiency: N/A

Findings: The main SSMP document is currently 54 pages in length. The appendices add almost 600 pages, resulting in a 647-page document.

References:

- SSMP

Recommendations: Overall, recommend removing unnecessary appendices to shorten the overall plan to encourage hard-copy plans to be kept, maintained, and utilized in the field.

Specifically consider removing the following:

1. Appendix 1 – SWRCB Orders
2. Appendix 2 – Emergency Contact List (add to Element 2)
3. Appendix 3 – Ordinances (ensure available on website)
4. Appendix 4 – Place projects, training, and parts inventory into respective SSMP Element 4.
5. Appendix 5 – Remove and ensure available on website as necessary.
6. Appendix 6 – Remove SSOURGP and replace with OERP. Update MA Agreement and make available on website. Remove Collections Chain of Command chart and SSO event reporting. Add to Element 2.
7. Appendix 7 – Remove placeholder as this appendix does not exist.
8. Appendix 8 – Remove service maps and place in required SSMP Element. Make available on website as necessary.
9. Appendix 9 – Remove placeholder as this appendix does not exist.
10. Appendix 10 – Remove placeholder as this appendix does not exist.
11. Appendix 11 – Remove placeholder as this appendix does not exist.

Additional recommendation is to re-evaluate and implement an entirely new set of appendices.

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