



# **Sewer System Management Plan**

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2018-2019

*City of*  
**SACRAMENTO**  

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**Department of Utilities**

**CITY OF SACRAMENTO**  
**SEWER SYSTEM MANAGEMENT PLAN**

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## I. LIST OF ABBREVIATIONS/ACRONYMS

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|            |   |
|------------|---|
| ADWF       | Average Dry Weather Flow  |
| BWF        | Base Wastewater Flow  |
| City       | City of Sacramento  |
| CCTV       | Closed-Circuit Television   |
| CIP        | Capital Improvement Program   |
| CIWQS      | California Integrated Water Quality System  |
| CMMS       | Computerized Maintenance Management System  |
| CSS        | Combined Sewer System   |
| CWEA       | California Water Environment Association  |
| CY         | Calendar Year   |
| DOU        | Department of Utilities   |
| DS         | Data Submitter  |
| ESD        | Equivalent Single-Family Dwelling Unit  |
| FOG        | Fats, Oils, and Grease  |
| FOIS       | Facilities Operations Information System  |
| FSE        | Food Service Establishments   |
| FY         | Fiscal Year   |
| GIS        | Geographic Information System   |
| GWI        | Ground Water Infiltration   |
| I/I        | Inflow and Infiltration   |
| LRO        | Legally Responsible Official  |
| MRP        | Monitoring and Reporting Program  |
| O&M        | Operations and Maintenance  |
| OES        | Office of Emergency Services  |
| PDWF       | Peak Dry Weather Flow   |
| PF         | Peaking Factor  |
| PWWF       | Peak Wet Weather Flow   |
| QA/QC      | Quality Assurance/Quality Control   |
| RDI/I      | Rainfall-Dependent Inflow and Infiltration  |
| SASD       | Sacramento Area Sewer District  |
| SCADA      | Supervisory Control and Data Acquisition  |
| SOP        | Standard Operating Procedure  |
| SRCS       | Sacramento Regional County Sanitation District (Regional San)   |
| SRWTP      | Sacramento Regional Wastewater Treatment Plant  |
| SSO        | Sanitary Sewer Overflow is defined as any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from the separated sewer system including the following: <ul style="list-style-type: none"><li>• Overflows that reach waters of the United States</li><li>• Overflows that do not reach waters of the United States</li><li>• Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of the sewer system</li></ul> |
| SSMP       | Sewer System Management Plan  |
| State WDRs | Statewide General Waste Discharge Requirements for Order No. 2006-0003-DWQ adopted May 2, 2006, also known as WDR   |
| SWRCB      | California State Water Resources Control Board  |
| WDID       | Waste Discharge Identification Number   |

## II. EXECUTIVE SUMMARY

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On May 2, 2006, the California State Water Resources Control Board (SWRCB) adopted Statewide General Waste Discharge Requirements (State WDRs) Order No. 2006-0003 for all publicly owned sanitary sewer collection systems. The intent of the State WDRs is to uniformly collect information on the causes and sources of sanitary sewer overflows (SSOs) to determine the full impact on public health and the environment and to provide a primary regulatory mechanism for sanitary sewer systems statewide to prevent SSOs. An SSO occurs when sewage backs up onto a public right of way and/or private property because sewer lines are blocked, clogged, or otherwise obstructed (refer to Section I List of Abbreviations/Acronyms for a more specific definition). The State WDRs require publicly owned collection systems to prevent SSOs, comply with reporting requirements, and implement a Sewer System Management Plan (SSMP). The Monitoring and Reporting Program (MRP) requirements of the State WDRs were amended in February 2008 and in September 2013. The MRP amendments include specified SSO notification, reporting, and record keeping requirements, and address compliance and enforceability of the MRP.

The City applied for coverage under the State WDRs on November 2, 2006, for the separated sewer collection system and received the Waste Discharger Identification Number (WDID) 5SSO10905. The City separated sewer collection system is shown on Figure 1 in Section III Sewer Collection System Overview and described further in Chapter 4 of this document.

As required by the State WDRs, the City began electronic reporting of sewer overflows to the State online database in September of 2007. Section IV Contact List contains a list of Legally Responsible Officers (LRO) and data submitters (DS) who are authorized to submit the required regulatory reports and subsequently certify the accuracy of the reports.

This SSMP was prepared in compliance with the State WDRs and provides a plan and schedule to properly manage, operate, and maintain the separated sanitary sewer system with the intent of reducing and preventing SSOs. Development of the initial SSMP was approved by City Council in July 2007. City Council certified compliance of the final SSMP in April 2009 and re-certified in April 2014. Copies of the City Council resolution for SSMP development and the resolution certifying compliance of the final SSMP are included in Chapter 12 of this document. The State WDRs requires that the SSMP be updated every five years and requires re-certification by City Council when significant updates are made. The SSMP five-year update was re-certified by City Council on October 15, 2019. A copy of the City Council resolution certifying compliance of the updated SSMP is also included in Chapter 12 of this document.

### About This Document

This SSMP provides a general description of how the City complies with the various provisions of the State WDRs and provides references to supporting documents. Some support materials—such as large format drawings, relational databases, and

voluminous documents—may not be included in the SSMP. In these cases, a reference will be provided within the SSMP that indicates the type, owner, and location of these support materials.

### **III. SEWER COLLECTION SYSTEM OVERVIEW**

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Wastewater collection in the City of Sacramento is provided by both the City and the Sacramento Area Sewer District (SASD). SASD maintains approximately 35 percent of the public collection system within the City limits, primarily in the northwest and southeast sections of the City. The City Department of Utilities (DOU) maintains the remaining portion of the public collection system, which includes a combined sewer system (CSS) in the older central City area with a total service area of approximately 7,545 acres and approximately 276 miles of 4 to 120-inch diameter pipes. The separated sewer system, which is described in more detail below, is located primarily in the northeast, east and southwest sections of the City with a total service area of about 25,435 acres as depicted in Figure 1.

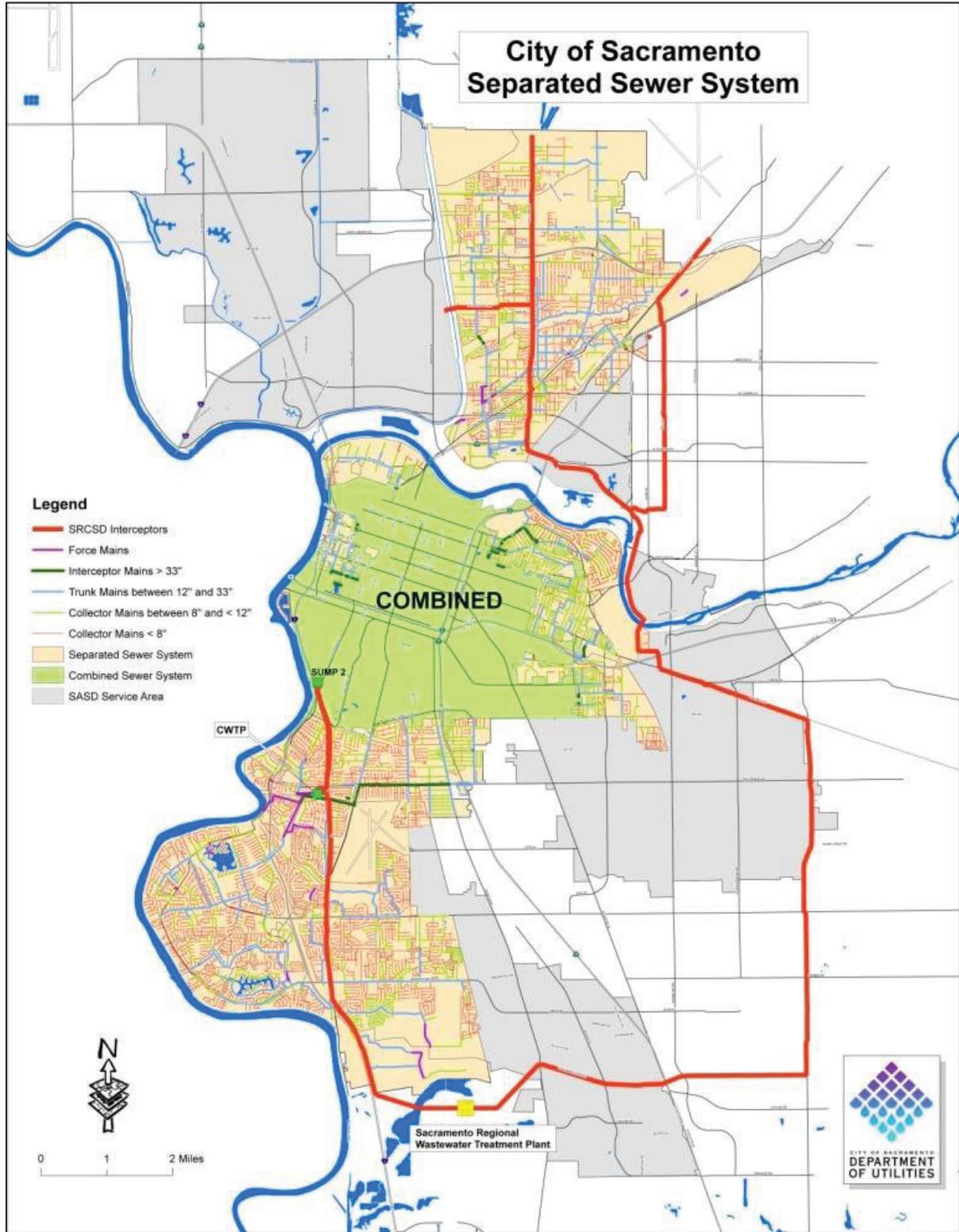
Wastewater conveyed by the City's separated sewer system (and the combined sewer system during typical operating conditions) is routed by the collection system pipes to the Sacramento Regional Wastewater Treatment Plant (SRWTP) for treatment and disposal via an interceptor system consisting of large diameter pipes and pump stations. The interceptor system and the SRWTP, located just south of the City limits, are owned and operated by independent Sacramento Regional County Sanitation District (SRCSD). A map showing the City of Sacramento and SASD service areas, and the location of SRCSD interceptor pipe within the City is presented in Figure 1.

Maintenance of DOU sewer assets in the separated sewer system is provided by two Divisions within DOU. The Wastewater and Drainage Division operates and maintains the pumping stations and the entire collection system infrastructure, which includes approximately 546 miles of gravity collection pipes, eight miles of force mains, and 14,400 manholes. The Engineering and Water Resources Division coordinates with the Wastewater and Drainage Division to design and manage all capital improvement projects related to sewer replacement and rehabilitation. Figure 1 and Tables 1 and 2 show the size category and distribution of separated gravity and force main pipes in the City service area.

Per City Code 13.08.020, when a sewer main is located in a public right-of-way or easement, City crews are required to inspect, maintain and repair only the sewer mains and associated facilities (i.e., manholes). Services or laterals are considered private from the point of connection with the main to the private property and beyond.

The separated sewer system is composed predominately of vitrified clay pipes and reinforced concrete pipes. A majority of the pipes were installed between the 1940s and the 1970s. Pipes in the older sections of the City (Basins CS351, CS352, and CS353) were constructed in the late 1800s and early 1900s and once conveyed combined wastewater. Storm drain systems were installed in the late 1950s and 1960s, effectively separating the storm drain water from the sanitary sewer in these basins. Since the 1970s, polyvinyl chloride (PVC) pipe gradually gained acceptance, and PVC pipe is now used almost exclusively as replacement pipes and in new construction.

**Figure 1 – Separated Sewer System**



**Table 1 – Separated Gravity Collection Pipe**

| <b>Pipe Diameter Size Category (inch)</b> | <b>Length (feet)</b> | <b>Length (miles)</b> | <b>Percentage of System</b> |
|---|----------------------|-----------------------|-----------------------------|
| 6 inches or less                          | 1,685,693            | 319.26                | 59                          |
| 8 inches                                  | 641,625              | 121.52                | 22                          |
| 9 – 18 inches                             | 443,097              | 83.92                 | 15                          |
| 19 – 36 inches                            | 96,571               | 18.29                 | 3                           |
| > 36 inches                               | 13,411               | 2.54                  | <1                          |
| Unknown                                   | 0                    | 0                     | 0                           |
| Total                                     | 2,880,397            | 545.53                | 100                         |

**Table 2 – Separated Force Mains**

| <b>Pipe Diameter Size Category (inch)</b> | <b>Length (feet)</b> | <b>Length (miles)</b> | <b>Percentage of Force Main (by length)</b> |
|---|----------------------|-----------------------|---|
| 6 inches or less                          | 16,632               | 3.15                  | 38  |
| 8 inches                                  | 5,174                | 0.98                  | 12  |
| 9 – 18 inches                             | 8,131                | 1.54                  | 18  |
| 19 – 36 inches                            | 13,253               | 2.51                  | 30  |
| > 36 inches                               | 739                  | 0.14                  | 2   |
| Unknown                                   | 0                    | 0.00                  | 0   |
| Total                                     | 43,932               | 8                     | 100   |

The City service area is divided into 54 separated sewer basins. Forty (40) of the sewer basins are pumped through individual pump stations. Ten (10) sewer basins gravity flow directly or indirectly into the SRCSD interceptor pipes. The remaining four (4) basins gravity flow to the adjacent combined sewer system where flows are then pumped into the SRCSD interceptor pipes. Thirty (30) of the pump stations were constructed between the 1940s and the 1970s; and ten (10) pump stations were constructed between 1985 and 2004. One (1) pump station was constructed in 2017 (Sump 86). Many of the pump stations discharge into downstream gravity sewers which, in turn, convey the wastewater to pump stations further downstream. Because of this interconnection, changes in one basin can affect the performance of the separated sewer system in downstream basins. Table 3 presents general information for pump stations within the separated sewer system.

**Table 3 – Pump Stations**

| Pump Station | # of Pumps | Est. Total Capacity (mgd) | Est. Firm Capacity w/ 1 Pump Out (mgd) | Ave. Annual Total Volume Pumped (mg) | Year Constructed/ Acquired by City | Year Rehabilitated |
|--------------|------------|---------------------------|--|--------------------------------------|------------------------------------|--------------------|
| 3            | 2          | 0.6                       | 0.3                                    | 0.33                                 | 1990                               |                    |
| 6            | 2          | 0.5                       | 0.25                                   | 1.6                                  | 1990                               |                    |
| 21           | 4          | 7.4                       | 5.6                                    | 258.8                                | 2004                               |                    |
| 29           | 2          | 6.4                       | 3.2                                    | 5.3                                  | 2000                               |                    |
| 32           | 2          | 2.9                       | 1.4                                    | 51.7                                 | 1970                               |                    |
| 36           | 2          | 0.32                      | 0.16                                   | 9.3                                  | 1959                               | 1990               |
| 40           | 2          | 1.9                       | 0.95                                   | 94                                   | 1958                               |                    |
| 42           | 2          | 1                         | 0.5                                    | 18.6                                 | 1959 (acquired)                    |                    |
| 45           | 2          | 1.7                       | 0.85                                   | 80.7                                 | 1959 (acquired)                    |                    |
| 48           | 2          | 2.6                       | 1.3                                    | 115.7                                | 1966                               |                    |
| 49           | 2          | 0.4                       | 0.2                                    | 12.6                                 | 1960                               |                    |
| 53           | 2          | 0.9                       | 0.45                                   | 27.2                                 | 1961                               |                    |
| 55           | 4          | 14.4                      | 10.8                                   | 1,308.9                              | 1963                               | 2002               |
| 57           | 2          | 0.8                       | 0.4                                    | 10.4                                 | 1963                               | 2002               |
| 79           | 2          | 0.6                       | 0.3                                    | 20                                   | 1964 (acquired)                    |                    |
| 80           | 2          | 0.6                       | 0.3                                    | 31.3                                 | 1963                               | 2000               |
| 81           | 2          | 0.5                       | 0.25                                   | 1.2                                  | 1989                               |                    |
| 84           | 2          | 0.7                       | 0.35                                   | 1.6                                  | 1965                               |                    |
| 85           | 4          | 13.2                      | 9.9                                    | 1,202.2                              | 1965                               | 1984               |
| 86           | 2          | 0.72                      | 0.48                                   | 7.3                                  | 2017                               |                    |
| 87           | 3          | 4.3                       | 2.9                                    | 501.3                                | 1961                               | 1999               |
| 88           | 2          | 2                         | 1                                      | 0                                    | 1966                               |                    |
| 107          | 3          | 7.8                       | 5.2                                    | 96.6                                 | 1992                               |                    |
| 119          | 6          | 47.9                      | 38                                     | 1,881.9                              | 1972                               | 2002               |
| 120          | 3          | 1.5                       | 1                                      | 88.8                                 | 1972                               | 1999               |
| 121          | 3          | 1.5                       | 1                                      | 62.4                                 | 1972                               | 1996               |
| 122          | 2          | 0.7                       | 0.35                                   | 6.7                                  | 1990                               | 1999               |
| 123          | 1          | 0.2                       | 0.2                                    | 0                                    | 1971                               | 2000               |
| 124          | 1          | 0.2                       | 0.2                                    | 0.24                                 | 1971                               | 2000               |
| 125          | 1          | 0.2                       | 0.2                                    | 0.39                                 | 1971                               | 2000               |
| 126          | 2          | 0.6                       | 0.3                                    | 4.5                                  | 1974                               | 2001               |
| 127          | 2          | 0.6                       | 0.3                                    | 9.2                                  | 1974                               | 2001               |
| 131          | 2          | 0.6                       | 0.3                                    | 4.3                                  | 1975                               |                    |
| 133          | 2          | 0.3                       | 0.15                                   | 4.1                                  | 1977                               | 2000               |
| 134          | 2          | 0.2                       | 0.1                                    | 14.4                                 | 1979                               | 2000               |
| 135          | 2          | 0.32                      | 0.16                                   | 35                                   | 1979                               | 2000               |
| 136          | 2          | 0.32                      | 0.16                                   | 55.6                                 | 1979                               | 2000               |
| 137          | 4          | 14.4                      | 10.8                                   | 1,258.4                              | 1979                               | 2000               |
| 143          | 2          | 0.86                      | 0.43                                   | 11.3                                 | 1985                               |                    |
| 145          | 2          | 4.6                       | 2.3                                    | 110.6                                | 1985                               |                    |
| 146          | 2          | 2.2                       | 1.1                                    | 59.3                                 | 1985                               |                    |
| <b>Total</b> |            |                           |  | <b>7,463.8</b>                       |                                    |                    |

## IV. SSMP CONTACT LIST

| Title  | Name                 | Phone    | e-mail *    | Responsibility   | SSMP Roles and Responsibilities  |
|--|----------------------|----------|-------------|--|--|
| Wastewater and Drainage Division Manager                               | Gary DeJesus         | 808-5173 | gdejesus    | Management/oversight of all wastewater and drainage operations   | O&M Program  |
| Wastewater Collection Superintendent                                   | Tim Lloyd            | 808-4022 | tlloyd      | <b>LRO</b> , maintenance, repair and operations for wastewater collection infrastructure, and SSO response   | O&M Program<br>FOG Program Reporting Program   |
| Wastewater Collection Program Analyst Planner/Scheduler                | Amy Farmer           | 808-6944 | aefarmer    | Oversees the scheduling of wastewater maintenance, managing the cleaning QA/QC Program, and updating the cleaning schedule. Supports SSMP regulatory compliance and underlying SSMP programs ( <b>DS</b> ) | O&M Program<br>FOG Control Program<br>Monitoring, Measurement, and Program Modifications |
| Drainage Collection Program Analyst                                    | Elizabeth McAllister | 808-6923 | emcallister | Assists as back up for scheduling of wastewater maintenance activities ( <b>DS</b> )   | O&M Program<br>FOG Control Program   |
| Wastewater Collection, FOG Maintenance and, First Responder Supervisor | Kevin Waller         | 808-6905 | kwaller     | Oversees CCTV inspections and the implementation of the Citywide Fats, Oils, and Grease Program. Manages the On-Call Process, smartcovers and first responders   | O&M Program<br>FOG Control Program   |
| Wastewater Collection Supervisor                                       | Tim Johnson          | 808-6233 | tjohnson    | Oversees maintenance operations in the North area (Area 1)   | O&M Program  |
| Wastewater Collection Supervisor                                       | Paolo Ferro          | 808-6698 | pferro      | Oversees maintenance operations in the South area (Area 3)   | O&M Program  |
| Wastewater Collection Supervisor                                       | Seth Ogden           | 808-6224 | sogden      | Oversees Citywide repairs to the wastewater collection system  | O&M Program  |

| Title  | Name                | Phone        | e-mail *   | Responsibility   | SSMP Roles and Responsibilities |
|--|---------------------|--------------|------------|--|---------------------------------|
| Wastewater Repairs<br>CSS Supervisor   | Kevin Guerra        | 808-<br>6699 | kguerra    | Oversees Citywide maintenance operations repairs to the wastewater CSS collection system (Area 2) <b>(DS)</b>                                  | O&M Program                     |
| Wastewater and<br>Drainage System<br>Maintenance<br>Supervising Plant<br>Operator    | Grant Moore         | 808-<br>1406 | gemoore    | Oversees wastewater and storm drainage pump station maintenance and operations   | O&M Program                     |
| Drainage Collection<br>Superintendent  | Doug Henry          | 808-<br>6955 | dhenry     | Maintenance and repair operations for drainage collection infrastructure, and SSO response   | O&M Program                     |
| Drainage Collection<br>Maintenance CE/D<br>SMP Supervisor                            | Mick Smith          | 808-<br>6903 | msmith2    | Oversees drainage SSO response   |                                 |
| Wastewater and<br>Drainage Operation<br>and Systems<br>Maintenance<br>Superintendent | Royce<br>Bedrosian  | 808-<br>5176 | rbedrosian | <b>LRO</b> , Plant Operations, Pumping station mechanical maintenance and generator support  | O&M Program                     |
| Business Services<br>Division Manager  | Ryan Pham           | 808-<br>4928 | rpham      | Management of Fiscal Operations and Billing including annual budget preparation, rate adjustment planning, and accounts payable and receivable | SSMP                            |
| Safety Officer   | Simone<br>Sumeshwar | 808-<br>3760 | ssumeshwar | Oversees City compliance with worker-safety regulations and assists with environmental protection during incident response                     | O&M Program                     |
| Media and<br>Communications<br>Specialist  | Lon Peterson        | 808-<br>5594 | lpeterson  | Oversees media and communications for DOU  | Communication Program           |

| <b>Title</b>   | <b>Name</b>        | <b>Phone</b> | <b>e-mail *</b> | <b>Responsibility</b>  | <b>SSMP Roles and Responsibilities</b>  |
|--|--------------------|--------------|-----------------|--|---|
| Asset Management Supervising Engineer                              | Rick Matsuo        | 808-1728     | rmatsuo         | Provides condition assessment and funding projections for replacement and rehabilitation of assets   | O&M Program (Rehabilitation and Replacement Plan), System Evaluation and Capacity Assurance   |
| Information Technology Manager                                     | Brian McKee        | 808-7907     | bmckee          | Manages all I.T. functions for DOU, including, GIS, Information management, desktop support, FOIS, and CMMS applications                           | O&M Program   |
| GIS Supervisor   | Nathan Jennings    | 808-7857     | njennings       | Supervises GIS applications and mapping of assets and maintains the Sump Book  | O&M Program (Collection System Maps and Information)  |
| Wastewater CIP Supervising Engineer                                | Tony Bertrand      | 808-1461     | abertrand       | Oversees master planning and infrastructure CIPs, supports Wastewater Operations and Maintenance Division and updates City Standard Specifications | O&M Program, Design and Performance System Evaluation and Capacity Assurance  |
| Development Review and Floodplain Management Supervising Engineer  | Neal Joyce         | 808-1912     | njoyce          | Oversees updates to the Design and Procedures Manual   | Design and Performance, System Evaluation and Capacity Assurance  |
| Electrical, Instrumentation and SCADA Water & Sewer Superintendent | Charley Cunningham | 808-5518     | ccunningham     | Oversees electrical and instrumentation operation, and maintenance for the sewer and storm-drainage pumping stations                               | O&M Program   |
| Environmental & Regulatory Compliance Supervising Engineer         | Sherill Huun       | 808-1455     | shuun           | SSMP regulatory compliance support   | WDR/SSMP, SSMP Program, Legal Authority, O&M Program, Overflow Response Plan, Monitoring, Measurement, and Program Modifications, SSMP Program Audits |

| Title   | Name           | Phone    | e-mail *  | Responsibility  | SSMP Roles and Responsibilities  |
|---|----------------|----------|-----------|---|--|
| Environmental & Regulatory Compliance Program Analyst | Jamie McKinley | 808-5693 | jmckinley | Coordinates updates to the SSMP, Emergency Response Plans, bi-annual audits, and SSMP regulatory compliance support ( <b>DS</b> ) | Communications Program<br>WDR/SSMP, SSMP Program, Legal Authority, O&M Program, Overflow Response Plan, Monitoring, Measurement, and Program Modifications, SSMP Program Audits, Communication Program |
| Public Affairs Program Analyst                        | Jessica McCabe | 808-5921 | Jmccabe   | Public outreach coordination  | FOG Program<br>Communications Program  |

\* Note: All e-mails are on the domain: @cityofsacramento.org

**LRO**- Legally Responsible Official

**DS**- Data Submitter

*Chart last updated 7/10/19*

# V. SEWER SYSTEM MANAGEMENT PLAN

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## CHAPTER 1 – GOAL

This chapter provides the goals for the Sewer System Management Plan (SSMP) and complies with section D13 (i) of the State WDRs, included in Appendix A.

### 1.1 State WDRs

Section D13 (i) of the State WDRs identifies the following goal for the SSMP:

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 sanitary sewer overflows (SSOs), as well as mitigate any SSOs that do occur within the City service area.

### 1.2 Linkage to Department-Wide Strategy

As the overall management document for the sewer collection system, the SSMP also supports the following strategic goals included in the 2018 City of Sacramento Department of Utilities (DOU) Strategic Plan:

- Build and maintain public confidence and understanding through communication, delivery of quality services, responsive customer service and compliance with environmental regulations;
- Deliver reliable service through proactively monitoring and maintaining our assets and reducing system vulnerability;
- Plan for current and future generations by protecting, preserving and enhancing water resources, the environment, and the community;
- Develop and retain a competent, collaborative and adaptable workforce in an organization that demands accountability and innovation, and ensures cost-effective operations; and
- Maintain a sustainable financial structure that responsibly invests in infrastructure, ensures full cost recovery and appropriate reserves, and optimizes financial resources.

Actions that the Wastewater and Drainage Division implement that align with the State WDR and the Department's Strategic Plan goals include:

- Conduct a training program that ensures regulatory awareness and best maintenance and repair practices;
- Implement a proactive and adaptive preventative maintenance program that ensures that the entire system is touched (cleaned, inspected, graded, scheduled, etc.) within a specified time interval;
- Implement best maintenance and repair practices that minimize the frequency of SSOs; and

- Maintain an integrated overflow emergency response plan designed to protect public health and the environment.

## CHAPTER 2 – ORGANIZATIONAL STRUCTURE

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This chapter describes the City organizational structure for developing and implementing the SSMP and the chain of communication for reporting and responding to overflows. The information presented complies with section D13 (ii) of the State WDRs, included in Appendix A.

### 2.1 State WDRs

Section D13 (ii) of the State WDRs requires the SSMP to identify the following:

- (a) The name of the responsible or authorized representative as described in Section J of the State WDRs.
- (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 using an organization chart or similar document with a narrative explanation; and
- (c) The chain of communication for reporting sanitary sewer overflows (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)).

### 2.2 Organizational Chart

DOU is responsible for construction, design, operation and maintenance of the separated sewer system shown in Figure 1 (Section III Sewer Collection System Overview).

DOU operates in four divisions: Business Services, Engineering and Water Resources, Water and Wastewater and Drainage (as shown in Figure 2.1 below). The management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program are outlined in Figure 2.1 and reflect these organizational changes.

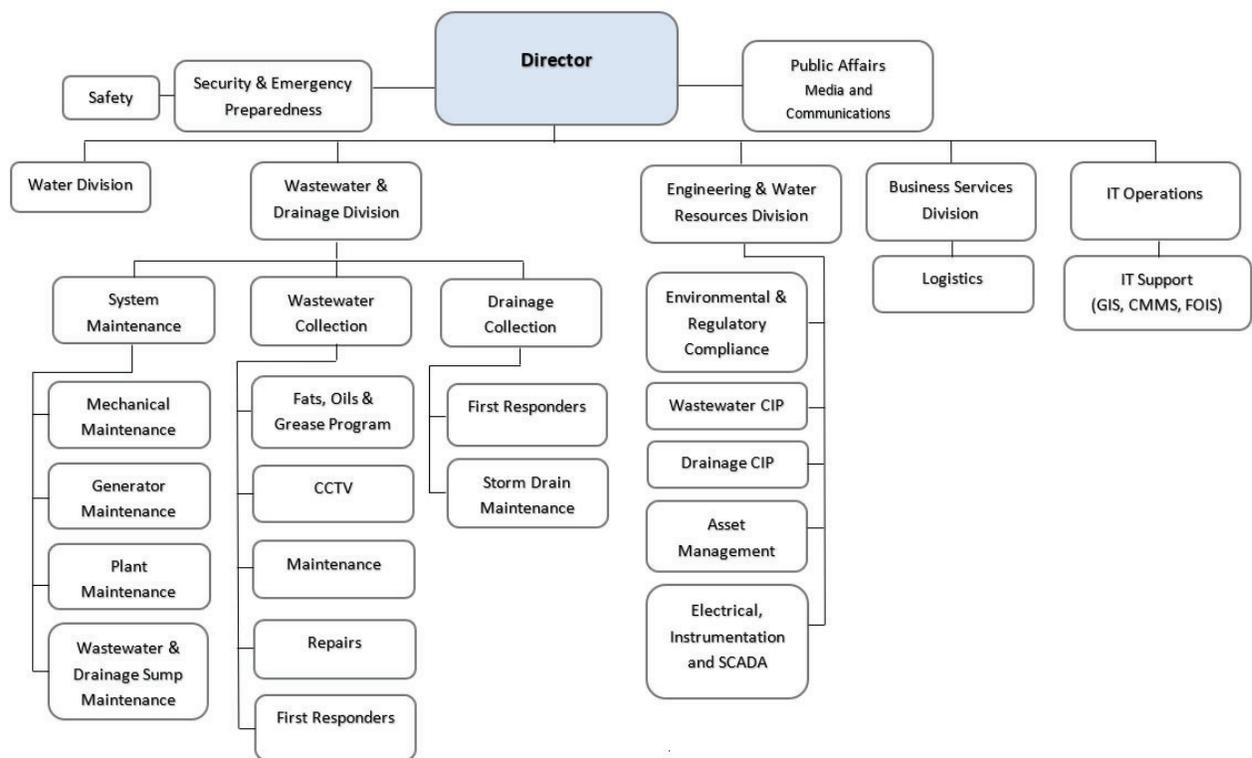
An updated list of names and phone numbers for specific staff involved with implementing the SSMP is included in Section IV SSMP Contact List.

#### Authorized Representatives

Both the Wastewater and Drainage Division Manager and the Wastewater Collection Superintendent are designated as the Legally Responsible Officials (LROs) for the City separated sewer system and are authorized to certify all electronic reports submitted to the California State Water Resources Control Board (SWRCB). The Engineering and Water Resources Division provides support in preparing and implementing SSMP

sections and is a backup data submitter (DS) for the Wastewater and Drainage staff.

**Figure 2.1 - Organization Chart for the Sewer System Management Plan**



Chain of Communication for Reporting Sewer System Overflows

The chain of communication for SSO response for each SSO category is shown in Figures 2.2, 2.3 and 2.4. The internal decision matrix used to determine State WDRs reporting requirements is shown in Figure 2.5. The general response procedure begins when the City receives notification of the SSO. When Drainage Collection assistance is required, the Wastewater Collection Supervisor coordinates with the Wastewater Superintendent and/or other Supervisors to assign the crews necessary to investigate, assess, contain and correct the reported SSO. When the SSO reports are completed, they are submitted to the SWRCB by the DSs listed in the contact list (Section IV) and then the reports are certified by an LRO. For more information on reporting sewer system overflows, refer to Section V Chapter 6 Overflow Emergency Response Plan.

To ensure consistency of the SSO data between California Integrated Water Quality System (CIWQS) and City records, the Wastewater Collection staff tracks all SSOs through an Excel spreadsheet and the Supervisor reviews the spreadsheet and ensures the same SSO data is in Cityworks (CMMS) and CIWQS.

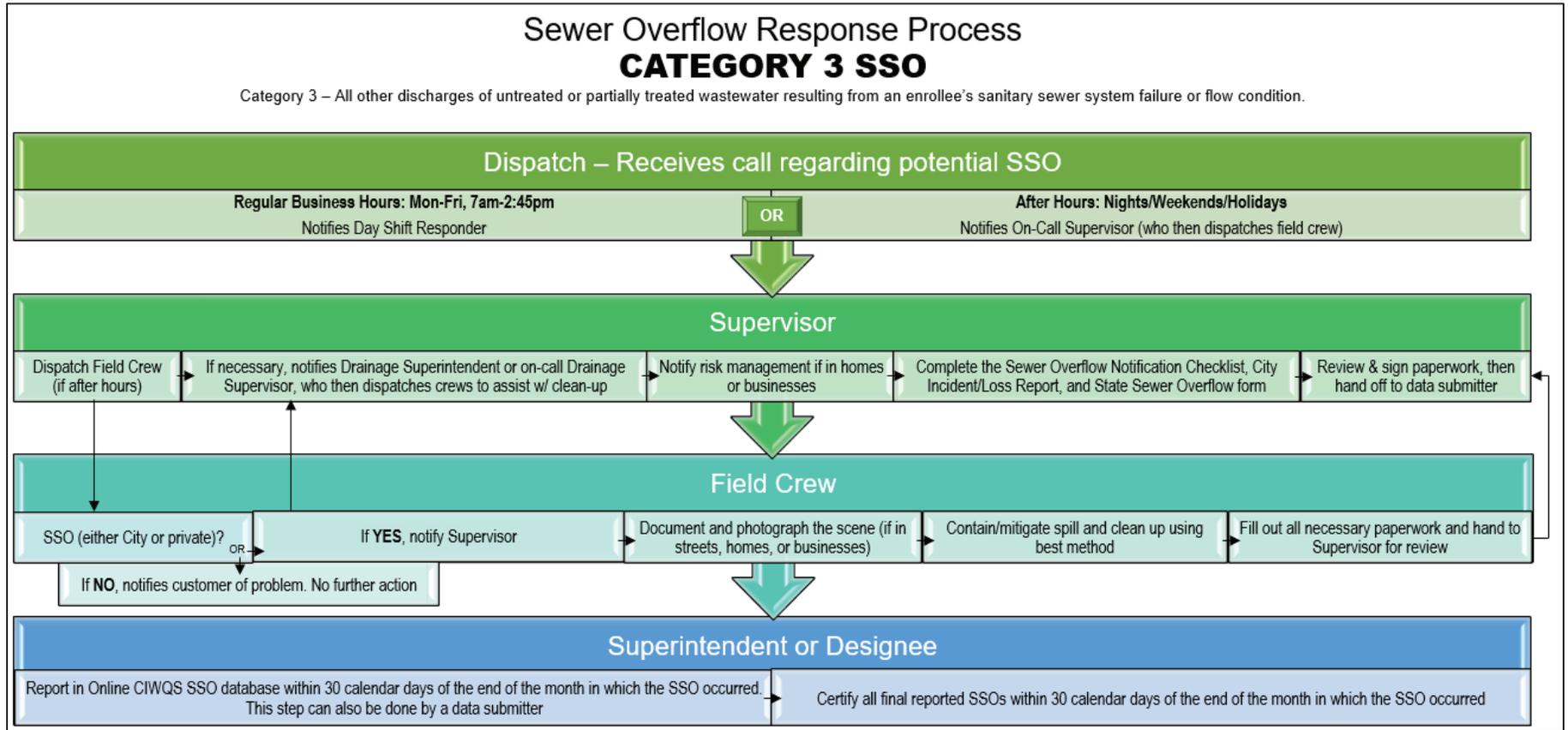
Description of Other Responsibilities

*Utilities Director* – Under the direction of the City Manager, establishes policy, plans strategy, leads staff, allocates resources, delegates responsibilities, and authorizes outside contractors to perform services.

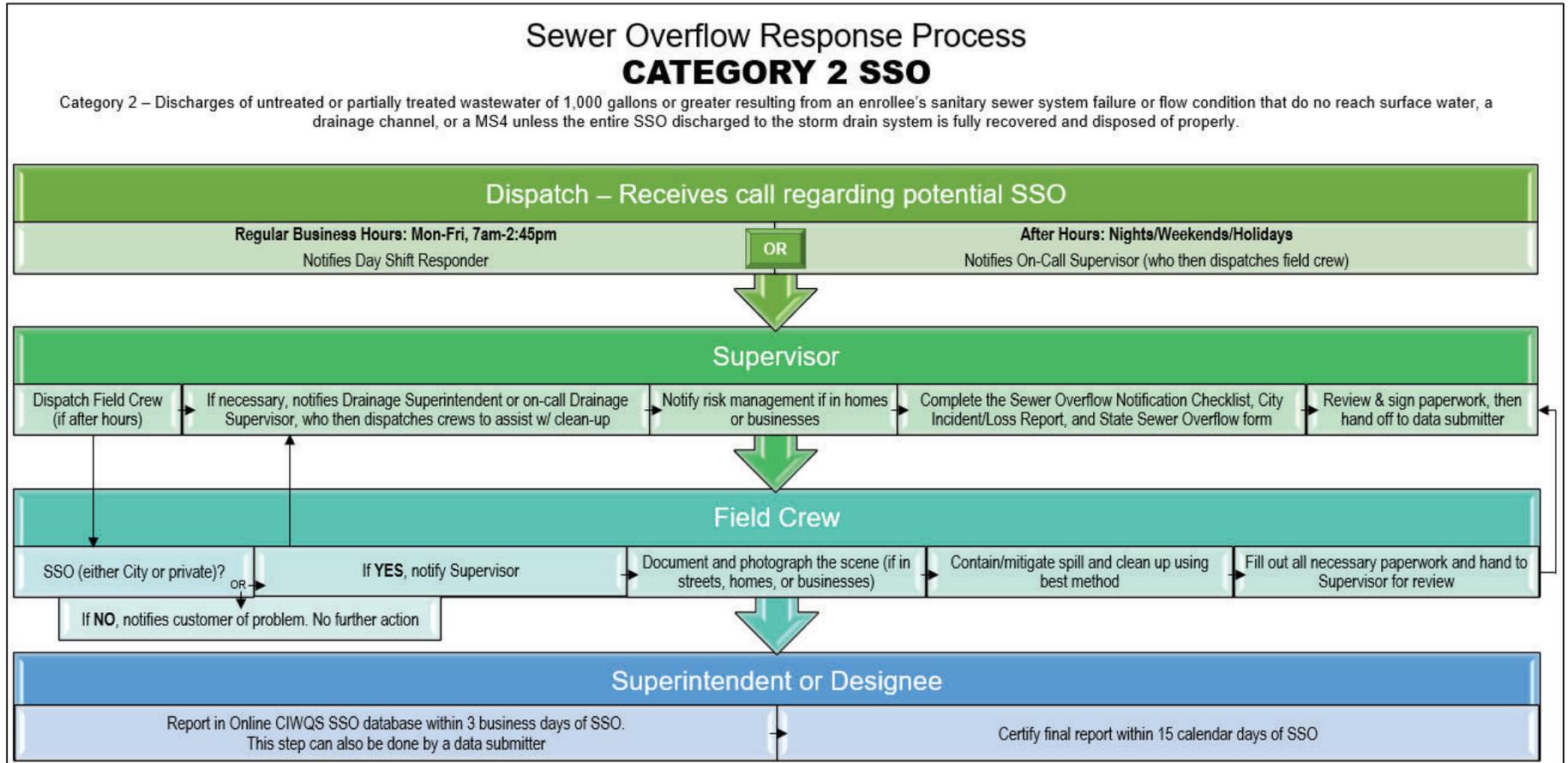
*Division Managers* – The managers for the Business Services, Engineering and Water Resources, Wastewater and Drainage, and Water Divisions direct the preparation of wastewater collection system planning documents; refine the capital improvement programs using condition assessment, master planning and maintenance history; manage the capital improvement delivery system; manage the wastewater, drainage and water maintenance programs; document new and rehabilitated assets; and coordinate development and implementation of the SSMP.

- *Engineering and Water Resources Division, Environmental and Regulatory Compliance Section* – Environmental and Regulatory Compliance section staff assist department staff in State WDR compliance, lead the SSMP updates and conduct bi-annual audits.
- *Wastewater and Drainage Division:*
  - o *Wastewater and Drainage Division Manager* – The Wastewater and Drainage Manager and Superintendent (Wastewater Collection) functions as an LRO for the City. In addition, the manager and staff oversee and conduct field operations and maintenance activities, provide relevant information to agency management, prepare and implement contingency plans, lead emergency response, investigate and report SSOs, and trains field crews.
  - o *Superintendents* – Two Wastewater and Drainage superintendents, Wastewater Collection and Drainage Collection, work collectively in the execution of the City’s SSMP.
  - o *Field Crews (Lead Workers and Service Workers)* – Field crews complete preventative maintenance activities and mobilize and respond to notification of stoppages and SSOs (mobilize sewer cleaning equipment, by-pass pumping equipment, and portable generators).

**Figure 2.2 – Sewer Overflow Response Process – Category 3 SSO**



**Figure 2.3 – Sewer Overflow Response Process – Category 2 SSO**



**Figure 2.4 – Sewer Overflow Response Process – Category 1 SSO**

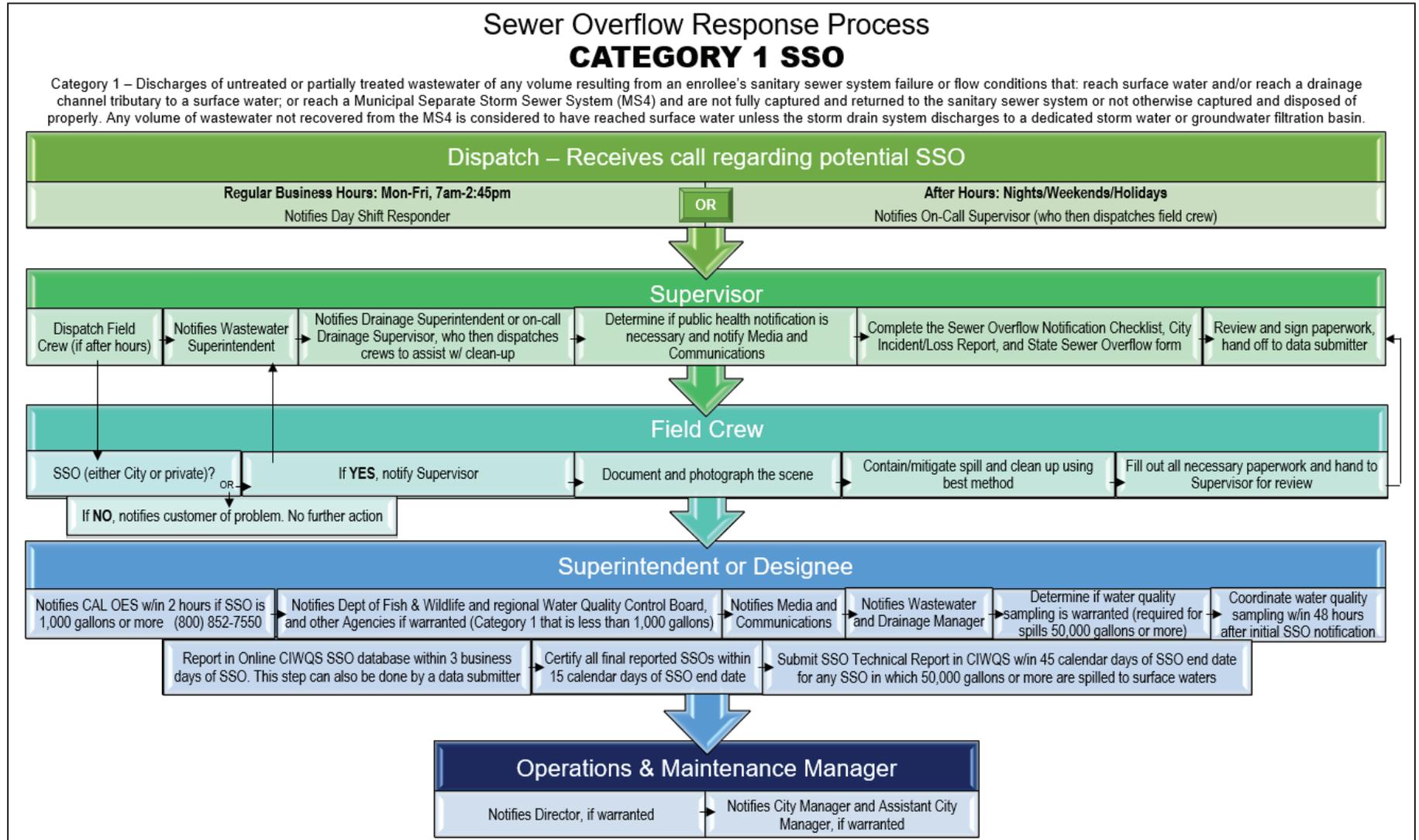
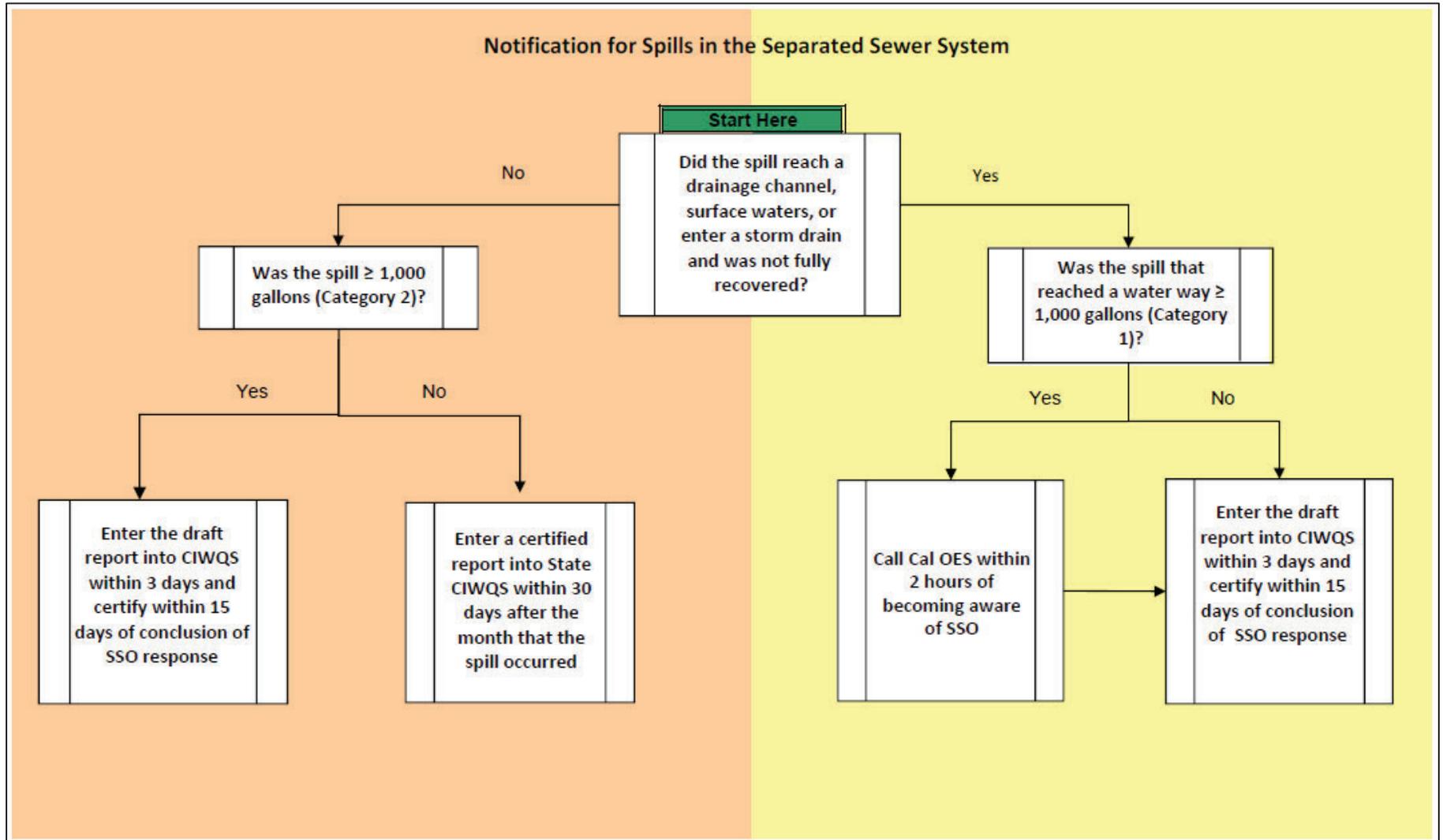


Figure 2.5 – Decision Tree for SSO State Reports



## CHAPTER 3 – LEGAL AUTHORITY

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This chapter of the SSMP discusses the City’s Legal Authority, including its Municipal Code and agreements with other agencies. The information presented complies with section D13 (iii) of the State WDRs, included in Appendix A. This section also cross references the legal authority required for portions of section D13 (vii) of the State WDRs.

### 3.1 State WDRs

For section D13 (iii) of the State WDRs, the City must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to do the following:

- (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 City;
- (d) Limit the discharge of fats, oils, and grease (FOG) and other debris that may cause blockages; and
- (e) Enforce any violation of its sewer ordinances.

In addition, for section D13 (vii) of the State WDRs, the City must demonstrate as appropriate:

- (d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the grease removal devices, maintenance requirements, requirements for best management practices, record keeping and reporting requirements; and
- (e) Authority to inspect grease producing facilities, enforcement authorities, and whether the City has sufficient staff to inspect and enforce the FOG ordinance.

### 3.2 Compliance Summary

Table 3.1 lists the City codes providing the authority required by the State WDRs as well as the authorities provided by the SRCSD Consolidated Sewer Use Ordinance for the operation of the City collection system.

**Table 3.1 - Legal Authority Summary**

| <b>State WDRs for Legal Authority</b>  |  |
|--|--|
| <b>City of Sacramento Municipal Code<sup>1</sup></b>   | <b>SRCSO Consolidated Ordinance<sup>2</sup></b>  |
| <b>D13 (iii)(a)</b> Prevent illicit discharges into the sanitary sewer system (examples may include I/I, stormwater, chemical dumping, unauthorized debris and cut roots, etc.).   |  |
| <b>13.08.040</b> Prohibited discharges<br><b>13.08.120</b> Pretreatment requirements<br><b>13.08.130</b> Prohibited cross connections<br><b>13.08.160</b> Private sewer lines—No infiltration or leaks   | <b>2.5</b> Regulations   |
| <b>D13 (iii)(b)</b> Require that sewers and connections be properly designed and constructed.  |  |
| <b>13.08.145</b> Mitigation of drainage impacts; design and procedures manual for water, sanitary sewer, storm drainage, and water quality facilities<br><b>13.08.170</b> Required connection to city sewer system<br><b>13.08.360</b> Application for installation<br><b>13.08.370</b> Approval of plans<br><b>13.08.380</b> Inspection of installation—Property of city<br><b>15.24</b> Amendments to the California Plumbing Code | <b>2.5.9</b> Pretreatment Facilities   |
| <b>D13 (iii)(c)</b> Ensure access for maintenance, inspection, or repairs for the portions of the lateral owned or maintained by the Public Agency.  |  |
| <b>13.08.240</b> Structures overlying public utilities<br><b>13.08.290</b> Inspections<br><b>13.08.310</b> Control manhole for industrial wastes   | <b>2.8.1</b> Rights of Entry   |
| <b>D13 (iii)(d)</b> Limit the discharge of fats, oils, and grease and other debris that may cause blockages.   |  |
| <b>13.08.040</b> Prohibited discharges<br><b>13.08.090</b> Food service establishment (FSE) requirements<br><b>13.08.100</b> Interceptors for other businesses   | <b>2.5.4</b> Prohibited Substances or Characteristics<br><b>2.5.6</b> Potentially Regulated Discharges         |
| <b>D13 (iii)(e)</b> Enforce any violation of its sewer ordinances.   |  |
| <b>8.04</b> Nuisances Generally<br><b>13.08.060</b> Enforcement<br><b>13.08.270</b> Discontinuance of Service<br><b>13.08.340</b> Violations<br><b>13.16.020</b> Purpose and intent<br><b>13.16.050</b> Discharge of nonstormwater prohibited<br><b>13.16.080</b> Discharge in violation of permit<br><b>13.16.090</b> Illicit connection prohibited   | <b>2.9</b> Enforcement   |
| <b>D13 (vii)(d)</b> Requirements to install grease removal devices design standards, maintenance requirements, and reporting requirements.   |  |
| <b>13.08.100</b> Interceptors for other businesses<br><b>15.24</b> Amendments to the California Plumbing Code <sup>3</sup> that references section Uniform Plumbing Code   | <b>2.5.12</b> Grease, Oil, and Sand  |
| <b>D13 (vii)(e)</b> Authority to inspect grease producing facilities and enforcement authorities.  |  |
| <b>8.04</b> Nuisances Generally<br><b>8.04.050</b> Right of entry<br><b>8.04.110</b> Nuisance abatement<br><b>13.08.060</b> Enforcement<br><b>13.08.290</b> Inspections  | <b>2.8</b> Inspection and Monitoring<br><b>2.8.2</b> Inspection Warrants<br><b>2.8.3</b> Monitoring Facilities |

<sup>1</sup> The numbers refer to applicable City Municipal Code sections.

<sup>2</sup> Numbers refer to the chaptered sections of the SRCSO Consolidated Ordinance as of effective date: June 21, 2019.

<sup>3</sup> The Uniform Plumbing Code (UPC) is adopted by reference. Sections of the 1014.0 and 1015.0 of the UPC cover the design requirements for grease removal devices.

### **3.3 Codes, Ordinances, and Agreements**

The legal authority required for the SSMP by the State WDRs is contained within the City's municipal code. Several chapters of the municipal code include various elements of the required authority and are available at <http://www.qcode.us/codes/sacramento/>. The chapters listed in Table 3.1 are included in Title 1 General Provisions, Title 8 Health and Safety, Title 13 Public Services, and Title 15 Buildings and Construction. The City operates its sewer collection system in accordance with the SRCSD Consolidated Ordinance and a Master Interagency Agreement found at <https://www.regionalsan.com/ordinances-agreements>

## CHAPTER 4 – OPERATIONS AND MAINTENANCE PROGRAM

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This chapter of the SSMP discusses the City's Wastewater and Drainage Division Operations and Maintenance (O&M) Procedures, including its Rehabilitation and Replacement Asset Management Program. The information presented complies with section 13 D (iv) of the State WDRs, included in Appendix A.

### 4.1 State WDRs

The SSMP must include those elements listed below that are appropriate and applicable to the City's system:

- (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 Preventative Maintenance 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-term 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 operations and maintenance, and require contractors to be appropriately trained; and
- (e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

## 4.2 Collection System Maps and Information

Chapter 4 describes the information systems and other resources utilized to maintain DOU's sewer collection system maps.

### Facilities Operations Information System (FOIS)

FOIS is a web-based application available on the City's intranet that serves as DOU's repository for record drawings; improvement plans prepared by staff, outside consultants, and other agencies; specifications; operations and maintenance manuals; facility photographs, pump stations etc., as they relate to the collection system.

### Computerized Maintenance Management System (CMMS)

The Wastewater and Drainage Division utilizes the Azteca™ "Cityworks" CMMS system for its linear assets and the "Maintenance Connection" CMMS system for its vertical assets (pumping stations and associated mechanical, plant operations, electrical and instrumentation). Both systems are used for: planning, requests for work (service requests), tracking SSOs and resident complaints, scheduling maintenance work (work orders) and, tracking completed work, and monitoring the type of maintenance performed on sewer assets. CMMS is used to manage data entry, reporting, scheduling, workflow, quality assurance/quality control, and security. The primary functions of the CMMS system is to:

- Maintain service request and maintenance history information for each collection system asset,
- Produce and regularly update the maintenance schedule based on feedback from the cleaning and maintenance operations,
- Generate reports that support data analysis and decision making,
- Provide documentation for use in regulatory compliance reporting, and
- Indicate pipe segments or structures that may be candidates for replacement or rehabilitation under the Capital Improvement Program (CIP).

DOU updates pipe attribute information through the map correction process and with information derived from closed-circuit television (CCTV) inspections. These updates are completed when a discrepancy is found during an inspection. A written request attached to a work order is made listing the discrepancy and the correction to be made. This update process provides a quality assurance/quality control (QA/QC) of the pipe attribute data within the CMMS system.

### Improvement Plan Geographic Information System (GIS) Layer and Improvement Plan Folder

When a project Notice of Completion is filed, GIS staff receive an email notification from Public Works or DOU stating that they have added completed project drawings into the Improvement Plans folder. GIS staff adds the new infrastructure data to the GIS system by creating a project boundary in the Improvement Plan GIS layer. GIS staff then store the drawings in a folder which is linked to the project boundary. Staff can access the layer by selecting it on an online web mapping application such as One Map or the Sewer &

Drainage Viewer. This allows staff to download drawings from the folder or view the file location. At the close of the business day, all edits are uploaded to the publication version of the data and the maps will reflect the changes the next day.

*Drainage/Sewer GIS Data and Map Book*

DOU utilizes a GIS computer mapping system using ESRI’s ArcGIS application. DOU’s GIS staff maintain all utilities infrastructure in an enterprise version of ArcGIS. Updates and changes are made to the data regularly through map corrections from field visits, data review, internal review, and new utility projects. As a result of these updates, the CityWorks web map-based asset/work order management uses the GIS data directly for field operations.

In addition to CityWorks, GIS data for the drainage and sewer system is accessed through a web map in the internal GIS portal. The Sewer and Drainage Viewer displays DOU assets and attribute information and includes tools for querying and printing. The Viewer displays the most current data to provide staff with the most accurate information. Electronic (PDF) drainage and sewer map book pages are still available as network access may be unavailable in working conditions.

The Sewer and Drainage Viewer shows the entire separated sewer collection and drainage system and includes the information listed in Table 4.1.

**Table 4.1 –Sewer Collection and Drainage System Map and Viewer Information**

| Facility Type                    | Basic Map Information   |
|----------------------------------|---|
| Manholes                         | Identification Number<br>Location, with reference to streets<br>Location, with reference to property line or curb<br>Type of Manhole; Sewer, Drainage, Summit, etc.<br>Depth of Manhole from Rim<br>Smart Cover Locations |
| Pipes (Sewer and Drainage Mains) | Type of Pipe, Sewer or Drainage<br>Owner of Pipe, City, County or Private<br>Pipe Diameter or Size<br>Direction of Flow<br>Force Mains<br>Lined Pipe Segments   |
| Miscellaneous                    | Pump Stations, City Limit Line<br>Valves and Vents<br>Primary Sloughs, Creeks and Rivers<br>Levees<br>Drop Inlets and Gutter Drains<br>Streets<br>Parcels with Street Address Numbers                                     |

Redline map corrections are received by GIS through CityWorks attached to a work order. GIS staff regularly check the CityWorks inbox and communicate questions to field staff as needed within the work order. Map corrections are also given informally by staff without CityWorks access through email or paper, the GIS staff review the map corrections, conduct research on the changes and make the appropriate change in the

GIS database. These changes are reflected the following day in the CityWorks, One Map and the Sewer & Drainage Viewer.

### Sump Book

DOU maintains a Sump Book which is also available in both hard copy format (for field crews and engineers) and electronically (on the DOU intranet). The Sump Book contains details for each sewer and drainage pump station maintained by the Wastewater and Drainage Division, including maps showing the pump station location. Information is also included regarding the number of pumps, horsepower and pumping capacity of each pump, the force main location and discharge locations, and the maximum amount of time the pumps can be out of service before the station overflows (out of service limitations). The Sump Book is updated periodically as pump stations are rehabilitated, added, and/or removed from the system.

## **4.3 Preventative Operation and Maintenance**

### Overview

DOU has developed several maintenance approaches for the separated sewer collection system with the following goals:

1. Decrease frequency of SSOs,
2. Identify primary cause of collection system blockages and develop strategies to reduce backups,
3. Operate and maintain pump stations in order to maintain reliability and efficiency,
4. Maintain operation and maintenance records for each sewer collection system asset to support asset management decision-making, and
5. Assist with the development of CIP projects directed at maintaining or rehabilitating the current sewer assets, improving system reliability, and providing adequate future capacity.

### Reactive Maintenance

Reactive maintenance activities in the separated sewer system include investigation and response to any complaints regarding a manhole overflow, missing or shifted manhole covers, manhole covers that are noisy, residential plumbing troubles, pump station malfunction, sewer odor, etc. Sewer complaints received by DOU are investigated and the appropriate action is taken to resolve the source of the problem.

### Preventative Maintenance

The Preventative Maintenance Program includes regular maintenance activities, scheduled cleaning, root control, FOG inspections, QA/QC and routine CCTV inspections. DOU commenced a system-wide CCTV effort in 2009 that included separated sewer system pipelines 15-inches in diameter and smaller. (CCTV of pipelines exceeding 15-inches in diameter is noted below in the bullet shown as “Large diameter pipelines.”) This CCTV effort was undertaken to assess and rate the

infrastructure, and to prioritize and schedule preventative maintenance activities. In addition to the CCTV evaluation, other criteria upon which preventative maintenance is based include: service requests (customer complaints), historical knowledge, experience, and CMMS data.

DOU's Standard Operating Procedures (SOP) for cleaning gravity sewers in the separated sewer system is included as Appendix B. In addition to the process outlined in the SOPs, sewer maintenance field crews utilize the work orders in CMMS to document the quantity of roots, grease, and debris found in pipes during maintenance activities.

The Wastewater and Drainage Division has a Scheduled Cleaning Program for all small diameter sewer system mainlines (small diameter mainlines are 15-inches and less). The schedules for these assets have been evaluated and prioritized for scheduled cleaning based on CCTV analysis, historic knowledge, and CMMS data. In an effort to reduce the risk of an SSO at critical facilities such as hospitals, where SSO impacts could be severe, frequent scheduling adjustments are made as necessary.

Currently, an estimated 4,300 mainlines have cleaning frequencies ranging from one month to two years and the remaining estimated 4,500 mainlines are set to a five-year cleaning frequency. An estimated additional 1,000 mainlines are being root foamed and will return to a cleaning frequency after completion and evaluation. As scheduled maintenance is performed, the planner/scheduler reviews the cleaning findings on a regular basis to adjust the scheduled maintenance cleaning frequencies if needed. Medium and heavy findings trigger the pipe to be put on a higher frequency while light and clear findings trigger the pipe to be put on a lower frequency. The planner/scheduler and maintenance supervisors meet regularly to review mainlines with SSOs and adjust their cleaning frequencies.

Minor exceptions to the Citywide sewer cleaning program for the separated sewer system include the following:

- Large diameter pipelines: The separated sewer system is comprised of approximately 6% of large diameter pipelines (exceeding 15-inches). DOU visually inspects these pipes to verify that an inordinate amount of debris has not accumulated in the pipe. If the pipe is free of debris, it will be marked as clean in CMMS. If the pipe has a depth of debris that is greater than 20 percent of its pipe diameter, which is determined through a visual inspection, or if there is evidence of other maintenance problems, the pipe will be cleaned.
- Easement pipelines: A pipeline that has both manholes located outside of public right-of-way is often located in the backyard of residential properties. A right-of-way cart is used to access these mains for inspections and assist in scheduled cleanings and if there is evidence of root problems or an accumulation of grease or debris.

### Corrective Maintenance

DOU performs many of its corrective maintenance and asset rehabilitation activities internally. This includes replacement or rehabilitation of gravity sewer mains, force

mains, and pump station assets. Corrective maintenance is prioritized based on the risk of failure of the asset.

### Root Control

Root intrusion is a recognized problem in the City, particularly in older residential areas with mature trees. Collection pipes in these areas are typically six inches in diameter and are often located in backyard easements. In the separated system, an estimated 190 miles of six-inch diameter pipes are located in backyard easements.

Root control program evaluation requests are made by the CCTV operators to address root control needs. Root control is the responsibility of each maintenance group which is divided into three geographic locations North (area 1), CSS (area 2) and South (area 3). Root control determines the method to be used for root control. Areas of the City's sewer system have been selected for a chemical cleaning pilot study. Mechanical root control is used when a pipe has a history of roots and is not on the chemical cleaning schedule. If the pipe requires a mechanical root control schedule staff sets an initial mechanical root control frequency and is adjusted based on the findings from the mechanical root control.

The pipes targeted for chemical root control are identified using a risk-based, system-wide analysis. The sewer attribute information, CCTV data, historical event data, and location-specific data are used to estimate the risk of a root-related SSO occurring. The extent of chemical root control performed is determined by root-control need and the evaluation of the chemical controls. The chemical root control project "treats" selected root problem areas by introducing herbicidal foam into the selected pipes. The herbicidal foam kills the roots and slows future growth. DOU randomly selects pipes subject to chemical root control for pre- and post-chemical application CCTV viewing. This allows DOU to evaluate the effectiveness of chemical root control and look for ways to optimize these efforts.

If root problems cause structural failure, these locations are submitted to the Engineering and Water Resources Division to be incorporated into an annual rehabilitation or replacement project.

### Fats, Oils, and Grease Control

Based on historical knowledge and CMMS data, areas of DOU's sewer system that have recurring blockages caused by FOG are placed on scheduled maintenance and jet cleaned regularly as discussed in the Preventative Maintenance section above.

### Closed Circuit Television (CCTV) Inspection

DOU conducts CCTV inspection as part of its maintenance, condition assessment, and cleaning QA/QC activities. DOU utilizes a national industry standard known as the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) as a scoring tool for coding pipeline defects. PACP coding data is also used to determine rehabilitation and replacement needs, useful life, and short-term funding projections.

Occasionally before and typically after a corrective maintenance project has been completed, CCTV inspection is performed as a quality assurance and quality control measure. Also, after a blockage is removed, a CCTV inspection may be performed on the affected pipeline. The post-blockage inspection allows the Supervisor and/or Lead Worker to evaluate the effectiveness of the cleaning operation, assess whether scheduled maintenance is needed, adjust the frequency of scheduled maintenance, and inspect pipelines for structural defects. A determination is made as to whether the pipe needs repair, rehabilitation, or replacement. If a repair is warranted, Wastewater and Drainage Division staff complete the repair. If an issue is detected that cannot be remedied by a repair, the pipe is referred to Engineering and Water Resources staff. Engineering staff evaluate the CCTV findings and, if necessary, develop a scope of work to rehabilitate, or replace the pipe through an Asset Management evaluation process.

DOU has developed criteria, a process, and documentation for a cleaning QA/QC program. This program was developed by establishing an acceptable window for post-cleaning CCTV, defining a required quality level, and then developing and implementing the cleaning QA/QC plan. DOU has defined 30 days as an appropriate window to CCTV following a cleaning event and has defined a “clean pipe” as a pipe that does not have any maintenance related defects greater than 10% of the cross-sectional area at the completion of the cleaning task. In other words, at no single point along the entire pipe length shall an obstruction reduce the pipe’s design cross-section by more than 10% within 30 days of the cleaning. If the cleaning QA/QC does not pass due to grease or debris, it must be re-cleaned within 30 days. If the pipe is found to have root intrusion, it is sent to the appropriate maintenance section to be cleaned within specific timeframes depending on the severity of the defect. The QA/QC program also helps staff evaluate deficiencies and determine whether any changes are needed in our cleaning program or staff training.

### Pump Stations

Wastewater and Drainage staff perform a monthly inspection of DOU’s pump stations to assess the operation of the pumps, structures, and wet wells. The monthly inspections are based on the “Plant Operator Station Policy” incorporated here by reference.

Routine maintenance procedures vary from station to station. Maintenance strategies are based on knowledge of unique problems, inspection observations, and manufacturers’ specifications for the equipment at each sanitary sewer pump station. The routine maintenance tasks are specific to each individual pump station. A copy of the monthly Wastewater Pump Station Preventative Maintenance Procedures is presented in Appendix C.

DOU’s high priority sanitary sewer pump stations (Sump 21, 36, 49, 79, 85, 121, and 137) have been scheduled for more frequent inspection based on the volume of flows pumped and history of overflows.

Pump stations are monitored remotely through DOU’s Supervisory Control and Data Acquisition (SCADA) Network that provides real time station status. Remote access allows for offsite control and monitoring of pump stations and supports the deployment of maintenance personnel to address problems that may occur.

## 4.4 Rehabilitation and Replacement Plan

### General

Sewer system infrastructure rehabilitation and replacement are an integral part of DOU's operations and maintenance activities for the sewer collection system. The sewer system is capital intensive and requires ongoing maintenance, repair, and replacement to sustain the integrity of the infrastructure. As infrastructure assets continue to age and deteriorate, the need to restore parts of the system is becoming of higher significance to DOU. A significant portion of the infrastructure, including many of the critical pipelines and pump stations, are approaching, or have already passed, their designed life span.

DOU's Engineering & Water Resources Division has refined a CIP process to repair, replace, and/or rehabilitate aging infrastructure in a timely, cost-effective manner. This refined approach systematically incorporates infrastructure criticality; condition assessment; life cycle cost; and maintenance history. The approach includes the following:

- Identifying City-owned assets (i.e., taking inventory of all sewer assets, collecting data, and storing information in a GIS database);
- Assigning a level of relative criticality to these assets;
- Evaluating the condition of these assets to identify those nearing failure;
- Determining how and when assets are likely to fail based on collected data; and
- Prioritizing rehabilitation projects based on anticipated failure rate or potential impact of failure.

In addition, DOU adopted the following criteria for initiating a CIP project in the Wastewater Fund that is directly tied to the Capital Improvement Programming Guide:

- Required by health, safety, or regulatory requirements;
- Reduce maintenance costs;
- Improve reliability and reduce service interruptions and sanitary wastewater overflows;
- Maintain and replace existing facilities;
- Meet demands of increased growth; and
- Costs offset by grants or other revenue.

### Capital Improvement Programming Guide

DOU has developed a Capital Improvement Programming Guide (Programming Guide), included here by reference, that identifies the processes, methodologies, and funding sources used in developing CIPs for the wastewater utilities. This Programming Guide provides an overview of wastewater operations and functions, explanations of criteria used to rank projects, descriptions of various types of capital improvement projects, project rankings, and project profiles for planned capital projects. In addition, the Programming Guide includes both a long-term and short-term investment strategy (30-year and 5-year) for incrementally improving the utility infrastructure of DOU.

Overall, the Programming Guide provides information on DOU's asset management approach to managing wastewater capital assets with the goal of minimizing the total cost of owning and operating the systems over time, while also delivering the desired levels of service.

### Condition Assessment

As the wastewater system ages, the risk of failure inevitably increases over time. Pipe deterioration, collapse, blockage, inflow and infiltration, overflow, and service interruptions are challenges that are faced every day. In an effort to overcome these challenges and to improve the quality of the infrastructure, DOU has improved its Condition Assessment Program utilizing CCTV to develop a more sustainable rehabilitation and replacement plan.

The condition assessment CCTV inspections are prioritized to focus on those pipelines thought to have the most urgent risk factor. Additionally, maintenance history, age, and material are other factors used to prioritize the CCTV schedule. DOU's Condition Assessment Program includes the following major tasks:

- Create CMMS work order – Cityworks
- Conduct CCTV inspection – Granite XP software with PACP scoring
- Review inspection report
- Work required – spot repair, capital improvement project, or re-inspection
- Create CMMS re-inspection work order – Cityworks (scores 1, 2 and 3 only)
- CIP project – Engineering scope, cost, prioritization, and ranking (Programming Guide)
- CIP funding – forecast, review, analysis, and assessment

A CIP Project Initiation Workflow Process diagram, showing the steps of a rehabilitation, replacement or infrastructure improvement through a CIP is provided in Appendix D. This diagram shows the process beginning from when a failed critical infrastructure is identified, through the construction process, and into completion

### Short-and Long-Term Rehabilitation and Replacement Plan

DOU's short- and long-term rehabilitation and replacement needs are identified in the Programming Guide that includes prioritizing and ranking methodologies of infrastructure assets (specifically pipelines) based on CCTV inspection data, maintenance history, age, criticality, and vulnerability.

### Funding

Funding needs for long-term rehabilitation and replacement capital improvements of the separated system are estimated at \$13.5 million per the City's five-year CIP for FY2019-2023. The five-year CIP is published as part of the City's Annual Budget and is available on the City's website at <http://portal.cityofsacramento.org/>.

## 4.5 Staff Training

In most cases, equipment and operations training in the Wastewater and Drainage Division is initially provided by the vendor or manufacturer of the equipment. Ongoing technical training is provided through on-the-job training and rotation among the different maintenance crews and equipment. DOU also relies on regional and statewide training available through seminars and conferences. The training resources are shown in Table 4.2.

DOU crews receive annual maintenance training by internal staff. The training program focuses on best practices for cleaning, inspecting, operating, and maintaining its mainline sewer pipes. One purpose of the training is to provide an evaluation of functions, equipment, programs, and protocols and to assess the current effectiveness of collection system maintenance practices. This assessment enables DOU to identify possible opportunities and/or enhancements to efforts made by the Wastewater and Drainage Division that may result in more reliable collection system performance and stabilization, with a correlating reduction of SSOs and a higher level of customer service. Another purpose of the training is to introduce and reinforce maintenance best practices to DOU's sewer maintenance crews.

The City Standard Specifications require that all contractors and subcontractors be experienced with sanitary sewer work and that they fully comply with all laws, regulations, and standards governing sewer work, sanitation, and public health.

**Table 4.2 – Training Resources (Conferences, Seminars, and Materials)**

| Sponsor   | Event  | Timeframe | References              |
|---|--|-----------|-------------------------|
| California Water Environment Association (CWEA) | State Conference                             | April     | www.cwea.org            |
|   | Northern Regional Safety Conference          | September |                         |
|   | Sacramento Area Collection Systems Committee | Biannual  |                         |
| Tri-State Conference                            | Annual Conference                            | September | www.tristateseminar.com |
| California State University, Sacramento         | Videos, manuals, home study courses          |           | www.owp.csus.edu        |

#### **4.6 Major Equipment and Critical Spare Parts Inventories**

The inventory of major sewer maintenance equipment and critical parts is managed by the Business Services Logistics Section.

DOU continually evaluates and analyzes critical parts inventories for the pump stations. DOU maintains multiple spare submersible pumps for use in the event of a pump station failure. DOU also maintains an extensively equipped fabrication shop that can quickly fabricate nearly all critical and hard to replace parts for pumps and station equipment. This reduces downtime typically associated with ordering and receiving parts from suppliers. DOU pump stations include redundancy of critical systems to reduce the impact of failure.

## CHAPTER 5 – DESIGN AND PERFORMANCE

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This chapter of the SSMP identifies the design and performance provisions used by the sanitary sewer system and complies with section D13 (v) of the State WDRs, included in Appendix A.

### 5.1 State WDRs

Section D13 (v) of the State WDRs requires the SSMP to identify the following:

- (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.

### 5.2 Design Standards

DOU has two published documents that provide guidance for planners, engineers, and construction personnel for its sewer system: The City Standard Specifications (Standard Specifications) dated June 2007, and the City of Sacramento Design and Procedure Manual (DPM) dated July 2018. The latest versions of these two published documents, and any addenda, are hereby included in the City's SSMP by reference.

The Standard Specifications are periodically updated as changes are developed. A City-wide committee, comprised of representatives from each City department, evaluates the Standard Specifications on a semi-annual basis, votes on procedural changes, and issues an addendum upon approval. These changes are posted on the City's website. Ad hoc changes are consolidated into an updated document that is published to replace the previous edition as needed.

The DPM provides standards for sewer generation rates and provides general design guidelines for new sewer facilities, both pump stations and pipelines. A DPM modification was completed in July 2018 for pipelines. Major revisions were made to the sewer generation rates and performance standards. Changes made to the DPM are posted on the City's website.

A third standard, used by DOU Engineering and Water Resources Division, is the standard Special Provisions for pipeline replacement, pipe rehabilitation, and electrical switchgear replacement projects. These standards are stored on a shared drive on the DOU server and are continuously updated by DOU supervising engineers as improvements are identified during project implementation. These standard Special Provisions enable efficiency improvements by reducing the time needed to write project specifications and ensure that the latest designs benefit from ongoing experience. The City's standardized provisions for sewer pipe rehabilitation are found only in its standardized Special Provision for the work.

### **5.3 Inspection and Testing Standards**

The City's Standard Specifications are routinely referred to in construction documents to provide quality standards for all construction in the sewer system. It is utilized both for capital improvement projects and for development related infrastructure projects. The quality control of the document is managed by a DOU Supervising Engineer. The Standard Specifications include testing standards for pipe installation. Sewer system construction is overseen by Department of Public Works inspectors for DOU capital improvement projects and development related sewer construction.

## CHAPTER 6 – OVERFLOW EMERGENCY RESPONSE PLAN

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This chapter of the SSMP provides an overview of the City's emergency response procedures for sewer overflows. The information presented complies with section D13 (vi) of the State WDRs, included in Appendix A.

### 6.1 State WDRs

Section D13 (vi) of the State WDRs requires the City develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

- (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 Monitoring and Reporting Program (MRP) of the State WDRs. 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 Pollutant 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.

### 6.2 Summary of Sewer Overflow Response

DOU's overflow response is described in the Wastewater Collection Standard Operating Procedures, included by reference. These documents include information required by section D13 (vi) of the State WDR. The sewer overflow response process is described further with flow charts included in Chapter 2 of this document.

### **6.3 Notification**

Where appropriate, the documents include notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner. This includes procedures needed to comply with both the February 2008 amendment and the September 2013 amendment of the State WDRs' MRP requirements. The 2013 amendment to the MRP included a change in the notification requirements and defined new spill categories. Notification to California's Office of Emergency Services within two hours of becoming aware of a Category 1 SSO greater than or equal to 1,000 gallons is to be made.

Chapter 2 Figure 2.5 outlines DOU's spill notification decision tree and is included as appropriate in the plans listed above.

### **6.4 A Program to Ensure Appropriate Overflow Response**

DOU staff is trained throughout the year on sewer overflow response procedures. The training includes field staff response activities, regulatory reporting requirements, and the City procedures set forth in the Wastewater Collection Standard Operating Procedures.

### **6.5 Procedures for Prompt Notification**

The documents listed in Chapter 6 paragraph 6.2 Summary of Sewer Overflow Response, include procedures for prompt notification, including the notification decision tree shown in Figure 2.5 with required timelines. In addition, DOU staff receive training regarding these procedures and notification requirements. The officials who receive immediate notification are included in the Wastewater Collection Standard Operating Procedures.

### **6.6 Ensure Staff Aware, Follow, and Trained**

Appropriate City staff are trained on the, SOPs of the DOU's Emergency Response Program. Contractor personnel are trained and advised to immediately contact City staff in the situation of an overflow/outflow.

### **6.7 Traffic and Crowd Control and Other Activities**

The Wastewater Collection Standard Operating Procedures address emergency operations, such as traffic and crowd control and other necessary response activities.

## **6.8 Program to Ensure Spill Containment, Prevention, and Abatement**

City staff receives on-the-job training regarding reasonable steps that should be 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. Training will include such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

## CHAPTER 7 – FATS, OIL, AND GREASE CONTROL PROGRAM

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This chapter of the SSMP provides a description of the Fats, Oil, and Grease (FOG) Program for the SSMP and complies with section D13 (vii) of the State WDRs, included in Appendix A.

### 7.1 State WDRs

The City is required by section D13 (vi) of the State WDRs to evaluate its service area to determine whether a FOG control program is needed. If FOG is found to be a problem, the City must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The FOG source control program shall include the following as appropriate:

- (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 sanitary sewer overflows (SSOs) and blockages caused by FOG;
- (d) Requirements to install grease removal devices (such as traps or interceptors) design standards for the grease removal devices, maintenance requirements, requirements for best management practices, record keeping and reporting requirements;
- (e) Authority to inspect grease producing facilities, enforcement authorities, and whether the City has sufficient staff to inspect and enforce the FOG ordinance;
- (f) An identification of sewer system sections subject to FOG blockages and establish a cleaning maintenance schedule for each section; and
- (g) Development and implementation of source control measures, for all sources of FOG discharged to the sewer system, for each sewer system section identified in (f) above.

### 7.2 FOG Control Program Determination

DOU has determined that FOG continues to be a contributor to SSOs in the separated sewer system. Roughly 33% of the SSOs experienced in 2007-2018 were FOG-related SSOs. In an effort to continue reducing SSOs resulting from grease blockages, DOU implements a FOG control program that includes routine, scheduled cleaning, an

inspection program for Food Service Establishments (FSEs), and a FOG outreach program.

### **7.3 Public Outreach**

The City has developed and implemented commercial and residential FOG outreach and educational programs as follows:

#### *Commercial (Restaurants)*

The commercial FOG outreach and education activities target FSEs (i.e., restaurants). The outreach activities were designed to educate restaurant owners and managers about the City's codes regarding the need for grease traps and interceptors, the need to maintain these traps and interceptors, and the City's inspections and enforcement methods.

The commercial FOG activities initially featured a survey to gather data about local restaurants and their current practices. DOU then developed the "Sacramento Fat Free Drains" website ([www.sacramentofatfreedrains.com](http://www.sacramentofatfreedrains.com)) that provides information about restaurant responsibilities and encourages restaurant owners/managers to work in partnership with the City to help ensure that the sewer system functions at its best. DOU also created videos, which feature local restaurant managers and owners, that inspectors use when meeting with other restaurant owners and managers to explain the process and the reason for their visit. The videos are in multiple languages to address and accommodate the City's diverse restaurant population. DOU also created information that is left with the managers and owners to help them train staff on proper FOG disposal methods and grease trap and interceptor maintenance. These materials are also located on the "Sacramento Fat Free Drains" website for ease of access by restaurant owners, managers, and staff, as needed.

#### *Residential*

The residential FOG outreach activities also utilize the "Sacramento Fat Free Drains" website and features an online video for City residents. FOG outreach activities utilize bill stuffers, door tags, promotional items, and media relations.

Bill stuffers demonstrating proper FOG disposal techniques are placed in City utility bills annually each fall. Door tags are placed on the doors of apartment complex managers or homes that have a FOG-related SSO. Door tags are also placed on the doors of homes connecting to the main upstream of the location that experienced the FOG-related SSO incident. DOU attends community events and distributes giveaways promoting proper FOG disposal. DOU also works with the media to remind residents about how to properly dispose of FOG.

DOU's "Sacramento Fat Free Drains" website is a significant component of both the commercial and residential FOG outreach and education activities. The website and FOG information is also promoted through DOU's Facebook and Twitter media networks.

DOU continues to work with regional partners, such as SRCSD and Sacramento Area Sewer District (SASD), as well as various associations when opportunities arise to ensure the message about proper FOG disposal is communicated throughout the region.

#### **7.4 FOG Disposal**

DOUs FOG disposal plan is conducted on an on-going basis. The plan includes disposal at landfills for small quantities of grease, disposal at Household Hazardous Waste Facilities for larger quantities of grease, and disposal by commercial grease hauling companies. The public is informed of these disposal options and their respective schedules by the afore-mentioned public outreach efforts. Reference can be made to “Sacramento Fat Free Drains” ([www.sacramentofatfreedrains.com](http://www.sacramentofatfreedrains.com)) for more information regarding the FOG disposal plan (options) and schedule for residents and commercial entities within the City.

#### **7.5 Legal Authority**

Chapter 3 Table 3.1 lists the City codes that provide the required legal authority to prohibit FOG discharges into the sewer system and the authority to identify measures that prevent SSOs and blockages caused by FOG.

#### **7.6 Requirements for Grease Removal Devices**

Title 15 of the Municipal Code includes requirements for the installation of grease removal devices (such as traps or interceptors), design standards for the grease removal devices, maintenance requirements, record keeping and reporting requirements. These requirements and standards are implemented by the City’s Community Development Department, Building Division. In addition, the City requires review by the County Environmental Management Department (EMD) - Environmental Health Division prior to approving a building permit for a restaurant. FSEs with grease removal devices are inspected by DOU as discussed further in the next section.

#### **7.7 Inspection Authority**

The City has the authority to inspect grease-producing facilities, enforce provisions of applicable sewer use ordinances, and sufficient staff to inspect and enforce the FOG provisions of applicable City ordinances. Refer to Chapter 3 Table 3.1 for a summary of legal authority.

DOU Wastewater and Drainage Division developed a FOG Control Inspection Program with dedicated inspection staff. This inspection staff has the primary responsibility of performing routine inspections and conducting enforcement to ensure FSEs are in compliance with the City’s ordinances and to verify the maintenance and performance of the FSE’s grease removal device. The goal of the program is to annually inspect all FSEs that are provided with City sewer collection services that have a grease interceptor or have been the cause of an SSO. The FSEs identified for inspection are prioritized based on historical SSO and maintenance information, as well as DOU’s

inspection and enforcement data. Inspection staff will conduct follow-up inspections and enforcement of FSEs that are found not maintaining their grease removal devices or implementing proper best management practices (BMPs).

## **7.8 Areas Subject to FOG Blockages and Cleaning**

DOU prioritizes its preventative maintenance activities in the separated sewer system based on service requests (customer complaints), historical knowledge, experience, CCTV inspection, and CMMS data. The preventative maintenance programs includes FOG maintenance, and the areas of the sewer system that have recurring blockages caused by FOG are placed on scheduled maintenance and jet cleaned regularly. Wastewater Collection's planner/scheduler uses the cleaning findings on a weekly basis to adjust, as appropriate, the scheduled maintenance cleaning frequencies. For example, medium and heavy findings of grease trigger the pipe to be put on a higher frequency while clear findings trigger the pipe to be put on a lower frequency. More information on the preventative maintenance program can be found in Chapter 4 under preventative operation and maintenance section.

## **7.9 Source Control Measures**

The source control measures for areas of the collection system that are subject to FOG blockages include public outreach, restaurant inspections, and enforcement and maintenance activities described previously in this chapter.

## CHAPTER 8 – SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

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This chapter of the SSMP presents the City’s System Evaluation and Capacity Assurance Plan that will determine hydraulic capacity of key sanitary sewer system elements for peak flow conditions. The information presented complies with section D13 (viii) of the State WDR, which is included in Appendix A.

### 8.1 State WDRs

The SSMP must include those elements listed below that are appropriate and applicable to the City’s system:

- (a) Evaluation: Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to a sanitary sewer overflow (SSO) discharge cause by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape 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.
- (c) Capacity Enhancement Measures: The steps needed to establish a short and long term Capital Improvement Plan (CIP) to address identified hydraulic deficiencies, including prioritization, alternatives analysis and schedules. The CIP may include increases in pipe sizes, inflow/infiltration (I/I) reduction, 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 City shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a) – (c) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D14.

### 8.2 Background

The sanitary sewer system that serves the City is described in Section III Sewer Collection System Overview of the SSMP. The City service area is divided into 54 separated sewer basins. The sewage from 40 of these basins is pumped by individual pump stations. Sewage from ten of the basins gravity flows directly or indirectly into SRCSD interceptor pipes. Sewage from the remaining four basins gravity flows into the adjacent combined sewer system where flows are then pumped into the SRCSD interceptor pipes.

The 54 separated sewer basins are presented in Table 8.1 below.

**Table 8.1 – Separated Sewer Basin Areas**

| <b>Basin No.</b> | <b>Area<br/>(acres)</b> | <b>Area<br/>(sq. miles)</b> | <b>Basin No.</b> | <b>Area<br/>(acres)</b> | <b>Area<br/>(sq. miles)</b> |
|------------------|-------------------------|-----------------------------|------------------|-------------------------|-----------------------------|
| <b>G306</b>      | 533.5                   | 0.83                        | <b>119</b>       | 2635.0                  | 4.12                        |
| <b>G301</b>      | 1442.5                  | 2.25                        | <b>121</b>       | 182.8                   | 0.29                        |
| <b>G302</b>      | 851.5                   | 1.33                        | <b>120</b>       | 181.1                   | 0.28                        |
| <b>146</b>       | 147.4                   | 0.23                        | <b>126</b>       | 6.9                     | 0.01                        |
| <b>87</b>        | 634.1                   | 0.99                        | <b>42</b>        | 86.9                    | 0.14                        |
| <b>131</b>       | 81.3                    | 0.13                        | <b>55</b>        | 2312.4                  | 3.61                        |
| <b>106</b>       | 257.5                   | 0.40                        | <b>G355</b>      | 583.2                   | 0.91                        |
| <b>6</b>         | 658.7                   | 1.03                        | <b>122</b>       | 43.4                    | 0.07                        |
| <b>G303 (n)</b>  | 1887.6                  | 2.95                        | <b>36</b>        | 22.9                    | 0.04                        |
| <b>81</b>        | 11.1                    | 0.02                        | <b>21</b>        | 1167.2                  | 1.82                        |
| <b>85</b>        | 1013.8                  | 1.58                        | <b>134</b>       | 41.7                    | 0.07                        |
| <b>105</b>       | 104.7                   | 0.16                        | <b>40</b>        | 153.6                   | 0.24                        |
| <b>80</b>        | 320.9                   | 0.50                        | <b>127</b>       | 25.9                    | 0.04                        |
| <b>G303 (s)</b>  | 180.1                   | 0.28                        | <b>G354</b>      | 2167.9                  | 3.39                        |
| <b>79</b>        | 35.8                    | 0.06                        | <b>57</b>        | 23.6                    | 0.04                        |
| <b>G304</b>      | 645.3                   | 1.01                        | <b>45</b>        | 267.3                   | 0.42                        |
| <b>G305</b>      | 382.2                   | 0.60                        | <b>137</b>       | 870.6                   | 1.36                        |
| <b>84</b>        | 26.5                    | 0.04                        | <b>143</b>       | 28.6                    | 0.04                        |
| <b>133</b>       | 14.4                    | 0.02                        | <b>136</b>       | 130.6                   | 0.20                        |
| <b>107</b>       | 27.5                    | 0.04                        | <b>135</b>       | 266.1                   | 0.42                        |
| <b>32</b>        | 443.7                   | 0.69                        | <b>145</b>       | 94.9                    | 0.15                        |
| <b>29</b>        | 23.3                    | 0.04                        | <b>49</b>        | 55.1                    | 0.09                        |
| <b>3</b>         | 32.1                    | 0.05                        | <b>88</b>        | 871.7                   | 1.36                        |
| <b>123</b>       | 12.2                    | 0.02                        | <b>53</b>        | 163.7                   | 0.26                        |
| <b>124</b>       | 9.7                     | 0.02                        | <b>CS351</b>     | 539.7                   | 0.84                        |
| <b>125</b>       | 7.0                     | 0.01                        | <b>CS352</b>     | 262.5                   | 0.41                        |
| <b>48</b>        | 326.3                   | 0.51                        | <b>CS353</b>     | 1533.8                  | 2.40                        |

### 8.3 Evaluation

The actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency are described herein.

A review of the City SSOs occurring over the past several years indicates that all SSOs have been caused by tree roots, structural defects, debris and/or FOG. At this point in time, it appears that hydraulic capacity has not contributed to these recorded SSOs. Nonetheless, DOU is conducting a capacity analysis of each of the sewer basins to assess the hydraulic capacity of the trunk sewers. Flow monitoring has revealed I/I levels that could potentially impact available hydraulic capacity in the Pocket Area (City Sewer Basins 55, 127, 134, 137, 135, 136, 143 and 145). High ground water and rainfall events combined with leaking pipe joints produce higher flow in the involved sewer mains than typically seen in other basins. An overview of the City's existing and future sewer conditions along with the South Pocket I/I reduction project is summarized below.

#### Sewer Model – Existing Conditions

As noted in Table 8.1, each of the City's sewer basins is less than 10 square miles (6,400 acres) in area and, therefore, a capacity evaluation for each basin was developed using a spreadsheet analysis. Peak sewer flows were estimated using updated design criteria discussed in paragraph 8.4 with existing land use and connection information. The design criteria included the effects of I/I based on the age of pipe within the sewer system and documented high groundwater depths. The capacity of major trunk sewer pipes was evaluated using the computed peak sewer flows.

The analysis indicated that 15 basins have potential capacity deficiencies for existing land use conditions. Each of the studies showed surcharging above the crown of the pipe under wet weather conditions but they did not predict SSOs would result. For each of these 15 basins, DOU developed models to more accurately define flows and account for storage and routing in the pipe network. DOU has performed flow monitoring in several of the basins identified by the analysis as potentially having hydraulic capacity issues. DOU will continue flow monitoring on an annual basis in preparation of the remaining modeling. As models are completed, rehabilitation strategies are developed to either increase the hydraulic capacity of the sewer systems, implement I/I reduction measures to lessen the impacts of groundwater and rainfall on the sewer system, and/or to increase preventative maintenance programs.

#### Sewer Model – Future Conditions

The City's General Plan 2035 anticipates significant growth in existing or infill areas. Additional sewer connections will be made to the system and many of these connections will serve mixed-use development that have a higher sewer flow rate than the existing land use designation. The analysis is used to estimate future flow conditions and evaluate the impact to the existing collection system and what improvements may be required to accommodate future growth.

Twelve of the 15 basins identified as having potential capacity deficiencies based on existing land use conditions have been identified by the analysis as having potential capacity deficiencies when future infill and redevelopment land use conditions are considered. Also, two additional basins have been identified as potentially having capacity deficiencies when considering future land use conditions. DOU is performing additional modeling evaluations for these basins to more accurately define flows and account for storage and routing in the pipe network. Like the first 15 basins, DOU is performing annual flow monitoring in the two remaining basins to measure sewer flows so that actual dry and wet weather flow conditions can be included in the models. As models are completed DOU is creating rehabilitation strategies to either increase the hydraulic capacity of the sewer systems, implement I/I reduction measures to lessen the impacts of groundwater and rainfall on the sewer system, and/or to increase preventative maintenance programs.

### South Pocket I&I Reduction Project

Although SSOs have not been identified as an issue in the Pocket Area, the reduction of I/I is a concern to the City. In an effort to identify areas producing the most I/I, DOU has performed various pilot studies using flow monitoring and CCTV. Information gained from various pilot I/I reduction projects and studies guide the City's approach in the creation of CIP projects to reduce I/I in priority sewer basins.

Once areas are identified, DOU implements specific structural techniques to reduce I/I which may include: (1) lining of sewer mains, (2) point repairs of joints, (3) lining of sewer service laterals, and (4) using resin, chemical grout, or cured-in-place material to seal sewer service lateral connections to the main. The project will measure pre-project and post-project flows in sewer mains to determine which method or combination of methods is most successful in reducing I/I.

DOU completed the South Pocket I&I reduction project in December 2016. The project identified four mini-basins near the Pocket Canal in an area previously identified to be a source of severe ground water infiltration. Flow meters were installed for each of the mini-basins to determine the average dry weather flow (ADWF) for use in estimating ground water infiltration. The ADWF determination from flow monitoring included two components: base wastewater flow and ground water infiltration. Base wastewater flow represents the sanitary and process flow contributions from residential, commercial, institutional and industrial users of the system. CCTV was conducted on wastewater mains in each of the mini-basins to seek and document ground water infiltration within the pipes and manholes and to document any structural or other defects.

A rehabilitation program was developed based on the flow monitoring and CCTV results. Cured-in-place pipe lining was conducted on pipe segments exhibiting running or gushing ground water infiltration. After the lining was completed flow meters were installed again to evaluate the effectiveness of the rehabilitation in reducing ground water infiltration.

The South Pocket I&I reduction project concluded that rehabilitation efforts will likely not significantly improve the hydraulic conditions within the mini-basin areas. Ground water infiltration reduction may provide the greatest benefit during the peak flow periods by

providing additional capacity at the City Interceptor. Also, ground water infiltration rates are directly influenced by the stage of the Sacramento River and as the river rises groundwater levels rise and cause an increase in hydraulic head.

DOU plans to complete a comprehensive hydraulic evaluation or master plan for this area. Information gained from various pilot I/I reduction projects and studies guide the City's approach in the creation of CIP projects to reduce I/I in priority sewer basins.

#### **8.4 Design Criteria**

DOU uses design parameters for calculating average dry weather flow (ADWF), peak dry weather flow (PDWF), ground water infiltration, RDI/I and peak wet weather flow (PWWF) within the City's Design and Procedures Manual. The design parameters also incorporate land use and corresponding ESD factors.

DOU's updated design criteria is consistent with published data as well as flow and planning studies performed by various agencies and cities. DOU determined that the magnitude of ground water infiltration is a function of groundwater elevation and the magnitude of RDI/I is a function of the pipe age for the selected design storm (10-year, 6-hour rainfall event). The updated design criteria for determining the various flow rates used by the spreadsheet analysis, discussed in section 8.3 above, are summarized in Table 8.2. These design criteria were updated by DOU in July 2018 and are used in developing future sewer models for the existing conditions and future conditions as discussed in paragraph 8.3.

**Table 8.2 – Design Criteria for Calculating Peak Wet Weather Flow**

| Item  | Design Flow Calculation Parameters  |
|---|---|
| <b>Land Use</b>   | <b>ESD Factors</b><br><br>Refer to <b>Plate 9-6 Sewer Generation Rates</b> (Page 9-54 thru 9-57 of the City of Sacramento Design and Procedures Manual**)   |
| <b>Flow Factor</b>                                      | 310 gpd/ESD (includes Base Sanitary Flow (BSF and Ground Water infiltration (GWI))  |
| <b>Average Dry Weather Flow (ADWF)</b>                  | ADWF = ESDs x Flow Factor   |
| <b>Peaking Factor (PF)</b>                              | $PF = 1.7 \times (ADWF)^{-0.056}$   |
| <b>Peak Dry Weather Flow (PDWF)</b>                     | PDWF = ADWF x PF  |
| <b>*Rainfall- Dependent Infiltration/Inflow (RDI/I)</b> | 1,600 gpda for sewers less than 20 years old<br>2,500 gpda for sewers greater than 20 years old   |
| <b>Peak Wet Weather Flow (PWWF)</b>                     | PWWF = PDWF + GWI + RDI/I   |
| <b>Notes</b>  | ESD = equivalent single family dwelling unit<br>gpd = gallons per day<br>gpda = gallons per day per acre<br>* = rates not applicable for Pocket Area<br>** = Design and Procedures Manual Chapter 9:<br><a href="https://www.cityofsacramento.org/-/media/Corporate/Files/DOU/Specs-Drawings/Section9.pdf?la=en">https://www.cityofsacramento.org/-/media/Corporate/Files/DOU/Specs-Drawings/Section9.pdf?la=en</a> |

### 8.5 Capacity Enhancement Measures (Capital Improvement Plan)

Hydraulic deficiencies in the sewer system can be corrected by installing larger pipes, increasing pump station capacity, providing storage, re-routing flows within the collection system, reducing I/I and/or implementing and enforcing water conservation measures. The City is currently implementing a water meter retrofit program that will have all water customers within the City metered by the year 2025. This program is expected to reduce water use and resultant sewer flows. This may result in a smaller peaking factor than that listed in Table 8.2 and reduce the design PWWF.

DOUs planning and project delivery group studies various CIP alternatives to correct hydraulic deficiencies within the City’s sewer system. DOUs Asset Management Section assists with prioritization of proposed CIPs.

Funding sources for the proposed CIPs include: monthly ratepayer charges, developer funding, and impact fees or connection fees. Rate payer charges may be used to fund rehabilitation and replacement of the existing sewer system. A rate increase for fiscal years FY 2017-2020 was presented to the Rate Advisory Commission and approved by

City Council. Projects to increase sewer capacity associated with future growth in existing sewer basins are funded by developers and/or by an impact fee (connection fee).

## 8.6 Schedule

A schedule of completion dates for all portions of the Capital Improvement Program delineated in paragraphs 8.3, 8.4, and 8.5 is presented herein. The schedule is shown in Table 8.3.

**Table 8.3 – Completion Schedule for Capital Improvement Program**

| <b>Task No.</b> | <b>Task</b>  | <b>Completion Date</b> |
|-----------------|--|------------------------|
| 1               | Complete South Pocket AD2 I/I Reduction project  | December 2016          |
| 2               | Complete modifications to sewer design criteria in the Design and Procedure Manual update                    | June 2018              |
| 3               | Create sewer models for basins that the spreadsheet analysis indicated may have potential capacity problems. | Estimated 2024         |

## CHAPTER 9 – MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

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This chapter of the SSMP discusses the City’s Monitoring, Measurement, and Program Modifications. The information presented complies with section D13 (ix) of the State WDRs, included in Appendix A.

### 9.1 State WDRs

The SSMP must include those elements listed below that are appropriate and applicable to the City’s system:

- (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 preventative maintenance program;
- (d) Update program elements, as appropriate, based on monitoring or performance evaluations; and
- (e) Identify and illustrate sanitary sewer overflow (SSO) trends, including: frequency, location, and volume.

### 9.2 Performance Measures

The City will use the following measures to evaluate the performance of its wastewater collection system and the effectiveness of its SSMP:

- SSO Rate (SSOs/100 miles/year);
- Number of SSOs for each cause (roots, grease, debris, pipe failure, capacity, lift station failures, and other);
- Median SSO volume (gallons);
- Percentage of SSOs greater than 100 gallons;
- Percentage of SSOs reported as Category 1;
- Percentage of sewage contained compared to total volume spilled; and
- Percentage of total spilled sewage discharged to surface water.

### 9.3 Historical Performance Data

The City began reporting SSOs into CIWQS September 2, 2007. SSO Data from September 2, 2007 – December 31, 2018, which is included as Appendix E, will be used as the City’s historical performance data.

## **9.4 Performance Monitoring and Program Changes**

DOU evaluates the performance of its wastewater collection system using the performance measures discussed in paragraph 9.2 and trends discussed in paragraph 9.6. The data is updated and analyzed to determine whether the elements set forth in this SSMP are effective in accomplishing the established goals. The City may also use other performance measures in its evaluation. Elements of the SSMP will be modified, as appropriate, based on the results of this annual analysis of performance measures. Additionally, elements of the SSMP may be revised based on the results of the bi-annual audits conducted, as described in Chapter 10.

## **9.5 SSMP Updates**

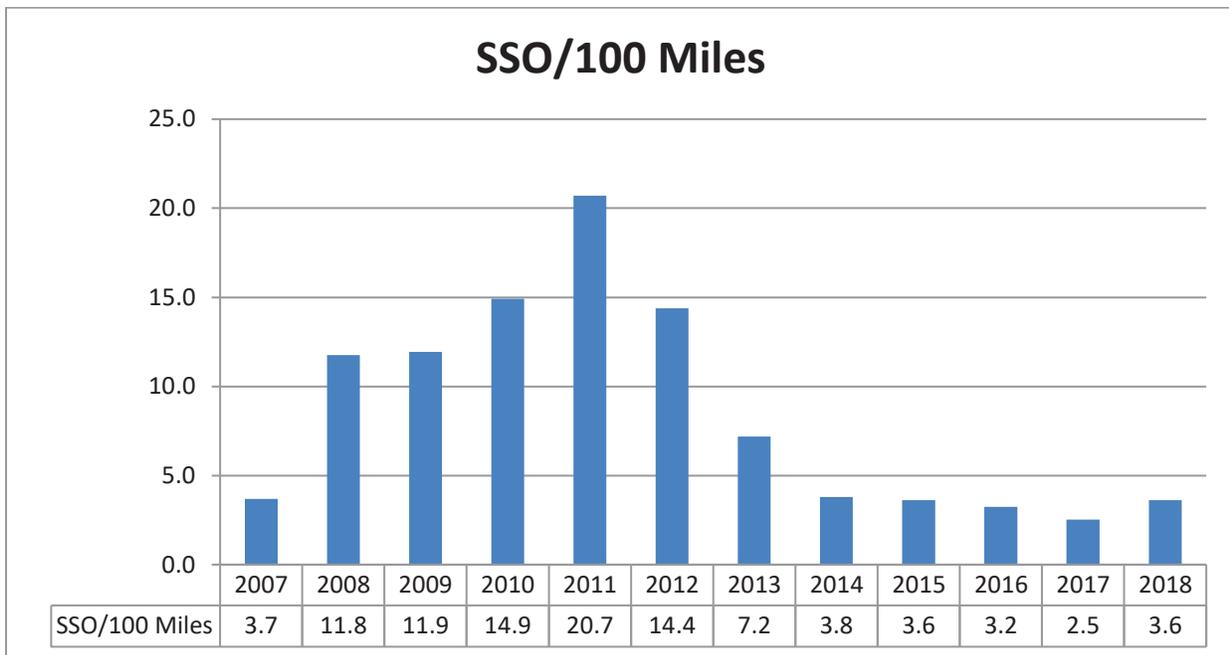
DOU conducts a review of the SSMP and updates the SSMP as needed. An update should be conducted a minimum of every five years.

DOU determines the need to comprehensively review or update its SSMP more frequently based on the results of the bi-annual audit and annual performance evaluation of its sanitary sewer system, as noted above.

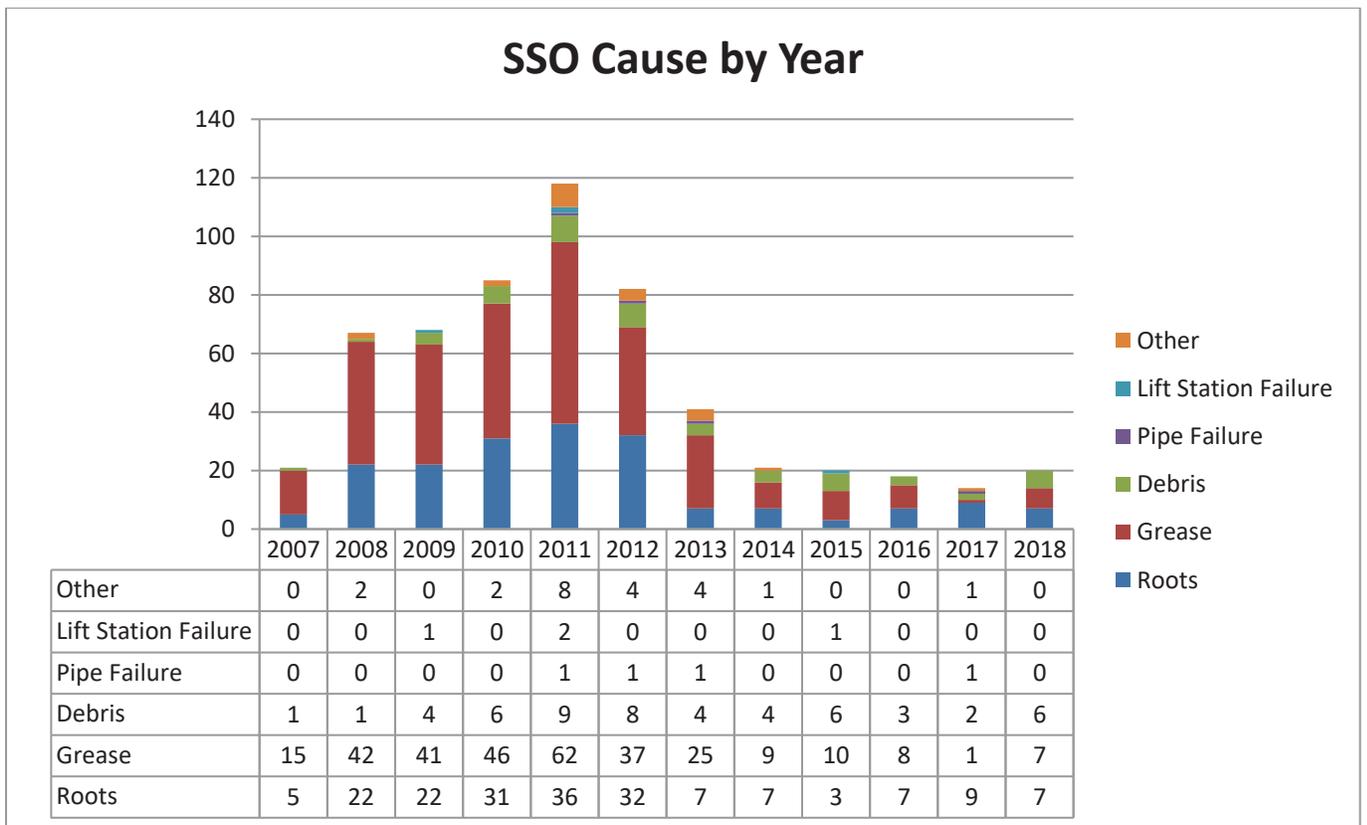
## **9.6 Trends**

DOU analyzes the SSO data from CIWQS to identify trends of SSO causes, spill volumes, and recovery volumes to gauge the effectiveness of the SSMP over time. This analysis also indicates spill causes that DOU may need to focus on. The following figures and tables identify the SSO calendar year (CY) trends from September 2, 2007, when the City began reporting SSO data into CIWQS. 2007 data on the figures and tables below represents only part of the year.

**Figure 9.1 - SSO Rate by Calendar Year**



**Figure 9.2 - SSO Cause by Calendar Year**



**Table 9.1 – SSOs Less Than 100 Gallons**

| <b>Year</b> | <b>Total SSOs</b> | <b># of SSOs to Reach Storm Drain</b> | <b>% SSOs to Reach Storm Drain</b> | <b>SSOs ≤ 100 Gallons</b> | <b>% SSOs ≤ 100 Gallons</b> |
|-------------|-------------------|---------------------------------------|------------------------------------|---------------------------|-----------------------------|
| 2007        | 21                | 0                                     | 0.0%                               | 11                        | 52.4%                       |
| 2008        | 67                | 38                                    | 56.7%                              | 43                        | 64.2%                       |
| 2009        | 68                | 60                                    | 88.2%                              | 43                        | 63.2%                       |
| 2010        | 85                | 42                                    | 49.4%                              | 76                        | 89.4%                       |
| 2011        | 118               | 72                                    | 61.0%                              | 88                        | 74.6%                       |
| 2012        | 82                | 51                                    | 62.2%                              | 65                        | 79.3%                       |
| 2013        | 41                | 22                                    | 53.7%                              | 34                        | 82.9%                       |
| 2014        | 21                | 9                                     | 42.9%                              | 21                        | 100.0%                      |
| 2015        | 20                | 10                                    | 50.0%                              | 20                        | 100.0%                      |
| 2016        | 18                | 10                                    | 55.6%                              | 18                        | 100.0%                      |
| 2017        | 14                | 9                                     | 64.3%                              | 14                        | 100.0%                      |
| 2018        | 20                | 12                                    | 60.0%                              | 20                        | 100.0%                      |

Evaluation of SSO data shows DOU has steadily decreased SSOs since September 2, 2007. The total SSOs have decreased from 67 in CY 2008, the first full reporting year, to 20 in CY 2018. SSOs less than 100 gallons have decreased from 43 in CY 2008 to 20 in 2018. The number of SSOs per 100 miles is trending downward from 11.8 in CY 2008 to 3.6 in CY 2018.

A list of SSOs between September 2, 2007 and CY 2018 for the separated sewer collection system can be seen in Appendix E.

## CHAPTER 10 – SSMP PROGRAM AUDITS

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This chapter describes the schedule and methods the City will utilize in evaluating the effectiveness of the SSMP and making revisions to the program. The information contained within this chapter complies with section D13 (x) and D14 of the State WDRs, included in Appendix A.

### 10.1 State WDRs

Section D13 (x) of the State WDRs requires that, as part of the SSMP, the City must 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 will focus on evaluating the effectiveness of the SSMP and the City's compliance with the SSMP requirements identified in this subsection of the State WDRs, including identification of any deficiencies in the SSMP and steps to correct them.

Section D14 of the State WDRs requires the SSMP be updated every five years, and must include any significant program changes. Re-certification by the governing board of the City is required when significant updates to the SSMP are made.

### 10.2 SSMP Audit Schedule and Procedures

It is DOU's intent to maintain an effective SSMP that continues 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 within the City service area.

To assure the SSMP continues to meet these goals, DOU proposes to evaluate and modify the program as follows:

- Bi-annual Audits – The DOU Environmental and Regulatory Compliance section will conduct audits of SSMP effectiveness and compliance with the State WDRs. The audits will occur every two years from the fiscal year (FY) 2008-2009 SSMP implementation. The next audit will take place in Fall 2019. The results and recommendations developed from audits will be included in the SSMP as Section VI Audit Results and Recommendations.

The criteria evaluated, analysis conducted, and audit documentation utilized in the bi-annual audit will include the performance measures discussed in Chapter 9 Monitoring, Measurement, and Program Modification of this SSMP. At a minimum the audits will include the following:

- ✓ Review of progress made in development of SSMP elements
- ✓ Review of monitoring and measurement outlined in Chapter 9
- ✓ Identification of successes of implementing SSMP elements and needed improvements

- ✓ Description of system improvements during the past year
  - ✓ Description of system improvements planned for the upcoming year, with an estimated schedule for implementation
- DOU Environmental and Regulatory Compliance section conducts a review every five years of SSMP effectiveness and State WDR compliance. The review is similar to the bi-annual audit with the exception that opportunities for long-term improvements to the SSMP will be researched. Re-certification by the City Council will be requested should the review result in significant updates to the SSMP. Significant updates generally mean SSMP updates requiring additional monies to implement the SSMP that must be approved by the governing board.

## CHAPTER 11 – COMMUNICATION PROGRAM

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This chapter describes the City SSMP communication program. The information presented complies with section D13 (xi) of the State WDRs, included in Appendix A.

### 11.1 State WDRs

The City must 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 City as the program is developed and implemented.

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

### 11.2 Communication Program Discussion

The City will communicate on a regular basis with the public on the implementation and performance of the SSMP using various types of outreach including print media, social media, websites (internet), and public hearings. The City will utilize DOU bill stuffers to inform customers of upcoming issues of concerns related to the SSMP (e.g., upcoming rate changes). The City also maintains a website ([www.cityofsacramento.org/utilities](http://www.cityofsacramento.org/utilities)) to inform the public about City utilities activities. The City's SSMP is published on DOU's website and will provide a forum in which the public can provide comment on the document.

The updated SSMP is certified by the City Council at a public meeting every 5 years.

The City will communicate with systems that are related to the City's sewer system by continuing to participate in California Alliance for Sewer System Excellence (CASSE). CASSE meetings are run by SASD and include other sewer agencies where both regional collection system and local collection system issues are discussed.

## **CHAPTER 12 – SSMP COMPLETION AND CERTIFICATION**

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This chapter provides the required certifications of compliance for the Sewer System Management Plan (SSMP) and complies with section D14 of the State WDRs, included in Appendix A.

### **12.1 State WDRs**

Both the SSMP and the City's program to implement the SSMP must be certified by the City to be in compliance with the requirements set forth above and must be presented to the City's governing board for approval at a public meeting. The City shall certify that the SSMP and subparts thereof are in compliance with the general WDRs within the time frames required.

### **12.2 Certification Documentation**

The State WDRs requires that the SSMP be updated every five years, and also requires re-certification by City Council when significant updates are made. The original SSMP was adopted by City Council April 12, 2009 and re-certified by City Council on April 22, 2014. The 2019 SSMP update was re-certified by City Council on October 22, 2019. A copy of the City Council consent to certify compliance of the 2018-2019 SSMP is included in Chapter 12 of this document.

City Council Resolution for SSMP Development Plan and  
Schedule - July 2007

## **RESOLUTION NO. 2007-523**

Adopted by the Sacramento City Council

July 17, 2007

### **SEWER SYSTEM MANAGEMENT PLAN – DEVELOPMENT PLAN AND SCHEDULE**

#### **BACKGROUND**

- A. On May 2, 2006 the California State Water Resources Control Board (SWRCB) adopted Statewide General Waste Discharge Requirements (WDRs). Order No. 2006-0003, for all publicly owned sanitary sewer collection systems.
- B. The City applied for coverage under the WDR on November 2, 2006 for the separated sewer collection system.
- C. The WDR require publicly owned collection systems to prevent sanitary sewer overflows (SSOs), develop a Sewer System management Plan (SSMP) to eliminate SSOs, and comply with reporting requirements. In addition, the agency governing board is required to approve at a public meeting the Development Plan and Schedule for preparing the SSMP.
- D. Adoption of the proposed Sewer System Management Plan - Development Plan and Schedule (Exhibit A) will satisfy the WDR requirement.

#### **BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL RESOLVES AS FOLLOWS:**

- Section 1. The Sewer System Management Plan – Development Plan and Schedule at Exhibit A is approved and adopted.

#### **Table of Contents:**

Exhibit A Sewer System Management Plan - Development Plan and Schedule

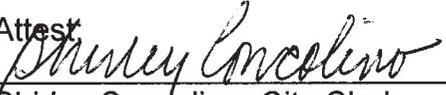
Adopted by the City of Sacramento City Council on July 17, 2007 by the following vote:

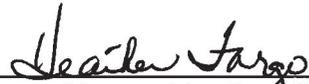
Ayes: Councilmembers, Fong, Hammond, McCarty, Pannell, Sheedy,  
Tretheway, Waters, and Mayor Fargo.

Noes: None.

Abstain: None.

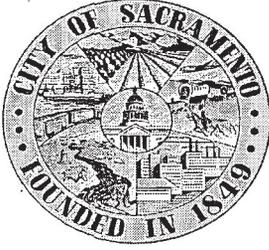
Absent: Councilmember Cohn.

Attest  
  
Shirley Concolino, City Clerk

  
\_\_\_\_\_  
Mayor, Heather Fargo

| <b>City Separated Sewer System Management Plan –<br/>Development Plan and Schedule</b> |                  |
|--|------------------|
| <b>Main Task</b>   | <b>Due Date</b>  |
| <b>SSMP Development Plan and Schedule</b>  | August 2, 2007   |
| <b>Goals and Organizational Structure</b>  | November 2, 2007 |
| <b>Overflow Emergency Response Plan</b>  | November 2, 2008 |
| <b>Legal Authority</b>   | November 2, 2008 |
| <b>Operation and Maintenance Program</b>   | November 2, 2008 |
| <b>Fats, Oils and Grease Control Program</b>   | November 2, 2008 |
| <b>Design and Performance</b>  | May 2, 2009      |
| <b>System Evaluation and Capacity Assurance Plan</b>                                   | May 2, 2009      |
| <b>Monitoring and Program Modifications</b>  | May 2, 2009      |
| <b>Program Audits</b>  | May 2, 2009      |
| <b>Communication Program</b>   | May 2, 2009      |
| <b>Final SSMP, incorporating all of the SSMP requirements</b>                          | May 2, 2009      |

City Council Report SSMP Certification - April 2009



# REPORT TO COUNCIL

## City of Sacramento

915 I Street, Sacramento, CA 95814-2604  
www.CityofSacramento.org

Consent  
April 21, 2009

Honorable Mayor and  
Members of the City Council

**Title: Certification of a Sewer System Management Plan**

**Location/Council District:** Citywide

**Recommendation:** Adopt a **Resolution** certifying compliance of the City Sewer System Management Plan with the State Waste Discharge Requirements for the City separated sewer collection system.

**Contact:** David L. Brent, Engineering Manager, 808-1420; Sherill Huun, Supervising Engineer, 808-1455

**Presenters:** N/A

**Department:** Department of Utilities (DOU)

**Division:** Engineering Services

**Organization No:** 14000

### Description/Analysis

**Issue:** As required by the State, the City has coverage under the recently adopted Statewide General Waste Discharge Requirements (WDR) for all publicly owned sanitary sewer collection systems. The City is required by the State to develop and implement a Sewer System Management Plan (SSMP) to eliminate sewer overflows from the separated sewer system owned by the City (see Attachment 2). The City is also required to certify at a public meeting compliance of the SSMP with the State WDR. Adoption of the attached resolution satisfies this certification requirement.

**Policy Considerations:** Compliance with the WDR, specifically, the requirement to eliminate sanitary sewer overflows, is consistent with the City Council focus areas of public safety, economic development, and sustainability and livability.

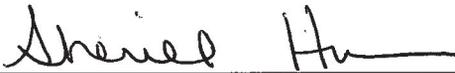
**Environmental Considerations:** This report concerns administrative activities that will not have any significant effect on the environment and that do not constitute a "project" as defined by the California Environmental Quality Act (CEQA)[CEQA Guideline Sections 15061(b)(3); 15378(b)(2)].

**Rationale for Recommendation:** With the adoption of the resolution, the City

will comply with the State WDR for the City separated sewer collection system.

**Financial Considerations:** Oversight of SSMP implementation will be completed with existing resources; however, assessments to be completed with the SSMP may require the City spend additional resources in future years for capital improvements or additional operations and maintenance activities to reduce or eliminate sewer overflows.

**Emerging Small Business Development (ESBD):** none

Respectfully Submitted by:   
for David L. Brent  
Engineering Services Manager

Approved by:   
Marty Hanneman  
ACM/Director of Utilities

Recommendation Approved:

  
for Ray Kerridge  
City Manager

**Table of Contents:**

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| <b>Attachments</b>          |       |
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| 2 Resolution                | pg. 4 |
| 3 Cd copy of 2008-2009 SSMP |       |

**Attachment 1**

**Background**

On May 2, 2006 the California State Water Resources Control Board (SWRCB) adopted Statewide General Waste Discharge Requirements (WDR) Order No. 2006-0003 for all publicly owned sanitary sewer collection systems. The purpose of the WDR is to prevent Sewer System Overflows (SSOs). A SSO is any overflow or spill of sewage that has backed up into buildings or private property, or that has entered a waterway, or a spill that has entered the public right-of-way.

The City applied for coverage under the WDR on November 2, 2006 for the separated sewer collection system from the separated system owned by the City (see Attachment 2). The City is required to prevent SSOs from the separated system, develop and implement a Sewer System Management Plan (SSMP) to eliminate SSOs, and comply with SSO reporting requirements. The City Council is also required to certify at a public meeting that the City's SSMP complies with the requirements set forth in the WDR.

The purpose of the City SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system, and to reduce and prevent SSOs, as well as mitigate any SSOs that do occur. The SSMP is required to include specific plan components including goals, legal authority, operations and maintenance activities, design standards, emergency response plans, grease blockage best management practices, capacity studies, audits and capital improvement funding.

The WDR specify the due dates for completion of the SSMP document. The final SSMP must be certified as complying with State WDR by May 2, 2009. The 2008-2009 SSMP attached to this report in electronic format and presented for Council consideration complies with the requirements set forth in the State WDR.

**Attachment 2**

**RESOLUTION NO.**

Adopted by the Sacramento City Council

**CERTIFICATION OF THE 2008-2009 SEWER SYSTEM MANAGEMENT PLAN**

**BACKGROUND**

- A. On May 2, 2006 the California State Water Resources Control Board (SWRCB) adopted Statewide General Waste Discharge Requirements (WDR) Order No. 2006-0003 for all publicly owned sanitary sewer collection systems.
- B. The City applied for coverage under the WDR on November 2, 2006 for the City's separated sewer collection system.
- C. The City is required to prevent sanitary sewer overflows (SSOs), develop a Sewer System Management Plan (SSMP) to eliminate SSOs, and comply with reporting requirements. In addition, the City Council is required to certify at a public meeting compliance of the SSMP with the State WDR.

**BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL RESOLVES AS FOLLOWS:**

- Section 1. The City's 2008-2009 Sewer System Management Plan complies with the State WDR and is approved and adopted.

City Council Report SSMP Re-Certification and Draft  
Minutes- October 2019



## City Council Report

915 I Street, 1<sup>st</sup> Floor  
Sacramento, CA 95814

[www.cityofsacramento.org](http://www.cityofsacramento.org)

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**File ID:** 2019-01415

October 22, 2019

**Consent Item 26**

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**Title:** Re-Certification of the Updated Sewer System Management Plan

**Location:** Citywide

**Recommendation:** Pass a Motion re-certifying that the City's updated Sewer System Management Plan (SSMP) for the City's separated sewer collection system complies with the requirements specified in the Statewide General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems (State Water Resources Control Board Order No. 2006-0003).

**Contact:** Jamie McKinley, Project Manager (916) 808-5693; Sherill Huun, Supervising Engineer (916) 808-1455; Dan Sherry, Engineering & Water Resources Division Manager, (916) 808-1419; Department of Utilities.

**Presenter:** None

**Attachments:**

1-Description/Analysis

2-2018-2019 Sewer System Management Plan

3-State Water Resources Control Board Order No. 2006-0003 and MRP Amendment Order No. WQ 2013-0058-EXEC

## Description/Analysis

**Issue Detail:** As required by the State Water Resource Control Board for all publicly owned sanitary sewer collection systems, the City obtained coverage under the applicable Statewide General Waste Discharge Requirements (WDR) (Order No. 2006-0003) and complies with the WDR by maintaining and implementing a Sewer System Management Plan (SSMP). The WDR requires the SSMP to be updated every five years, and the City is required to re-certify when significant updates are made to the SSMP. The City certified the 2013-2014 SSMP in 2014. The City has updated the SSMP to reflect current activities, and the updated 2018-2019 SSMP is being presented for re-certification.

**Policy Considerations:** City Council approval is required per the State Water Resources Control Board Order No. 2006-0003, page 9, Section D.11, "The Enrollee shall develop and implement a written Sewer System Management Plan (SSMP) and make it available to the State and/or Regional Water Board upon request. A copy of this document must be publicly available at the Enrollee's office and/or available on the Internet. This SSMP must be approved by the Enrollee's governing board at a public meeting"; and page 15, Section D.14, "Both the SSMP and the Enrollee's program to implement the SSMP must be certified by the Enrollee to be in compliance with the requirements set forth above and must be presented to the Enrollee's governing board for approval at a public meeting."

**Economic Impacts:** None.

**Environmental Considerations:** The Community Development Department, Environmental Planning Services Division has reviewed the project and has determined that the project is exempt from the California Environmental Quality Act (CEQA), under section 15061 (b)(3) of the CEQA Guidelines. The activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.

**Sustainability:** The SSMP is consistent with the 2035 General Plan Goals U 3.1, U 3.1.1 and U 3.1.2 in that implementation of the SSMP provides adequate and reliable sewer and wastewater facilities that collect, treat and safely dispose of wastewater. Implementation of the SSMP also provides sufficient wastewater conveyance storage, and pumping capacity for peak sanitary sewer flows and infiltration.

**Commission/Committee Action:** Not applicable.

**Rationale for Recommendation:** Certification of the SSMP is required to comply with the State WDR that applies to the City's separated sewer collection system.

**Financial Considerations:** Oversight of SSMP implementation will be completed with existing resources in the Wastewater Fund (6006); however, assessments to be completed with the SSMP may require the City to spend additional resources in future years for capital improvements to maintain the assets or to perform additional Wastewater and Drainage operation and maintenance activities to reduce or eliminate sanitary sewer overflows (SSOs).

There are no General Funds allocated or planned for this project.

**Local Business Enterprise (LBE):** Not applicable

**Background:** On May 2, 2006, the California State Water Resources Control Board (SWRCB) adopted WDR Order No. 2006-0003, for all publicly owned sanitary sewer collection systems. The intent of the State WDR is to uniformly collect information on the causes and sources of SSOs. An SSO is any sewer overflow or spill of sewage that has backed up into buildings, private property or the public right-of-way or has entered a waterway. An SSO occurs when a sewer line is blocked, clogged, or otherwise obstructed. The information collected determines the full impacts of SSOs on public health and the environment and provides a primary regulatory mechanism for statewide sanitary sewer systems to prevent future SSOs. The Monitoring and Reporting Program requirements of the State WDRs were amended in September 2013. The amendments include specified SSO notification, reporting and record keeping requirements, and address compliance and enforceability of the Monitoring and Reporting Program.

The City applied for coverage under the WDR on November 2, 2006 for the separated sewer collection system owned by the City. The City is required to maintain and implement an SSMP to eliminate SSOs and comply with SSO reporting requirements. The City's SSMP provides a plan and schedule to properly manage, operate, and maintain the sanitary sewer system to reduce and prevent SSOs, as well as mitigate any SSOs that occur. The SSMP is required to include specific plan components, including goals, legal authority, operations and maintenance activities, design standards, emergency response plans, grease blockage best management practices, capacity studies, audits, and capital improvement funding.

City Council certified compliance of the original SSMP with the WDR requirements in April 2009 and re-certified the 2014 SSMP in April 2014. The WDR requires the SSMP to be updated every five years. The governing board is required to re-certify the SSMP when significant updates have been made to the SSMP. The SSMP has been updated to reflect staffing and organization changes and activities implemented to further reduce sewer

overflows. The updated 2018-2019 SSMP attached to this report is being presented to the City Council for Council consideration and re-certification in accordance with the WDR requirements.

# DRAFT Minutes

City Council  
Financing Authority  
Housing Authority  
Public Financing Authority  
Redevelopment Agency Successor  
Agency

City Hall-Council Chamber, 915 I Street,  
1<sup>st</sup> Floor, Sacramento, CA 95814

Published by the Office of the City Clerk  
(916) 808-5163

## CITY COUNCIL

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Angelique Ashby, Mayor Pro Tem, District 1  
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Steve Hansen, District 4  
Jay Schenirer, District 5  
Eric Guerra, Vice Mayor, District 6  
Rick Jennings, II, District 7  
Larry Carr, District 8

## CHARTER OFFICERS

Mindy Cuppy, City Clerk  
Susana Alcala Wood, City Attorney  
Jorge Oseguera, City Auditor  
Howard Chan, City Manager  
John Colville, City Treasurer

**Tuesday, October 22, 2019**  
**5:00 p.m.**

### NOTICE TO THE PUBLIC

You are welcomed and encouraged to participate in this meeting. Public comment is taken on items listed on the agenda when they are called. Public Comment on items not listed on the agenda will be heard as noted on the agenda. Comments on controversial items may be limited and large groups are encouraged to select 3-5 speakers to represent the opinion of the group. **Speaker slips are available on the City's Website and located in racks inside the chamber and should be completed and submitted to the Assistant City Clerk.**

*Government Code 54950 (The Brown Act)* requires that a brief description of each item to be transacted or discussed be posted at least 72 hours prior to a regular meeting or 24 hours prior to a special meeting. The City posts meeting agendas on the City website, at City Hall as well as offsite meeting locations. **The order and estimated time for agenda items are listed for reference and may be taken in any order deemed appropriate by the legislative body.**

The agenda provides a general description and staff recommendation; however, the legislative bodies may take action other than what is recommended. Full staff reports are available for public review on the City's website and include all attachments and exhibits. "To Be Delivered" and "Supplemental" reports will be published as they are received. All meeting materials are also available at the meeting for public review. Contracts subject to the 10-day review period, as required by the Council Rules of Procedure, can be found on the City's website at: <http://portal.cityofsacramento.org/Clerk/Contract-Posting>

City Council meetings are broadcast live on Metrocable, Channel 14, AT&T Broadband Cable System and rebroadcast on the Saturday following the date of the meeting. Live video streams and indexed archives of meetings are available via the internet.

Visit the City's official website at [http://sacramento.granicus.com/ViewPublisher.php?view\\_id=21](http://sacramento.granicus.com/ViewPublisher.php?view_id=21).

Meeting facilities are accessible to persons with disabilities. If you require special assistance to participate in the meeting, notify the Office of the City Clerk at (916) 808-7200 at least 48 hours prior to the meeting.

**Notice to Lobbyists:** When addressing the legislative bodies you must identify yourself as a lobbyist and announce the client/business/organization you are representing (*City Code 2.15.160*).

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**General Conduct for the Public Attending Council Meetings**

- Members of the public attending City Council meetings shall observe the same rules and decorum applicable to the Members and staff as noted in Chapters 3 and 4 of Council Rules of Procedure.
- Stamping of feet, whistles, yells or shouting, physically threatening conduct, and/or similar demonstrations are unacceptable public behavior and will be prohibited by the Sergeant-at-Arms.
- Lobbyists must identify themselves and the client(s), business or organization they represent before speaking to the Council.
- Members of the public wishing to provide documents to the Council shall comply with Rule 7 D of the Council Rules of Procedure.

**Members of the Public Addressing the City Council**

Purpose of Public Comment. The City provides opportunities for the public to address the Council as a whole in order to listen to the public's opinions regarding non-agendized matters within the subject matter jurisdiction of the City during Regular meetings and regarding items on the Agenda at all other meetings.

- Public comments should not be addressed to individual Members nor to City officials, but rather to the City Council as a whole regarding City business.
- While the public may speak their opinions on City business, personal attacks on Members and City officials, use of swear words, and signs or displays of disrespect for individuals are discouraged as they impede good communication with the Council.
- Consistent with the Brown Act, the public comment periods on the Agenda are not intended to be "Question and Answer" periods or conversations with the Council and City officials. The limited circumstances under which Members may respond to public comments are set out in Rule 8 D 2 of the Council Rules of Procedure.
- Members of the public with questions concerning Consent Calendar items may contact the staff person or the Council Member whose district is identified on the report prior to the meeting to reduce the need for discussion of Consent Calendar items and to better respond to the public's questions.

**Speaker Time Limits.** In the interest of facilitating the Council's conduct of the business of the City, the following time limits apply to members of the public (speakers) who wish to address the Council during the meeting.

- **Matters not on the Agenda.** Two (2) minutes per speaker.
- **Consent Calendar Items.** The Consent Calendar is considered a single item, and speakers are therefore subject to the two (2) minute time limit for the entire Consent Calendar. Consent Calendar items can be pulled at a Council member's request. Such pulled Consent Calendar items will be considered individually and up to two (2) minutes of public comment per speaker on those items will be permitted.
- **Discussion Calendar Items.** Two (2) minutes per speaker.

Time Limits per Meeting In addition to the above time limits per item, the total amount of time any one individual may address the Council at any meeting is eight (8) minutes.

- Each speaker shall limit his/her remarks to the specified time allotment.
- The Presiding Officer shall consistently utilize the timing system which provides speakers with notice of their remaining time to complete their comments. A countdown display of the allotted time will appear and will flash red at the end of the allotted time.
- In the further interest of time, speakers may be asked to limit their comments to new materials and not repeat what a prior speaker said. Organized groups may choose a single spokesperson who may speak for the group but with no increase in time.
- Speakers shall not concede any part of their allotted time to another speaker.
- The Presiding Officer may further limit the time allotted for public comments per speaker or in total for the orderly conduct of the meeting and such limits shall be fairly applied.

# City of Sacramento City Council

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City Hall Council Chamber

915 I Street, 1<sup>st</sup> Floor

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## Regular Meeting DRAFT Minutes

Tuesday, October 22, 2019

5:00 p.m.

*All items listed are heard and acted upon by the Sacramento City Council unless otherwise noted.*

### **Open Session – 5:00 p.m.**

Regular session called to order by Mayor Darrell Steinberg at 5:05 p.m. Tuesday, October 22, 2019 at the Sacramento City Hall Council Chamber.

**Members Present:** Angelique Ashby, Larry Carr, Steve Hansen, Jeff Harris, Rick Jennings, Jay Schenirer (until 9:01 p.m.), Allen Warren (until 8:54 p.m.), and Mayor Darrell Steinberg (until 8:57 p.m.).

**Members Absent:** Eric Guerra.

**Pledge of Allegiance** – Led by Mr. Williams.

**Closed Session Report** – None.

### **Special Presentation/General Communications**

- A. Recognizing the 25th Anniversary of Sacramento's Alice Birney Waldorf School  
**Action:** Resolution presented by Member Schenirer
  
- B. Recognizing Henry Li for Being Named Outstanding Public Transportation Manager of the Year by the American Public Transit Association  
**Action:** Resolution presented by Member Schenirer

## **Consent Calendar**

*All items listed under the Consent Calendar are considered and acted upon by one Motion. Anyone may request an item be removed for separate consideration.*

**Action:** Moved/Seconded: Member Hansen / Member Harris.

**Yes:** Members Angelique Ashby, Larry Carr, Steve Hansen, Jeff Harris, Rick Jennings, Jay Schenirer, Allen Warren, and Mayor Darrell Steinberg.

**Absent:** Member Eric Guerra.

A motion **passed** to adopt the Consent Calendar in one motion except as indicated at each item.

1. **(City Council / Financing Authority / Housing Authority / Public Financing Authority / Redevelopment Agency Successor Agency) Revised 2019 Meeting Schedule for City Council, Financing Authority, Housing Authority, Public Financing Authority and Redevelopment Agency Successor Agency**

File ID: 2019-01496

**Location:** Citywide

**Action:** Adopted **City Council Resolution No. 2019-0396:** a) rescinding City Council Resolution 2018-0474; and b) approving the revised 2019 City Council meeting schedule; 2) adopted **Financing Authority Resolution No. 2019-0001:** a) rescinding Financing Authority Resolution 2018-0003; and b) approving the revised 2019 Financing Authority meeting schedule; 3) adopted **Housing Authority Resolution No. 2019-0017** a) rescinding Housing Authority Resolution 2018-0023; and b) approving the revised 2019 meeting schedule; 4) adopted **Public Financing Authority Resolution No. 2019-0001:** a) rescinding Public Financing Authority Resolution 2018-0002; and b) approving the revised 2019 meeting schedule; and 5) adopted **Redevelopment Agency Successor Agency Resolution No. 2019-0002:** a) rescinding Redevelopment Agency Successor Agency Resolution 2018-0006; and b) approving the revised 2019 meeting schedule.

**Contact:** Mindy Cuppy, MMC, City Clerk, (916) 808-5442, Office of the City Clerk

2. **On-Call Agreements: Environmental Consulting Services**

File ID: 2019-01493

**Location:** Citywide

**Action:** Passed **Motion No. 2019-0355** authorizing the City Manager or City Manager's designee to execute Professional Services Agreements for on-call environmental consulting services with 1) AECOM Technical Services, Inc., 2) Geocon Consultants, Inc., 3) NCE, 4) Ninyo & Moore, and 5) Stantec Consulting Services, Inc., each for an initial three-year term and up to two additional one-year terms for a total amount not-to-exceed \$150,000.

**Contact:** Denise Malvetti, Senior Development Project Manager, (916) 808-7064, City Manager's Office of Innovation and Economic Development

3. **Approvals for Implementation of Pathways to Health + Home Program [Published for 10-Day Review 10/11/2019]**

File ID: 2019-01513

**Location:** Citywide

**Action:** Moved/Seconded: Member Hansen / Member Harris.

**Yes:** Members Larry Carr, Steve Hansen, Jeff Harris, Rick Jennings, Jay Schenirer, Allen Warren, and Mayor Darrell Steinberg.

**Abstain (Recusal):** Member Angelique Ashby.

**Absent:** Member Eric Guerra.

Public comment heard from Michael Harris and Pastor Gainsbrugh.

**Action:** Adopted **Resolution No. 2019-0397** authorizing the City Manager or City Manager's designee to: 1) execute amendment No. 1 (attached hereto as Exhibit A) to Alignment Agreement 2018-0572 with Sutter Valley Hospitals dba Sutter Medical Center to increase the contract by \$1,870,000 for a new total amount of \$8,906,925 paid to Sutter Valley Hospitals for alignment of Sutter's programs to improve the outcomes of people experiencing homelessness or those at risk of homelessness with the City's Pathways program goals; and 2) adjust revenue and expenditure budgets in the Whole Person Care Program (I02000900) fund 2703 Externally Funded as needed, to accept donations from community partners.

**Contact:** Emily Halcon, Homeless Services Coordinator, (916) 808-7896; Anira Khlok, Homeless Services Program Analyst, (916) 808-7948, Office of the City Manager

4. **(Pass for Publication) Ordinance to Approve a Rezone for the Luther Gardens Senior Apartments Project (P19-031)**

File ID: 2019-01306

**Location:** East side of Luther Drive, approximately 1,000 feet south of Florin Road and Luther Drive, APN: 049-0010-106-0000, District 8

**Action:** 1) Reviewed a Resolution for a General Plan Amendment to re-designate ±0.79 acres from Suburban Neighborhood Low Density to Suburban Neighborhood High Density; 2) reviewed an Ordinance rezoning ±0.79 acres from the Single-Unit Dwelling (R-1) zone to the Multi-Unit Dwelling (R-2B) zone; 3) reviewed a Resolution for an Environmental Determination and Site Plan and Design Review; and 4) passed for publication the Ordinance title as required by Sacramento City Charter 32c to be adopted November 5, 2019.

**Contact:** Marcus Adams, Senior Planner, (916) 808-5044, Community Development Department

5. **Ordinance Amending City Code Chapter 15.148 to Create a Special Sign District for the Entertainment and Sports Center Area (M14-004) [Passed for Publication 10/15/2019; Published 10/18/2019]**  
File ID: 2019-01432  
**Location:** District 4, area generally bounded by 3rd, 7th, J, and L Streets  
**Action:** Adopted **Ordinance No. 2019-0035** amending the Sacramento City Code by deleting existing section 15.148.191, adding a new section 15.148.191, and amending sections 15.148.680 and 15.148.1170, all relating to signs for the Entertainment and Sports Center area.  
**Contact:** Matthew Sites, Urban Design Staff, Associate AIA, LEED AP, (916) 808-7646; Karlo Felix, Senior Planner, (916) 808-7183; Evan Compton, Principal Planner, (916) 808-5260, Community Development Department
6. **Accepting Sacramento Area Flood Control Agency's 2019 Urban Level of Flood Protection Adequate Progress Annual Report**  
File ID: 2019-01514  
**Location:** Citywide  
**Action:** Adopted **Resolution No. 2019-0398** accepting Sacramento Area Flood Control Agency's 2019 Urban Level of Flood Protection Adequate Progress Annual Report.  
**Contact:** Remi Mendoza, Senior Planner, (916) 808-5003; Gregory J. Sandlund, Long Range Planning Manager, (916) 808-8931; Neal Joyce, Supervising Engineer, (916) 808-1461, Community Development Department
7. **Mills Act Contracts: Historical Property Agreements for 730 I Street (IR19-046), 1320 D Street (IR19-206), 406 8th Street (IR19-207), 2013 I Street (IR19-227), and 819 22nd Street (IR19-228)**  
File ID: 2019-01429  
**Location:** 730 I Street (006-0034-019-0000); 1320 D Street (002-0123-006-0000); 406 8th Street (002-0105-003-0000). 2013 I Street (007-0015-013-0000); and 819 22nd Street (007-0023-022-0000); District 4  
**Action:** Passed **Motion No. 2019-0356** authorizing the City Manager or the City Manager's designee to: 1) enter into Mills Act Contracts with each of the owners of the following properties: a) 730 I Street; b) 1320 D Street; c) 406 8th Street; d) 2013 I Street; and e) 819 22nd Street, whereby the owners agree to preserve, restore, and protect their historic properties, for an initial term of ten years with automatic contract renewal each year on the anniversary of the contract execution date; and 2) execute amendments to the Rehabilitation / Restoration / Maintenance Plan (i.e. work plan) that do not result in expense to the City.  
**Contact:** Carson Anderson, Preservation Director, (916) 808-8259; Sean de Courcy, Associate Preservation Planner, (916) 808-2796, Community Development Department

- 8. Agreement: Exclusive Utility Services Provider for Sacramento Convention Center**  
File ID: 2019-01464  
**Location:** District 4  
**Action:** Passed **Motion No. 2019-0357** to **withdraw** a Motion to consider: 1) awarding a Professional Services Agreement for exclusive utility services at the Sacramento Convention Center to Edlen Electrical Exhibition Services, Inc. with an initial term from November 1, 2019 through October 31, 2025, with up to two additional three-year extension options; and 2) authorizing the City Manager or the City Manager's designee to execute the Professional Services Agreement.  
**Contact:** Matthew Voreyer, General Manager, (916) 808-5503; Jody Ulich, Director, (916) 808-5105, Convention and Cultural Services Department
- 9. Agreement and Budget Transfer: North Natomas Library Tech Art Project (L19920000)**  
File ID: 2019-01461  
**Location:** District 1  
**Action:** Adopted **Resolution No. 2019-0399:** 1) authorizing the City Manager or the City Manager's designee to transfer \$496,000 in General Funds (Fund 1001) from the expenditure budget in the North Natomas Community Center and Aquatic Complex Project (L19140410) to the expenditure budget in the Art in Public Places Program (L19920000); 2) awarding an Agreement to purchase artwork to Vincent Damyanovich in an amount not to exceed \$110,000 for the North Natomas Library Tech Art Project; and 3) authorizing the City Manager or the City Manager's designee to execute the agreement specified above.  
**Contact:** Donald Gensler, Arts in Public Places Specialist, (916) 808-8493; Jody Ulich, Director, (916) 808-5105, Convention and Cultural Services Department
- 10. Contract Supplement: Lincoln Training Center Janitorial Services**  
File ID: 2019-01384  
**Location:** Citywide
- Action:** Moved/Seconded: Member Hansen / Member Harris.
- Yes:** Members Larry Carr, Steve Hansen, Jeff Harris, Rick Jennings, Jay Schenirer, Allen Warren, and Mayor Darrell Steinberg.
- No:** Member Angelique Ashby.
- Absent:** Member Eric Guerra.
- Action:** Passed **Motion No. 2019-0358** authorizing the City Manager or City Manager's designee to execute supplemental agreement No.25 to Contract No. 2015-1827 for janitorial services with Lincoln Training Center and Rehabilitation Workshop, approving a four-month extension and eight month-to-month extensions of the contract, and increasing the not-to-exceed amount by \$122,135, for a new not-to-exceed amount of \$3.4 million.

**Contact:** Gary O'Neill, Program Analyst, (916) 808-7432; Robert C. Adams, Procurement Services Manager, (916) 808-5524, Department of Finance.

**11. Supplemental Agreement to Extend Citywide Web-Based Bidding Portal Contract (Two-Thirds Vote Required)**

File ID: 2019-01378

**Location:** Citywide

**Action:** Passed **Motion No. 2019-0359** authorizing the City Manager or the City Manager's designee to: 1) suspend competitive bidding in the best interest of the City; and 2) execute Supplement No. 3 to Agreement 2016-0439 with PlanetBids for the City's web-based bidding portal extending the contract through October 31, 2021 and increasing the not-to-exceed amount by \$110,000, for a total not-to-exceed amount of \$238,000.

**Contact:** Lydia Brambila, Program Analyst, (916) 808-1229, Finance Department

**12. Cooperative Purchasing Agreement: Purchase of Monitor/Defibrillators and Supplies [Two-Thirds Vote Required]**

File ID: 2019-01505

**Location:** Citywide

**Action:** Passed **Motion No. 2019-0360:** 1) by two-thirds vote waiving Sacramento City Code Section 4.04.020.C and Council Rules of Procedure (Chapter 7, Section E.2.d) that mandate that all labor agreements and all agreements greater than \$1 million be made available to the public at least 10 days prior to Council action; 2) approving the use of the cooperative purchase agreement between Savvik Buying Group and Stryker for the purchase of ALS monitor/defibrillators and associated supplies; 3) authorizing the City Manager, or City Manager's designee, to execute the purchases of ALS monitor / defibrillators and associated supplies from Stryker, Inc. for a not-to-exceed amount of \$2,800,000 through November 8, 2021.

**Contact:** James Billiter, Assistant Chief, (916) 808-2208, Fire Department

**13. Cooperative Purchasing Agreement: Personal Protection Equipment and Firefighting Tools**

File ID: 2019-01506

**Location:** Citywide

**Action:** Passed **Motion No. 2019-0361:** 1) approving the use of the Public Procurement Authority/National Purchasing Partners Rescue GPO (NPPGov FRGPO) cooperative purchase agreement with a) Cascade Fire Equipment (Contract No. PS17009) for an amount not to exceed \$75,000, b) LN Curtis and Sons (Contract No. 00000170) for an amount not to exceed \$428,000, c) Municipal Emergency Services (Contract No. 00000168) for an amount not to exceed \$65,000, and d) Municipal Emergency Services (Contract No. 00000169) for an amount not to exceed \$100,000 for the purchase of Personal Protection Equipment (PPE); and 2) issuing the required purchase orders for the not-to-exceed amount specific for the vendors under each cooperative purchasing agreement for a total amount not-to-exceed \$668,000 until June 30, 2020.

**Contact:** John Dancart, Assistant Chief, (916) 808-1609, Fire Department

- 14. Emergency Vehicle Operations Course Modular Office Supplemental Agreement with Mobile Modular Management Corporation**  
File ID: 2019-01460  
**Location:** Citywide  
**Action:** Passed **Motion No. 2019-0362** authorizing the City Manager or City Manager's designee to execute a Supplemental Agreement with Mobile Modular Manufacturing Corporation for the addition of a second Emergency Vehicle Operations Course (EVOC) modular office and increasing the Agreement by \$99,000 for a total amount not to exceed (NTE) amount of \$198,000.  
**Contact:** Edward Russell, Loss Prevention Manager, 916-808-2276, Human Resources
- 15. Grant: Fiscal Year 2017 COPS Hiring Program (CHP)**  
File ID: 2019-01500  
**Location:** Citywide  
**Action:** Adopted **Resolution No. 2019-0400** authorizing the City Manager or the City Manager's designee to: 1) establish an operating grant project for the 2017 CHP grant (G11017000); and 2) establish the revenue and expenditure budgets in the operating grant project in the amount of \$1.875 million.  
**Contact:** Natalie Weaver, Administrative Officer, Fiscal Operations, (916) 808-0864, Police Department
- 16. Cooperative Purchase Agreement: Electric Vehicle Supply Equipment (EVSE)**  
File ID: 2019-01448  
**Location:** Citywide  
**Action:** Passed **Motion No. 2019-0363:** 1) approving the use of the Sourcewell cooperative purchase agreement with ChargePoint, Inc. (Contract No. 051017-CPI) for the purchase of 53 electric vehicle chargers and associated setup and network access fees for an amount not to exceed \$269,767; and 2) authorizing the City Manager or the City Manager's designee to make the purchase specified above.  
**Contact:** Joseph J. Gluvers, Senior Engineer, (916) 808-8427; Jennifer Venema, Sustainability Manager, (916) 808-1859, Department of Public Works

**17. Lease Agreement: Sacramento Valley Station, 401 I Street, Suites 210 and 220**

File ID: 2019-01449

**Location:** Sacramento Valley Station, 401 I Street, Suites 210 and 220, District 3

**Action:** Passed **Motion No. 2019-0364:** 1) determining that, pursuant to City Code Section 3.68.110(D), the leasing of 401 I Street, Suites 210 and 220 without bidding is in the best interest of the City; 2) authorizing the City Manager or the City Manager's designee to execute a lease agreement with Clark Construction Group - California LP, for an initial lease term of five years for Suite 210 and an initial lease term of four years for Suite 220, with two three-year options to extend; and 3) authorizing the City Manager or the City Manager's designee to execute minor lease amendments pursuant to City Code Section 3.68.120.

**Contact:** Steve Ward, Real Property Agent, (916) 808-1081; Richard Sanders, Superintendent, Department of Public Works

**18. Budgetary Adjustments and Contract Award: Highway Safety Improvement Project Pedestrian Hybrid Beacons (T15166000) [Published for 10-Day Review 10/11/2019]**

File ID: 2019-01348

**Location:** Districts 2, 4, 5, 7, and 8

**Action:** Adopted **Resolution No. 2019-0401:** 1) approving the Plans and Specifications for Highway Safety Improvement Program (HSIP) Pedestrian Hybrid Beacons Project (T15166000); 2) approving the removal of one City-owned tree, to be replaced with one new tree; 3) authorizing the City Manager or the City Manager's designee to transfer \$311,000 (New Measure A Safety, Streetscape, Pedestrian, and Bicycle Fund, Fund 2039) from the expenditure budget of the State and Federal Grant Match Program (T15007200) to the expenditure budget of the HSIP Pedestrian Hybrid Beacons Project (T15166000); 4) authorizing the City Manager or the City Manager's designee to transfer \$290,000 (Major Street Construction, Fund 2007) from available fund balance to the expenditure budget of the HSIP Pedestrian Hybrid Beacons Project (T15166000); 5) authorizing the City Manager or the City Manager's designee to increase the revenue and expenditure budgets of the HSIP Pedestrian Hybrid Beacons Project (T15166000) by \$1,482,300 (Federal Capital Grants, Fund 3703) in HSIP Funding; 6) upon Caltrans approval of additional federal funding authorization, authorizing the City Manager or the City Manager's designee to increase the revenue and expenditure budget in the HSIP Pedestrian Hybrid Beacons Project (T15166000) by \$290,000 (Federal Capital Grants, Fund 3703) in HSIP funding and to transfer \$290,000 (Major Street Construction, Fund 2007) from the expenditure budget in the HSIP Pedestrian Hybrid Beacons Project (T15166000) to available fund balance; 7) awarding the construction contract for HSIP Pedestrian Hybrid Beacons Project (T15166000) to Pacific Excavation Inc. in an amount not to exceed \$1,535,895; and 8) authorizing the City Manager or the City Manager's designee to execute the construction contract for the HSIP Pedestrian Hybrid Beacons Project (T15166000).

**Contact:** Adam Randolph, Senior Engineer (916) 808-7803; Judy Matsui-Drury, Supervising Engineer (916) 808-7610; Nader Kamal, Interim Engineering Services Manager (916) 808-5065, Department of Public Works

**19. Professional Services Agreement: On-Call Construction Management Services for Federal Projects [Published for 10-Day Review 10/11/2019]**

File ID: 2019-01394

**Location:** Citywide

**Action:** Passed **Motion No. 2019-0365:** 1) awarding a Professional Services Agreement for On-Call Construction Management Services for Federal Projects having a total amount not to exceed \$4,000,000 for three years with an option to extend for up to additional two years; and 2) authorizing the City Manager or the City Manager's designee to execute a Professional Services Agreement for On-Call Construction Management Services for Federal Projects with Salaber Associates, Inc. for a not to exceed amount of \$4,000,000 for three years with an option to extend for up to additional two years.

**Contact:** Elizabeth Weeks, Associate Engineer, (916) 808-2330; Judith Matsui-Drury, Supervising Engineer, (916) 808-7610, Department of Public Works

**20. Riverfront Joint Powers Authority and Streetcar Successor Project**

File ID: 2019-01404

**Location:** Districts 3 and 4

Public comment heard from Steven Bourasa.

**Action:** Passed **Motion No. 2019-0366** to **withdraw** a Motion directing the City Manager to: 1) develop a delivery plan with the partnering agencies for a successor light rail transit project in place of the Streetcar; and 2) collaborate with the City of West Sacramento and identify the necessary steps to dissolve the Riverfront Joint Powers Authority.

**Contact:** Judy Matsui-Drury, Supervising Engineer, (916) 808-7610; Nader Kamal, Interim Division Manager, (916) 808-7035; Department of Public Works

**21. Establish Capital Improvement Project and Budget Adjustment for the Ninos Parkway Phase 2 Project (K15202000)**

File ID: 2019-01342

**Location:** Ninos Parkway between San Juan Road and Rio Norte Way, District 3

**Action:** Adopted **Resolution No. 2019-0402:** 1) establishing the Ninos Parkway Phase 2 Project (K15202000) as a new Capital Improvement Project; and 2) authorizing the City Manager or the City Manager's designee to increase the expenditure budget for the Ninos Parkway Phase 2 Project (K15202000) by transferring \$250,000 from the Transportation Development Impact Fee (Fund 3215) available fund balance.

**Contact:** William Shunk, Senior Engineer (916) 808-2986; Nader Kamal, Interim Engineering Services Manager (916) 808-5065, Department of Public Works

- 22. Measure A: Acceptance of Fiscal Year 2018/19 Measure A Construction Interest Allocation and Unrecognized Balance with Sacramento Transportation Authority**  
File ID: 2019-01416  
**Location:** Citywide  
**Action:** Adopted **Resolution No. 2019-0403:** 1) accepting the Fiscal Year (FY) 2018/19 Measure A Construction interest allocation of \$104,316 (Sacramento Transportation Sales Tax Fund, Fund 2001) from the Sacramento Transportation Authority (STA); 2) accepting the FY 2018/19 Measure A Construction unrecognized balance of \$201,458 (Fund 2001) from STA; 3) authorizing the City Manager or the City Manager's designee to increase the revenue and expense budgets in the North Natomas Community Center and Aquatic Complex Project (L19140410) by \$305,774 (Fund 2001); 4) authorizing the City Manager or the City Manager's designee to transfer \$305,774 (Major Street Construction Fund, Fund 2007) from the expense budget in the North Natomas Community Center and Aquatic Complex Project (L19140410) to available fund balance; and 5) authorizing the City Manager or the City Manager's designee to submit the FY 2018/19 Measure A Construction interest allocation funding plan to STA.  
**Contact:** Dustin Purinton, Senior Accountant/Auditor (916) 808-5587; April Lu, Supervising Financial Analyst, (916) 808-2680, Nader Kamal, Interim Division Manager, (916) 808-7035, Department of Public Works
- 23. (Pass for Publication) Ordinance Amending the City's Fee and Charge Report for Recycling and Solid Waste Utility Service Rates**  
File ID: 2019-01375  
**Location:** Citywide  
**Action:** 1) Reviewed an ordinance amending the City's Fee and Charge Report to increase Recycling and Solid Waste rates, consisting of an increase of 7.43%, 7.47%, 7.49% and 7.51% for FY2019/20, FY2020/21, FY2021/22, and FY2022/23 respectively; and 2) pass for publication the ordinance title as required by Sacramento City Charter §32 (c), to be submitted to the City Council for adoption on November 5, 2019.  
**Contact:** Jerome Council, Integrated Waste General Manager, (916) 808-4949; Janice Conerly-Coleman, Support Services Manager (916) 808-2683, Department of Public Works
- 24.**
- 25. Delegation to Vote: Election of Reclamation District No. 1000 Trustees**  
File ID: 2019-01497  
**Location:** District 1
- Action:** Moved/Seconded: Member Hansen / Member Harris.
- Yes:** Members Larry Carr, Steve Hansen, Jeff Harris, Rick Jennings, Jay Schenirer, Allen Warren, and Mayor Darrell Steinberg.
- Abstain (Recusal):** Member Angelique Ashby.
- Absent:** Member Eric Guerra.

**Action:** Adopted **Resolution No. 2019-0404:** 1) authorizing City of Sacramento (City) representatives to vote on behalf of the City in the November 5, 2019 Election of Reclamation District No. 1000 (RD 1000) Trustees for parcels owned by the City of Sacramento located in RD1000; and 2) specifying the City's allocation of votes among the candidates.

**Contact:** Anne Sanger, Government Affairs Manager, (916) 808-1635; Bill Busath, Director, (916) 808-1434, Department of Utilities.

**26. Agreements: On-Call Sewer Infrastructure Work Related to the Sewer Repairs Program (X14120300) [Two-Thirds Vote Required]**

File ID: 2019-01427

**Location:** Citywide

**Action:** Passed **Motion No. 2019-0367:** 1) suspending competitive bidding, in the best interests of the City, for On-Call Sewer Infrastructure Work; and 2) authorizing the City Manager or the City Manager's designee to execute agreements for the On-call Sewer Infrastructure Work for the Sewer Repairs Program (X14120300) in an amount not-to-exceed \$900,000 each with a) Rawles Engineering, Inc. and b) Florez Paving, for a three-year term.

**Contact:** Sonia Lopez, Associate Engineer (916) 808-1456; Tony Bertrand, Supervising Engineer (916) 808-1461; Dan Sherry, Engineering & Water Resources Division Manager, (916) 808-1419; Department of Utilities

**27. Re-Certification of the Updated Sewer System Management Plan**

File ID: 2019-01415

**Location:** Citywide

**Action:** Passed **Motion No. 2019-0368** re-certifying that the City's updated Sewer System Management Plan (SSMP) for the City's separated sewer collection system complies with the requirements specified in the Statewide General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems (State Water Resources Control Board Order No. 2006-0003).

**Contact:** Jamie McKinley, Project Manager (916) 808-5693; Sherill Huun, Supervising Engineer (916) 808-1455; Dan Sherry, Engineering & Water Resources Division Manager, (916) 808-1419; Department of Utilities.

**28. Agreement: Stormwater Monitoring and Regulatory Support Services for Fiscal Year 2019/20**

File ID: 2019-01419

**Location:** Citywide

**Action:** Passed **Motion No. 2019-0369** authorizing the City Manager or the City Manager's designee to: 1) execute a Professional Services Agreement with Larry Walker Associates, Inc. to provide stormwater monitoring and regulatory support services for Fiscal Year 2019/20, for an amount not-to-exceed \$807,998; and 2) accept the agreement funding commitment and assume all obligations related to the Confluence Regional Partnership Program Agreement for an amount not-to-exceed \$140,000.

**Contact:** Lisa Moretti, Project Manager (916) 808-5390; Sherill Huun, Supervising Engineer (916) 808-1455; Dan Sherry, Engineering & Water Resources Division Manager, (916) 808-1419; Department of Utilities

**29. State Department of Parks and Recreation Grant Application for Margarete "Mama" Marks Park and Hagginwood Park Projects**

File ID: 2019-01428

**Location:** District 2

**Action:** Adopted **Resolution No. 2019-0405** authorizing the City Manager or City Manager's designee to apply for funding and execute the grant agreement for Margarete "Mama" Marks Park and Hagginwood Park Projects with the State Department of Parks and Recreation.

**Contact:** Janelle Oishi, Program Specialist, (916)808-1016, Department of Youth, Parks & Community Enrichment

**30. Contract for Sutter's Landing Park Restroom Project**

File ID: 2019-01380

**Location:** District 3

**Action:** Passed **Motion No. 2019-0370:** 1) approving the construction plans and specifications for the Sutter's Landing Park Restroom Project Rebid (L19167008); 2) awarding the contract to BRCO Constructors, Inc. in the amount of \$398,200; and 3) authorizing the City Manager or the City Manager's designee to execute the contract.

**Contact:** Tin-Wah Wong, Landscape Architect, (916) 808-5540; Raymond Costantino, Park Planning and Development Services Manager, (916) 808-1941, Department of Youth, Parks, & Community Enrichment

31. **(Housing Authority) Sacramento Housing and Redevelopment Agency Economic Opportunity Plan (Section 3)**  
File ID: 2019-00853  
**Location:** Citywide  
**Action:** Received and filed update on Sacramento Housing and Redevelopment Agency (Agency) Economic Opportunity Plan (Section 3).  
**Contact:** La Shelle Dozier, Executive Director, (916) 440-1319, Sacramento Housing and Redevelopment Agency
32. **Sacramento Housing and Redevelopment Agency Diversity Plan Update**  
File ID: 2019-01257  
**Location:** Citywide  
**Action:** Received and filed.  
**Contact:** La Shelle Dozier, Executive Director, (916) 440-1319, Sacramento Housing and Redevelopment Agency
33. **(Housing Authority) Authorization to Enter into Development Services Agreement with the Sacramento Housing Authority Repositioning Program, Inc. (SHARP) for the Rental Assistance Demonstration (RAD) Project**  
File ID: 2019-01289  
**Location:** Citywide  
**Action:** Adopted Housing Authority **Resolution No. 2019-0018** authorizing the Executive Director to enter into a Development Services Agreement with SHARP to allow the completion of all predevelopment and development services necessary to complete the Rental Assistance Demonstration (RAD) Pilot project.  
**Contact:** La Shelle Dozier, Executive Director, 916-440-1319, Sacramento Housing and Redevelopment Agency

## Public Hearings

34. **Delta Shores Community Facilities District No. 2019-01 (Improvements): Ordinance Levying Special Taxes within the Delta Shores Community Facilities District No. 2019-01 (Improvements); Resolution Establishing Accounting Funds for the District; and Ordinance Approving Second Amendment to Development Agreement (City Agreement No. 2009-0060) [Noticed 10/11/2019; Passed for Publication 10/15/2019; Published 10/18/2019]**

File ID: 2019-00783

**Location:** Districts 7 and 8

**Action:** Moved/Seconded: Member Jennings / Member Hansen.

**Yes:** Members Angelique Ashby, Larry Carr, Steve Hansen, Jeff Harris, Rick Jennings, Jay Schenirer, Allen Warren, and Mayor Darrell Steinberg.

**Absent:** Member Eric Guerra.

Conducted a public hearing and upon conclusion: 1) adopted **Ordinance No. 2019-0036** levying a special tax on land within the Delta Shores Community Facilities District No. 2019-01 (Improvements) (the "CFD"); 2) adopted **Resolution No. 2019-0406** establishing new accounting funds for the CFD; and 3) adopted **Ordinance No. 2019-0037** approving the Second Amendment to the Development Agreement between the City of Sacramento and the M & H VI Projects, LLC, Delta Shores Wetlands, LLC and Delta Shores Detention Ponds, LLC (2009-0060).

**Contact:** Arwen Wacht, Program Specialist, (916) 808-7535; Sheri Smith, Special Districts Manager, (916) 808-7204, Department of Finance

35. **Central City Development Impact Fee Economic Incentive Adjustment [Noticed 10/11/2019 and 10/17/2019]**

File ID: 2019-01266

**Location:** District 4

**Action:** Moved/Seconded: Member Hansen / Member Ashby.

**Yes:** Members Angelique Ashby, Larry Carr, Steve Hansen, Jeff Harris, Rick Jennings, Jay Schenirer, Allen Warren, and Mayor Darrell Steinberg.

**Absent:** Member Eric Guerra.

Public comment heard from Zach Mosle and Crisand Giles.

Conducted a public hearing and upon conclusion adopted **Resolution No. 2019-0407** adopting the first annual economic incentive adjustment of the Central City Development Impact Fee.

**Contact:** Sheri Smith, Special Districts Manager, (916) 808-7204, Department of Finance, Greg Sandlund, Principal Planner, (916) 808-8931, Community Development Department

**36. Authorize Submission of the Analysis of Impediments (AI); Adopt the 2020-2024 Consolidated Plan; Approval of the 2020 One-Year Action Plan for the Community Development Block Grant (CDBG), HOME Investment Partnerships Program (HOME), Emergency Solutions Grant (ESG), and Housing Opportunities for Persons With AIDS (HOPWA) Funded Projects and Programs; Approval of Amendment of Prior Years' Action Plans; Authorizing Amendment to the Sacramento Housing and Redevelopment Agency (SHRA) Budget; and Other Related Actions**

File ID: 2019-01292

**Location:** Citywide

**Action:** Moved/Seconded: Member Ashby / Member Jennings.

**Yes:** Members Angelique Ashby, Larry Carr, Steve Hansen, Jeff Harris, Rick Jennings, Jay Schenirer, Allen Warren, and Mayor Darrell Steinberg.

**Absent:** Member Eric Guerra.

Adopted: 1) **City Council Resolution No. 2019-0408** a) authorizing SHRA to submit the Analysis of Impediments to the U.S. Department of Housing and Urban Development (HUD) Exhibit A; b) adopt the 2020-2024 Consolidated Plan which lays out the strategies and goals for the Community Development Block Grant (CDBG), Home Investment Partnership (HOME), Emergency Solutions Grant (ESG), and Housing for Persons with AIDS (HOPWA) programs, as set out in Exhibit B; c) approve the 2020 One-Year Action Plan and amendments to prior years' Action Plans to allocate anticipated CDBG, HOME, ESG, and HOPWA funds as described in Exhibit C; d) authorizing SHRA to amend its budget to allocate CDBG, HOME, ESG, and HOPWA funding for programs and projects in accordance with the 2020 One-Year Action Plan and amendments to the prior years' Action Plans, including amendment if the United States Department of Housing and Urban Development (HUD) grant awards are less or greater than anticipated based on the adopted HUD budget to the extent necessary to implement and ensure the timely completion of the activities; e) authorizing the City Manager or City Manager's designee to execute agreements with SHRA to carry out the activities contained in the 2020 One-Year Action Plan and amendments to the prior years' Action Plans in compliance with applicable federal laws and regulations, as approved to form by SHRA legal counsel and the City Attorney; f) authorizing and delegating authority to SHRA to act as agent on behalf of the City of Sacramento to execute grant agreements with HUD and execute agreements and contracts with the appropriate entities to carry out programs and projects in accordance with the Action Plans and in compliance with applicable federal laws and regulations as approved to form by SHRA legal counsel; g) authorizing SHRA to make any budget adjustments and execute related documents as necessary to administer

the programs as described in the Action Plans in compliance with applicable federal laws and regulations as outlined in Exhibit C; h) authorizing SHRA to submit the 2020 One-Year Action Plan and amendments to prior years' Action Plans to HUD; and 2) **City Council Resolution No. 2019-0409** establishing Capital Improvement Project (CIP) designations and grant for City projects proposed for funding in the 2020 One-Year Action Plan.

**Contact:** Tyrone Williams, Director of Development, (916) 440-1319, Sacramento Housing and Redevelopment Agency

### **Discussion Calendar**

*Discussion calendar items include an oral presentation including those recommending "receive and file".*

#### **37. City Council Discussion Regarding Additional Homeless Shelter Proposal Options and Update on Sacramento Housing and Redevelopment Agency's Proposed Homeless Services Five-Point Plan**

File ID: 2019-01471

**Location:** Citywide

Public comment heard from:

- |                      |                             |
|----------------------|-----------------------------|
| 1. Tammy Vallejo     | 13. Beth Southern           |
| 2. Bob Erlenbusch    | 14. Ryan Garcia             |
| 3. Russell Rawlings  | 15. Vernon Hills            |
| 4. Kris Rogers       | 16. Marc Cawdrey            |
| 5. Pastor Gainsbrugh | 17. Caity Maple             |
| 6. Betty Williams    | 18. John Krintz             |
| 7. John Foley        | 19. Jevon Wilkes            |
| 8. Ron Javor         | 20. Diane Wolfe             |
| 9. Craig Segall      | 21. Kerrin West             |
| 10. Lilly Allen      | 22. Amani Rapaski           |
| 11. Dan Aderholt     | 23. Tommie Whitlow          |
| 12. Roy Anderson     | 24. Jenna Abbott            |
|                      | 25. Ardell La'mond Harrison |

**Action:** Received and provided direction.

**Contact:** Tyrone Roderick Williams, Director of Development, (916) 440-1316; La Shelle Dozier, Executive Director, 916-440-1319, Sacramento Housing and Redevelopment Agency

**Information Items**

*These items are for information only and not eligible for action at this time.*

**38. Notification of Final Map Approval for Sutter Triangle (Z18-235)**

File ID: 2019-01575

**Location:** District 3

**Action:** Received and filed.

**Contact:** Jimmy L Byrum, City Surveyor, (916) 808-7918, Department of Public Works

**39. Notification of Parcel Map Approval for 3215 3rd Avenue (Z18-139)**

File ID: 2019-01576

**Location:** District 5

**Action:** Received and filed.

**Contact:** Jimmy L Byrum, City Surveyor, (916) 808-7918, Department of Public Works

**Council Comments-Ideas, Questions, AB1234 Reports, and JPA/Board and Commission Appointments****1. Information Requests****a. Member Hansen**

1. Asked the City Manager if we can have increased traffic enforcement around school zones during school hours.
2. Asked that the Public Works department look at the Sutterville Road segment near schools to determine if the pedestrian flashing beacon is sufficient.

**b. Member Harris**

1. Asked the City Manager that he would like to work with Consuelo Hernandez to bring back a resolution to council to present to our state legislators about various pieces of legislation that could be funded or altered to get us to the point where we could create a detox facility, a mandated drug treatment facility.

**c. Member Ashby**

1. Asked Assistant City Manager Conlin to follow up with the Mayor on a Climate Change declaration.

**2. Board/Commission Appointments**

None.

# V. SEWER SYSTEM MANAGEMENT PLAN

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## CHAPTER 13 – APPENDICES

|                   |   |
|-------------------|---|
| <b>Appendix A</b> | State WDRs  |
| <b>Appendix B</b> | Standard Operating Procedure for Cleaning Gravity Sewers  |
| <b>Appendix C</b> | Monthly Wastewater Pump Station Preventative Maintenance Procedures                                 |
| <b>Appendix D</b> | CIP Project Initiation Workflow Process Diagram   |
| <b>Appendix E</b> | California Integrated Water Quality System (CIWQS) SSO Data (September 2, 2007 – December 31, 2018) |

## V. SEWER SYSTEM MANAGEMENT PLAN

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### Appendix A State WDRs

**STATE WATER RESOURCES CONTROL BOARD  
ORDER NO. 2006-0003-DWQ**

**STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS  
FOR  
SANITARY SEWER SYSTEMS**

The State Water Resources Control Board, hereinafter referred to as “State Water Board”, finds that:

1. All federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California are required to comply with the terms of this Order. Such entities are hereinafter referred to as “Enrollees”.
2. Sanitary sewer overflows (SSOs) are overflows from sanitary sewer systems of domestic wastewater, as well as industrial and commercial wastewater, depending on the pattern of land uses in the area served by the sanitary sewer system. SSOs often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen-demanding organic compounds, oil and grease and other pollutants. SSOs may cause a public nuisance, particularly when raw untreated wastewater is discharged to areas with high public exposure, such as streets or surface waters used for drinking, fishing, or body contact recreation. SSOs may pollute surface or ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters.
3. Sanitary sewer systems experience periodic failures resulting in discharges that may affect waters of the state. There are many factors (including factors related to geology, design, construction methods and materials, age of the system, population growth, and system operation and maintenance), which affect the likelihood of an SSO. A proactive approach that requires Enrollees to ensure a system-wide operation, maintenance, and management plan is in place will reduce the number and frequency of SSOs within the state. This approach will in turn decrease the risk to human health and the environment caused by SSOs.
4. Major causes of SSOs include: grease blockages, root blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, excessive storm or ground water inflow/infiltration, debris blockages, sanitary sewer system age and construction material failures, lack of proper operation and maintenance, insufficient capacity and contractor-caused damages. Many SSOs are preventable with adequate and appropriate facilities, source control measures and operation and maintenance of the sanitary sewer system.

## **SEWER SYSTEM MANAGEMENT PLANS**

5. To facilitate proper funding and management of sanitary sewer systems, each Enrollee must develop and implement a system-specific Sewer System Management Plan (SSMP). To be effective, SSMPs must include provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Additionally, an SSMP must contain a spill response plan that establishes standard procedures for immediate response to an SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.
6. Many local public agencies in California have already developed SSMPs and implemented measures to reduce SSOs. These entities can build upon their existing efforts to establish a comprehensive SSMP consistent with this Order. Others, however, still require technical assistance and, in some cases, funding to improve sanitary sewer system operation and maintenance in order to reduce SSOs.
7. SSMP certification by technically qualified and experienced persons can provide a useful and cost-effective means for ensuring that SSMPs are developed and implemented appropriately.
8. It is the State Water Board's intent to gather additional information on the causes and sources of SSOs to augment existing information and to determine the full extent of SSOs and consequent public health and/or environmental impacts occurring in the State.
9. Both uniform SSO reporting and a centralized statewide electronic database are needed to collect information to allow the State Water Board and Regional Water Quality Control Boards (Regional Water Boards) to effectively analyze the extent of SSOs statewide and their potential impacts on beneficial uses and public health. The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. 2006-0003-DWQ, are necessary to assure compliance with these waste discharge requirements (WDRs).
10. Information regarding SSOs must be provided to Regional Water Boards and other regulatory agencies in a timely manner and be made available to the public in a complete, concise, and timely fashion.
11. Some Regional Water Boards have issued WDRs or WDRs that serve as National Pollution Discharge Elimination System (NPDES) permits to sanitary sewer system owners/operators within their jurisdictions. This Order establishes minimum requirements to prevent SSOs. Although it is the State Water Board's intent that this Order be the primary regulatory mechanism for sanitary sewer systems statewide, Regional Water Boards may issue more stringent or more

prescriptive WDRs for sanitary sewer systems. Upon issuance or reissuance of a Regional Water Board's WDRs for a system subject to this Order, the Regional Water Board shall coordinate its requirements with stated requirements within this Order, to identify requirements that are more stringent, to remove requirements that are less stringent than this Order, and to provide consistency in reporting.

## REGULATORY CONSIDERATIONS

12. California Water Code section 13263 provides that the State Water Board may prescribe general WDRs for a category of discharges if the State Water Board finds or determines that:

- The discharges are produced by the same or similar operations;
- The discharges involve the same or similar types of waste;
- The discharges require the same or similar treatment standards; and
- The discharges are more appropriately regulated under general discharge requirements than individual discharge requirements.

This Order establishes requirements for a class of operations, facilities, and discharges that are similar throughout the state.

13. The issuance of general WDRs to the Enrollees will:

- a) Reduce the administrative burden of issuing individual WDRs to each Enrollee;
- b) Provide for a unified statewide approach for the reporting and database tracking of SSOs;
- c) Establish consistent and uniform requirements for SSMP development and implementation;
- d) Provide statewide consistency in reporting; and
- e) Facilitate consistent enforcement for violations.

14. The beneficial uses of surface waters that can be impaired by SSOs include, but are not limited to, aquatic life, drinking water supply, body contact and non-contact recreation, and aesthetics. The beneficial uses of ground water that can be impaired include, but are not limited to, drinking water and agricultural supply. Surface and ground waters throughout the state support these uses to varying degrees.

15. The implementation of requirements set forth in this Order will ensure the reasonable protection of past, present, and probable future beneficial uses of water and the prevention of nuisance. The requirements implement the water quality control plans (Basin Plans) for each region and take into account the environmental characteristics of hydrographic units within the state. Additionally, the State Water Board has considered water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect

water quality in the area, costs associated with compliance with these requirements, the need for developing housing within California, and the need to develop and use recycled water.

16. The Federal Clean Water Act largely prohibits any discharge of pollutants from a point source to waters of the United States except as authorized under an NPDES permit. In general, any point source discharge of sewage effluent to waters of the United States must comply with technology-based, secondary treatment standards, at a minimum, and any more stringent requirements necessary to meet applicable water quality standards and other requirements. Hence, the unpermitted discharge of wastewater from a sanitary sewer system to waters of the United States is illegal under the Clean Water Act. In addition, many Basin Plans adopted by the Regional Water Boards contain discharge prohibitions that apply to the discharge of untreated or partially treated wastewater. Finally, the California Water Code generally prohibits the discharge of waste to land prior to the filing of any required report of waste discharge and the subsequent issuance of either WDRs or a waiver of WDRs.
17. California Water Code section 13263 requires a water board to, after any necessary hearing, prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge. The requirements shall, among other things, take into consideration the need to prevent nuisance.
18. California Water Code section 13050, subdivision (m), defines nuisance as anything which meets all of the following requirements:
  - a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
  - b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
  - c. Occurs during, or as a result of, the treatment or disposal of wastes.
19. This Order is consistent with State Water Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California) in that the Order imposes conditions to prevent impacts to water quality, does not allow the degradation of water quality, will not unreasonably affect beneficial uses of water, and will not result in water quality less than prescribed in State Water Board or Regional Water Board plans and policies.
20. The action to adopt this General Order is exempt from the California Environmental Quality Act (Public Resources Code §21000 et seq.) because it is an action taken by a regulatory agency to assure the protection of the environment and the regulatory process involves procedures for protection of the environment. (Cal. Code Regs., tit. 14, §15308). In addition, the action to adopt

this Order is exempt from CEQA pursuant to Cal.Code Regs., title 14, §15301 to the extent that it applies to existing sanitary sewer collection systems that constitute “existing facilities” as that term is used in Section 15301, and §15302, to the extent that it results in the repair or replacement of existing systems involving negligible or no expansion of capacity.

21. The Fact Sheet, which is incorporated by reference in the Order, contains supplemental information that was also considered in establishing these requirements.
22. The State Water Board has notified all affected public agencies and all known interested persons of the intent to prescribe general WDRs that require Enrollees to develop SSMPs and to report all SSOs.
23. The State Water Board conducted a public hearing on February 8, 2006, to receive oral and written comments on the draft order. The State Water Board received and considered, at its May 2, 2006, meeting, additional public comments on substantial changes made to the proposed general WDRs following the February 8, 2006, public hearing. The State Water Board has considered all comments pertaining to the proposed general WDRs.

**IT IS HEREBY ORDERED**, that pursuant to California Water Code section 13263, the Enrollees, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

#### **A. DEFINITIONS**

1. **Sanitary sewer overflow (SSO)** - Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include:
  - (i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;
  - (ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and
  - (iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.
2. **Sanitary sewer system** – Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant headworks used to collect and convey wastewater to the publicly owned treatment facility. Temporary storage and conveyance facilities (such as vaults, temporary piping, construction trenches, wet wells, impoundments, tanks, etc.) are considered to be part of the sanitary sewer system, and discharges into these temporary storage facilities are not considered to be SSOs.

For purposes of this Order, sanitary sewer systems include only those systems owned by public agencies that are comprised of more than one mile of pipes or sewer lines.

3. **Enrollee** - A federal or state agency, municipality, county, district, and other public entity that owns or operates a sanitary sewer system, as defined in the general WDRs, and that has submitted a complete and approved application for coverage under this Order.
4. **SSO Reporting System** – Online spill reporting system that is hosted, controlled, and maintained by the State Water Board. The web address for this site is <http://ciwqs.waterboards.ca.gov>. This online database is maintained on a secure site and is controlled by unique usernames and passwords.
5. **Untreated or partially treated wastewater** – Any volume of waste discharged from the sanitary sewer system upstream of a wastewater treatment plant headworks.
6. **Satellite collection system** – The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility to which the sanitary sewer system is tributary.
7. **Nuisance** - California Water Code section 13050, subdivision (m), defines nuisance as anything which meets all of the following requirements:
  - a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
  - b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
  - c. Occurs during, or as a result of, the treatment or disposal of wastes.

## **B. APPLICATION REQUIREMENTS**

1. **Deadlines for Application** – All public agencies that currently own or operate sanitary sewer systems within the State of California must apply for coverage under the general WDRs within six (6) months of the date of adoption of the general WDRs. Additionally, public agencies that acquire or assume responsibility for operating sanitary sewer systems after the date of adoption of this Order must apply for coverage under the general WDRs at least three (3) months prior to operation of those facilities.
2. **Applications under the general WDRs** – In order to apply for coverage pursuant to the general WDRs, a legally authorized representative for each agency must submit a complete application package. Within sixty (60) days of adoption of the general WDRs, State Water Board staff will send specific instructions on how to

apply for coverage under the general WDRs to all known public agencies that own sanitary sewer systems. Agencies that do not receive notice may obtain applications and instructions online on the Water Board's website.

3. Coverage under the general WDRs – Permit coverage will be in effect once a complete application package has been submitted and approved by the State Water Board's Division of Water Quality.

### **C. PROHIBITIONS**

1. Any SSO that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.
2. Any SSO that results in a discharge of untreated or partially treated wastewater that creates a nuisance as defined in California Water Code Section 13050(m) is prohibited.

### **D. PROVISIONS**

1. The Enrollee must comply with all conditions of this Order. Any noncompliance with this Order constitutes a violation of the California Water Code and is grounds for enforcement action.
2. It is the intent of the State Water Board that sanitary sewer systems be regulated in a manner consistent with the general WDRs. Nothing in the general WDRs shall be:
  - (i) Interpreted or applied in a manner inconsistent with the Federal Clean Water Act, or supersede a more specific or more stringent state or federal requirement in an existing permit, regulation, or administrative/judicial order or Consent Decree;
  - (ii) Interpreted or applied to authorize an SSO that is illegal under either the Clean Water Act, an applicable Basin Plan prohibition or water quality standard, or the California Water Code;
  - (iii) Interpreted or applied to prohibit a Regional Water Board from issuing an individual NPDES permit or WDR, superseding this general WDR, for a sanitary sewer system, authorized under the Clean Water Act or California Water Code; or
  - (iv) Interpreted or applied to supersede any more specific or more stringent WDRs or enforcement order issued by a Regional Water Board.
3. The Enrollee shall take all feasible steps to eliminate SSOs. In the event that an SSO does occur, the Enrollee shall take all feasible steps to contain and mitigate the impacts of an SSO.
4. In the event of an SSO, the Enrollee shall take all feasible steps to prevent untreated or partially treated wastewater from discharging from storm drains into

flood control channels or waters of the United States by blocking the storm drainage system and by removing the wastewater from the storm drains.

5. All SSOs must be reported in accordance with Section G of the general WDRs.
6. In any enforcement action, the State and/or Regional Water Boards will consider the appropriate factors under the duly adopted State Water Board Enforcement Policy. And, consistent with the Enforcement Policy, the State and/or Regional Water Boards must consider the Enrollee's efforts to contain, control, and mitigate SSOs when considering the California Water Code Section 13327 factors. In assessing these factors, the State and/or Regional Water Boards will also consider whether:
  - (i) The Enrollee has complied with the requirements of this Order, including requirements for reporting and developing and implementing a SSMP;
  - (ii) The Enrollee can identify the cause or likely cause of the discharge event;
  - (iii) There were no feasible alternatives to the discharge, such as temporary storage or retention of untreated wastewater, reduction of inflow and infiltration, use of adequate backup equipment, collecting and hauling of untreated wastewater to a treatment facility, or an increase in the capacity of the system as necessary to contain the design storm event identified in the SSMP. It is inappropriate to consider the lack of feasible alternatives, if the Enrollee does not implement a periodic or continuing process to identify and correct problems.
  - (iv) The discharge was exceptional, unintentional, temporary, and caused by factors beyond the reasonable control of the Enrollee;
  - (v) The discharge could have been prevented by the exercise of reasonable control described in a certified SSMP for:
    - Proper management, operation and maintenance;
    - Adequate treatment facilities, sanitary sewer system facilities, and/or components with an appropriate design capacity, to reasonably prevent SSOs (e.g., adequately enlarging treatment or collection facilities to accommodate growth, infiltration and inflow (I/I), etc.);
    - Preventive maintenance (including cleaning and fats, oils, and grease (FOG) control);
    - Installation of adequate backup equipment; and
    - Inflow and infiltration prevention and control to the extent practicable.
  - (vi) The sanitary sewer system design capacity is appropriate to reasonably prevent SSOs.

- (vii) The Enrollee took all reasonable steps to stop and mitigate the impact of the discharge as soon as possible.
7. When a sanitary sewer overflow occurs, the Enrollee shall take all feasible steps and necessary remedial actions to 1) control or limit the volume of untreated or partially treated wastewater discharged, 2) terminate the discharge, and 3) recover as much of the wastewater discharged as possible for proper disposal, including any wash down water.

The Enrollee shall implement all remedial actions to the extent they may be applicable to the discharge and not inconsistent with an emergency response plan, including the following:

- (i) Interception and rerouting of untreated or partially treated wastewater flows around the wastewater line failure;
  - (ii) Vacuum truck recovery of sanitary sewer overflows and wash down water;
  - (iii) Cleanup of debris at the overflow site;
  - (iv) System modifications to prevent another SSO at the same location;
  - (v) Adequate sampling to determine the nature and impact of the release; and
  - (vi) Adequate public notification to protect the public from exposure to the SSO.
8. The Enrollee shall properly, manage, operate, and maintain all parts of the sanitary sewer system owned or operated by the Enrollee, and shall ensure that the system operators (including employees, contractors, or other agents) are adequately trained and possess adequate knowledge, skills, and abilities.
9. The Enrollee shall allocate adequate resources for the operation, maintenance, and repair of its sanitary sewer system, by establishing a proper rate structure, accounting mechanisms, and auditing procedures to ensure an adequate measure of revenues and expenditures. These procedures must be in compliance with applicable laws and regulations and comply with generally acceptable accounting practices.
10. The Enrollee shall provide adequate capacity to convey base flows and peak flows, including flows related to wet weather events. Capacity shall meet or exceed the design criteria as defined in the Enrollee's System Evaluation and Capacity Assurance Plan for all parts of the sanitary sewer system owned or operated by the Enrollee.
11. The Enrollee shall develop and implement a written Sewer System Management Plan (SSMP) and make it available to the State and/or Regional Water Board upon request. A copy of this document must be publicly available at the Enrollee's office and/or available on the Internet. This SSMP must be approved by the Enrollee's governing board at a public meeting.

12. In accordance with the California Business and Professions Code sections 6735, 7835, and 7835.1, all engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. Specific elements of the SSMP that require professional evaluation and judgments shall be prepared by or under the direction of appropriately qualified professionals, and shall bear the professional(s)' signature and stamp.
13. The mandatory elements of the SSMP are specified below. However, if the Enrollee believes that any element of this section is not appropriate or applicable to the Enrollee's sanitary sewer system, the SSMP program does not need to address that element. The Enrollee must justify why that element is not applicable. The SSMP must be approved by the deadlines listed in the SSMP Time Schedule below.

### **Sewer System Management Plan (SSMP)**

- (i) **Goal:** 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.
- (ii) **Organization:** The SSMP must identify:
- (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)).
- (iii) **Legal Authority:** Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:
- (a) Prevent illicit discharges into its sanitary sewer system (examples may include 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.
- (iv) **Operation and Maintenance Program.** The SSMP must include those elements listed below that are appropriate and applicable to the Enrollee's system:
- (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 Preventative 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-term 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 operations and maintenance, and require contractors to be appropriately trained; and

- (e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

(v) **Design and Performance Provisions:**

- (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.

(vi) **Overflow Emergency Response Plan** - Each Enrollee shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

- (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 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.

- (vii) **FOG Control Program:** Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan shall include the following as appropriate:
- (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, 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.
- (viii) **System Evaluation and Capacity Assurance Plan:** The Enrollee shall prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. At a minimum, the plan must include:
- (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 program 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.
- (ix) **Monitoring, Measurement, and Program Modifications:** The Enrollee shall:
- (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 preventative 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.
- (x) **SSMP Program Audits** - As part of the SSMP, the Enrollee 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 the

Enrollee'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.

- (xi) **Communication Program** – The Enrollee 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 Enrollee 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.

14. Both the SSMP and the Enrollee's program to implement the SSMP must be certified by the Enrollee to be in compliance with the requirements set forth above and must be presented to the Enrollee's governing board for approval at a public meeting. The Enrollee shall certify that the SSMP, and subparts thereof, are in compliance with the general WDRs within the time frames identified in the time schedule provided in subsection D.15, below.

In order to complete this certification, the Enrollee's authorized representative must complete the certification portion in the Online SSO Database Questionnaire by checking the appropriate milestone box, printing and signing the automated form, and sending the form to:

State Water Resources Control Board  
Division of Water Quality  
Attn: SSO Program Manager  
P.O. Box 100  
Sacramento, CA 95812

The SSMP must be updated every five (5) years, and must include any significant program changes. Re-certification by the governing board of the Enrollee is required in accordance with D.14 when significant updates to the SSMP are made. To complete the re-certification process, the Enrollee shall enter the data in the Online SSO Database and mail the form to the State Water Board, as described above.

15. The Enrollee shall comply with these requirements according to the following schedule. This time schedule does not supersede existing requirements or time schedules associated with other permits or regulatory requirements.

**Sewer System Management Plan Time Schedule**

| <u>Task and Associated Section</u>  | <b>Completion Date</b>                     |  |  |  |
|---|--|--|--|--|
|   | Population > 100,000                       | Population between 100,000 and 10,000      | Population between 10,000 and 2,500        | Population < 2,500                         |
| Application for Permit Coverage<br><b>Section C</b>                           | 6 months after WDRs Adoption               |  |  |  |
| Reporting Program<br><b>Section G</b>   | 6 months after WDRs Adoption <sup>1</sup>  |  |  |  |
| SSMP Development Plan and Schedule<br><b>No specific Section</b>              | 9 months after WDRs Adoption <sup>2</sup>  | 12 months after WDRs Adoption <sup>2</sup> | 15 months after WDRs Adoption <sup>2</sup> | 18 months after WDRs Adoption <sup>2</sup> |
| Goals and Organization Structure<br><b>Section D 13 (i) &amp; (ii)</b>        | 12 months after WDRs Adoption <sup>2</sup> |  | 18 months after WDRs Adoption <sup>2</sup> |  |
| Overflow Emergency Response Program<br><b>Section D 13 (vi)</b>               | 24 months after WDRs Adoption <sup>2</sup> | 30 months after WDRs Adoption <sup>2</sup> | 36 months after WDRs Adoption <sup>2</sup> | 39 months after WDRs Adoption <sup>2</sup> |
| Legal Authority<br><b>Section D 13 (iii)</b>                                  |  |  |  |  |
| Operation and Maintenance Program<br><b>Section D 13 (iv)</b>                 |  |  |  |  |
| Grease Control Program<br><b>Section D 13 (vii)</b>                           | 36 months after WDRs Adoption              | 39 months after WDRs Adoption              | 48 months after WDRs Adoption              | 51 months after WDRs Adoption              |
| Design and Performance<br><b>Section D 13 (v)</b>                             |  |  |  |  |
| System Evaluation and Capacity Assurance Plan<br><b>Section D 13 (viii)</b>   |  |  |  |  |
| Final SSMP, incorporating all of the SSMP requirements<br><b>Section D 13</b> |  |  |  |  |

1. In the event that by July 1, 2006 the Executive Director is able to execute a memorandum of agreement (MOA) with the California Water Environment Association (CWEA) or discharger representatives outlining a strategy and time schedule for CWEA or another entity to provide statewide training on the adopted monitoring program, SSO database electronic reporting, and SSMP development, consistent with this Order, then the schedule of Reporting Program Section G shall be replaced with the following schedule:

|                                       |                               |
|---------------------------------------|-------------------------------|
| Reporting Program<br><b>Section G</b> |                               |
| Regional Boards 4, 8,<br>and 9        | 8 months after WDRs Adoption  |
| Regional Boards 1, 2,<br>and 3        | 12 months after WDRs Adoption |
| Regional Boards 5, 6,<br>and 7        | 16 months after WDRs Adoption |

If this MOU is not executed by July 1, 2006, the reporting program time schedule will remain six (6) months for all regions and agency size categories.

2. In the event that the Executive Director executes the MOA identified in note 1 by July 1, 2006, then the deadline for this task shall be extended by six (6) months. The time schedule identified in the MOA must be consistent with the extended time schedule provided by this note. If the MOA is not executed by July 1, 2006, the six (6) month time extension will not be granted.

**E. WDRs and SSMP AVAILABILITY**

1. A copy of the general WDRs and the certified SSMP shall be maintained at appropriate locations (such as the Enrollee’s offices, facilities, and/or Internet homepage) and shall be available to sanitary sewer system operating and maintenance personnel at all times.

**F. ENTRY AND INSPECTION**

1. The Enrollee shall allow the State or Regional Water Boards or their authorized representative, upon presentation of credentials and other documents as may be required by law, to:
  - a. Enter upon the Enrollee’s premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order;
  - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;

- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
- d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at any location.

## **G. GENERAL MONITORING AND REPORTING REQUIREMENTS**

1. The Enrollee shall furnish to the State or Regional Water Board, within a reasonable time, any information that the State or Regional Water Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The Enrollee shall also furnish to the Executive Director of the State Water Board or Executive Officer of the applicable Regional Water Board, upon request, copies of records required to be kept by this Order.
2. The Enrollee shall comply with the attached Monitoring and Reporting Program No. 2006-0003 and future revisions thereto, as specified by the Executive Director. Monitoring results shall be reported at the intervals specified in Monitoring and Reporting Program No. 2006-0003. Unless superseded by a specific enforcement Order for a specific Enrollee, these reporting requirements are intended to replace other mandatory routine written reports associated with SSOs.
3. All Enrollees must obtain SSO Database accounts and receive a "Username" and "Password" by registering through the California Integrated Water Quality System (CIWQS). These accounts will allow controlled and secure entry into the SSO Database. Additionally, within 30 days of receiving an account and prior to recording spills into the SSO Database, all Enrollees must complete the "Collection System Questionnaire", which collects pertinent information regarding a Enrollee's collection system. The "Collection System Questionnaire" must be updated at least every 12 months.
4. Pursuant to Health and Safety Code section 5411.5, any person who, without regard to intent or negligence, causes or permits any untreated wastewater or other waste to be discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State, as soon as that person has knowledge of the discharge, shall immediately notify the local health officer of the discharge. Discharges of untreated or partially treated wastewater to storm drains and drainage channels, whether man-made or natural or concrete-lined, shall be reported as required above.

Any SSO greater than 1,000 gallons discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State shall also be reported to the Office of Emergency Services pursuant to California Water Code section 13271.

#### **H. CHANGE IN OWNERSHIP**

1. This Order is not transferable to any person or party, except after notice to the Executive Director. The Enrollee shall submit this notice in writing at least 30 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new Enrollee containing a specific date for the transfer of this Order's responsibility and coverage between the existing Enrollee and the new Enrollee. This agreement shall include an acknowledgement that the existing Enrollee is liable for violations up to the transfer date and that the new Enrollee is liable from the transfer date forward.

#### **I. INCOMPLETE REPORTS**

1. If an Enrollee becomes aware that it failed to submit any relevant facts in any report required under this Order, the Enrollee shall promptly submit such facts or information by formally amending the report in the Online SSO Database.

#### **J. REPORT DECLARATION**

1. All applications, reports, or information shall be signed and certified as follows:
  - (i) All reports required by this Order and other information required by the State or Regional Water Board shall be signed and certified by a person designated, for a municipality, state, federal or other public agency, as either a principal executive officer or ranking elected official, or by a duly authorized representative of that person, as described in paragraph (ii) of this provision. (For purposes of electronic reporting, an electronic signature and accompanying certification, which is in compliance with the Online SSO database procedures, meet this certification requirement.)
  - (ii) An individual is a duly authorized representative only if:
    - (a) The authorization is made in writing by a person described in paragraph (i) of this provision; and
    - (b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity.

#### **K. CIVIL MONETARY REMEDIES FOR DISCHARGE VIOLATIONS**

1. The California Water Code provides various enforcement options, including civil monetary remedies, for violations of this Order.
2. The California Water Code also provides that any person failing or refusing to furnish technical or monitoring program reports, as required under this Order, or

falsifying any information provided in the technical or monitoring reports is subject to civil monetary penalties.

**L. SEVERABILITY**

1. The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.
2. This order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the Enrollee from liability under federal, state or local laws, nor create a vested right for the Enrollee to continue the waste discharge.

**CERTIFICATION**

The undersigned Clerk to the State Water Board does hereby certify that the foregoing is a full, true, and correct copy of general WDRs duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 2, 2006.

AYE: Tam M. Doduc  
Gerald D. Secundy

NO: Arthur G. Baggett

ABSENT: None

ABSTAIN: None



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Song Her  
Clerk to the Board

STATE OF CALIFORNIA  
WATER RESOURCES CONTROL BOARD  
ORDER NO. WQ 2013-0058-EXEC

AMENDING MONITORING AND REPORTING PROGRAM  
FOR  
STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR  
SANITARY SEWER SYSTEMS

The State of California, Water Resources Control Board (hereafter State Water Board) finds:

1. The State Water Board is authorized to prescribe statewide general Waste Discharge Requirements (WDRs) for categories of discharges that involve the same or similar operations and the same or similar types of waste pursuant to Water Code section 13263(i).
2. Water Code section 13193 *et seq.* requires the Regional Water Quality Control Boards (Regional Water Boards) and the State Water Board (collectively, the Water Boards) to gather Sanitary Sewer Overflow (SSO) information and make this information available to the public, including but not limited to, SSO cause, estimated volume, location, date, time, duration, whether or not the SSO reached or may have reached waters of the state, response and corrective action taken, and an enrollee's contact information for each SSO event. An enrollee is defined as the public entity having legal authority over the operation and maintenance of, or capital improvements to, a sanitary sewer system greater than one mile in length.
3. Water Code section 13271, *et seq.* requires notification to the California Office of Emergency Services (Cal OES), formerly the California Emergency Management Agency, for certain unauthorized discharges, including SSOs.
4. On May 2, 2006, the State Water Board adopted Order 2006-0003-DWQ, "Statewide Waste Discharge Requirements for Sanitary Sewer Systems"<sup>1</sup> (hereafter SSS WDRs) to comply with Water Code section 13193 and to establish the framework for the statewide SSO Reduction Program.
5. Subsection G.2 of the SSS WDRs and the Monitoring and Reporting Program (MRP) provide that the Executive Director may modify the terms of the MRP at any time.
6. On February 20, 2008, the State Water Board Executive Director adopted a revised MRP for the SSS WDRs to rectify early notification deficiencies and ensure that first responders are notified in a timely manner of SSOs discharged into waters of the state.
7. When notified of an SSO that reaches a drainage channel or surface water of the state, Cal OES, pursuant to Water Code section 13271(a)(3), forwards the SSO notification information<sup>2</sup> to local government agencies and first responders including local public health officials and the applicable Regional Water Board. Receipt of notifications for a single SSO event from both the SSO reporter

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<sup>1</sup> Available for download at:

[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2006/wqo/wqo2006\\_0003.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2006/wqo/wqo2006_0003.pdf)

<sup>2</sup> Cal OES Hazardous Materials Spill Reports available Online at:

[http://w3.calema.ca.gov/operational/mal haz.nsf/\\$defaultview](http://w3.calema.ca.gov/operational/mal haz.nsf/$defaultview) and <http://w3.calema.ca.gov/operational/mal haz.nsf>

and Cal OES is duplicative. To address this, the SSO notification requirements added by the February 20, 2008 MRP revision are being removed in this MRP revision.

8. In the February 28, 2008 Memorandum of Agreement between the State Water Board and the California Water and Environment Association (CWEA), the State Water Board committed to re-designing the CIWQS<sup>3</sup> Online SSO Database to allow "event" based SSO reporting versus the original "location" based reporting. Revisions to this MRP and accompanying changes to the CIWQS Online SSO Database will implement this change by allowing for multiple SSO appearance points to be associated with each SSO event caused by a single asset failure.
9. Based on stakeholder input and Water Board staff experience implementing the SSO Reduction Program, SSO categories have been revised in this MRP. In the prior version of the MRP, SSOs have been categorized as Category 1 or Category 2. This MRP implements changes to SSO categories by adding a Category 3 SSO type. This change will improve data management to further assist Water Board staff with evaluation of high threat and low threat SSOs by placing them in unique categories (i.e., Category 1 and Category 3, respectively). This change will also assist enrollees in identifying SSOs that require Cal OES notification.
10. Based on over six years of implementation of the SSS WDRs, the State Water Board concludes that the February 20, 2008 MRP must be updated to better advance the SSO Reduction Program<sup>4</sup> objectives, assess compliance, and enforce the requirements of the SSS WDRs.

**IT IS HEREBY ORDERED THAT:**

Pursuant to the authority delegated by Water Code section 13267(f), Resolution 2002-0104, and Order 2006-0003-DWQ, the MRP for the SSS WDRs (Order 2006-0003-DWQ) is hereby amended as shown in Attachment A and shall be effective on September 9, 2013.

8/6/13  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Thomas Howard  
Executive Director

<sup>3</sup> California Integrated Water Quality System (CIWQS) publicly available at <http://www.waterboards.ca.gov/ciwqs/publicreports.shtml>

<sup>4</sup> Statewide Sanitary Sewer Overflow Reduction Program information is available at: [http://www.waterboards.ca.gov/water\\_issues/programs/ssol/](http://www.waterboards.ca.gov/water_issues/programs/ssol/)

## ATTACHMENT A

### STATE WATER RESOURCES CONTROL BOARD ORDER NO. WQ 2013-0058-EXEC

#### AMENDING MONITORING AND REPORTING PROGRAM FOR STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER SYSTEMS

This Monitoring and Reporting Program (MRP) establishes monitoring, record keeping, reporting and public notification requirements for Order 2006-0003-DWQ, “Statewide General Waste Discharge Requirements for Sanitary Sewer Systems” (SSS WDRs). This MRP shall be effective from September 9, 2013 until it is rescinded. The Executive Director may make revisions to this MRP at any time. These revisions may include a reduction or increase in the monitoring and reporting requirements. All site specific records and data developed pursuant to the SSS WDRs and this MRP shall be complete, accurate, and justified by evidence maintained by the enrollee. Failure to comply with this MRP may subject an enrollee to civil liabilities of up to \$5,000 a day per violation pursuant to Water Code section 13350; up to \$1,000 a day per violation pursuant to Water Code section 13268; or referral to the Attorney General for judicial civil enforcement. The State Water Resources Control Board (State Water Board) reserves the right to take any further enforcement action authorized by law.

#### A. SUMMARY OF MRP REQUIREMENTS

**Table 1 – Spill Categories and Definitions**

| CATEGORIES                              | DEFINITIONS [see Section A on page 5 of Order 2006-0003-DWQ, for Sanitary Sewer Overflow (SSO) definition]   |
|---|--|
| CATEGORY 1                              | Discharges of untreated or partially treated wastewater of <b>any volume</b> resulting from an enrollee’s sanitary sewer system failure or flow condition that: <ul style="list-style-type: none"> <li>• Reach surface water and/or reach a drainage channel tributary to a surface water; or</li> <li>• 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).</li> </ul> |
| CATEGORY 2                              | Discharges of untreated or partially treated wastewater of <b>1,000 gallons or greater</b> resulting from an enrollee’s sanitary sewer system failure or flow condition that <b>do not</b> 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.  |
| PRIVATE LATERAL SEWAGE DISCHARGE (PLSD) | Discharges of untreated or partially treated wastewater resulting from blockages or other problems <b>within a privately owned sewer lateral</b> connected to the enrollee’s sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be <b>voluntarily</b> reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.  |

**Table 2 – Notification, Reporting, Monitoring, and Record Keeping Requirements**

| ELEMENT   | REQUIREMENT   | METHOD  |
|---|---|---|
| <b>NOTIFICATION</b><br>(see section B of MRP)             | <ul style="list-style-type: none"> <li>• Within two hours of becoming aware of any Category 1 SSO <b>greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water</b>, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.</li> </ul>   | Call Cal OES at:<br><b>(800) 852-7550</b>   |
| <b>REPORTING</b><br>(see section C of MRP)                | <ul style="list-style-type: none"> <li>• Category 1 SSO: Submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date.</li> <li>• Category 2 SSO: Submit draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date.</li> <li>• Category 3 SSO: Submit certified report within 30 calendar days of the end of month in which SSO the occurred.</li> <li>• SSO Technical Report: Submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters.</li> <li>• “No Spill” Certification: Certify that no SSOs occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no SSOs occurred.</li> <li>• Collection System Questionnaire: Update and certify every 12 months.</li> </ul> | Enter data into the CIWQS Online SSO Database ( <a href="http://ciwqs.waterboards.ca.gov/">http://ciwqs.waterboards.ca.gov/</a> ), certified by enrollee’s Legally Responsible Official(s). |
| <b>WATER QUALITY MONITORING</b><br>(see section D of MRP) | <ul style="list-style-type: none"> <li>• Conduct water quality sampling <b>within 48 hours</b> after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.</li> </ul>  | Water quality results are required to be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.  |
| <b>RECORD KEEPING</b><br>(see section E of MRP)           | <ul style="list-style-type: none"> <li>• SSO event records.</li> <li>• Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP.</li> <li>• Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters.</li> <li>• Collection system telemetry records if relied upon to document and/or estimate SSO Volume.</li> </ul>  | Self-maintained records shall be available during inspections or upon request.  |

## **B. NOTIFICATION REQUIREMENTS**

Although Regional Water Quality Control Boards (Regional Water Boards) and the State Water Board (collectively, the Water Boards) staff do not have duties as first responders, this MRP is an appropriate mechanism to ensure that the agencies that have first responder duties are notified in a timely manner in order to protect public health and beneficial uses.

1. For any Category 1 SSO greater than or equal to 1,000 gallons that results in a discharge to a surface water or spilled in a location where it probably will be discharged to surface water, either directly or by way of a drainage channel or MS4, the enrollee shall, as soon as possible, but not later than two (2) hours after (A) the enrollee has knowledge of the discharge, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures, notify the Cal OES and obtain a notification control number.
2. To satisfy notification requirements for each applicable SSO, the enrollee shall provide the information requested by Cal OES before receiving a control number. Spill information requested by Cal OES may include:
  - i. Name of person notifying Cal OES and direct return phone number.
  - ii. Estimated SSO volume discharged (gallons).
  - iii. If ongoing, estimated SSO discharge rate (gallons per minute).
  - iv. SSO Incident Description:
    - a. Brief narrative.
    - b. On-scene point of contact for additional information (name and cell phone number).
    - c. Date and time enrollee became aware of the SSO.
    - d. Name of sanitary sewer system agency causing the SSO.
    - e. SSO cause (if known).
  - v. Indication of whether the SSO has been contained.
  - vi. Indication of whether surface water is impacted.
  - vii. Name of surface water impacted by the SSO, if applicable.
  - viii. Indication of whether a drinking water supply is or may be impacted by the SSO.
  - ix. Any other known SSO impacts.
  - x. SSO incident location (address, city, state, and zip code).
3. Following the initial notification to Cal OES and until such time that an enrollee certifies the SSO report in the CIWQS Online SSO Database, the enrollee shall provide updates to Cal OES regarding substantial changes to the estimated volume of untreated or partially treated sewage discharged and any substantial change(s) to known impact(s).
4. PLSDs: The enrollee is strongly encouraged to notify Cal OES of discharges greater than or equal to 1,000 gallons of untreated or partially treated wastewater that result or may result in a discharge to surface water resulting from failures or flow conditions within a privately owned sewer lateral or from other private sewer asset(s) if the enrollee becomes aware of the PLSD.

### C. **REPORTING REQUIREMENTS**

1. **CIWQS Online SSO Database Account:** All enrollees shall obtain a CIWQS Online SSO Database account and receive a “Username” and “Password” by registering through CIWQS. These accounts allow controlled and secure entry into the CIWQS Online SSO Database.
2. **SSO Mandatory Reporting Information:** For reporting purposes, if one SSO event results in multiple appearance points in a sewer system asset, the enrollee shall complete one SSO report in the CIWQS Online SSO Database which includes the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that caused the SSO, and provide descriptions of the locations of all other discharge points associated with the SSO event.
3. **SSO Categories**
  - i. **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:
    - a. Reach surface water and/or reach a drainage channel tributary to a surface water; or
    - b. Reach a 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).
  - ii. **Category 2** – Discharges of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from an enrollee’s sanitary sewer system failure or flow condition that does not reach a surface water, a drainage channel, or the MS4 unless the entire SSO volume discharged to the storm drain system is fully recovered and disposed of properly.
  - iii. **Category 3** – All other discharges of untreated or partially treated wastewater resulting from an enrollee’s sanitary sewer system failure or flow condition.
4. **Sanitary Sewer Overflow Reporting to CIWQS - Timeframes**
  - i. **Category 1 and Category 2 SSOs** – All SSOs that meet the above criteria for Category 1 or Category 2 SSOs shall be reported to the CIWQS Online SSO Database:
    - a. Draft reports for Category 1 and Category 2 SSOs shall be submitted to the CIWQS Online SSO Database within three (3) business days of the enrollee becoming aware of the SSO. Minimum information that shall be reported in a draft Category 1 SSO report shall include all information identified in section 8.i.a. below. Minimum information that shall be reported in a Category 2 SSO draft report shall include all information identified in section 8.i.c below.
    - b. A final Category 1 or Category 2 SSO report shall be certified through the CIWQS Online SSO Database within 15 calendar days of the end date of the SSO. Minimum information that shall be certified in the final Category 1 SSO report shall include all information identified in section 8.i.b below. Minimum information that shall be certified in a final Category 2 SSO report shall include all information identified in section 8.i.d below.

- ii. **Category 3 SSOs** – All SSOs that meet the above criteria for Category 3 SSOs shall be reported to the CIWQS Online SSO Database and certified within 30 calendar days after the end of the calendar month in which the SSO occurs (e.g., all Category 3 SSOs occurring in the month of February shall be entered into the database and certified by March 30). Minimum information that shall be certified in a final Category 3 SSO report shall include all information identified in section 8.i.e below.
- iii. **“No Spill” Certification** – If there are no SSOs during the calendar month, the enrollee shall either 1) certify, within 30 calendar days after the end of each calendar month, a “No Spill” certification statement in the CIWQS Online SSO Database certifying that there were no SSOs for the designated month, or 2) certify, quarterly within 30 calendar days after the end of each quarter, “No Spill” certification statements in the CIWQS Online SSO Database certifying that there were no SSOs for each month in the quarter being reported on. For quarterly reporting, the quarters are Q1 - January/ February/ March, Q2 - April/May/June, Q3 - July/August/September, and Q4 - October/November/December.  
  
If there are no SSOs during a calendar month but the enrollee reported a PLSD, the enrollee shall still certify a “No Spill” certification statement for that month.
- iv. **Amended SSO Reports** – The enrollee may update or add additional information to a certified SSO report within 120 calendar days after the SSO end date by amending the report or by adding an attachment to the SSO report in the CIWQS Online SSO Database. SSO reports certified in the CIWQS Online SSO Database prior to the adoption date of this MRP may only be amended up to 120 days after the effective date of this MRP. After 120 days, the enrollee may contact the SSO Program Manager to request to amend an SSO report if the enrollee also submits justification for why the additional information was not available prior to the end of the 120 days.

## 5. **SSO Technical Report**

The enrollee shall submit an SSO Technical Report in the CIWQS Online SSO Database within 45 calendar days of the SSO end date for any SSO in which 50,000 gallons or greater are spilled to surface waters. This report, which does not preclude the Water Boards from requiring more detailed analyses if requested, shall include at a minimum, the following:

- i. **Causes and Circumstances of the SSO:**
  - a. Complete and detailed explanation of how and when the SSO was discovered.
  - b. Diagram showing the SSO failure point, appearance point(s), and final destination(s).
  - c. Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.
  - d. Detailed description of the cause(s) of the SSO.
  - e. Copies of original field crew records used to document the SSO.
  - f. Historical maintenance records for the failure location.
- ii. **Enrollee’s Response to SSO:**
  - a. Chronological narrative description of all actions taken by enrollee to terminate the spill.
  - b. Explanation of how the SSMP Overflow Emergency Response plan was implemented to respond to and mitigate the SSO.

- c. Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.

iii. **Water Quality Monitoring:**

- a. Description of all water quality sampling activities conducted including analytical results and evaluation of the results.
- b. Detailed location map illustrating all water quality sampling points.

6. **PLSDs**

Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sanitary sewer system assets may be voluntarily reported to the CIWQS Online SSO Database.

- i. The enrollee is also encouraged to provide notification to Cal OES per section B above when a PLSD greater than or equal to 1,000 gallons has or may result in a discharge to surface water. For any PLSD greater than or equal to 1,000 gallons regardless of the spill destination, the enrollee is also encouraged to file a spill report as required by Health and Safety Code section 5410 et. seq. and Water Code section 13271, or notify the responsible party that notification and reporting should be completed as specified above and required by State law.
- ii. If a PLSD is recorded in the CIWQS Online SSO Database, the enrollee must identify the sewage discharge as occurring and caused by a private sanitary sewer system asset and should identify a responsible party (other than the enrollee), if known. Certification of PLSD reports by enrollees is not required.

7. **CIWQS Online SSO Database Unavailability**

In the event that the CIWQS Online SSO Database is not available, the enrollee must fax or e-mail all required information to the appropriate Regional Water Board office in accordance with the time schedules identified herein. In such event, the enrollee must also enter all required information into the CIWQS Online SSO Database when the database becomes available.

8. **Mandatory Information to be Included in CIWQS Online SSO Reporting**

All enrollees shall obtain a CIWQS Online SSO Database account and receive a "Username" and "Password" by registering through CIWQS which can be reached at [CIWQS@waterboards.ca.gov](mailto:CIWQS@waterboards.ca.gov) or by calling (866) 792-4977, M-F, 8 A.M. to 5 P.M. These accounts will allow controlled and secure entry into the CIWQS Online SSO Database. Additionally, within thirty (30) days of initial enrollment and prior to recording SSOs into the CIWQS Online SSO Database, all enrollees must complete a Collection System Questionnaire (Questionnaire). The Questionnaire shall be updated at least once every 12 months.

i. **SSO Reports**

At a minimum, the following mandatory information shall be reported prior to finalizing and certifying an SSO report for each category of SSO:

- a. **Draft Category 1 SSOs**: At a minimum, the following mandatory information shall be reported for a draft Category 1 SSO report:
1. SSO Contact Information: Name and telephone number of enrollee contact person who can answer specific questions about the SSO being reported.
  2. SSO Location Name.
  3. Location of the overflow event (SSO) by entering GPS coordinates. If a single overflow event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the SSO appearance point explanation field.
  4. Whether or not the SSO reached surface water, a drainage channel, or entered and was discharged from a drainage structure.
  5. Whether or not the SSO reached a municipal separate storm drain system.
  6. Whether or not the total SSO volume that reached a municipal separate storm drain system was fully recovered.
  7. Estimate of the SSO volume, inclusive of all discharge point(s).
  8. Estimate of the SSO volume that reached surface water, a drainage channel, or was not recovered from a storm drain.
  9. Estimate of the SSO volume recovered (if applicable).
  10. Number of SSO appearance point(s).
  11. Description and location of SSO appearance point(s). If a single sanitary sewer system failure results in multiple SSO appearance points, each appearance point must be described.
  12. SSO start date and time.
  13. Date and time the enrollee was notified of, or self-discovered, the SSO.
  14. Estimated operator arrival time.
  15. For spills greater than or equal to 1,000 gallons, the date and time Cal OES was called.
  16. For spills greater than or equal to 1,000 gallons, the Cal OES control number.
- b. **Certified Category 1 SSOs**: At a minimum, the following mandatory information shall be reported for a certified Category 1 SSO report, in addition to all fields in section 8.i.a :
1. Description of SSO destination(s).
  2. SSO end date and time.
  3. SSO causes (mainline blockage, roots, etc.).
  4. SSO failure point (main, lateral, etc.).
  5. Whether or not the spill was associated with a storm event.
  6. Description of spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the overflow; and a schedule of major milestones for those steps.
  7. Description of spill response activities.
  8. Spill response completion date.
  9. Whether or not there is an ongoing investigation, the reasons for the investigation and the expected date of completion.

10. Whether or not a beach closure occurred or may have occurred as a result of the SSO.
  11. Whether or not health warnings were posted as a result of the SSO.
  12. Name of beach(es) closed and/or impacted. If no beach was impacted, NA shall be selected.
  13. Name of surface water(s) impacted.
  14. If water quality samples were collected, identify parameters the water quality samples were analyzed for. If no samples were taken, NA shall be selected.
  15. If water quality samples were taken, identify which regulatory agencies received sample results (if applicable). If no samples were taken, NA shall be selected.
  16. Description of methodology(ies) and type of data relied upon for estimations of the SSO volume discharged and recovered.
  17. SSO Certification: Upon SSO Certification, the CIWQS Online SSO Database will issue a final SSO identification (ID) number.
- c. **Draft Category 2 SSOs**: At a minimum, the following mandatory information shall be reported for a draft Category 2 SSO report:
1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO.
- d. **Certified Category 2 SSOs**: At a minimum, the following mandatory information shall be reported for a certified Category 2 SSO report:
1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO and Items 1-9, and 17 in section 8.i.b above for Certified Category 1 SSO.
- e. **Certified Category 3 SSOs**: At a minimum, the following mandatory information shall be reported for a certified Category 3 SSO report:
1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO and Items 1-5, and 17 in section 8.i.b above for Certified Category 1 SSO.

ii. **Reporting SSOs to Other Regulatory Agencies**

These reporting requirements do not preclude an enrollee from reporting SSOs to other regulatory agencies pursuant to state law. In addition, these reporting requirements do not replace other Regional Water Board notification and reporting requirements for SSOs.

iii. **Collection System Questionnaire**

The required Questionnaire (see subsection G of the SSS WDRs) provides the Water Boards with site-specific information related to the enrollee's sanitary sewer system. The enrollee shall complete and certify the Questionnaire at least every 12 months to facilitate program implementation, compliance assessment, and enforcement response.

iv. **SSMP Availability**

The enrollee shall provide the publicly available internet web site address to the CIWQS Online SSO Database where a downloadable copy of the enrollee's approved SSMP, critical supporting documents referenced in the SSMP, and proof of local governing board approval of the SSMP is posted. If all of the SSMP documentation listed in this subsection is not publicly available on the Internet, the enrollee shall comply with the following procedure:

- a. Submit an **electronic** copy of the enrollee's approved SSMP, critical supporting documents referenced in the SSMP, and proof of local governing board approval of the SSMP to the State Water Board, within 30 days of that approval and within 30 days of any subsequent SSMP re-certifications, to the following mailing address:

State Water Resources Control Board  
Division of Water Quality  
Attn: SSO Program Manager  
1001 I Street, 15<sup>th</sup> Floor, Sacramento, CA 95814

**D. WATER QUALITY MONITORING REQUIREMENTS:**

To comply with subsection D.7(v) of the SSS WDRs, the enrollee shall develop and implement an SSO Water Quality Monitoring Program to assess impacts from SSOs to surface waters in which 50,000 gallons or greater are spilled to surface waters. The SSO Water Quality Monitoring Program, shall, at a minimum:

1. Contain protocols for water quality monitoring.
2. Account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, access restrictions, etc.).
3. Require water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory.
4. Require monitoring instruments and devices used to implement the SSO Water Quality Monitoring Program to be properly maintained and calibrated, including any records to document maintenance and calibration, as necessary, to ensure their continued accuracy.
5. Within 48 hours of the enrollee becoming aware of the SSO, require water quality sampling for, at a minimum, the following constituents:
  - i. Ammonia
  - ii. Appropriate Bacterial indicator(s) per the applicable Basin Plan water quality objective or Regional Board direction which may include total and fecal coliform, enterococcus, and e-coli.

**E. RECORD KEEPING REQUIREMENTS:**

The following records shall be maintained by the enrollee for a minimum of five (5) years and shall be made available for review by the Water Boards during an onsite inspection or through an information request:

1. General Records: The enrollee shall maintain records to document compliance with all provisions of the SSS WDRs and this MRP for each sanitary sewer system owned including any required records generated by an enrollee's sanitary sewer system contractor(s).
2. SSO Records: The enrollee shall maintain records for each SSO event, including but not limited to:
  - i. Complaint records documenting how the enrollee responded to all notifications of possible or actual SSOs, both during and after business hours, including complaints that do not

result in SSOs. Each complaint record shall, at a minimum, include the following information:

- a. Date, time, and method of notification.
  - b. Date and time the complainant or informant first noticed the SSO.
  - c. Narrative description of the complaint, including any information the caller can provide regarding whether or not the complainant or informant reporting the potential SSO knows if the SSO has reached surface waters, drainage channels or storm drains.
  - d. Follow-up return contact information for complainant or informant for each complaint received, if not reported anonymously.
  - e. Final resolution of the complaint.
- ii. Records documenting steps and/or remedial actions undertaken by enrollee, using all available information, to comply with section D.7 of the SSS WDRs.
  - iii. Records documenting how all estimate(s) of volume(s) discharged and, if applicable, volume(s) recovered were calculated.
3. Records documenting all changes made to the SSMP since its last certification indicating when a subsection(s) of the SSMP was changed and/or updated and who authorized the change or update. These records shall be attached to the SSMP.
  4. Electronic monitoring records relied upon for documenting SSO events and/or estimating the SSO volume discharged, including, but not limited to records from:
    - i. Supervisory Control and Data Acquisition (SCADA) systems
    - ii. Alarm system(s)
    - iii. Flow monitoring device(s) or other instrument(s) used to estimate wastewater levels, flow rates and/or volumes.

## **F. CERTIFICATION**

1. All information required to be reported into the CIWQS Online SSO Database shall be certified by a person designated as described in subsection J of the SSS WDRs. This designated person is also known as a Legally Responsible Official (LRO). An enrollee may have more than one LRO.
2. Any designated person (i.e. an LRO) shall be registered with the State Water Board to certify reports in accordance with the CIWQS protocols for reporting.
3. Data Submitter (DS): Any enrollee employee or contractor may enter draft data into the CIWQS Online SSO Database on behalf of the enrollee if authorized by the LRO and registered with the State Water Board. However, only LROs may certify reports in CIWQS.
4. The enrollee shall maintain continuous coverage by an LRO. Any change of a registered LRO or DS (e.g., retired staff), including deactivation or a change to the LRO's or DS's contact information, shall be submitted by the enrollee to the State Water Board within 30 days of the change by calling (866) 792-4977 or e-mailing [help@ciwqs.waterboards.ca.gov](mailto:help@ciwqs.waterboards.ca.gov).

5. A registered designated person (i.e., an LRO) shall certify all required reports under penalty of perjury laws of the state as stated in the CIWQS Online SSO Database at the time of certification.

### CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of an order amended by the Executive Director of the State Water Resources Control Board.

7/30/13

Date



Jeanine Townsend  
Clerk to the Board

## V. SEWER SYSTEM MANAGEMENT PLAN

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### **Appendix B** Standard Operating Procedure for Cleaning Gravity Sewers

# STANDARD OPERATING PROCEDURE: JET CLEANING



## STANDARD OPERATING PROCEDURE

### Wastewater Section -Scheduled Maintenance: Jet Cleaning Version: June 2018

**Objectives:** Jet Cleaning maintenance activity (scheduled or reactive) is performed to; ensure the City’s Sanitary Sewer System sustains unimpeded flow, adhere to all jurisdictional regulatory mandates, and prevent sanitary sewer overflows which can be harmful to both the public and the environment.

|  |   |
|--|---|
| <b>Current Version</b>                         | June 2018   |
| <b>Prior Version</b>                           | April 2017  |
| <b>History of Change / Reason for Revision</b> | Revision to clarify a few points (safety, cleaning quantity, supervisor dispatching priority) |
| <b>Approval Signature</b>                      | _____   |
|  | <b>Date:</b> _____  |

\* \* \* \* \*

**Mandatory Personal Safety Equipment:**

All standard OSHA approved Personal Protective Equipment (PPE) includes, but not limited to: hardhat, safety toed work boots, gloves, safety glasses, full face protection, hearing protection and safety vests.

- **Hard Hats:** All full time and limited term employees are required to have hard hats in their possession always. Hard hats are REQUIRED to be worn always when employees are in the exclusion zones (work areas) or if they are in areas where hazards from above are present.
- **Gloves:** Gloves are required when handling tools, or when hands are exposed to cuts, abrasions, bruises, or burns, except for working around machinery where they might be caught in gears or moving parts (DO NOT wear gloves when working around machinery with gears or moving parts). Chemical resistant gloves are required when hands are exposed to corrosives and/or chemicals.
- **High Visibility Clothing:** High visibility clothing is required whenever employees are exposed to vehicular traffic (day or night). Safety vests must comply with ANSI (American National Standards Institute) Class II (<50 mph) or Class III (>50 mph or during hours of darkness). They shall be worn properly – kept closed on the front and sides to ensure

visibility from 360 degrees. They shall not be modified to avoid the class certification. They shall be kept in good and clean condition and be replaced when worn or dirty to preclude their function as high visibility clothing.

- **First Aid Kits:** One kit per vehicle to be stored in truck with location clearly marked and kept stocked. Operator or designated personnel shall inspect first aid kits monthly to remove and replenish expired items

***Job Site Safety Equipment:***

Job site safety equipment will include, but is not limited to: calibrated gas detector, safety cones, barricades and flags, signs or other traffic control devices. Note: The City will provide all safety equipment, as needed or requested, even if the equipment is not used.

***General Tools and Equipment:***

Tools and equipment include but are not limited to: Combo (Jet/Vacuum) Truck, Water Truck (as needed), various sewer cleaning nozzles, flailing nozzle, pipe pole, debris baskets (appropriately sized), manhole hooks, measuring wheel, metal locating device, various/miscellaneous hand tools and CMMS enabled laptop.

**Please note: All emergency equipment (such as first aid kits, fire extinguishers and reflectors) shall be accessible. Lead workers or designated personnel shall inspect first aid kits monthly to remove and replenish expired items. Fire extinguishers shall be inspected monthly and documented on the monthly inspection tag. Lead workers or designated personnel shall ensure that hard or electronic copies of Safety Data Sheet (SDS) are immediately accessible.**

***Erosion Controls:***

Not Applicable

***Reference Materials:***

CMMS work order (Scheduled or reactive); Daily Work Sheet form; Red and Blue Border Damage report forms; Daily Vehicle Inspection Report (if not Zonar equipped).

***Major Tasks and Work Steps:***

***Prior to Leaving the Yard:***

1. As it pertains to Jet Cleaning, reactive work takes priority and is performed before any scheduled work. Scheduled work is assigned by need and by date. Work orders for short cycled segments (1, 3 and 6 month) are priority. The Supervisor assigns work orders by area to avoid unnecessary driving by field staff.
2. Lead Worker or Out of Class Service Worker receives assigned Work Order(s) from Supervisor.

3. After reviewing assigned work, the Lead Worker will conduct a tailgate meeting with crew member(s) to brief them on the work to be performed.
4. Lead Worker and/or Service Worker will inspect assigned vehicle and equipment to be used for the day pursuant to established Vehicle Inspection Procedures. This includes inspecting the cleaning nozzles for wear, replacing any nozzles that are excessively worn, and visually inspecting the hose and couplings for damage and wear.

***At the Job Site:***

1. Before any work begins, each crew member in the work zone will be equipped with and utilizing all personal safety equipment (personal protective equipment [PPE]) required for safe job performance. This is to be strictly enforced at all times.
2. Lead Worker will analyze the job site to determine if traffic control is needed. If it is determined that traffic control is needed, the area will be temporarily set up and controlled pursuant to parameters established by OSHA, Cal-OSHA, California Department of Transportation's Manual on Uniform Traffic Control Devices, and any other such regulatory and/or safety measures established and enforced by the City. Traffic control will be continuously monitored by the Lead Worker and enhanced as needed to ensure safety (public, crew, and jobsite). Traffic Control Plan must be kept at the jobsite for work done in the street or alley. The City Operator (311) and Control 10 will be advised of any complete street closures or detours, and the estimated time for re-opening.
3. Lead Worker will also make note of any details that should be documented in the CMMS Work Order.
4. Fill the water tank at or near the first job site. (Fill Water Truck if needed).
5. Lead Worker will determine and confirm location of upstream and downstream manholes (use street addresses and sewer map book, if possible), and plan jet cleaning activity so that it starts in the upstream portion of the area and moves downstream, at which point a designated downstream manhole will be utilized to clean and vacuum debris.
6. Look for any overhead utilities that may come into contact with the vacuum boom during the cleaning operation.
7. Move the cleaning unit into the traffic-controlled area so that the hose reel is positioned over the manhole.
8. Before opening the manhole, check the atmosphere through the pick hole.
  - a. If anything unsafe or out of the ordinary is detected, cease activity and immediately contact Supervisor for instructions as to how to proceed.
  - b. If nothing of concern is noted and it is safe to proceed, open the manhole using the proper tool.
9. Install Tiger Tail on hose in all areas where hose can be damaged.
10. Determine pipe size so that appropriate equipment can be used.
11. Install the sewer cleaning nozzle or the flailing nozzle on the hose.

***Cleaning Operation:***

1. Start the auxiliary engine.
2. Lower the hose, with a guide or roller to protect the hose, into the manhole and direct it upstream into the sewer pipe to be cleaned.
3. Start the high-pressure pump and open the water valve.
4. Set the engine speed at a speed that will provide adequate pressure for cleaning, being careful to consider any risks of damage to residences or businesses.
5. Start the hose reel and proceed up the sewer main. The hose speed should not exceed three (3) feet per minute.
6. Allow the hose to advance to 25% of the length of the sewer (or 50-foot minimum, whichever is greater) and pull the hose back.
7. Insert the appropriately-sized debris trap in the downstream manhole.
8. If there is little or no debris, allow the hose to proceed to the upstream manhole.
9. If there is moderate to heavy debris, set up vacuum tubing at this point and clean the remaining portion of the sewer in increments not to exceed 25% of the length of the sewer (or 50-foot minimums, whichever is greater).
10. If the hose successfully makes it to the next manhole, open the manhole and visually verify that the nozzle is at or past the manhole.
11. Using the Debris Table below as a guide, observe the nature and the quantity of debris being pulled back to the manhole, and use the codes shown in the Table to document and report the nature of the debris.
12. Remove the debris from the manhole using the vacuum unit.
13. The sewer has been adequately cleaned when successive passes with a cleaning nozzle do not produce any additional debris.
14. In the event the hose cannot make it to the next manhole, the smallest cleaning nozzle will be utilized and the process repeated.
  - a. If the hose still cannot make it to the next manhole after the nozzle change, the crew will cease work and create a CCTV Work Order in CMMS to CCTV the main for problem location and condition assessment.
15. Upon reaching the next manhole, retract the hose on the reel.
16. Remove the debris trap.
17. Clean the mating surface and close the manhole, ensuring that the manhole is properly seated.
18. Move the cleaning unit from the traffic controlled area and break down traffic controls pursuant to parameters established by OSHA, Cal-OSHA, California Department of Transportation's Manual on Uniform Traffic Control Devices, and any other such regulatory and/or safety measures established and enforced by the City.
19. Accurately and comprehensively enter all preliminary site assessments and cleaning results on the relevant work order.
20. Proceed to the next cleaning jobsite.
21. Crew will dump debris tank at end of shift or sooner dependent upon tank level.

| NATURE AND QUANTITY OF DEBRIS REMOVED DURING CLEANING (Per asset) |   |   |  |  |
|---|---|---|--|--|
| NATURE  | QUANTITY  |   |  |  |
|   | CLR<br><br>(≤15 inch - No observable debris<br><br>>15 inch – no observable debris) | Light<br><br>(≥15 inch - Minor amount of debris<br><br>>15 inch – Minor amount of debris) | Medium<br><br>(≥15 inch - less than 5 gallons of debris<br><br>>15 inch – more than a 5 gallons of debris) | Heavy<br><br>(≥15 inch - more than 5 gallons of debris<br><br>>15 inch – more than 10 gallons of debris) |
| Debris<br><br>(Sand, Grit, Rock)                                  | CLR   | DL  | DM   | DH   |
| Grease  | CLR   | GL  | GM   | GH   |
| Roots   | CLR   | RL  | RM   | RH   |

***At the End of the Day:***

1. All tools and equipment will be cleaned and stored in trucks in their proper places.
2. Fuel the vehicle prior to parking in the yard.
3. Once parked, inspect equipment and tools for problems. If any issues are found, report them to the Supervisor.
4. Clean out vehicle cab of litter and personal effects
5. Fully restock truck as needed.
6. Report any problems with jobs performed that day to the Supervisor.
7. Submit daily completed work orders to the Supervisor at end of shift.
8. Research of next day's job(s) should commence at this time.



2018

# STANDARD OPERATING PROCEDURE: RODDING



6/1/2018

## STANDARD OPERATING PROCEDURE

### Wastewater Section - Scheduled Maintenance: Rodding Version: June 2018

**Objectives:**

Rodding maintenance activity (scheduled or reactive), is performed to: ensure the City’s Sanitary Sewer System sustains unimpeded flow, adhere to all jurisdictional regulatory mandates, and mitigate sanitary sewer overflows.

|  |  |
|--|--|
| <b>Current Version</b>                         | June 2018  |
| <b>Prior Version</b>                           | April 2017   |
| <b>History of Change / Reason for Revision</b> | This Standard Operating Procedure was significantly amended for content. |
| <b>Approval Signature</b>                      | _____<br><br><b>Date:</b> _____  |

\* \* \* \* \*

**Mandatory Personal Safety Equipment:**

All standard OSHA approved Personal Protective Equipment (PPE) includes, but not limited to: hardhat, safety toed work boots, gloves, safety glasses, full face protection, hearing protection and safety vests.

- **Hard Hats:** All full time and limited term employees are required to have hard hats in their possession always. Hard hats are REQUIRED to be worn always when employees are in the exclusion zones (work areas) or if they are in areas where hazards from above are present.
- **Gloves:** Gloves are required when handling tools, or when hands are exposed to cuts, abrasions, bruises, or burns, except for working around machinery where they might be caught in gears or moving parts (DO NOT wear gloves when working around machinery with gears or moving parts). Chemical resistant gloves are required when hands are exposed to corrosives and/or chemicals.
- **High Visibility Clothing:** High visibility clothing is required whenever employees are exposed to vehicular traffic (day or night). Safety vests must comply with ANSI (American National Standards Institute) Class II (<50 mph) or Class III (>50 mph or during hours of darkness). They shall be worn properly – kept closed on the front and sides to ensure

visibility from 360 degrees. They shall not be modified to avoid the class certification. They shall be kept in good and clean condition and be replaced when worn or dirty to preclude their function as high visibility clothing.

- **First Aid Kits:** One kit per vehicle to be stored in truck with location clearly marked and kept stocked. Operator or designated personnel shall inspect first aid kits monthly to remove and replenish expired items.

***Job Site Safety Equipment:***

Job site safety equipment will include, but is not limited to: calibrated gas detector, safety cones, barricades and flags, signs or other traffic control devices. Note: The City will provide all safety equipment, as needed or requested, even if the equipment is not used.

***General Tools and Equipment:***

Tools and equipment include but are not limited to: Rodding vehicle or 'rodder', various cutting, boring and specialty tools, pipe pole, manhole hooks, measuring wheel, metal locating device, various/miscellaneous hand tools, portable welding kit with accessories and CMMS connected laptop.

**Please note: All emergency equipment (such as first aid kits, fire extinguishers and reflectors) shall be accessible. Lead workers or designated personnel shall inspect first aid kits monthly to remove and replenish expired items. Fire extinguishers shall be inspected monthly and documented on the monthly inspection tag. Lead workers or designated personnel shall ensure that hard or electronic copies of Safety Data Sheet (SDS) are immediately accessible.**

***Erosion Controls:***

Not Applicable

***Reference Materials:***

Sanitary Sewer System Map Book; "S\_MAIN\_ROD\_SCH" or S\_MAIN\_RODDING\_REACTIVE CMMS Work Order; Daily Work Sheet form; Red and Blue Border Damage Report forms, Daily Vehicle Inspection Report (if not Zonar-equipped).

***Major Tasks and Work Steps:***

***Prior to Leaving the Yard:***

1. As it pertains to rodding, reactive work takes priority and is performed before any scheduled work. Scheduled work is assigned area to avoid unnecessary driving (best effort to complete by projected start date). The Supervisor makes Work Order assignments.
2. Lead Worker receives assigned Work Order(s) from Supervisor.

3. Lead Worker will preliminarily analyze work location in CMMS to determine if the specified main is in the street or in a right of way.
4. After reviewing assigned work, the Lead Worker will conduct a tailgate meeting with crew member(s) to brief them on the work to be performed. For main segments located in the street, Lead Worker will advise Service Worker so that he/she can load proper traffic control equipment to be taken to job site. For main segments located in right of ways, crew will notify property owner/homeowner and/or tenants of the crew's need to access their back yards; this notification should provide at least 48 hours of notice unless deemed an emergency. However, the notice will not be less than 24 hours.
5. Inspect assigned vehicle(s) and equipment to be used for the day pursuant to established Vehicle Inspection Procedures. Lead Worker or Service Worker will make sure all proper and necessary cutting blades, cork screws, and root saws needed for the job they are doing that day are safely stored on the truck.

***At the Job Site:***

1. Before any work begins, each crew member in the work zone will be equipped with and utilizing all PPE required for safe job performance. This is to be strictly enforced at all times.
2. Lead Worker will analyze the job site to determine whether traffic control is needed. If it is determined that traffic control is needed, the area will be temporarily set up and controlled pursuant to parameters established by OSHA, Cal-OSHA, California Department of Transportation's Manual on Uniform Traffic Control Devices, and any other such regulatory and/or safety measures established and enforced by the City. Traffic control will be continuously monitored by the Lead Worker and enhanced as needed to ensure safety (public, crew, and jobsite). The City Operator (311) and Control 10 will be advised of any complete street closures or detours, and the estimated time for re-opening.
3. Lead Worker/Service Worker will make note of any details that should be documented in the CMMS Work Order.
4. Lead Worker/Service Worker will determine and confirm location of upstream and downstream manholes (use street addresses and sewer map book, if possible). Although rodding can be performed from either upstream or downstream manholes, rodding activity is usually planned so that it starts in the upstream portion of the area and moves downstream. Determining rodding activity setup should consider any efficiency in cleaning as many lines as possible from set up manhole.
5. Move and position the rodding unit into the traffic-controlled area so that the guide hose is positioned over the manhole. Appropriately chock the tires.
6. Before opening the manhole, check the atmosphere through the pick hole.
  - a. If anything unsafe or out of the ordinary is detected, cease activity and immediately contact Supervisor for instructions as to how to proceed.

- b. If nothing of concern is noted and it is safe to proceed, open the manhole using the proper tool.
7. Determine pipe size so that appropriate equipment can be used. It is important to note the Lead Worker/Service Worker must have knowledge of the various rodding tools and respective uses. Selecting the wrong tool can cause damage to the rod, tool, pipe, rodder, or the operator.

***Rodding Operation:***

1. Pull the guide hose off the side of the truck and run the rod out through the hose and fasten a cork screw on the end of the rod.
2. The turning and advancement of the rod up the sewer line is controlled by the rodding operator using a single lever control valve called a “dead man” control located on the Rodding vehicle.
3. Put the rod into the manhole, easing it into the main segment.
4. Zero out the footage counter and begin pushing the rod to the next manhole.
5. If you are unable to reach the desired manhole:
  - a. Back the rod up approximately five (5) feet; rotate the rod clockwise (watch/listen to be sure the rod is turning); push the rod back and forth slowly, attempting to move it further into the main each time.
  - b. Once you have passed the debris/blockage, draw the rod back, remove it from the line, and remove the debris.
  - c. Begin working toward the upstream manhole again, repeating this process if you are unsuccessful.
6. When the rod is visible in the upstream manhole, Service Worker will radio back to the Lead Worker/Operator to advise that the rod is visible.
7. Service Worker will ask the Lead Worker/Operator to “dead push” the rod without rotating it so that he/she can pull the rod out through the manhole and place a three-blade cutter on the end.
8. The Service Worker will advise the Lead Worker/Operator to pull the rod back into the manhole and into the main.
9. Once the rod is back in the main, the Service Worker will ask the operator to start spinning the rod ***(seven (7) to eight (8) revolutions per foot)*** to begin cutting back to the beginning manhole. It is important to listen for the consistent sound of the rod turning and cutting roots through the sewer main as this assists in determining findings and the location of possible structural defects. Irregular rodding sounds may also be indicative of a broken or damaged rod or attachment.
10. In the event of a broken rod or rod attachment stop all rodding operation and contact the Supervisor who will determine corrective strategy.

**NEVER ENTER A MANHOLE WITHOUT PROPER Authorization**

11. While the rod is on its way back to the beginning manhole, all applicable data entry regarding this job can be accurately and comprehensively entered into CMMS. The data entry can be completed by either crew member (Lead Worker or Service Worker). Data to capture includes completing all main segment inspections,

completing all equipment and labor time, and any comments (as noted above) that need to be entered. Enter all preliminary site assessments and cleaning results (see chart below) on the relevant work order. Once the Work Order has been completed properly, it can be put into “completed” status for Supervisor review and closing.

12. Once the cutter blade arrives at the downstream manhole, the rod can be pulled out of the main.
13. Cut off any roots left on the rod.
14. Clean the matting surface and close the manhole, ensuring that the manhole is properly sealed.
15. Move the Rodder from the traffic controlled area and break down traffic controls pursuant to parameters established by OSHA, Cal-OSHA, California Department of Transportation’s Manual on Uniform Traffic Control Devices, and any other such regulatory and/or safety measures established and enforced by the City. If you notified 311 or Control 10 that you would be closing streets or diverting traffic to other places, update them that the situation has returned to normal.

| NATURE AND QUANTITY OF DEBRIS REMOVED DURING CLEANING |                    |  |  |   |
|---|--------------------|--|--|---|
| NATURE  | QUANTITY           |  |  |   |
|   | CLR<br>(No Debris) | Light<br>(Less than ½ of 5<br>Gallon Bucket) | Medium<br>(Equal to ½ of 5<br>Gallon Bucket) | Heavy<br>(Greater than ½ of 5<br>Gallon Bucket) |
| Debris<br>(Sand, Grit, Rock)                          | CLR                | DL   | DM   | DH  |
| Grease  | CLR                | GL   | GM   | GH  |
| Roots   | CLR                | RL   | RM   | RH  |
| Other<br>(Specify)                                    | CLR                | OL   | OM   | OH  |

16. Proceed to the next rodding jobsite.

**At the End of the Day:**

1. All tools and equipment will be cleaned and stored in trucks in their proper places.
2. Fuel the vehicle prior to parking in the yard.
3. Once parked, inspect equipment and tools for problems. If any issues are found, report them to the Supervisor.
4. Clean out vehicle cab of litter and personal effects





## V. SEWER SYSTEM MANAGEMENT PLAN

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### **Appendix C** Monthly Wastewater Pump Station Preventative Maintenance Procedures

## MONTHLY WASTEWATER PUMP STATION PREVENTATIVE MAINTENANCE PROCEDURES

### Separated Wastewater Control System

| Sump 003 | Procedures   |
|----------|--|
|          | Blow clean int. of electronics to remove dust and lint.<br>Inspect high sump float.  |
| Sump 006 | Procedures   |
|          | Inspect high sump float.<br>Inspect and purge air compressor.<br>Inspect and clean deck.<br>Inspect and clean yard.<br>Inspect fence.<br>Inspect and clean control cabinets.<br>Inspect station lighting outside.<br>Inspect station lighting inside.<br>Exercise influent valve on Pump 1.<br>Exercise effluent valve on Pump 1.<br>Exercise influent valve on Pump 2.<br>Exercise effluent valve on Pump 2.<br>Wash down wetwell.<br>Lubricate locks.<br>Derag Pump 1 as needed.<br>Derag Pump 2 as needed.  |
| Sump 021 | Procedures   |
|          | Inspect high sump float.<br>Inspect and purge air compressor.<br>Inspect and clean deck.<br>Inspect and clean yard.<br>Inspect fence.<br>Inspect and clean control cabinets.<br>Clean building.<br>Inspect station lighting outside.<br>Inspect station lighting inside.<br>Exercise influent valve on Pump 1.<br>Exercise effluent valve on Pump 1.<br>Exercise influent valve on Pump 2.<br>Exercise effluent valve on Pump 2.<br>Exercise influent valve on Pump 3.<br>Exercise effluent valve on Pump 3.<br>Exercise influent valve on Pump 4.<br>Exercise effluent valve on Pump 4.<br>Wash down wetwell.<br>Lubricate locks.<br>Derag Pump 1 as needed.<br>Derag Pump 2 as needed.<br>Derag Pump 3 as needed.<br>Derag Pump 4 as needed. |
| Sump 029 | Procedures   |
|          | inspect high sump float.<br>Inspect and purge air compressor.<br>Inspect and clean deck.<br>Inspect and clean yard.<br>Inspect fence.<br>Inspect and clean control cabinets.<br>Inspect station lighting outside.<br>Inspect station lighting inside.<br>Exercise influent valve on Pump 1.<br>Exercise effluent vavle on Pump 1.<br>Exercise influent vavle on Pump 2.<br>Exercise effluent vavle on Pump 2.<br>Wash down wetwell.<br>Lubricate locks.<br>Derag Pump 1 as needed.<br>Derag Pump 2 as needed.  |

|                 |  |
|-----------------|--|
| <b>Sump 032</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p> |
| <b>Sump 036</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p> |
| <b>Sump 040</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p>   |
| <b>Sump 042</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Wash down wetwell.<br/> Lubricate locks.</p>   |

|                 |  |
|-----------------|--|
| <b>Sump 045</b> | <b>Procedures</b>  |
|                 | <p>Task Group #1</p> <p>Replace grease canisters as needed on Pump 1.<br/> Replace grease canisters as needed on Pump 2.<br/> Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Inspect check vavles on Pump 1.<br/> Inspect check vavles on Pump 2.<br/> Wash down wetwell.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Lubricate locks.</p> |
| <b>Sump 048</b> | <b>Procedures</b>  |
|                 | <p>Task Group #1</p> <p>Replace grease canister as needed on Pump 1.<br/> Replace grease canister as needed on Pump 2.<br/> Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Inspect check valve.<br/> Wash down wetwell.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Lubricate locks.<br/> Check ventilation fan(s).</p>                    |
| <b>Sump 049</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p>   |

|                 |  |
|-----------------|--|
| <b>Sump 053</b> | <b>Procedures</b>  |
|                 | <p>Task Group #1</p> <p>Replace grease canisters as needed on Pump 1.<br/> Replace grease canisters as needed on Pump 2.<br/> Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Inspect check vavles on Pump 1.<br/> Inspect check vavles on Pump 2.<br/> Wash down wetwell.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Lubricate locks.</p> |
| <b>Sump 055</b> | <b>Procedures</b>  |
|                 | <p>Inspect fencing, gates, openings, etc.<br/> Inspect and clean roof drains, downspouts, and gutters.<br/> Inspect MCC air filters.<br/> Inspect lighting.<br/> Inspect and clean deck.<br/> Inspect high sump float.<br/> Inspect piping, fittings, valves, etc. for damage and leaks.<br/> Blow clean int. of electronics to remove dust and lint.</p>  |
| <b>Sump 057</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p>  |

|                 |  |
|-----------------|--|
| <b>Sump 079</b> | <b>Procedures</b>  |
|                 | <p>Task Group #1</p> <p>Replace grease canisters as needed on Pump 1.<br/> Replace grease canisters as needed on Pump 2.<br/> Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Inspect check vavles on Pump 1.<br/> Inspect check vavles on Pump 2.<br/> Wash down wetwell.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Lubricate locks.</p> |
| <b>Sump 080</b> | <b>Procedures</b>  |
|                 | <p>Task Group #1</p> <p>Replace grease canisters as needed on Pump 1.<br/> Replace grease canisters as needed on Pump 2.<br/> Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Inspect check vavles on Pump 1.<br/> Inspect check vavles on Pump 2.<br/> Wash down wetwell.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Lubricate locks.</p>                         |
| <b>Sump 081</b> | <b>Procedures</b>  |
|                 | <p>inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p>   |

| Sump 084 | Procedures   |
|----------|--|
|          | <p>inspect high sump float.<br/> Inspect and purge air compressor 1.<br/> Inspect and purge air compressor 2.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean cotnrol cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p>  |
| Sump 085 | Procedures   |
|          | <p>Task Group #1<br/> Grease pump bearings on Pump 1<br/> Grease pump bearings on Pump 2<br/> Grease pump bearings on Pump 3<br/> Grease pump bearings on Pump 4<br/> Inspect and purge air compressor.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect Sump Pump 1.<br/> Inspect Sump Pump 2.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Exercise influent vavle on Pump 3.<br/> Exercise effluent vavle on Pump 3.<br/> Exercise influent vavle on Pump 4.<br/> Exercise effluent vavle on Pump 4.<br/> Inspect check valves on Pump 1.<br/> Inspect check valves on Pump 2.<br/> Inspect check valves on Pump 3.<br/> Inspect check valves on Pump 4.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Derag Pump 3 as needed.<br/> Derag Pump 4 as needed.<br/> Lubricate locks.<br/> Inspect spill kit.<br/> Inspect fuel tank.<br/> Clean generator room.<br/> Inspect ICE log book.</p> |

|                 |  |
|-----------------|--|
| <b>Sump 087</b> | <b>Procedures</b>  |
|                 | <p>Task Group #1</p> <p>Replace and grease canister as needed on Pump 1.<br/> Replace and grease canister as needed on Pump 2.<br/> Replace and grease canister as needed on Pump 3.<br/> Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Exercise influent vavle on Pump 3.<br/> Exercise effluent vavle on Pump 3.<br/> Inspect check vavles on Pump 1.<br/> Inspect check vavles on Pump 2.<br/> Inspect check vavles on Pump 3.<br/> Wash down wetwell.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Derag Pump 3 as needed.<br/> Lubricate locks.</p> |
| <b>Sump 088</b> | <b>Procedures</b>  |
|                 | <p>Task Group #1</p> <p>Replace grease canisters as needed on Pump 1.<br/> Replace grease canisters as needed on Pump 2.<br/> Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Inspect check vavles on Pump 1.<br/> Inspect check vavles on Pump 2.<br/> Wash down wetwell.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Lubricate locks.</p>   |
| <b>Sump 107</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Wash down wetwell.<br/> Lubricate locks.</p>  |

|                 |  |
|-----------------|--|
| <b>Sump 119</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect station lighting.<br/> Inspect intake air filters<br/> Inspect fencing, gates, openings, etc.<br/> Inspect piping, fittings, valves, etc. for damage and leaks.<br/> Blow clean int. of electronics to remove dust and lint.</p>   |
| <b>Sump 120</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Exercise influent vavle on Pump 3.<br/> Exercise effluent vavle on Pump 3.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p> |
| <b>Sump 121</b> | <b>Procedures</b>  |
|                 | <p>Inspect and clean deck.<br/> Inspect high sump float.<br/> Inspect fencing, gates, openings, etc.<br/> Inspect lighting.<br/> Blow clean int. of electronics to remove dust and lint.</p>   |
| <b>Sump 122</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p>   |
| <b>Sump 123</b> | <b>Procedures</b>  |
|                 | <p>Blow clean int. of electronics to remove dust and lint.<br/> Inspect high sump float.</p>   |
| <b>Sump 124</b> | <b>Procedures</b>  |
|                 | <p>Blow clean int. of electronics to remove dust and lint.<br/> Inspect high sump float.</p>   |
| <b>Sump 125</b> | <b>Procedures</b>  |
|                 | <p>Blow clean int. of electronics to remove dust and lint.<br/> Inspect high sump float.</p>   |

|                 |  |
|-----------------|--|
| <b>Sump 126</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p>                     |
| <b>Sump 127</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Inspect locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Lubricate locks.</p> |
| <b>Sump 131</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p>  |
| <b>Sump 133</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p>   |

|                 |  |
|-----------------|--|
| <b>Sump 134</b> | <b>Procedures</b>  |
|                 | <p>Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Wash down wetwell.<br/> Lubricate locks.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Inspect exhaust fan.</p>   |
| <b>Sump 135</b> | <b>Procedures</b>  |
|                 | <p>Task Group #1<br/> Replace grease canisters as needed on Pump 1.<br/> Replace grease canisters as needed on Pump 2.<br/> Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Inspect check vavles on Pump 1.<br/> Inspect check vavles on Pump 2.<br/> Wash down wetwell.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Lubricate locks.</p> |
| <b>Sump 136</b> | <b>Procedures</b>  |
|                 | <p>Task Group #1<br/> Replace grease canisters as needed on Pump 1.<br/> Replace grease canisters as needed on Pump 2.<br/> Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Inspect check vavles on Pump 1.<br/> Inspect check vavles on Pump 2.<br/> Wash down wetwell.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.</p>                       |

| Lubricate locks. |

| Sump 137 | Procedures   |
|----------|--|
|          | <p>Task Group #1</p> <p>Grease pump bearings on Pump 1.<br/> Grease pump bearings on Pump 2.<br/> Grease pump bearings on Pump 3.<br/> Grease pump bearings on Pump 4.<br/> Inspect and purge air compressor.<br/> Inspect and grease driveshaft u joints on pump #1.<br/> Inspect and grease driveshaft u joints on pump #2.<br/> Inspect and grease u joints on pump #1.<br/> Inspect and grease driveshaft u joints on pump #4.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Exercise influent vavle on Pump 3.<br/> Exercise effluent vavle on Pump 3.<br/> Exercise influent vavle on Pump 4.<br/> Exercise effluent vavle on Pump 4.<br/> Inspect check vavles on Pump 1.<br/> Inspect check vavles on Pump 2.<br/> Inspect check vavles on Pump 3.<br/> Inspect check vavles on Pump 4.<br/> Lubricate locks.<br/> Wash down wetwell.<br/> Inspect spill kit.<br/> Inspect fuel tank.<br/> Clean generator.<br/> Inspect ICE log book.</p> |
| Sump 143 | Procedures   |
|          | <p>Task Group #1</p> <p>Grease pump bearings on Pump 1.<br/> Grease pump bearings on Pump 2.<br/> Inspect high sump float.<br/> Inspect and purge air compressor.<br/> Inspect roof vent.<br/> Inspect exhaust fan.<br/> Inspect and clean building.<br/> Inspect and clean deck.<br/> Inspect and clean yard.<br/> Inspect fence.<br/> Inspect and clean control cabinets.<br/> Inspect station lighting outside.<br/> Inspect station lighting inside.<br/> Inspect sump pump.<br/> Exercise influent vavle on Pump 1.<br/> Exercise effluent vavle on Pump 1.<br/> Exercise influent vavle on Pump 2.<br/> Exercise effluent vavle on Pump 2.<br/> Inspect check vavle 1.<br/> Inspect check vavle 2.<br/> Wash down wetwell.<br/> Derag Pump 1 as needed.<br/> Derag Pump 2 as needed.<br/> Lubricate locks.</p>   |

| Sump 145 | Procedures   |
|----------|--|
|          | <p>Task Group #1</p> <p>Replace grease canister as needed on Pump 1.<br/>           Replace grease canister as needed on Pump 2.<br/>           Inspect and grease driveshaft u joints on pump #1.<br/>           Inspect and grease driveshaft u joints on pump #2.<br/>           Inspect high sump float.<br/>           Inspect and purge air compressor.<br/>           Inspect roof vent.<br/>           Inspect exhaust fan.<br/>           Inspect and clean building.<br/>           Inspect and clean deck.<br/>           Inspect and clean yard.<br/>           Inspect fence.<br/>           Inspect and clean control cabinets.<br/>           Inspect station lighting outside.<br/>           Inspect station lighting inside.<br/>           Inspect sump pump.<br/>           Exercise influent vavle on Pump 1.<br/>           Exercise effluent vavle on Pump 1.<br/>           Exercise influent vavle on Pump 2.<br/>           Exercise effluent vavle on Pump 2.<br/>           Inspect check vavle 1.<br/>           Inspect check vavle 2.<br/>           Wash down wetwell.<br/>           Derag Pump 1 as needed.<br/>           Derag Pump 2 as needed.<br/>           Lubricate locks.</p> |
| Sump 146 | Procedures   |
|          | <p>Task Group #1</p> <p>Inspect high sump float.<br/>           Inspect and purge air compressor.<br/>           Inspect roof vent.<br/>           Inspect exhaust fan.<br/>           Inspect and clean building.<br/>           Inspect and clean deck.<br/>           Inspect and clean yard.<br/>           Inspect fence.<br/>           Inspect and clean control cabinets.<br/>           Inspect station lighting outside.<br/>           Inspect station lighting inside.<br/>           Inspect sump pump.<br/>           Exercise influent vavle on Pump 1.<br/>           Exercise effluent vavle on Pump 1.<br/>           Exercise influent vavle on Pump 2.<br/>           Exercise effluent vavle on Pump 2.<br/>           Inspect check vavle 1.<br/>           Inspect check vavle 2.<br/>           Wash down wetwell.<br/>           Derag Pump 1 as needed.<br/>           Derag Pump 2 as needed.<br/>           Lubricate locks.</p>   |

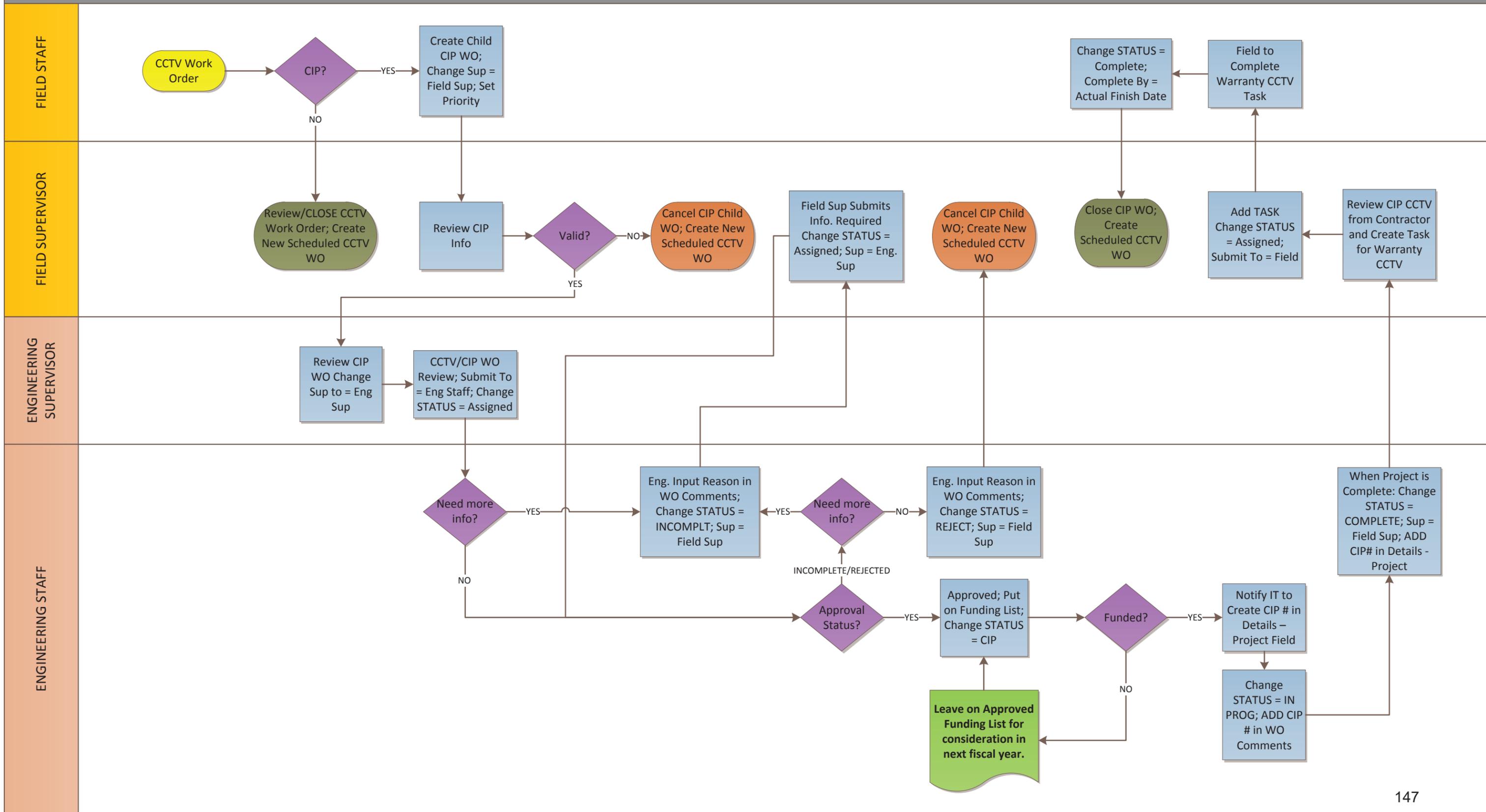
## **V. SEWER SYSTEM MANAGEMENT PLAN**

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### **Appendix D CIP Project Initiation Workflow Process Diagram**

Goal: CCTV Work Order  
Initiating Event: Future CCTV Schedule  
Outcome: CIP Project Initiation

**CIP PROJECT INITIATION WORKFLOW PROCESS**



## V. SEWER SYSTEM MANAGEMENT PLAN

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**Appendix E** California Integrated Water Quality System (CIWQS) SSO Data (September 2, 2007 – December 31, 2018)

**California Integrated Water Quality System SSO Data  
September 2007 - December 2018**

| <b>Spill ID</b> | <b>Spill Date</b> | <b>Estimated Volume, gallons</b> | <b>Estimated Volume Recovered, gallons</b> | <b>Spill Location</b>          | <b>Spill Cause</b>      |
|-----------------|-------------------|----------------------------------|--|--------------------------------|-------------------------|
| 657342          | 12-Sep-07         | 679                              | 679  | 6001 43rd Ave.                 | Grease deposition (FOG) |
| 705991          | 22-Oct-07         | 50                               | 50   | 2076 Acoma St.                 | Grease deposition (FOG) |
| 706002          | 22-Oct-07         | 127                              | 127  | 1761 59TH AVE                  | Root intrusion          |
| 706810          | 30-Oct-07         | 144                              | 144  | 2600 Fairfield Street          | Grease deposition (FOG) |
| 707499          | 9-Nov-07          | 85                               | 85   | 42 Riverstar Circle            | Grease deposition (FOG) |
| 707500          | 9-Nov-07          | 50                               | 50   | 7000 Catlen Way                | Grease deposition (FOG) |
| 707686          | 14-Nov-07         | 100                              | 100  | 4511 Crestwood                 | Root intrusion          |
| 707902          | 19-Nov-07         | 300                              | 300  | 400 R STREET                   | Debris                  |
| 707933          | 20-Nov-07         | 550                              | 550  | 1199 43RD AVENUE               | Grease deposition (FOG) |
| 708164          | 26-Nov-07         | 20                               | 20   | 2155 Bernard Way               | Root intrusion          |
| 708390          | 29-Nov-07         | 50                               | 50   | 3900 FRANKLIN BLVD.            | Grease deposition (FOG) |
| 708391          | 29-Nov-07         | 600                              | 600  | 2282 Craig Ave.                | Grease deposition (FOG) |
| 708909          | 10-Dec-07         | 150                              | 150  | 7300 Stockdale Street          | Grease deposition (FOG) |
| 709623          | 17-Dec-07         | 750                              | 750  | Sutterville Road & Babich Ave. | Root intrusion          |
| 709624          | 17-Dec-07         | 35                               | 35   | 2387 ERICKSON ST.              | Root intrusion          |
| 709625          | 17-Dec-07         | 65                               | 65   | 2842 SWIFT WAY                 | Grease deposition (FOG) |
| 710387          | 26-Dec-07         | 10                               | 10   | 3675 REDDING AVE.              | Grease deposition (FOG) |
| 710389          | 26-Dec-07         | 400                              | 400  | 3501 BELDEN ST                 | Grease deposition (FOG) |
| 710390          | 26-Dec-07         | 250                              | 250  | 6745 PENDLETON ST              | Grease deposition (FOG) |
| 710574          | 2-Jan-08          | 100                              | 100  | 7020 WILSHIRE CIR              | Grease deposition (FOG) |
| 710575          | 2-Jan-08          | 100                              | 100  | 7394 STRATFORD ST              | Grease deposition (FOG) |
| 711314          | 16-Jan-08         | 150                              | 150  | 7079 REMO WAY                  | Grease deposition (FOG) |
| 711315          | 16-Jan-08         | 150                              | 150  | 7651 LAURIE WAY                | Grease deposition (FOG) |
| 711316          | 16-Jan-08         | 160                              | 160  | 4591 76TH ST                   | Grease deposition (FOG) |
| 711317          | 16-Jan-08         | 300                              | 300  | 325 EL CAMINO AVE              | Root intrusion          |
| 711460          | 22-Jan-08         | 60                               | 60   | 15 Stanislaus Circle           | Grease deposition (FOG) |
| 711591          | 23-Jan-08         | 125                              | 125  | 6200 FORDHAM WAY               | Root intrusion          |
| 711939          | 28-Jan-08         | 50                               | 50   | 6985 Flintwood Way             | Grease deposition (FOG) |
| 712047          | 30-Jan-08         | 50                               | 50   | 1466 Janrick Ave.              | Grease deposition (FOG) |
| 712248          | 4-Feb-08          | 332                              | 332  | 517 38th STREET                | Root intrusion          |
| 712249          | 4-Feb-08          | 150                              | 150  | 4230 WARREN AVE                | Root intrusion          |
| 713035          | 19-Feb-08         | 175                              | 175  | 515 Redwood Ave.               | Grease deposition (FOG) |
| 713036          | 19-Feb-08         | 150                              | 150  | 2981 Loma Verde Way            | Grease deposition (FOG) |
| 713178          | 20-Feb-08         | 400                              | 400  | 7279 AMHERST                   | Grease deposition (FOG) |
| 713933          | 26-Feb-08         | 65                               | 65   | 7400 BALFOUR WAY               | Grease deposition (FOG) |
| 714046          | 27-Feb-08         | 125                              | 125  | 2665 DEL PASO BLVD             | Grease deposition (FOG) |
| 714390          | 3-Mar-08          | 50                               | 50   | 5051 DARIEL DR.                | Grease deposition (FOG) |
| 714442          | 4-Mar-08          | 25                               | 25   | 6690 GOLF VIEW DR.             | Grease deposition (FOG) |
| 714547          | 5-Mar-08          | 75                               | 75   | 6142 BELLEAU WOOD LN           | Grease deposition (FOG) |
| 714937          | 17-Mar-08         | 10                               | 10   | 357 DU BOIS AVE                | Grease deposition (FOG) |
| 714942          | 17-Mar-08         | 100                              | 100  | 1009 OLIVERA WAY               | Debris                  |

**California Integrated Water Quality System SSO Data  
September 2007 - December 2018**

| <b>Spill ID</b> | <b>Spill Date</b> | <b>Estimated Volume, gallons</b> | <b>Estimated Volume Recovered, gallons</b> | <b>Spill Location</b> | <b>Spill Cause</b>      |
|-----------------|-------------------|----------------------------------|--|-----------------------|-------------------------|
| 714943          | 17-Mar-08         | 25                               | 25   | 1055 JOHNFER WAY      | Vandalism               |
| 715233          | 24-Mar-08         | 10                               | 10   | 5001 E STREET         | Root intrusion          |
| 715234          | 24-Mar-08         | 50                               | 50   | 1264 NOONAN DRIVE     | Root intrusion          |
| 715652          | 1-Apr-08          | 425                              | 425  | 2436 38th AVE         | Grease deposition (FOG) |
| 716106          | 14-Apr-08         | 15                               | 15   | 3830 U STREET         | Grease deposition (FOG) |
| 716236          | 17-Apr-08         | 10                               | 10   | 476 BLACKWOOD ST      | Root intrusion          |
| 716731          | 29-Apr-08         | 114                              | 114  | 6401 Hogan Drive      | Root intrusion          |
| 716825          | 1-May-08          | 60                               | 60   | 1241 MONTE VISTA WAY  | Root intrusion          |
| 716930          | 5-May-08          | 55                               | 55   | 3234 20th AVE         | Grease deposition (FOG) |
| 717570          | 19-May-08         | 25                               | 25   | 15 DON MERLINO CT.    | Grease deposition (FOG) |
| 717649          | 20-May-08         | 10                               | 10   | 5620 KINGSTON WAY     | Other (specify below)   |
| 717724          | 21-May-08         | 34                               | 34   | 6795 Riptide Way      | Grease deposition (FOG) |
| 718992          | 5-Jun-08          | 50                               | 50   | 1801 MATSON DR.       | Grease deposition (FOG) |
| 719828          | 18-Jun-08         | 40                               | 40   | 7536 Eddylee Way      | Grease deposition (FOG) |
| 721807          | 9-Jul-08          | 165                              | 165  | 2328 66th AVE         | Root intrusion          |
| 722180          | 14-Jul-08         | 499                              | 499  | 2376 CRAIG AVE        | Grease deposition (FOG) |
| 723556          | 25-Jul-08         | 75                               | 75   | 6801 DEMARET DR.      | Grease deposition (FOG) |
| 724462          | 11-Aug-08         | 20                               | 20   | 4300 ASTORIA ST       | Grease deposition (FOG) |
| 724785          | 18-Aug-08         | 5                                | 5  | 6485 OAKRIDGE WAY     | Root intrusion          |
| 725793          | 4-Sep-08          | 75                               | 75   | 6717 DEMARET DR.      | Root intrusion          |
| 725795          | 4-Sep-08          | 25                               | 25   | 6637 23RD ST          | Grease deposition (FOG) |
| 725854          | 5-Sep-08          | 185                              | 185  | 6717 DEMARET DR       | Root intrusion          |
| 726243          | 15-Sep-08         | 125                              | 125  | 5712 SURF WAY         | Root intrusion          |
| 727440          | 6-Oct-08          | 20                               | 20   | 4931 FLORA VISTA LANE | Root intrusion          |
| 727768          | 13-Oct-08         | 50                               | 50   | 1000 KATZ AVE         | Grease deposition (FOG) |
| 727769          | 13-Oct-08         | 175                              | 175  | 2301 51ST AVE         | Root intrusion          |
| 728668          | 29-Oct-08         | 30                               | 30   | 7244 AMHERST ST       | Root intrusion          |
| 728780          | 31-Oct-08         | 250                              | 250  | 5213 G ST             | Root intrusion          |
| 728876          | 3-Nov-08          | 105                              | 105  | 11 GRANVILLE CT.      | Grease deposition (FOG) |
| 728880          | 3-Nov-08          | 5                                | 5  | 7586 MYRTLE VISTA     | Root intrusion          |
| 729182          | 12-Nov-08         | 10                               | 10   | 400 L STREET          | Grease deposition (FOG) |
| 729301          | 17-Nov-08         | 440                              | 440  | 7409 BRAERIDGE WAY    | Root intrusion          |
| 729302          | 17-Nov-08         | 90                               | 90   | 4120 FRUITA CT        | Grease deposition (FOG) |
| 729414          | 19-Nov-08         | 30                               | 30   | 833 PARKLIN AVE.      | Grease deposition (FOG) |
| 729964          | 1-Dec-08          | 275                              | 275  | 6500 GREENHAVEN DR    | Grease deposition (FOG) |
| 729967          | 1-Dec-08          | 95                               | 95   | 2062 EDGEWATER RD     | Grease deposition (FOG) |
| 730194          | 4-Dec-08          | 200                              | 200  | 6691 21st ST          | Grease deposition (FOG) |
| 730434          | 11-Dec-08         | 105                              | 105  | 1304 Silver Ridge Way | Grease deposition (FOG) |
| 730435          | 11-Dec-08         | 100                              | 100  | 7255 Riverwind        | Grease deposition (FOG) |
| 730530          | 15-Dec-08         | 25                               | 25   | 2984 DEL PASO BLVD    | Grease deposition (FOG) |
| 730531          | 15-Dec-08         | 50                               | 50   | 2781 CROMWELL WAY     | Grease deposition (FOG) |
| 730532          | 15-Dec-08         | 55                               | 55   | 1043 JOHNFER WAY      | Grease deposition (FOG) |

**California Integrated Water Quality System SSO Data  
September 2007 - December 2018**

| <b>Spill ID</b> | <b>Spill Date</b> | <b>Estimated Volume, gallons</b> | <b>Estimated Volume Recovered, gallons</b> | <b>Spill Location</b>                 | <b>Spill Cause</b>      |
|-----------------|-------------------|----------------------------------|--|---------------------------------------|-------------------------|
| 730534          | 15-Dec-08         | 50                               | 50   | 6589 DEMARET DR                       | Grease deposition (FOG) |
| 730539          | 15-Dec-08         | 60                               | 60   | 6715 MIDDLECOFF WAY                   | Grease deposition (FOG) |
| 730596          | 16-Dec-08         | 81                               | 81   | 596 YORK ST                           | Grease deposition (FOG) |
| 730706          | 18-Dec-08         | 100                              | 100  | 4511 CRESTWOOD WAY                    | Root intrusion          |
| 730719          | 18-Dec-08         | 45                               | 45   | 4208 CANBY WAY                        | Root intrusion          |
| 731446          | 5-Jan-09          | 25                               | 25   | 4308 F ST                             | Root intrusion          |
| 731673          | 9-Jan-09          | 500                              | 500  | 1338 PALOMAR CIRCLE                   | Grease deposition (FOG) |
| 731719          | 12-Jan-09         | 90                               | 90   | 4861 34TH ST                          | Grease deposition (FOG) |
| 731999          | 16-Jan-09         | 375                              | 375  | 6510 13TH ST                          | Root intrusion          |
| 732001          | 16-Jan-09         | 225                              | 225  | 4690 CABANA WAY                       | Grease deposition (FOG) |
| 732168          | 20-Jan-09         | 17                               | 17   | 5191 24TH ST                          | Root intrusion          |
| 732175          | 21-Jan-09         | 18                               | 18   | 2361 GIBSON ST                        | Grease deposition (FOG) |
| 732176          | 21-Jan-09         | 89                               | 89   | 2152 EDISON AVE                       | Grease deposition (FOG) |
| 732720          | 28-Jan-09         | 45                               | 45   | 866 EDGEWOOD AVE                      | Grease deposition (FOG) |
| 732826          | 30-Jan-09         | 55                               | 55   | 2241 HOOKE WAY                        | Root intrusion          |
| 733199          | 6-Feb-09          | 200                              | 200  | 5100 D STREET                         | Root intrusion          |
| 733915          | 20-Feb-09         | 60                               | 60   | 2230 34th ave                         | Root intrusion          |
| 733916          | 20-Feb-09         | 50                               | 50   | 2158 CALLECITA ST                     | Grease deposition (FOG) |
| 733917          | 20-Feb-09         | 150                              | 150  | 4431 STANDRICH ST                     | Grease deposition (FOG) |
| 733918          | 20-Feb-09         | 30                               | 30   | 2500 26TH AVE                         | Root intrusion          |
| 733919          | 20-Feb-09         | 325                              | 325  | 2501 ATLAS AVE                        | Grease deposition (FOG) |
| 733922          | 20-Feb-09         | 100                              | 100  | 3100 ST JOSEPHS DR                    | Root intrusion          |
| 733942          | 23-Feb-09         | 500                              | 500  | 4240 DYMIC WAY                        | Grease deposition (FOG) |
| 733947          | 23-Feb-09         | 60                               | 60   | 98 ARCADE BLVD                        | Root intrusion          |
| 734820          | 11-Mar-09         | 550                              | 550  | 2293 BABBETTE WAY                     | Debri-General           |
| 734898          | 12-Mar-09         | 65                               | 65   | 5281 25TH ST                          | Root intrusion          |
| 735480          | 26-Mar-09         | 25                               | 25   | 7079 REMO WAY                         | Grease deposition (FOG) |
| 735481          | 26-Mar-09         | 225                              | 225  | 2293 BABBETTE WAY                     | Grease deposition (FOG) |
| 735724          | 31-Mar-09         | 100                              | 100  | Norwood Ave & Silver Eagle Road       | Grease deposition (FOG) |
| 736248          | 13-Apr-09         | 350                              | 350  | 777 BELASCO AVE                       | Grease deposition (FOG) |
| 736929          | 29-Apr-09         | 30                               | 30   | 2466 18th AVE                         | Grease deposition (FOG) |
| 737292          | 11-May-09         | 25                               | 25   | 1421 CAMPBELL LANE                    | Grease deposition (FOG) |
| 737293          | 11-May-09         | 25                               | 25   | 4100 28TH ST                          | Debri-Rags              |
| 737328          | 12-May-09         | 5                                | 5  | 7388 WILLOW LAKE WAY                  | Grease deposition (FOG) |
| 737341          | 12-May-09         | 200                              | 200  | 6300 FENNWOOD CT                      | Grease deposition (FOG) |
| 737910          | 26-May-09         | 125                              | 125  | 1034 NOGALES ST                       | Grease deposition (FOG) |
| 738511          | 4-Jun-09          | 750                              | 750  | STILLBREEZE WAY & 638 LAKEFRONT DRIVE | Debri-General           |
| 738660          | 8-Jun-09          | 150                              | 150  | 1861 GLENROSE AVE                     | Grease deposition (FOG) |
| 738823          | 9-Jun-09          | 50                               | 50   | 1369 LAS LOMITAS CIR.                 | Root intrusion          |
| 738883          | 10-Jun-09         | 15                               | 15   | 3000 SAINT JOSEPH DR.                 | Grease deposition (FOG) |

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|-----------------|-------------------|----------------------------------|--|-----------------------|-------------------------|
| 740747          | 7-Jul-09          | 30                               | 30   | 7304 BENBOW ST        | Grease deposition (FOG) |
| 740905          | 9-Jul-09          | 150                              | 150  | 7551 GREENHAVEN DR    | Pump station failure    |
| 743080          | 14-Aug-09         | 50                               | 50   | 7000 23rd STREET      | Grease deposition (FOG) |
| 743877          | 27-Aug-09         | 40                               | 40   | 7522 FLORES WAY       | Root intrusion          |
| 743881          | 27-Aug-09         | 200                              | 200  | 1861 NIAN TIC WAY     | Root intrusion          |
| 743945          | 28-Aug-09         | 50                               | 50   | 2225 63RD AVE         | Grease deposition (FOG) |
| 743947          | 28-Aug-09         | 109                              | 109  | 53 DEAN ROAD          | Grease deposition (FOG) |
| 744091          | 1-Sep-09          | 300                              | 300  | 1440 OAKHURST WAY     | Debri-General           |
| 744301          | 4-Sep-09          | 50                               | 50   | 7135 LYNHOLLEN WAY    | Grease deposition (FOG) |
| 744412          | 9-Sep-09          | 300                              | 300  | 3951 14TH AVE         | Root intrusion          |
| 744981          | 24-Sep-09         | 50                               | 50   | 7055 REMO WAY         | Root intrusion          |
| 744983          | 24-Sep-09         | 50                               | 50   | 2981 LOMA VERDE WAY   | Grease deposition (FOG) |
| 745104          | 28-Sep-09         | 20                               | 20   | 1527 LINDA VISTA DR   | Root intrusion          |
| 745105          | 28-Sep-09         | 40                               | 40   | 2992 ALTOS AVE        | Grease deposition (FOG) |
| 745617          | 14-Oct-09         | 65                               | 65   | 7572 COSGROVE WAY     | Grease deposition (FOG) |
| 745652          | 15-Oct-09         | 150                              | 150  | 686 ARCADE BLVD       | Root intrusion          |
| 745715          | 19-Oct-09         | 350                              | 350  | 781 WOODLAKE DR       | Root intrusion          |
| 745741          | 19-Oct-09         | 100                              | 100  | 6475 GREENHAVEN DR    | Grease deposition (FOG) |
| 746641          | 9-Nov-09          | 10                               | 10   | 111 52ND ST           | Grease deposition (FOG) |
| 746768          | 16-Nov-09         | 80                               | 80   | 2095 OXFORD ST        | Grease deposition (FOG) |
| 746769          | 16-Nov-09         | 100                              | 100  | 341 BELLO RIO WAY     | Grease deposition (FOG) |
| 746770          | 16-Nov-09         | 100                              | 100  | 7471 CARELLA          | Grease deposition (FOG) |
| 746809          | 17-Nov-09         | 75                               | 75   | 1045 GRAND AVE        | Grease deposition (FOG) |
| 746861          | 18-Nov-09         | 100                              | 100  | 4991 CABANA WAY       | Grease deposition (FOG) |
| 747189          | 30-Nov-09         | 25                               | 25   | 1008 CONGRESS AVE     | Root intrusion          |
| 747190          | 30-Nov-09         | 100                              | 100  | 797 BELASCO AVE       | Grease deposition (FOG) |
| 747339          | 7-Dec-09          | 20                               | 20   | 4640 S LAND PARK DR.  | Root intrusion          |
| 747388          | 8-Dec-09          | 70                               | 70   | 7040 13TH ST          | Grease deposition (FOG) |
| 747484          | 14-Dec-09         | 200                              | 200  | 1000 KATZ AVE         | Grease deposition (FOG) |
| 747510          | 15-Dec-09         | 240                              | 240  | 2020 QUINCY AVE       | Grease deposition (FOG) |
| 747612          | 17-Dec-09         | 300                              | 300  | 936 DONDRA WAY        | Grease deposition (FOG) |
| 747790          | 22-Dec-09         | 60                               | 60   | 6556 24TH ST          | Root intrusion          |
| 747882          | 28-Dec-09         | 200                              | 200  | 1840 60TH AVE         | Root intrusion          |
| 748338          | 14-Jan-10         | 50                               | 50   | 1421 34TH AVE         | Grease deposition (FOG) |
| 749009          | 1-Feb-10          | 10                               | 10   | 1145 34th AVE         | Grease deposition (FOG) |
| 749282          | 11-Feb-10         | 60                               | 60   | 7416 19TH ST          | Grease deposition (FOG) |
| 749571          | 22-Feb-10         | 80                               | 80   | 7720 25TH ST          | Grease deposition (FOG) |
| 749742          | 24-Feb-10         | 10                               | 10   | 834 PROW CT           | Root intrusion          |
| 749743          | 24-Feb-10         | 50                               | 50   | 1370 PALOMAR CIR      | Root intrusion          |
| 749920          | 1-Mar-10          | 100                              | 100  | 4221 32ND ST          | Grease deposition (FOG) |
| 749921          | 1-Mar-10          | 100                              | 100  | 153 JOHNSTON RD       | Root intrusion          |
| 749922          | 1-Mar-10          | 100                              | 100  | 637 PLAZA AVE         | Grease deposition (FOG) |

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|-----------------|-------------------|----------------------------------|--|------------------------|-------------------------|
| 749961          | 2-Mar-10          | 50                               | 50   | 317 ARCADE AVE         | Root intrusion          |
| 750170          | 5-Mar-10          | 30                               | 30   | 3528 OSMER LANE        | Grease deposition (FOG) |
| 750172          | 5-Mar-10          | 30                               | 30   | 7013 MIATA CIR         | Grease deposition (FOG) |
| 750532          | 12-Mar-10         | 60                               | 60   | 1500 FLORIN ROAD       | Other (specify below)   |
| 750545          | 15-Mar-10         | 75                               | 75   | 4490 BOLLENBACHER AVE  | Grease deposition (FOG) |
| 750602          | 16-Mar-10         | 30                               | 30   | 4361 CURTIS AVE.       | Root intrusion          |
| 750611          | 16-Mar-10         | 20                               | 20   | 671 LAS PALMAS AVE     | Grease deposition (FOG) |
| 751118          | 30-Mar-10         | 5                                | 5  | 3460 MARJORIE WAY      | Debri-General           |
| 751158          | 31-Mar-10         | 50                               | 50   | 4308 ULRICH WAY        | Root intrusion          |
| 751247          | 2-Apr-10          | 150                              | 150  | 7788 FREEPORT BLVD.    | Debri-General           |
| 751310          | 6-Apr-10          | 10                               | 10   | 145 GLOBE AVE          | Debri-General           |
| 751311          | 6-Apr-10          | 30                               | 30   | 5484 CARLSON DR        | Root intrusion          |
| 751397          | 8-Apr-10          | 20                               | 20   | 200 39TH ST            | Root intrusion          |
| 751736          | 16-Apr-10         | 46                               | 46   | 2512 CASA LINDA DR     | Debri-General           |
| 751781          | 20-Apr-10         | 60                               | 60   | 5600 FRANKLIN BLVD     | Grease deposition (FOG) |
| 751811          | 21-Apr-10         | 20                               | 20   | 1095 ARCADE BLVD       | Grease deposition (FOG) |
| 751877          | 22-Apr-10         | 20                               | 20   | 735 SANTIAGO AVE       | Grease deposition (FOG) |
| 752069          | 30-Apr-10         | 1                                | 1  | 5484 CARLSON DR        | Root intrusion          |
| 752105          | 3-May-10          | 10                               | 10   | 6142 BELLEAU WOOD LANE | Root intrusion          |
| 752490          | 17-May-10         | 75                               | 75   | 7362 STOCKDALE ST      | Root intrusion          |
| 752565          | 20-May-10         | 20                               | 20   | 7269 CAMINO DEL REY    | Grease deposition (FOG) |
| 752566          | 20-May-10         | 20                               | 20   | 2985 DEL PASO BLVD     | Other (specify below)   |
| 752732          | 27-May-10         | 1                                | 1  | 29 CASWELL CT          | Grease deposition (FOG) |
| 753316          | 14-Jun-10         | 150                              | 150  | 500 LAS PALMAS AVE     | Grease deposition (FOG) |
| 753317          | 14-Jun-10         | 200                              | 200  | 7415 21ST ST           | Grease deposition (FOG) |
| 753719          | 22-Jun-10         | 100                              | 100  | 2124 ROANOKE AVE       | Grease deposition (FOG) |
| 754025          | 28-Jun-10         | 5                                | 5  | 5172 TEICHERT AVE      | Root intrusion          |
| 754026          | 28-Jun-10         | 400                              | 400  | 4901 RIO LINDA BLVD    | Grease deposition (FOG) |
| 754359          | 2-Jul-10          | 80                               | 80   | 100 FAIRGROUNDS DR     | Root intrusion          |
| 754423          | 6-Jul-10          | 3                                | 3  | 949 ACACIA AVE         | Grease deposition (FOG) |
| 754704          | 9-Jul-10          | 10                               | 10   | 7 SANTIAGO AVE         | Root intrusion          |
| 755310          | 20-Jul-10         | 50                               | 50   | 9 RIVERSTAR CIR        | Grease deposition (FOG) |
| 755313          | 20-Jul-10         | 30                               | 30   | 2231 KENWORTHY WAY     | Grease deposition (FOG) |
| 755340          | 21-Jul-10         | 20                               | 20   | 1634 GLENROSE AVE      | Grease deposition (FOG) |
| 755381          | 22-Jul-10         | 50                               | 50   | 1401 CAMPBELL LN       | Root intrusion          |
| 755449          | 26-Jul-10         | 10                               | 10   | 2241 MURIETA WAY       | Root intrusion          |
| 756111          | 17-Aug-10         | 30                               | 30   | 1724 FREINZA           | Grease deposition (FOG) |
| 756131          | 18-Aug-10         | 10                               | 10   | 207 JOHNSTON ROAD      | Root intrusion          |
| 756172          | 19-Aug-10         | 25                               | 25   | 2771 FRUITRIDGE RD     | Root intrusion          |
| 756252          | 23-Aug-10         | 100                              | 100  | 6151 14th ST           | Root intrusion          |
| 756413          | 26-Aug-10         | 10                               | 10   | 801 ARCADE BLVD        | Root intrusion          |

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|-----------------|-------------------|----------------------------------|--|-----------------------|-------------------------|
| 756476          | 30-Aug-10         | 1                                | 1  | 150 JOHNSTON ROAD     | Grease deposition (FOG) |
| 756509          | 1-Sep-10          | 5                                | 5  | 6516 HOGAN DR         | Grease deposition (FOG) |
| 756637          | 7-Sep-10          | 100                              | 100  | 1543 STERLING ST      | Root intrusion          |
| 756973          | 20-Sep-10         | 60                               | 60   | 7515 21ST ST          | Grease deposition (FOG) |
| 757062          | 22-Sep-10         | 50                               | 50   | 26 SMOKEY LEAF CT     | Debri-General           |
| 757289          | 1-Oct-10          | 65                               | 65   | 836 57th ST           | Grease deposition (FOG) |
| 757396          | 6-Oct-10          | 200                              | 200  | 2226 67TH AVE         | Grease deposition (FOG) |
| 757462          | 8-Oct-10          | 10                               | 10   | 2055 CANTERBURY RD    | Root intrusion          |
| 757463          | 8-Oct-10          | 100                              | 100  | 777 BELASCO           | Grease deposition (FOG) |
| 757627          | 13-Oct-10         | 5                                | 5  | 2320 CRAIG AVE        | Grease deposition (FOG) |
| 757628          | 13-Oct-10         | 25                               | 25   | 604 DITTMAR WAY       | Root intrusion          |
| 758098          | 25-Oct-10         | 10                               | 10   | 451 ELEANOR AVE       | Grease deposition (FOG) |
| 758180          | 27-Oct-10         | 20                               | 20   | 2001 BERG AVE         | Grease deposition (FOG) |
| 758387          | 5-Nov-10          | 20                               | 20   | 7300 24TH ST          | Root intrusion          |
| 758390          | 5-Nov-10          | 100                              | 100  | 2530 RIO LINDA BLVD   | Grease deposition (FOG) |
| 758434          | 9-Nov-10          | 10                               | 10   | 7355 22ND ST          | Grease deposition (FOG) |
| 758435          | 9-Nov-10          | 50                               | 50   | 5961 NEWMAN CT        | Root intrusion          |
| 758458          | 10-Nov-10         | 1                                | 1  | 7553 32ND ST          | Grease deposition (FOG) |
| 758734          | 18-Nov-10         | 55                               | 55   | 2225 HOOKE WAY        | Root intrusion          |
| 759039          | 2-Dec-10          | 170                              | 170  | 3937 PALMETTO ST.     | Grease deposition (FOG) |
| 759040          | 2-Dec-10          | 500                              | 500  | 11 GRANVILLE CT.      | Grease deposition (FOG) |
| 759041          | 2-Dec-10          | 20                               | 20   | 3848 KROY WAY         | Root intrusion          |
| 759042          | 2-Dec-10          | 15                               | 15   | 1842 67TH AVE         | Grease deposition (FOG) |
| 759044          | 2-Dec-10          | 30                               | 30   | 10 NOAH CT.           | Grease deposition (FOG) |
| 759045          | 2-Dec-10          | 1                                | 1  | 6965 MCQUILLAN CIR.   | Debri-General           |
| 759159          | 7-Dec-10          | 100                              | 100  | 1004 OLIVERA WAY      | Grease deposition (FOG) |
| 759160          | 7-Dec-10          | 80                               | 80   | 2412 37TH AVE         | Root intrusion          |
| 759280          | 10-Dec-10         | 10                               | 10   | 7534 SKELTON WAY      | Grease deposition (FOG) |
| 759502          | 17-Dec-10         | 15                               | 15   | 6201 ELVAS AVE        | Root intrusion          |
| 759611          | 20-Dec-10         | 60                               | 60   | 1871 FERRAN AVE       | Grease deposition (FOG) |
| 759614          | 20-Dec-10         | 200                              | 200  | 7554 LOMA VERDE WAY   | Grease deposition (FOG) |
| 759615          | 20-Dec-10         | 400                              | 400  | 7443 WINKLEY WAY      | Grease deposition (FOG) |
| 759646          | 21-Dec-10         | 50                               | 50   | 7307 22ND ST          | Grease deposition (FOG) |
| 759978          | 29-Dec-10         | 20                               | 20   | 5010 DEL RIO RD       | Root intrusion          |
| 760002          | 30-Dec-10         | 100                              | 100  | 4933 CRESTWOOD WAY    | Root intrusion          |
| 760088          | 3-Jan-11          | 10                               | 10   | 2605 FAIRFIELD STREET | Grease deposition (FOG) |
| 760090          | 3-Jan-11          | 50                               | 50   | 4661 LARSON WAY       | Root intrusion          |
| 760372          | 7-Jan-11          | 110                              | 110  | 615 LAMPASAS AVE      | Grease deposition (FOG) |
| 760373          | 7-Jan-11          | 100                              | 100  | 7501 MUIRFIELD WAY    | Grease deposition (FOG) |
| 760808          | 11-Jan-11         | 100                              | 100  | 1021 JOHNFER WAY      | Grease deposition (FOG) |
| 760809          | 11-Jan-11         | 60                               | 60   | 1104 SILVER RIDGE WAY | Root intrusion          |
| 760810          | 11-Jan-11         | 200                              | 200  | 7684 19 TH STREET     | Grease deposition (FOG) |

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|-----------------|-------------------|----------------------------------|--|-----------------------|---|
| 760811          | 11-Jan-11         | 75                               | 75   | 1636 ROANOKE AVE      | Root intrusion                            |
| 761379          | 19-Jan-11         | 20                               | 20   | 73 DEAN ROAD          | Grease deposition (FOG)                   |
| 761380          | 19-Jan-11         | 150                              | 150  | 81 DEAN ROAD          | Grease deposition (FOG)                   |
| 761381          | 19-Jan-11         | 50                               | 50   | 2935 CLAY STREET      | Grease deposition (FOG)                   |
| 761583          | 21-Jan-11         | 20                               | 20   | 2573 LEXINGTON ST.    | Grease deposition (FOG)                   |
| 762220          | 31-Jan-11         | 30                               | 30   | 142 BAXTER AVE        | Root intrusion                            |
| 762222          | 31-Jan-11         | 25                               | 25   | 1182 SILVER RIDE WAY  | Root intrusion                            |
| 762224          | 31-Jan-11         | 200                              | 200  | 2297 BABETTE WAY      | Grease deposition (FOG)                   |
| 762226          | 31-Jan-11         | 85                               | 85   | 6507 4TH AVE          | Grease deposition (FOG)                   |
| 762473          | 4-Feb-11          | 50                               | 50   | 5661 DANA WAY         | Grease deposition (FOG)                   |
| 762474          | 4-Feb-11          | 25                               | 25   | 700 SOUTHGATE RD.     | Root intrusion                            |
| 762521          | 7-Feb-11          | 100                              | 100  | 2285 BABETTE WAY      | Root intrusion                            |
| 762522          | 7-Feb-11          | 30                               | 30   | 4350 BURGESS DR.      | Grease deposition (FOG)                   |
| 762524          | 7-Feb-11          | 35                               | 35   | 2780 WOOD VIOLET WAY  | Grease deposition (FOG)                   |
| 762875          | 11-Feb-11         | 30                               | 30   | 2009 EDISON AVE       | Grease deposition (FOG)                   |
| 762880          | 11-Feb-11         | 10                               | 10   | 567 GARDEN ST.        | Other (specify below)                     |
| 763104          | 16-Feb-11         | 20                               | 20   | 85 BAY DR             | Debri-General                             |
| 763105          | 16-Feb-11         | 10                               | 10   | 7540 18TH ST          | Grease deposition (FOG)                   |
| 763117          | 16-Feb-11         | 20                               | 20   | 2009 EDISON AVE       | Grease deposition (FOG)                   |
| 763343          | 22-Feb-11         | 50                               | 50   | 2225 22nd Ave         | Root intrusion                            |
| 763344          | 22-Feb-11         | 50                               | 50   | 6475 DRIFTWOOD ST.    | Grease deposition (FOG)                   |
| 763690          | 25-Feb-11         | 50                               | 50   | 2547 EDGEWATER RD.    | Grease deposition (FOG)                   |
| 763691          | 25-Feb-11         | 25                               | 25   | 6205 RIVERSIDE BLVD   | Grease deposition (FOG)                   |
| 763692          | 25-Feb-11         | 200                              | 200  | 3925 DRY CREEK RD.    | Grease deposition (FOG)                   |
| 763695          | 25-Feb-11         | 250                              | 250  | 107 GOSS CT.          | Grease deposition (FOG)                   |
| 763789          | 28-Feb-11         | 200                              | 200  | 7208 21ST STREET      | Root intrusion                            |
| 763943          | 2-Mar-11          | 20                               | 20   | 930 ROEDER WAY        | Grease deposition (FOG)                   |
| 764069          | 7-Mar-11          | 23                               | 23   | 5451 PLEASANT DR      | Root intrusion                            |
| 764339          | 14-Mar-11         | 85                               | 85   | 1771 59TH AVE         | Root intrusion                            |
| 764341          | 14-Mar-11         | 50                               | 50   | 7421 CANDLEWOOD WAY   | Root intrusion                            |
| 764606          | 22-Mar-11         | 50                               | 50   | 1125 GLENROSE AVE     | Debri-Rags                                |
| 764607          | 22-Mar-11         | 150                              | 150  | 2621 BEAUMONT ST      | Grease deposition (FOG)                   |
| 764608          | 22-Mar-11         | 120                              | 120  | 5601 CAZADERO WAY     | Root intrusion                            |
| 764663          | 23-Mar-11         | 65                               | 65   | 7437 COSGROVE WAY     | Grease deposition (FOG)                   |
| 764870          | 29-Mar-11         | 2500                             | 2500                                       | 7600 Green Haven Dr.  | Surcharged pipe (Combined CS Only)        |
| 764977          | 31-Mar-11         | 300                              | 300  | 2765 FAIRFIELD ST.    | Pump station failure                      |
| 764978          | 31-Mar-11         | 100                              | 100  | 6861 DIEGLE CIR       | Grease deposition (FOG)                   |
| 764980          | 31-Mar-11         | 50                               | 50   | 6985 FLINTWOOD WAY    | Flow exceeded capacity (Separate CS Only) |
| 765195          | 6-Apr-11          | 100                              | 100  | 171 51ST STREET       | Root intrusion                            |
| 765535          | 14-Apr-11         | 100                              | 100  | 2424 40th AVENUE      | Grease deposition (FOG)                   |
| 765552          | 15-Apr-11         | 25                               | 25   | 2166 53rd AVE         | Other (specify below)                     |

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|-----------------|-------------------|----------------------------------|--|-----------------------|---------------------------------|
| 765799          | 26-Apr-11         | 75                               | 75   | 47 SANDBURG DR        | Other (specify below)           |
| 765941          | 29-Apr-11         | 80                               | 80   | 5669 EL GRANERO WAY   | Debri-Rags                      |
| 765942          | 29-Apr-11         | 35                               | 35   | 1840 FLORIN RD.       | Root intrusion                  |
| 765972          | 2-May-11          | 20                               | 20   | 7331 CRANSTON WAY     | Grease deposition (FOG)         |
| 766158          | 4-May-11          | 200                              | 200  | 6655 14TH ST          | Grease deposition (FOG)         |
| 766159          | 4-May-11          | 100                              | 100  | 1052 GRAND AVE        | Grease deposition (FOG)         |
| 766250          | 9-May-11          | 118                              | 118  | 808 UNION ST          | Grease deposition (FOG)         |
| 766315          | 11-May-11         | 110                              | 110  | 5200 RIVERSIDE BLVD   | Grease deposition (FOG)         |
| 766395          | 12-May-11         | 75                               | 75   | 2166 53RD AVE         | Root intrusion                  |
| 766544          | 16-May-11         | 200                              | 200  | 1134 NOGALES ST       | Grease deposition (FOG)         |
| 766743          | 19-May-11         | 50                               | 50   | 4318 F STREET         | Root intrusion                  |
| 767236          | 8-Jun-11          | 46                               | 46   | 2941 DEL PASO BLVD    | Pump station failure            |
| 767483          | 15-Jun-11         | 46                               | 46   | 2724 DEL PASO BLVD    | Debri-General                   |
| 767538          | 16-Jun-11         | 76                               | 76   | 2270 COLFAX ST        | Debri-General                   |
| 767661          | 21-Jun-11         | 200                              | 200  | 1109 LAKE GLEN WAY    | Pipe structural problem/failure |
| 767770          | 23-Jun-11         | 10                               | 10   | 3847 SAN CARLOS WAY   | Other (specify below)           |
| 768032          | 30-Jun-11         | 56                               | 56   | 1239 GRAND AVE        | Grease deposition (FOG)         |
| 768033          | 30-Jun-11         | 50                               | 50   | 4762 NORM CIR.        | Grease deposition (FOG)         |
| 768122          | 5-Jul-11          | 20                               | 20   | 6601 FORDHAM WAY      | Root intrusion                  |
| 768167          | 6-Jul-11          | 25                               | 25   | 6801 DEMARET DR.      | Grease deposition (FOG)         |
| 768238          | 8-Jul-11          | 10                               | 10   | 5961 13th ST          | Root intrusion                  |
| 768335          | 12-Jul-11         | 55                               | 55   | 2964 DEL PASO ROAD    | Other (specify below)           |
| 768336          | 12-Jul-11         | 50                               | 50   | 6473 OAKRIDGE WAY     | Root intrusion                  |
| 768985          | 26-Jul-11         | 200                              | 200  | 7029 13th ST          | Grease deposition (FOG)         |
| 769003          | 27-Jul-11         | 100                              | 100  | 763 HAYES AVE         | Grease deposition (FOG)         |
| 769320          | 1-Aug-11          | 300                              | 300  | 2512 RIO LINDA BLVD   | Grease deposition (FOG)         |
| 769662          | 10-Aug-11         | 16                               | 16   | 6849 DEMARET DR       | Root intrusion                  |
| 769755          | 12-Aug-11         | 3                                | 3  | 7023 CROMWELL WAY     | Grease deposition (FOG)         |
| 770039          | 22-Aug-11         | 100                              | 100  | 7320 FLOWERWOOD WAY   | Grease deposition (FOG)         |
| 770450          | 30-Aug-11         | 10                               | 10   | 762 DIXIEANNE AVE     | Grease deposition (FOG)         |
| 770509          | 31-Aug-11         | 20                               | 20   | 4631 ATTAWA AVE       | Root intrusion                  |
| 770633          | 1-Sep-11          | 23                               | 23   | 5704 ROSEDALE WAY     | Root intrusion                  |
| 770692          | 6-Sep-11          | 200                              | 200  | 2665 DEL PASO BLVD    | Other (specify below)           |
| 771011          | 14-Sep-11         | 5                                | 5  | 3936 FELL ST.         | Grease deposition (FOG)         |
| 771241          | 20-Sep-11         | 15                               | 15   | 1831 60TH AVE         | Debri-General                   |
| 771432          | 26-Sep-11         | 20                               | 20   | 7393 FLORES WAY       | Grease deposition (FOG)         |
| 771434          | 26-Sep-11         | 200                              | 200  | 5641 JAMES WAY        | Grease deposition (FOG)         |
| 771564          | 29-Sep-11         | 256                              | 256  | 1654 69th AVENUE      | Grease deposition (FOG)         |
| 771565          | 29-Sep-11         | 22                               | 22   | 57 STARLIT CIRCLE     | Debri-Rags                      |
| 771583          | 30-Sep-11         | 30                               | 30   | 7466 21st ST.         | Grease deposition (FOG)         |
| 771636          | 3-Oct-11          | 100                              | 100  | 7200 TAMOSHANTER WAY  | Grease deposition (FOG)         |

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|-----------------|-------------------|----------------------------------|--|------------------------|-------------------------|
| 771637          | 3-Oct-11          | 10                               | 10   | 3908 SAN CARLOS WAY    | Grease deposition (FOG) |
| 771638          | 3-Oct-11          | 5                                | 5  | 42 RIVERSTAR CIRCLE    | Grease deposition (FOG) |
| 771729          | 5-Oct-11          | 15                               | 15   | 2610 NORWOOD AVE       | Root intrusion          |
| 771947          | 12-Oct-11         | 150                              | 150  | 1311 NORMANDY LANE     | Root intrusion          |
| 772191          | 19-Oct-11         | 20                               | 20   | 5121 25th ST           | Grease deposition (FOG) |
| 772285          | 24-Oct-11         | 5                                | 5  | 457 SOUTHGATE ROAD     | Root intrusion          |
| 772358          | 26-Oct-11         | 130                              | 130  | 2334 CORK CIRCLE       | Root intrusion          |
| 772465          | 28-Oct-11         | 50                               | 50   | 14 DON MERLINO CT      | Grease deposition (FOG) |
| 772469          | 28-Oct-11         | 86                               | 86   | 1907 SOUTH AVE         | Grease deposition (FOG) |
| 772555          | 31-Oct-11         | 374                              | 374  | 5021 FREEPORT BLVD     | Grease deposition (FOG) |
| 772929          | 9-Nov-11          | 10                               | 10   | 2301 51st AVE          | Root intrusion          |
| 773086          | 14-Nov-11         | 134                              | 134  | 2040 56th AVE          | Root intrusion          |
| 773372          | 22-Nov-11         | 1515                             | 1415                                       | 716 Grand Ave.         | Grease deposition (FOG) |
| 773496          | 28-Nov-11         | 135                              | 100  | 2611 23rd AVE          | Root intrusion          |
| 773554          | 29-Nov-11         | 10                               | 10   | 3050 ST JOSEPHS DR     | Grease deposition (FOG) |
| 773733          | 5-Dec-11          | 366                              | 366  | 2394 GLEN ELLEN CIRCLE | Grease deposition (FOG) |
| 773761          | 6-Dec-11          | 10                               | 10   | 3072 CALLECITA ST.     | Grease deposition (FOG) |
| 773816          | 8-Dec-11          | 4                                | 4  | 3725 CYPRESS ST        | Root intrusion          |
| 774041          | 13-Dec-11         | 30                               | 30   | 7386 CRANSTON WAY      | Root intrusion          |
| 774042          | 13-Dec-11         | 400                              | 400  | 420 SANDBURG DR        | Root intrusion          |
| 774043          | 13-Dec-11         | 21                               | 21   | 2129 56TH AVE          | Root intrusion          |
| 774045          | 13-Dec-11         | 10                               | 8  | 2163 51ST AVE          | Root intrusion          |
| 774129          | 15-Dec-11         | 45                               | 45   | 2250 24th AVE          | Debri-General           |
| 774583          | 22-Dec-11         | 20                               | 20   | 2671 BEESTON AVE       | Grease deposition (FOG) |
| 774760          | 27-Dec-11         | 42                               | 42   | 6867 GREENHAVEN DR.    | Grease deposition (FOG) |
| 774761          | 27-Dec-11         | 30                               | 25   | 1315 TUGGLE WAY        | Grease deposition (FOG) |
| 774762          | 27-Dec-11         | 10                               | 10   | 5014 ASHLAND WAY       | Debri-Rags              |
| 774765          | 27-Dec-11         | 1                                | 1  | 3250 PALMER ST.        | Grease deposition (FOG) |
| 774932          | 29-Dec-11         | 185                              | 165  | 2771 63RD ST.          | Root intrusion          |
| 775331          | 4-Jan-12          | 1                                | 1  | 781 WOODLAKE DR        | Root intrusion          |
| 775332          | 4-Jan-12          | 7                                | 7  | 772 LAMPASAS DR        | Grease deposition (FOG) |
| 775355          | 5-Jan-12          | 249                              | 249  | 2140 34th AVE          | Debri-General           |
| 775717          | 11-Jan-12         | 10                               | 8  | 285 ELANOR AVE         | Grease deposition (FOG) |
| 775985          | 18-Jan-12         | 65                               | 60   | 1217 RIDGEWAY DRIVE    | Grease deposition (FOG) |
| 775986          | 18-Jan-12         | 3                                | 0  | 2256 ARLISS WAY        | Root intrusion          |
| 776030          | 19-Jan-12         | 49                               | 49   | 5488 CARLSON DR        | Root intrusion          |
| 776370          | 25-Jan-12         | 80                               | 80   | 1956 NEWPORT AVE       | Root intrusion          |
| 776372          | 25-Jan-12         | 40                               | 40   | 4605 SUNSET DR         | Root intrusion          |
| 776556          | 30-Jan-12         | 163                              | 163  | 6260 BELLEAU WOOD LANE | Grease deposition (FOG) |
| 776572          | 30-Jan-12         | 182                              | 182  | 5709 MONTEREY WAY      | Root intrusion          |
| 776794          | 2-Feb-12          | 565                              | 565  | 925 SECRET RIVER DR    | Grease deposition (FOG) |
| 776851          | 6-Feb-12          | 5                                | 5  | 1600 ALVINA AVE        | Debri-General           |

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|-----------------|-------------------|----------------------------------|--|------------------------|-------------------------|
| 777089          | 9-Feb-12          | 6                                | 5  | 2075 OXFORD ST         | Root intrusion          |
| 777111          | 10-Feb-12         | 30                               | 30   | 2208 AMANDA WAY        | Root intrusion          |
| 777396          | 13-Feb-12         | 1                                | 1  | 6985 FLINTWOOD WAY     | Grease deposition (FOG) |
| 777397          | 13-Feb-12         | 2                                | 2  | 2147 60TH AVE          | Grease deposition (FOG) |
| 777398          | 13-Feb-12         | 2                                | 2  | 3447 63RD ST           | Root intrusion          |
| 777577          | 16-Feb-12         | 31                               | 25   | 453 S. LAND PARK DR    | Root intrusion          |
| 777578          | 16-Feb-12         | 147                              | 140  | 7031 REMO WAY          | Grease deposition (FOG) |
| 777855          | 23-Feb-12         | 9                                | 9  | 4301 EUCLID AVE        | Root intrusion          |
| 777856          | 23-Feb-12         | 2                                | 2  | 4601 LARSON WAY        | Root intrusion          |
| 777857          | 23-Feb-12         | 21                               | 21   | 7352 STRATFORD ST      | Grease deposition (FOG) |
| 777858          | 23-Feb-12         | 73                               | 73   | 2124 KIRK WAY          | Grease deposition (FOG) |
| 777859          | 23-Feb-12         | 31                               | 31   | 7352 STRATFORD ST      | Grease deposition (FOG) |
| 777900          | 24-Feb-12         | 5                                | 5  | 5200 RIVERSIDE BLVD    | Grease deposition (FOG) |
| 778329          | 5-Mar-12          | 139                              | 139  | 2220 67th AVE          | Root intrusion          |
| 778330          | 5-Mar-12          | 37                               | 37   | 2152 EDISON AVE        | Root intrusion          |
| 778331          | 5-Mar-12          | 47                               | 47   | 4691 CABANA WAY        | Root intrusion          |
| 778642          | 14-Mar-12         | 480                              | 480  | 1504 34th AVE          | Root intrusion          |
| 778848          | 20-Mar-12         | 165                              | 165  | 173 LOVELAND AVE       | Grease deposition (FOG) |
| 778955          | 22-Mar-12         | 128                              | 128  | 1256 47th AVE          | Root intrusion          |
| 778956          | 22-Mar-12         | 48                               | 46   | 5306 GILGUNN WAY       | Grease deposition (FOG) |
| 778957          | 22-Mar-12         | 8                                | 6  | 4108 MCKINLEY BLVD     | Root intrusion          |
| 779111          | 27-Mar-12         | 14                               | 14   | 4695 FRANCIS CT        | Root intrusion          |
| 779144          | 27-Mar-12         | 45                               | 45   | 2682 GARY WAY          | Grease deposition (FOG) |
| 779215          | 29-Mar-12         | 14                               | 14   | 4661 LARSON WAY        | Grease deposition (FOG) |
| 779475          | 4-Apr-12          | 278                              | 278  | 2297BABETTE WAY        | Grease deposition (FOG) |
| 779825          | 10-Apr-12         | 42                               | 20   | 4037 MARYSVILLE BLVD   | Root intrusion          |
| 780468          | 23-Apr-12         | 552                              | 552  | 4520 CRESTWOOD WAY     | Debri-General           |
| 780690          | 26-Apr-12         | 386                              | 386  | 2432 40th AVE          | Grease deposition (FOG) |
| 780812          | 1-May-12          | 10                               | 10   | 5673 LA CAMPANA WAY    | Debri-General           |
| 780818          | 1-May-12          | 19                               | 19   | 5430 PLEASANT DR       | Root intrusion          |
| 780819          | 1-May-12          | 7                                | 7  | 7470 29TH ST           | Grease deposition (FOG) |
| 781080          | 9-May-12          | 99                               | 99   | 1256 47TH AVE          | Debri-General           |
| 781081          | 9-May-12          | 37                               | 37   | 2174 56TH AVE          | Root intrusion          |
| 781157          | 10-May-12         | 353                              | 353  | 1224 40TH AVE          | Root intrusion          |
| 781377          | 16-May-12         | 24                               | 24   | 3730 MODELL WAY        | Grease deposition (FOG) |
| 781499          | 21-May-12         | 4                                | 0  | 4100 ARLINGTON AVE     | Root intrusion          |
| 782232          | 18-Jun-12         | 57                               | 43   | 5830 BELLEAU WOOD LANE | Grease deposition (FOG) |
| 782558          | 27-Jun-12         | 10                               | 10   | 4591 76th st.          | Grease deposition (FOG) |
| 782719          | 2-Jul-12          | 3                                | 3  | 2224 HOOKE WAY         | Root intrusion          |
| 783262          | 11-Jul-12         | 40                               | 40   | 4270 ATTAWA AVE        | Debri-General           |
| 783917          | 23-Jul-12         | 67                               | 67   | 5451 PLEASANT DR       | Root intrusion          |
| 784698          | 6-Aug-12          | 12                               | 0  | 1212 43rd AVE          | Root intrusion          |

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|----------|------------|---------------------------|-------------------------------------|--------------------------------|---------------------------------|
| 784724   | 7-Aug-12   | 22                        | 22                                  | 2511 65th AVE                  | Grease deposition (FOG)         |
| 784725   | 7-Aug-12   | 20                        | 20                                  | 805 ROUNDTREE CT               | Root intrusion                  |
| 785811   | 31-Aug-12  | 252                       | 252                                 | 7526 ADDISON WAY               | Grease deposition (FOG)         |
| 786219   | 14-Sep-12  | 75                        | 75                                  | 7405 GREENHAVEN DR             | Other (specify below)           |
| 786290   | 18-Sep-12  | 41                        | 22                                  | 2641 KIM AVE                   | Grease deposition (FOG)         |
| 786662   | 27-Sep-12  | 19                        | 19                                  | 89 ARCADE BLVD                 | Pipe structural problem/failure |
| 786664   | 27-Sep-12  | 31                        | 21                                  | 7800 FREEPORT BLVD             | Debri-General                   |
| 786665   | 27-Sep-12  | 23                        | 23                                  | 3824 14TH AVE                  | Grease deposition (FOG)         |
| 786672   | 27-Sep-12  | 5                         | 3                                   | 5020 34TH ST                   | Root intrusion                  |
| 786890   | 2-Oct-12   | 94                        | 87                                  | 282 RIVERTREE WAY              | Grease deposition (FOG)         |
| 787024   | 8-Oct-12   | 5                         | 5                                   | 1179 THEO WAY                  | Other (specify below)           |
| 787060   | 9-Oct-12   | 10                        | 2                                   | 5025 23RD ST                   | Root intrusion                  |
| 787664   | 29-Oct-12  | 78                        | 78                                  | 1300 58th AVE                  | Grease deposition (FOG)         |
| 787899   | 6-Nov-12   | 34                        | 34                                  | 7032 EL SERENO CR              | Root intrusion                  |
| 788369   | 27-Nov-12  | 33                        | 33                                  | 7261 LOMA VERDE WAY            | Grease deposition (FOG)         |
| 788586   | 30-Nov-12  | 28                        | 28                                  | GREENHAVEN DR & MOONLIT CIRCLE | Grease deposition (FOG)         |
| 788589   | 30-Nov-12  | 1557                      | 1557                                | 924 57TH ST                    | Grease deposition (FOG)         |
| 788786   | 5-Dec-12   | 1259                      | 1259                                | 1307 58th AVE                  | Grease deposition (FOG)         |
| 788790   | 5-Dec-12   | 913                       | 63                                  | 3706 WILLOW ST                 | Grease deposition (FOG)         |
| 788838   | 6-Dec-12   | 24                        | 24                                  | 7416 19th ST                   | Root intrusion                  |
| 788977   | 12-Dec-12  | 17                        | 17                                  | 3621 27TH AVE                  | Debri-Rags                      |
| 788978   | 12-Dec-12  | 28                        | 28                                  | 7495 21ST STREET               | Grease deposition (FOG)         |
| 788979   | 12-Dec-12  | 92                        | 50                                  | 4530 SOUTH LAND PARK DRIVE     | Other (specify below)           |
| 788980   | 12-Dec-12  | 3                         | 3                                   | 1024 LAS PALMAS AVE            | Grease deposition (FOG)         |
| 789235   | 21-Dec-12  | 67                        | 67                                  | 1209 ridgeway drive            | Grease deposition (FOG)         |
| 789483   | 27-Dec-12  | 19                        | 19                                  | 6985 FLINTWOOD WAY             | Grease deposition (FOG)         |
| 789511   | 28-Dec-12  | 75                        | 75                                  | 500 N STREET                   | Other (specify below)           |
| 790534   | 18-Jan-13  | 12                        | 8                                   | 6641 HOGAN DR                  | Root intrusion                  |
| 790696   | 23-Jan-13  | 3                         | 3                                   | 4350 TAYLOR ST                 | Grease deposition (FOG)         |
| 790823   | 28-Jan-13  | 3                         | 1                                   | 2525 MEADOW WOOD CR.           | Grease deposition (FOG)         |
| 791092   | 1-Feb-13   | 1800                      | 1800                                | 5730 24TH STREET               | Root intrusion                  |
| 791236   | 5-Feb-13   | 18                        | 18                                  | 617 36TH ST                    | Debri-General                   |
| 791237   | 5-Feb-13   | 17                        | 5                                   | 135 BAXTER AVE                 | Grease deposition (FOG)         |
| 791830   | 20-Feb-13  | 31                        | 31                                  | 2801 65TH AVE                  | Grease deposition (FOG)         |
| 791831   | 20-Feb-13  | 37                        | 37                                  | 1785 ARMINGTON AVE             | Other (specify below)           |
| 791833   | 20-Feb-13  | 34                        | 34                                  | 2424 40th AVE                  | Other (specify below)           |
| 791876   | 21-Feb-13  | 10                        | 3                                   | 495 SPINNAKER WAY              | Grease deposition (FOG)         |
| 792177   | 27-Feb-13  | 12                        | 12                                  | 7760 FREEPORT BLVD             | Debri-General                   |
| 792261   | 1-Mar-13   | 30                        | 30                                  | 26 SMOKEY LEAF CT              | Grease deposition (FOG)         |

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|-----------------|-------------------|----------------------------------|--|---|---------------------------------|
| 792522          | 11-Mar-13         | 10                               | 10   | 6016 14TH ST  | Root intrusion                  |
| 792754          | 20-Mar-13         | 27                               | 27   | 3941 ELM ST   | Grease deposition (FOG)         |
| 792914          | 26-Mar-13         | 15                               | 15   | 7518 FLORES WAY   | Grease deposition (FOG)         |
| 793354          | 12-Apr-13         | 40                               | 20   | 3732 RIPLEY STREET  | Grease deposition (FOG)         |
| 793386          | 16-Apr-13         | 1                                | 1  | 5121 ELMER WAY  | Debri-Rags                      |
| 793425          | 17-Apr-13         | 20                               | 20   | 1901 MEADOWVIEW RD  | Grease deposition (FOG)         |
| 793571          | 23-Apr-13         | 5                                | 5  | 612 GRAND AVE   | Grease deposition (FOG)         |
| 793674          | 26-Apr-13         | 61                               | 61   | 7415 21st ST  | Grease deposition (FOG)         |
| 794052          | 10-May-13         | 70                               | 70   | 3840 TAYLOR ST  | Grease deposition (FOG)         |
| 794122          | 13-May-13         | 3                                | 0  | 2171 MEADOWVIEW ROAD  | Grease deposition (FOG)         |
| 794124          | 13-May-13         | 26                               | 26   | 3437 JOLA CIR   | Grease deposition (FOG)         |
| 794399          | 22-May-13         | 699                              | 699  | 1042 CLAIRE AVE   | Grease deposition (FOG)         |
| 794525          | 28-May-13         | 516                              | 516  | 1370 palomar cir  | Root intrusion                  |
| 794955          | 10-Jun-13         | 15                               | 0  | 7337 BENBOW ST  | Grease deposition (FOG)         |
| 795504          | 13-Jun-13         | 118                              | 118  | Approximate Location:<br>Sump 53, Basin 88 (Thomas Bros Pg 337 E-5) | Other (specify below)           |
| 795765          | 19-Jun-13         | 5                                | 5  | 4651 BRADFORD DRIVE   | Grease deposition (FOG)         |
| 798969          | 23-Sep-13         | 136                              | 106  | 1000 FRONT STREET   | Grease Deposition (FOG)         |
| 799159          | 26-Sep-13         | 17                               | 17   | 3736 SCHUTT WAY   | Root Intrusion                  |
| 799691          | 11-Oct-13         | 30                               | 30   | 7079 REMO WAY   | Grease Deposition (FOG)         |
| 800234          | 25-Oct-13         | 28                               | 28   | 6661 FORDHAM WAY  | Other (specify below)           |
| 800466          | 1-Nov-13          | 119                              | 119  | 695 PLAZA AVE   | Grease Deposition (FOG)         |
| 800499          | 4-Nov-13          | 140                              | 140  | 6589 DEMARET DR   | Root Intrusion                  |
| 800669          | 12-Nov-13         | 6                                | 6  | 5011 SOUTH LAND PARK DR   | Root Intrusion                  |
| 800852          | 19-Nov-13         | 14                               | 14   | 5352 Karbet Way   | Debris-General                  |
| 800941          | 21-Nov-13         | 10                               | 8  | 2101 Catskill Way   | Grease Deposition (FOG)         |
| 801209          | 27-Nov-13         | 5                                | 5  | 2101 Catskill Way   | Grease Deposition (FOG)         |
| 801348          | 4-Dec-13          | 19                               | 19   | 15 DON MERLINO CT   | Grease Deposition (FOG)         |
| 801584          | 11-Dec-13         | 34                               | 34   | 100 LINDLEY DR  | Grease Deposition (FOG)         |
| 802346          | 2-Jan-14          | 20                               | 20   | 2924 Marysville Blvd.   | Pipe Structural Problem/Failure |
| 802542          | 8-Jan-14          | 1966                             | 1966                                       | 2922 MARYSVILLE BLVD  | Pipe Structural Problem/Failure |
| 802702          | 14-Jan-14         | 5                                | 2  | 1430 27TH AVE   | Grease Deposition (FOG)         |
| 802991          | 22-Jan-14         | 15                               | 15   | 7020 WILSHIRE CIR   | Root Intrusion                  |
| 802995          | 22-Jan-14         | 19                               | 18   | 2401 34TH AVE   | Root Intrusion                  |
| 803237          | 28-Jan-14         | 6                                | 4  | 6000 BELLEAU WOOD LANE  | Grease Deposition (FOG)         |
| 803485          | 3-Feb-14          | 35                               | 5  | 135 BAXTER AVE  | Debri-General                   |
| 803584          | 5-Feb-14          | 18                               | 10   | 2629 EVERGREEN ST   | Debri-General                   |
| 803963          | 18-Feb-14         | 21                               | 21   | 1806 LOS ROBLES BLVD  | Grease Deposition (FOG)         |
| 804105          | 22-Feb-14         | 3                                | 2  | 1371 MUNGER WAY   | Root Intrusion                  |

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|----------|------------|---------------------------|-------------------------------------|-----------------------|---|
| 805130   | 28-Mar-14  | 52                        | 52                                  | 883 PARKLIN AVE       | Grease Deposition (FOG)                             |
| 805175   | 1-Apr-14   | 38                        | 0                                   | 7266 AMHERST ST       | Grease Deposition (FOG)                             |
| 805381   | 9-Apr-14   | 13                        | 13                                  | 4428 EUCLID AVE       | Root Intrusion                                      |
| 806039   | 11-May-14  | 17                        | 17                                  | 641 45th STREET       | Root Intrusion                                      |
| 806825   | 3-Jun-14   | 3                         | 3                                   | 3701 IVY ST           | Debri-General                                       |
| 807028   | 15-Jun-14  | 115                       | 115                                 | 5241 25th ST          | Root Intrusion                                      |
| 807186   | 19-Jun-14  | 19                        | 0                                   | 3329 BELDEN ST        | Grease Deposition (FOG)                             |
| 807679   | 14-Jul-14  | 62                        | 62                                  | 6725 DEMARET DR       | Root Intrusion                                      |
| 810133   | 23-Oct-14  | 334                       | 317                                 | 3812 TAYLOR AVE       | Grease Deposition (FOG)                             |
| 810431   | 29-Oct-14  | 23                        | 23                                  | 3846 KERN STREET      | Grease Deposition (FOG)                             |
| 810760   | 17-Nov-14  | 12                        | 12                                  | 181 LOVELAND WAY      | Grease Deposition (FOG)                             |
| 810794   | 19-Nov-14  | 3                         | 3                                   | 1109 2ND STREET       | Other (specify below) RAGS AND GREASE               |
| 812273   | 11-Jan-15  | 28                        | 28                                  | 4290 WARREN AVE       | Root Intrusion                                      |
| 813108   | 13-Jan-15  | 212                       | 212                                 | 4507 BOLLENBACHER AVE | Debri-General                                       |
| 812479   | 23-Jan-15  | 15                        | 13                                  | 567 GARDEN ST         | Debri-General                                       |
| 813030   | 10-Feb-15  | 4                         | 4                                   | 2398 CAMBRIDGE ST     | Grease Deposition (FOG)                             |
| 813110   | 13-Feb-15  | 15                        | 11                                  | 3253 O'FARRELL DR     | Grease Deposition (FOG)                             |
| 813176   | 17-Feb-15  | 10                        | 10                                  | 2347 67th AVE         | Grease Deposition (FOG)                             |
| 813870   | 11-Mar-15  | 85                        | 85                                  | 2011 OREGON DR        | Debri-General                                       |
| 813905   | 15-Mar-15  | 5                         | 2                                   | 66 TAYLOR WAY         | Root Intrusion                                      |
| 814073   | 23-Mar-15  | 150                       | 150                                 | 1 CAPITOL MALL        | Other (specify below) Instrumentation Equip Failure |
| 814843   | 28-Apr-15  | 48                        | 48                                  | 1405 CLAREMONT WAY    | Debri-Rags  |
| 815768   | 3-Jun-15   | 127                       | 127                                 | 1090 RIO LANE         | Debri-General                                       |
| 815769   | 7-Jun-15   | 128                       | 118                                 | 320 SOUTH AVE         | Grease Deposition (FOG)                             |
| 816020   | 21-Jun-15  | 15                        | 15                                  | 7409 MOONCREST WAY    | Grease Deposition (FOG)                             |
| 816397   | 30-Jun-15  | 6                         | 6                                   | 3784 DIDCOT CIRCLE    | Grease Deposition (FOG)                             |
| 817442   | 17-Aug-15  | 9                         | 4                                   | 3832 HURON ST         | Grease Deposition (FOG)                             |
| 818329   | 23-Sep-15  | 9                         | 9                                   | 605 CLINGER CT        | Grease Deposition (FOG)                             |
| 818330   | 24-Sep-15  | 4                         | 4                                   | 7501 FAIRBARIN DR     | Debris from Construction                            |
| 818685   | 8-Oct-15   | 8                         | 8                                   | 100 LINDLEY DR        | Grease Deposition (FOG)                             |
| 819441   | 10-Nov-15  | 5                         | 5                                   | 7404 21st STREET      | Root Intrusion                                      |
| 819538   | 17-Nov-15  | 36                        | 36                                  | 3730 MODELL WAY       | Grease Deposition (FOG)                             |
| 820825   | 5-Jan-16   | 668                       | 668                                 | 4471 D ST             | Debris from Lateral                                 |
| 821914   | 6-Feb-16   | 191                       | 191                                 | 2766 WOOD VIOLET WAY  | Grease Deposition (FOG)                             |
| 822021   | 14-Feb-16  | 22                        | 22                                  | 781 WOODLAKE DR       | Root Intrusion                                      |
| 822113   | 18-Feb-16  | 4                         | 4                                   | 906 CALHOUN CT        | Grease Deposition (FOG)                             |
| 822914   | 9-Mar-16   | 10                        | 10                                  | 732 SANTA YNEZ WAY    | Root Intrusion                                      |
| 823102   | 18-Mar-16  | 2                         | 2                                   | 4428 EUCLID AVE       | Root Intrusion                                      |
| 825589   | 2-Jun-16   | 916                       | 916                                 | 2771 FRUITRIDGE RD    | Grease Deposition (FOG)                             |

**California Integrated Water Quality System SSO Data  
September 2007 - December 2018**

| <b>Spill ID</b> | <b>Spill Date</b> | <b>Estimated Volume, gallons</b> | <b>Estimated Volume Recovered, gallons</b> | <b>Spill Location</b> | <b>Spill Cause</b>   |
|-----------------|-------------------|----------------------------------|--|-----------------------|--|
| 825712          | 25-Jun-16         | 9                                | 9  | 938 LOS ROBLES BLVD   | Debris-Rags  |
| 826282          | 9-Jul-16          | 2                                | 2  | 4650 77th ST          | Grease Deposition (FOG)                                    |
| 827595          | 28-Aug-16         | 484                              | 484  | 4924 CRESTWOOD WAY    | Root Intrusion   |
| 828030          | 6-Sep-16          | 85                               | 85   | 2334 CORK CIRCLE      | Root Intrusion   |
| 829515          | 25-Oct-16         | 89                               | 89   | 7301 29TH ST          | Grease Deposition (FOG)                                    |
| 829578          | 31-Oct-16         | 67                               | 63   | 2152 EDISON AVE       | Grease Deposition (FOG)                                    |
| 829979          | 11-Nov-16         | 2                                | 0  | 620 GRAND AVE         | Grease Deposition (FOG)                                    |
| 829824          | 14-Nov-16         | 1928                             | 1928                                       | 652 WOODLAKE DR       | Debri-General  |
| 830128          | 21-Nov-16         | 66                               | 66   | 2394 GLEN ELLEN CIR   | Grease Deposition (FOG)                                    |
| 830250          | 24-Nov-16         | 37                               | 37   | 2338 CORK CIR         | Root Intrusion   |
| 830367          | 30-Nov-16         | 908                              | 908  | 781 WOODLAKE DR       | Root Intrusion   |
| 831820          | 11-Jan-17         | 4950                             | 1950                                       | 7000 REICHMUTH WAY    | Rainfall Exceeded Design I&I                               |
| 832096          | 13-Jan-17         | 24                               | 24   | 109 GOSS CT           | Debri-Rags   |
| 833767          | 3-Mar-17          | 117                              | 117  | 6607 DEMARET DR       | Root Intrusion   |
| 834215          | 30-Mar-17         | 24                               | 0  | 2730 24th AVE         | Root Intrusion   |
| 834489          | 11-Apr-17         | 133                              | 109  | 1610 GLENROSE AVE     | Root Intrusion   |
| 839058          | 20-Aug-17         | 16                               | 16   | 6607 DEMARET DR       | Root Intrusion   |
| 840299          | 19-Sep-17         | 6                                | 0  | 3223 DEL PASO BLVD    | Other (specify below)<br>GREASE AND ROOTS                  |
| 840212          | 20-Sep-17         | 240                              | 0  | 601 J STREET          | Other (specify below) PIPE<br>STRUCTURAL PROBLEM           |
| 840696          | 5-Oct-17          | 1605                             | 1605                                       | 7487 SYLVIA WAY       | Root Intrusion   |
| 841338          | 28-Oct-17         | 404                              | 404  | 6801 FREEPORT BLVD    | Root Intrusion   |
| 841433          | 3-Nov-17          | 91                               | 91   | 2324 THOMPSON WAY     | Other (specify below)<br>GREASE AND ROOTS                  |
| 841791          | 18-Nov-17         | 90                               | 90   | 5200 DEL RIO RD       | Root Intrusion   |
| 841993          | 1-Dec-17          | 20                               | 20   | 2298 CRAIG AVE        | Grease Deposition (FOG)                                    |
| 842680          | 5-Dec-17          | 375                              | 375  | 2196 BETH WAY         | Other (specify below)<br>CONSTRUCTION DEBRIS AND<br>GREASE |
| 843632          | 6-Jan-18          | 305                              | 305  | 2624 TRACTION AVE     | Other (specify below)<br>GREASE AND RAGS                   |
| 843634          | 6-Jan-18          | 750                              | 750  | 4571 76TH STREET      | Grease Deposition (FOG)                                    |
| 844346          | 28-Jan-18         | 392                              | 296  | 2340 BEAUMONT STREET  | Grease Deposition (FOG)                                    |
| 844836          | 11-Feb-18         | 1465                             | 1465                                       | 500 GRAND AVE         | Other (specify below)<br>GREASE AND ROOTS                  |
| 845685          | 10-Mar-18         | 375                              | 375  | 5451 PLEASANT DR      | Other (specify below)<br>GREASE AND ROOTS AND<br>WIPES     |
| 846064          | 23-Mar-18         | 375                              | 375  | 6110 HOLSTEIN WAY     | Root Intrusion   |

**California Integrated Water Quality System SSO Data  
September 2007 - December 2018**

| <b>Spill ID</b> | <b>Spill Date</b> | <b>Estimated Volume, gallons</b> | <b>Estimated Volume Recovered, gallons</b> | <b>Spill Location</b> | <b>Spill Cause</b>                        |
|-----------------|-------------------|----------------------------------|--|-----------------------|---|
| 846471          | 11-Apr-18         | 11                               | 11   | 5681 JOHNS DRIVE      | Root Intrusion                            |
| 848004          | 8-Jun-18          | 330                              | 205  | 4821 HILLSBORO ROAD   | Other (specify below)<br>GREASE AND ROOTS |
| 848302          | 15-Jun-18         | 8                                | 8  | 6291 14TH STREET      | Grease Deposition (FOG)                   |
| 849799          | 20-Jul-18         | 4                                | 4  | 7224 MILFORD STREET   | Debri-Rags                                |
| 849805          | 22-Jul-18         | 20                               | 20   | 240 SANDBURG DRIVE    | Other (specify below)<br>GREASE AND ROOTS |
| 850142          | 3-Aug-18          | 915                              | 0  | 3941 DRY CREEK ROAD   | Root Intrusion                            |
| 851192          | 22-Sep-18         | 1026                             | 1026                                       | 777 BELASCO AVE       | Other (specify below)<br>GREASE AND ROOTS |
| 852224          | 30-Oct-18         | 16                               | 16   | 906 CALHOUN COURT     | Other (specify below) Debris              |
| 852586          | 1-Nov-18          | 8                                | 8  | 6441 LAKE PARK DRIVE  | Root Intrusion                            |
| 853186          | 20-Nov-18         | 6                                | 6  | 4611 HILLVIEW WAY     | Root Intrusion                            |
| 854005          | 30-Nov-18         | 6300                             | 300  | 1339 FLORIN ROAD      | Debri-Construction                        |
| 854014          | 2-Dec-18          | 1358                             | 1358                                       | 2148 AMANDA WAY       | Debri-General                             |
| 854745          | 26-Dec-18         | 7                                | 7  | 1370 GRANT LANE       | Grease Deposition (FOG)                   |
| 854988          | 30-Dec-18         | 2206                             | 2206                                       | 4911 36TH STREET      | Root Intrusion                            |

## VI. AUDIT RESULTS AND RECOMMENDATIONS

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The results and recommendations developed from the audit will be included in this SSMP as Section VI Audit Results and Recommendations.

# Final SSMP Audit Report



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## Sacramento SSMP Audit

**Subject:** Final SSMP Audit Findings

**Prepared For:** City of Sacramento

**Prepared by:** Michael Flores, RMC  
Gisa Ju, RMC  
Glenn Hermanson, RMC

**Date:** May 20, 2011

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The purpose of this document is to report the results of the Sewer System Management Plan (SSMP) Audit conducted by the City of Sacramento (City) covering Calendar Year (CY) 2009 and CY 2010. This report is submitted pursuant to the requirements included in the State Water Resources Control Board Order No. 2006-0003 – Statewide General Waste Discharge Requirements for Sanitary Sewer Systems. The audit requirements are:

*“As part of the Sewer System Management Plan (SSMP), the Enrollee 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 in file. This audit shall focus on evaluating the effectiveness of the SSMP and the Enrollee’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.”*

## 1 Background

On April 21, 2009, the Sacramento City Council adopted Resolution No. 2009-236 certifying compliance of the SSMP with the State WDR for the City separated sewer collection system. The City certified the completion of the SSMP through the State Water Resources Control Board (SWRCB) California Integrated Water Quality System (CIWQS) in time to meet the May 2, 2009 deadline established by the SWRCB.

The City of Sacramento Department of Utilities is responsible for management, operation, and maintenance of the separated sewer system consisting of 563<sup>1</sup> miles of gravity collection pipes, seven<sup>1</sup> miles of force mains, 14,400<sup>2</sup> manholes, and 40<sup>2</sup> pumps stations. The City does not own and is not responsible for maintenance of the lower laterals. The separated sewer system is located primarily in the northeast, east, and southwest sections of the City.

The Department of Utilities is also responsible for management, operation, and maintenance of 257<sup>1</sup> miles of combined sewer system located in the older central City area. Management, operation, and maintenance of the combined sewer system is not included as part of this audit since the SWRCB WDR does not currently require the inclusion of the combined sewer system in the SSMP.

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<sup>1</sup> CIWQS Collection System Questionnaire

<sup>2</sup> 2008-2009 Sewer System Management Plan

In addition, approximately 35 percent of the public collection system within the City limits, in the northwest and southeast sections of the City, are managed, operated, and maintained by Sacramento Area Sewer District (SASD). This portion of the system is also not included in this audit since SASD is responsible for management, operation, and maintenance of this portion of the system.

## 2 SSMP Audit

This audit, covering from May 2010 through March 2011, is the first SSMP Audit performed to meet WDR requirements for completion of an audit a minimum of once every two years. This audit assesses the current state of SSMP compliance with Provision D.13 of the WDR, identifies any deficiencies found in the SSMP, and recommends corrective actions. In addition the audit provides an evaluation of SSMP effectiveness. The City intends to use the audit results to improve SSMP compliance and performance in reducing sewer overflows.

RMC Water and Environment conducted the audit along with City of Sacramento staff. City staff involved with implementation of activities required by provisions included in Provision D.13 of the WDR were interviewed to develop the findings identified in this audit. The RMC Audit Team members and City of Sacramento staff supporting the audit interviews and audit process include:

### Audit Team

| Agency             | Team Member     |
|--------------------|-----------------|
| RMC                | Michael Flores  |
| RMC                | Gisa Ju         |
| RMC                | Glenn Hermanson |
| City of Sacramento | Delia McGrath   |

SSMP audit interviews were primarily performed over a two-day period on March 15, 2011 through March 16, 2011. In addition, a follow-up interview was performed on May 2 and May 3, 2011. The order of the audit interviews, WDR provision audited, and City staff interviewed is documented in the following table:

### SSMP Audit Interviewees

| Date      | WDR Provision Section      | Topics   | Interviewees (Role)   | Meeting Time |
|-----------|----------------------------|--|---|--------------|
| 3/15/2011 | D.13 (vii)<br>D.13 (xi)    | FOG Control – Inspection Program<br>Communication Program  | Jessica Hess (Public Information Officer)   | 45 minutes   |
| 3/15/2011 | D.13 (vii)                 | FOG Control – Grease Control Devices   | Jeffrey Brooks (Building Inspector)   | 1 hour       |
| 3/15/2011 | D.13 (vi)<br><br>D.13 (iv) | Overflow Emergency Response Plan – Field Activities and Reporting<br><br>Measures and Activities – O&M | Rob Jack (Field Services Superintendent)<br>John Fick (Field Supervisor)<br>Jim Boyd (Field Supervisor)<br>Gilbert Archuleta (Field Supervisor) | 3.5 hours    |

**SSMP Audit Interviewees (Continued)**

|           |                                      |   |   |            |
|-----------|--------------------------------------|---|---|------------|
| 3/15/2011 | D. 13 (vi)                           | Overflow Emergency Response Plan - Dispatch   | Gina Knepp (311 Program Manager)<br>Maria Lovato (Field Services Dispatch Staff)  | 1 hour     |
| 3/16/2011 | D.13 (iv)                            | Measures and Activities – O&M (Cont'd)  | Rob Jack (Field Services Superintendent)<br>John Fick (Field Supervisor)<br>Jim Boyd (Field Supervisor)<br>Gilbert Archuleta (Field Supervisor) | 3 hours    |
| 3/16/2011 | D.13 (iii)                           | Legal Authority – Illicit Discharges  | Humberto Amador (Water Quality Associate Engineer)  | 30 minutes |
| 3/16/2011 | D.13 (iv)<br>D.13 (viii)<br>D.13 (v) | Measures and Activities – Renewal Program<br>Capacity Management<br>Design and Construction Standards | Rick Batha (Supervising Engineer - CIP)<br>Rick Matsuo (Supervising Engineer – Asset Management)<br>John Fick (Field Supervisor)                | 2.5 hours  |
| 3/16/2011 | D.13 (iv)(b)<br><br>D.13 (vi)(b)     | Measures and Activities – O&M – Pump Stations<br><br>Overflow Emergency Response Plan – Pump Stations | Bruce Baker (Supervising Plant Operator)  | 1.5 hours  |

### 3 Definitions

**STRENGTHS AND KEY ACCOMPLISHMENTS:**

Areas where the requirements of the SSMP and the goals of the organization have been met or exceeded.

**NON-COMPLIANCE:**

A process or outcome resulting in the SSMP not currently being in compliance with the WDR/SSMP requirements.

**MAJOR NON-CONFORMANCE:**

Moderate to high risk that a process or outcome of a process will result in WDR non-compliance or in not meeting accepted practices, prescribed rules or regulations, or specific standards.

**MINOR NON-CONFORMANCE:**

Low risk that a process or outcome of a process will result in WDR non-compliance or in not meeting accepted practices, prescribed rules or regulations, or specific standards.

**OTHER FINDINGS AND OPPORTUNITIES:**

Findings presenting opportunities to improve current plan, programs, processes or procedures.

## 4 Summary of Audit Results

The following is a summary of the audit results:

- The audit identified 6 strengths and implementation accomplishment identified in Section 5.
- The audit found 3 non-compliance deficiencies associated with Waste Discharge Requirements. These are explained in Section 6.1.
- The audit found 10 major non-conformance deficiencies which are not direct violations of the WDR requirements yet are considered key breakdowns in either programs or processes that may potentially result in future regulatory or compliance issues. These are explained in Section 6.2.
- The audit found 9 minor non-conformance deficiencies, many of which will be resolved with a comprehensive update of the SSMP document. These are explained in Section 6.3.
- The audit identified 7 other findings and opportunities which, if implemented, will improve the effectiveness of the SSMP. These are explained in Section 6.4.

Audit results are further summarized in the following table.

| <b>Finding Type</b>                          | <b>Number of Findings</b> |
|--|---------------------------|
| Strengths and Implementation Accomplishments | 23                        |
| Non-Compliance                               | 4                         |
| Major Non-Conformance                        | 12                        |
| Minor Non-Conformance                        | 10                        |
| Other Findings and Opportunities             | 9                         |

## 5 Strengths and Implementation Accomplishments

The following strengths and implementation accomplishments were identified during the audit.

### Strengths and Implementation Accomplishments

| WDR Provision                | Strengths and Implementation Accomplishments  |
|------------------------------|---|
| D.13 (iv)(a)                 | The City has Geographical Information System (GIS) based mapping for all sewer and drainage pipelines and structures. The GIS mapping includes important attribute information regarding manholes, gravity sewer pipes, drainage pipes, force mains. The GIS also includes pump stations, valves and vents, waterways, levees, drop inlets, and gutter drains. Having both sewer and drainage systems on one set of GIS maps is an important tool in containing SSOs which enter the drainage system. |
| D.13 (iv)(a)<br>D.13 (iv)(b) | The City has developed mapping tools for tracking sewer cleaning efforts, sewer overflows, and areas of the City with accumulation of roots and grease.   |
| D.13 (iv)(a)<br>D.13 (iv)(b) | The City has installed SCADA in all pump stations and monitors pump stations 24-7. Pump station alarms are communicated through SCADA and response is dispatched immediately.   |
| D.13 (iv)(b)                 | The City has either on-site secondary power or a selection of City-owned generators available to provide power to the City's pump stations. A flat bed truck with an auxillary diesel fuel tank is utilized to re-fuel generators.  |
| D.13 (iv)(b)                 | The City re-organized to create crews dedicated to achieving the overall system-wide cleaning and inspection goals of the SSMP. This has enabled the City to maintain a focus on accomplishing objectives of the SSMP even in the midst of staffing reductions over the past two years.   |
| D.13 (iv)(b)                 | Plant Services maintains a database of prioritized maintenance needs which is reviewed once per week by the Maintenance Superintendent. Higher priority needs are communicated to up the chain-of-command once per week to generate additional organizational focus.  |
| D.13 (v)                     | One extra pump is constructed into each pump station and is kept active and operational at all times. This extra pump provides redundancy in the case of a pump failure.  |
| D.13 (vi)(b)                 | The City has a process to quickly update the cell phone contact lists of all collection system field employees, supervisors, and management staff. This process keeps the contact phone numbers for emergency response up-to-date.  |
| D.13 (vi)(b)                 | The City has installed GPS on all first responder vehicle to support efficient routing of first responder resources to sewer overflow calls. Dispatches utilize a system enabling them to map the location of customer complaints and to determine the location of an event such as an overflow and whether the Department of Utilities has responsibility for overflow response or another entity.   |

| WDR Provision | Strengths and Implementation Accomplishments  |
|---------------|---|
| D.13 (vi)(f)  | Field Services has implemented a program to perform event-driven preventive maintenance activities during rain events called Rain Patrol. This program includes a Winter Prep Manual communicating the activities to be performed. The program is focused on addressing potential maintenance issues in known to be problem locations during rain events.   |
| D.13 (vi)(f)  | Plant Services has implemented a Rain Patrol activity that performs a route readiness inspection prior to rain events. Operators complete a questionnaire identifying issues might improve pump station reliability for the coming winter season.   |
| D.13 (vi)(f)  | The City maintains a Sump Book documenting every sewer and drainage pump station including maps of the station location, number of pumps, horsepower and pumping capacity of pumps, force main locations and discharge locations, and the amount of time the pumps can be out of service before the station overflows. This is an important tool for supporting emergency response to a pump station-related failure potentially resulting in an SSO event. |
| D.13 (iv)(e)  | The City has machinists and a fabrication shop capable of manufacturing a majority of mechanical pump station components in the case of mechanical component wear or failure.   |
| D.13 (vi)(a)  | The City has developed a reliable sewer overflow reporting process and procedures along with training and quality control protocols resulting in consistent internal and external documentation. Reporting consistency has been recognized in the 2010 Statewide report.  |
| D.13 (vi)(b)  | The City has implemented a swing shift to improve SSO response in the evenings.   |
| D.13 (vi)(d)  | The City has implemented an internal training program for SSO emergency response training to appropriately train staff on an on-going basis. The training includes staff from both sewer and drainage maintenance, both of which support overflow response activities. Training materials include an SSO response training manual.  |
| D.13 (vi)(f)  | The City's geographical, system configuration, and protocols for coordination between Field Services and Plant Services results in a very high capture rate for sewage spilled from the system. Since 2007, the City has not released any sewage to surface waters.   |
| D.13 (vi)(f)  | The City has installed quick connects at pump stations to enable Plant Services crews to quickly bypass the flow from a pump station.   |

| WDR Provision  | Strengths and Implementation Accomplishments  |
|----------------|---|
| D.10           | No observed capacity-related SSOs.  |
| D.13 (viii)(a) | City has assessed capacity of backbone (trunk sewer) network for entire separated system (49 basins) using a spreadsheet analysis which compares estimated peak wet weather flows for a design event to an estimate of full pipe capacity based on a uniform set of design criteria. Master Plans based on flow monitoring and hydraulic modeling have been prepared for some basins. City is also conducting a sewer rehabilitation program (including pre- and post-rehab flow monitoring) in one basin identified as having high I/I to identify most effective approaches to reduce infiltration. |
| D.13 (vii)(f)  | The City has developed a fats, oils, and grease (FOG) door hanger for use by collection system crews in communicating best practices to customers when grease issues are identified in the sewer system.  |
| D.13 (vii)(f)  | The City has a media packet utilized by FOG control inspectors in communicating the overall FOG program to food service establishments. The media packet includes information about the overall program, best management practices for grease source control including a DVD and best practices poster.   |
| D.13 (ix)      | The City has developed an technical team focused on reviewing SSO data and mapping to develop enhance sewer cleaning strategies and to identify needed cleaning resources.  |
| D.13 (xi)      | The City participates in periodic meetings with regional partners including Sacramento Regional County Sanitation District, Sacramento Area Sewer District, and City of Folsom. These meetings provide an effective and timely forum for communicating and resolving issues between regional agencies as well as opportunities for working together on initiatives such as the Sacramento Regional FOG Program which facilitates the development of outreach and educational materials for businesses and residences in the Sacramento area.  |

## 6 Deficiencies and Corrective Actions

Several deficiencies were identified during the audit and are shown in the table on the following page with the planned corrective actions. The City intends to complete these corrective actions during CY 2012 and CY2013. Deficiencies were divided into four categories and coded with a letter. The deficiency categories are coded and defined as follows:

**Deficiency Definitions**

| <b>Deficiency Type</b> | <b>Deficiency Type</b>       | <b>Deficiency Definition</b>   |
|------------------------|------------------------------|--|
| <b>A</b>               | <b>Non-Compliance</b>        | A process or outcome resulting in the SSMP not currently being in compliance with the WDR/SSMP requirements.                 |
| <b>B-major</b>         | <b>Major Non-Conformance</b> | Moderate to high risk that a statement in the SSMP is not fully conformed. Moderate to high risk to the success of the SSMP. |
| <b>B-minor</b>         | <b>Minor Non-Conformance</b> | Low risk that a statement in the SSMP is not fully conformed. Low risk to the success of the SSMP.                           |
| <b>C</b>               | <b>Other Findings</b>        | Areas where there is an opportunity for greater efficiency and to streamline processes.                                      |

## 6.1 Non-Compliance Deficiencies and Corrective Actions

| WDR Provision | Identified Deficiency   | Corrective Action   | Deficiency Type |
|---------------|---|---|-----------------|
| D.13 (iv)(c)  | <p>The SSMP does not include a plan and schedule for regular inspection of sewer pipes. Appendix E of the SSMP includes information regarding the plan for inspection of the system. It states that the system will be inspected in two phases beginning in 2009. The first phase is to inspect approximately 70 miles over the first two years of the program which amounts to approximately 36 miles in Year 1 and 34 miles in Year 2. Based on Appendix E the initial phase should have been completed by December 2010. The City is currently behind schedule in Phase 1 of the inspection program. The remaining 482 miles of the system is planned to be inspected in the following 5 years. This amounts to approximately 96 miles of inspection per year. This is near three-fold the amount of inspection currently being performed. It is not clear whether the City has identified adequate resources to achieve a three-fold increase in inspection production.</p> | <p>Update the SSMP to include a plan and schedule for achieving the initial CCTV inspection of the sewer mains. The plan and schedule should indicate the miles of inspection planned per year.</p> | <p><b>A</b></p> |

Sacramento SSMP Audit

SSMP Audit Findings

| WDR Provision | Identified Deficiency   | Corrective Action   | Deficiency Type |
|---------------|---|---|-----------------|
| D.13 (iv)(c)  | The rehabilitation and replacement plan included in the SSMP does not address proper management and protection of the infrastructure assets. It is understood the City is in the process of collecting CCTV data to project the long-term needs of the infrastructure, yet, the SSMP does not include a plan and schedule for performing condition assessment, prioritizing needs, identifying projects, and developing a long-term capital improvement program plan along with a schedule for developing funds for the long-term capital improvement plan. | Update the SSMP to include a plan and schedule for completing condition assessment, identifying capital improvement projects, and developing funds for the long-term capital improvement plan.  | <b>A</b>        |
| D.13 (iv)(c)  | The SSMP does not include a plan and schedule for regular inspection of manholes.   | Update the SSMP to include a process and plan for inspecting and evaluating manhole condition.  | <b>A</b>        |
| D.13 (iv)(e)  | Although the City has performed criticality analyses for pump stations at the station level, an analysis has not been performed to identify specific critical replacement parts required.   | Identify critical spare parts required at pump stations. Include a plan to either acquire spare parts in the replacement parts inventories or a timely means for fabricating or acquiring critical spare parts in the event of a failure. | <b>A</b>        |

## 6.2 Major Non-Conformance Deficiencies and Corrective Actions

| WDR Provision                                | Identified Deficiency  | Corrective Action  | Deficiency Type |
|--|--|--|-----------------|
| D.10   | Spreadsheet hydraulic analysis has identified potential capacity deficiencies in some basins based on design criteria used for the evaluation. It is not known whether or not those deficiencies could result in overflows during a design peak wet weather event.   | Conduct further verification and analysis of these identified deficiencies to determine potential risk of overflows. This work could include verification of pipe slopes and depths to refine pipe capacity and/or acceptable surcharge, flow monitoring to verify flows and flow criteria, surcharge monitoring to verify flow levels during large storm events, and/or dynamic hydraulic modeling. Also, consider developing criteria defining allowable surcharge (or minimum freeboard) that provides for an acceptable risk of overflows. | <b>B-major</b>  |
| D.13 (ii)(c)<br>D.13 (vi)(a)<br>D.13 (vi)(c) | The chain of communication for reporting SSOs including person responsible for reporting SSOs to the State and Regional Water Board and other agencies is not adequately documented in Chapter 2 or Chapter 6 of the SSMP or the Standard Operating Procedures for Emergency Response, especially with respect to who is responsible for notifications CalEMA and County Health and reporting to SWRCB and RWQCB in the case of an SSO released from a pump station site or due to a pump station failure. | Clarify the existence of geographical division of responsibilities for North and South emergency response during daytime operations for sewer collections. Incorporate chain of communication in the event of a pump station SSO. Clarify chain of communication during after-hours operation.   | <b>B-major</b>  |
| D.13 (iv)(b)                                 | The SSMP states that part of the sewer cleaning effectiveness evaluation includes a review of the data collected in the maintenance crew feedback forms. The City does not appear to be using the maintenance feedback forms or collecting maintenance feedback information by specific asset.   | Update the SSMP to reflect actual business process for evaluation of the Targeted Maintenance Program.   | <b>B-major</b>  |

| WDR Provision | Identified Deficiency   | Corrective Action  | Deficiency Type |
|---------------|---|--|-----------------|
| D.13 (iv)(b)  | The City uses Azteca Cityworks to document scheduled and conducted activities. Although possible, the current process and system configuration available for documenting work order activities does not enable the City to accurately document the maintenance date or feedback for specific assets in an easily analyzable manner. It is difficult to analyze and use information stored in work orders pertaining to specific assets for management reporting, decision-making, or mapping. | Implement a data capture process, CMMS system configuration, and data QA/QC process resulting in more accurate maintenance history data capture.<br><br>Incorporate data analysis, especially in the form of mapping of data, into the data QA/QC process. | <b>B-major</b>  |
| D.13 (iv)(b)  | Over 60 percent of sewer overflows reported in the SWRCB CIWQS database since 2007 were caused by grease accumulation. This is an indicator the current strategy to control grease accumulation is not working.   | Analyze known grease overflows, areas with high levels of grease generation, and other available maintenance data to update Fats, Oils, and Grease blockage control strategies. Include enhanced source control strategies.                                | <b>B-major</b>  |
| D.13 (iv)(b)  | Over 33 percent of sewer overflows reported in the SWRCB CIWQS database since 2007 were caused by root blockages. This is an indicator the current strategy to control root accumulation is not working.  | Analyze known root blockage overflows, areas with high levels of root blockages, and other available maintenance data to update control strategies.  | <b>B-major</b>  |
| D.13 (iv)(c)  | The SSMP documents \$3.3 million of rehabilitation and replacement capital improvements over the next five years with an approved five-year capital improvement program funding for \$2.08 million for the separated system. The City is underfunding currently identified rehabilitation and replacement needs.  | Identify funding and implement projects to address currently known rehabilitation and replacement needs or explain why currently known rehabilitation and replacement needs are not being addressed in the 5-year CIP program.                             | <b>B-major</b>  |

| WDR Provision | Identified Deficiency   | Corrective Action   | Deficiency Type |
|---------------|---|---|-----------------|
| D.13 (vi)(b)  | SSO response documents do not address overflows from pump stations and force mains. Overflows from these locations can create significant volumes of sewage in a short amount of time and benefit from having contingency plans in place in the event of a failure. | Develop pump station failure contingency plans indicating each pump station, location, whether it is equipped with alarms, on-site back-up pumps, and back-up power generators. For any stations that lack back-up pumps and generators, the plan should specify a protocol for prompt delivery of portable pumps or generators in the event of a station failure. In addition, the wet well capacity at each pump station should be provided along with an estimate of how much storage time the wet wells would provide under different flow conditions. It should identify where an SSO will occur if a station fails and where bypass intake and discharge should be set up. Finally, the plan should identify an operations or bypass approach in the case force main failure. | <b>B-major</b>  |
| D.13 (vii)(e) | The City currently does not have adequate staffing assigned to perform FOG investigations, initial Food Service Establishment inspections, and follow-up inspections required to effectively enforce and impact FOG generation from FSEs.                           | Perform an analysis to estimate staffing required to accomplish FOG investigations, initial FSE inspections, and follow-up FSE inspections and enforcement. At a minimum, identify staffing required to perform inspections on FSEs located within areas having higher SSO rates due to grease accumulation (grease zones). Include a plan to either hire staff or hire contractors to perform FSE inspections and enforcement.   | <b>B-major</b>  |

| <b>WDR Provision</b> | <b>Identified Deficiency</b>   | <b>Corrective Action</b>   | <b>Deficiency Type</b> |
|----------------------|--|--|------------------------|
| D.13 (vii)(f)        | <p>Although the City has a Targeted Maintenance Program for sewer pipe susceptible to blockages, the original reason for a pipe being place on the Targeted Maintenance schedule is not documented in a way that is easily analyzed. In addition, since maintenance feedback is not being collected and documented in the CMMS for specific pipes, it is difficult to analyze ongoing maintenance issues on specific pipes. Therefore, it is difficult to determine which pipes are on a Targeted Maintenance Program due to roots, grease, debris, etc.</p> | <p>Implement a process to document the type and severity of maintenance issues associated with specific pipe assets within work orders along with date the issue was identified.</p> | <b>B-major</b>         |

| WDR Provision        | Identified Deficiency  | Corrective Action   | Deficiency Type       |
|----------------------|--|---|-----------------------|
| <p>D.13 (vii)(g)</p> | <p>The City has not implemented an effective source control program for food service establishments (FSEs). Several City departments are involved in different aspects of the FOG control program involving FSEs including:</p> <ul style="list-style-type: none"> <li>• City Development Department Building Division (grease removal device installation)</li> <li>• County Environmental Management Department, Environmental Health Division (Responsible for building permit approval)</li> <li>• DOU Field Services Division field crews, EMD Water Protection Division stormwater inspectors, and EMD Health Inspectors (Responsible for enforcement)</li> </ul> <p>Once an FSE is in operation with a grease removal device that has been accepted by the City, several departments are involved in FSE inspections, yet none of these currently have a primary responsibility of performing periodic inspections of the maintenance and performance of the grease removal device.</p> <p>The City has initiated a program to target 50 FSEs for inspection based on known grease problems location in the system. This is a step in the right direction, yet is potentially too small of a set of FSEs to address all of the FSEs having grease removal challenges that are connected to the City system. There are approximately 2,000 FSEs in the City and 50 FSEs represent only 2.5 percent of the total.</p> | <p>Develop and implement a program to perform food service establishment (FSE) inspections for all FSEs flowing into areas with known grease accumulation issues in the collection system.</p> <p>Perform analysis of sewer cleaning findings and CCTV inspection data to define grease accumulation zones and develop a plan to perform inspections of FSEs flowing into these zones, including inspections of grease removal equipment and maintenance records.</p> <p>Clearly define roles and responsibilities of the different City departments and divisions responsible for accomplishing activities in the program plan.</p> <p>Develop a staffing plan to perform the planned inspections. Include the staffing required to perform follow-up inspections and enforcement, if necessary.</p> | <p><b>B-major</b></p> |

Sacramento SSMP Audit

SSMP Audit Findings

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| <b>WDR Provision</b> | <b>Identified Deficiency</b>  | <b>Corrective Action</b>   | <b>Deficiency Type</b> |
|----------------------|---|--|------------------------|
| D.13 (viii)(c),(d)   | City's CIP does not address all (most?) identified capacity deficiencies. | Further evaluate deficiencies (see Corrective Action for WDR Provision D10) and identify projects to be included in CIP with schedules and budgets | <b>B-major</b>         |

### 6.3 Minor Non-Conformance Deficiencies and Corrective Actions

| WDR Provision | Identified Deficiency   | Corrective Action  | Deficiency Type |
|---------------|---|--|-----------------|
| D.13 (ii)     | The maintenance supervisors responsible for implementing key maintenance programs included in the SSMP are not included on the SSMP Contact List.   | Include contact names, phone numbers, and responsibilities of operations and maintenance supervisors responsible for implementing key SSMP initiatives or programs.  | <b>B-minor</b>  |
| D.13 (ii)     | The division of responsibility between Field Services and Plant Services is not clear within the SSMP document. Field Services is responsible for management, operations, and maintenance of the separate sewer systems including sewer mains, manholes, and force mains beyond the fenceline of pump station facilities. Plant Services is responsible for management, operations, and maintenance of pump stations within the separate sewer system including underground piping within the fenceline of these pump station facilities. | Clarify responsibility of the sewer mains, manholes, and force mains versus the pump stations within the Chapter 2 – Organization section.   | <b>B-minor</b>  |
| D.13 (iv)(b)  | The SSMP does not clearly state the magnitude of the sewer preventive maintenance program activities (i.e., approximate annual miles of preventive maintenance, routine maintenance, root control, CCTV inspection, etc.)   | Update the SSMP to include the approximate magnitude of preventive maintenance activities being performed annually to maintain the sewer system.   | <b>B-minor</b>  |
| D.13 (iv)(b)  | Maintenance feedback forms for documenting the level of debris found in pipes during maintenance activities are not currently stored in the CMMS. The CMMS is not currently configured to capture this information for individual assets when more than one asset is included on a work order.  | Implement a process and information system to capture and store coded maintenance feedback for sewer cleaning. This should result in an electronic database of coded maintenance feedback history by specific asset. | <b>B-minor</b>  |
| D.13 (iv)(b)  | Chemical root control activities are not documented in the CMMS.  | Document chemical root control activities in the CMMS including date, pipeline asset, and crew or contractor that performed the chemical treatment.  | <b>B-minor</b>  |

Sacramento SSMP Audit

SSMP Audit Findings

| WDR Provision  | Identified Deficiency   | Corrective Action   | Deficiency Type |
|----------------|---|---|-----------------|
| D.13 (iv)(c)   | The SSMP does not discuss the current magnitude of repair activities performed to address known sewer main deficiencies. Currently, sewer repairs are the primary means for addressing system deficiencies and should be discussed in more detail to show the City is addressing known system deficiencies. | Update the SSMP to include additional detail documenting the number of repairs performed in recent history and on an annual basis.  | <b>B-minor</b>  |
| D.12           | Technical memorandum and hydraulic analysis report were prepared by qualified engineers but not stamped   | Capacity assessment documents should be stamped by a registered engineer.   | <b>B-minor</b>  |
| D.13 (viii)(a) | Although most assumptions used for the hydraulic analysis appear to be reasonably conservative (e.g., flow factors, minimum pipe slope), there may be some areas where the assumptions are not conservative (areas with higher than typical I/I rates, sewers with less than minimum slope).                | Conduct additional analyses (e.g., flow monitoring, surveying or as-built drawing research, sensitivity analyses) to confirm or refine analysis assumptions in areas where flatter slopes or higher I/I are suspected.          | <b>B-minor</b>  |
| D.13 (viii)(b) | Design criteria not officially adopted  | Update Design and Procedures Manual to include design criteria used for the hydraulic analysis. In future, update design criteria as needed based on results of additional flow monitoring and modeling to refine flow factors. | <b>B-minor</b>  |

| WDR Provision | Identified Deficiency  | Corrective Action   | Deficiency Type       |
|---------------|--|---|-----------------------|
| D.13 (xi)     | <p>The regular communication with the public of the implementation and performance of the SSMP can be improved. Currently, a search on the City website for “SSMP” or “Sewer System Management Plan” does not result in a link to any information on the SSMP. Within the Utilities Department webpage under Sewer there is mention of a draft “Sanitary Sewer Management Plan” being available for review at 1395 35<sup>th</sup> Ave. On the main Utilities webpage, a “Sewer Management Plan” link provides access to a .pdf of the current final Sewer System Management Plan.</p> | <p>At a minimum, the City should update the City website to return a link related to the Sewer System Management Plan if a search is performed for “SSMP” or “Sewer System Management Plan”. The City should have a webpage on the City’s website containing a paragraph describing the SSMP and explaining where additional information is available. The City should correct the information on the Sewer webpage indicating that a draft SSMP is available for viewing at 1395 35<sup>th</sup> Ave. This should be updated to indicate the final version is available or should provide a link to the .pdf. The website should also indicate a process for the public to provide comment either through an e-mail address or contact person.</p> | <p><b>B-minor</b></p> |

## 6.4 Other Findings and Opportunities

| WDR Provision | Finding   | Opportunity   | Deficiency Type |
|---------------|---|---|-----------------|
| D.13 (i)      | Chapter 1-Goal includes additional definitions, linkages to other goals, and identification of parties responsible for meeting the goal. Most of this information belongs in other portions of the document.  | <p>The definition of SSO is already included on the Abbreviations and Acronyms page.</p> <p>The linkage of the SSMP to larger DOU Strategy should be separated from the SSMP Goal by a new sub-section heading such as “Linkage to Department-Wide Strategy”.</p> <p>The identification of the Departments responsible for meeting collection management goals belongs in the Chapter 2 - Organization.</p>           | <b>C</b>        |
| D.13 (ii)     | Plant Services is responsible for responding to pump station SSOs and performing notifications and reporting associated with pump station overflows. The City does not currently have a Legally Responsible Official in CIWQS from Plant Services.  | A representative from Plant Services should be included as an authorized representative for plans, programs, procedures, and reporting related to pump station facilities and submitted as a Legally Responsible Official in CIWQS.   | <b>C</b>        |
| D.13 (iv)(b)  | The system for identifying sewer pipelines requiring more frequent cleaning and targeting maintenance at known problem areas is not effectively supported by maintenance feedback collected and stored in the CMMS from preventive and routine cleaning activities. The actual process currently utilized to identify and update target and frequent cleaning continues to rely on communication processes outside of the CMMS. | <p>Implement a process and information system to capture and store coded maintenance feedback for sewer cleaning. This should result in an electronic database of coded maintenance feedback history by specific asset.</p> <p>Build on this process with the implementation of a standardized approach to analyzing coded maintenance data to determine changes to maintenance frequency and maintenance method.</p> | <b>C</b>        |

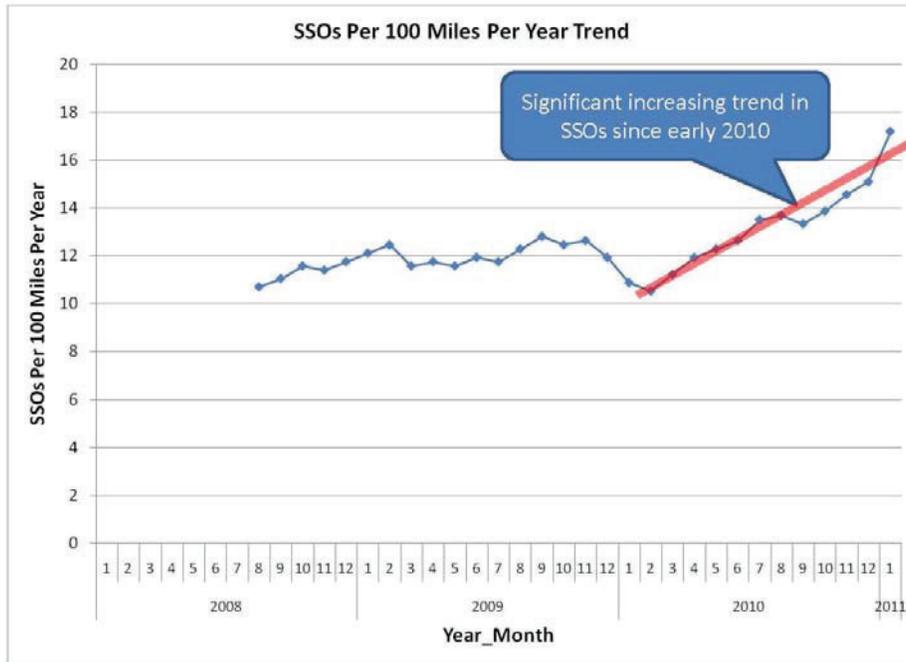
Sacramento SSMP Audit

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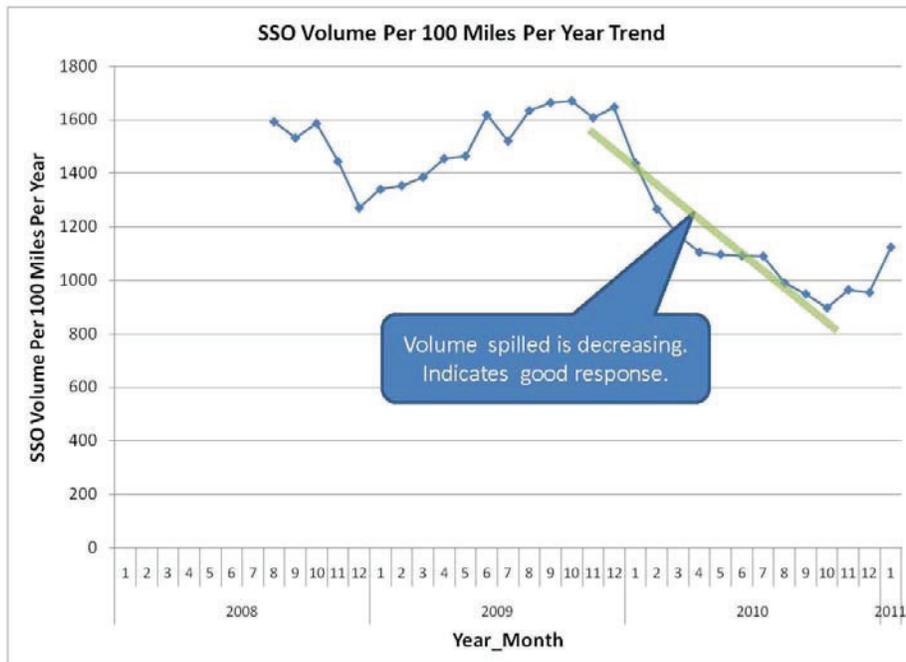
| WDR Provision  | Finding   | Opportunity   | Deficiency Type |
|----------------|---|---|-----------------|
| D.13 (iv)(b)   | Chemical root control activities performed by contractors are not coordinated with on-going sewer preventive maintenance activities.  | Implement a process to coordinate chemical root control activities with other sewer maintenance activities. At a minimum, the date and location of foaming should be communicated with Field Services to give Field Services the opportunity to remove pipeline assets recently foamed from the hydroflushing schedule so as not to negate the effects of the chemical treatment. | <b>C</b>        |
| D.13 (vii)(g)  | The City Development Department Building Division and the Department of Utilities Field Services Division has not developed an effective process for communicating information with each other regarding grease removal equipment existence, acceptance, or attributes. | Develop a process to routinely transmit data regarding building permits involving new or modified grease removal equipment to Department of Utilities for use in updating the food service establishment inspection program.  | <b>C</b>        |
| D.13 (viii)(a) | For most basins, flow estimates are not confirmed by flow monitoring  | Conduct flow monitoring in selected basins, particularly those where the preliminary hydraulic analysis indicates potential capacity deficiencies   | <b>C</b>        |
| D.13 (viii)(a) | Maps and tables in Basin Summary Reports are not clear enough to identify which pipes were included in the analyzed backbone system and specific segments associated with each node   | Improve mapping in reports. Also consider including a schematic diagram of basin configuration showing which basins pump or discharge into other basins and where they are connected to the SRCSD interceptor system.   | <b>C</b>        |
| D.13 (viii)(a) | Little I/I source detection has been done to identify potential inflow sources that could result in high peak flows and potential SSOs  | Consider I/I source detection program (e.g., smoke testing) in targeted basins with highest peak flows or areas suspected of having greater probability of direct inflow sources  | <b>C</b>        |
| D.13 (ix)      | Current version of the SSMP includes an Update Schedule indicating that the City will be performing Quarterly Updates of the document. It is not clear whether any updates have been performed to the document since the initial version was generated.                 | Remove the Update Schedule page from the SSMP. Perform updates as appropriate and at least once every 5 years.  | <b>C</b>        |

## 7 SSMP Effectiveness

Analysis of City SSOs in the State Water Resources Control Board CIWQS database indicates an increasing trend in SSOs since early 2010.



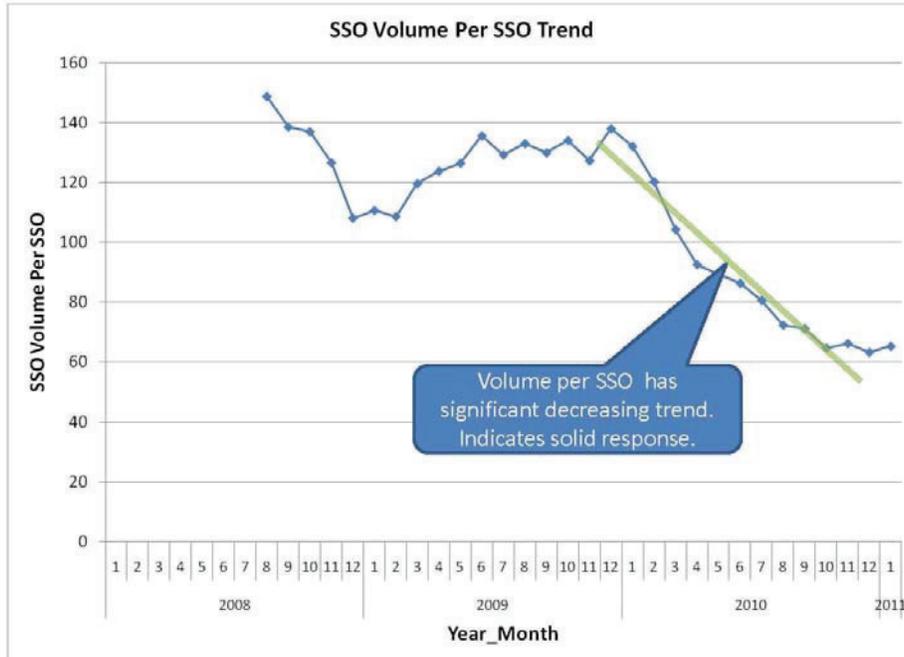
Although City SSOs are increasing in frequency, the total volume spilled per 100 miles of sewers is decreasing steadily.



## Sacramento SSMP Audit

### SSMP Audit Findings

City SSO volume is decreasing due to a decreasing trend in the volume per SSO. This indicates the City is effectively responding to SSO events.

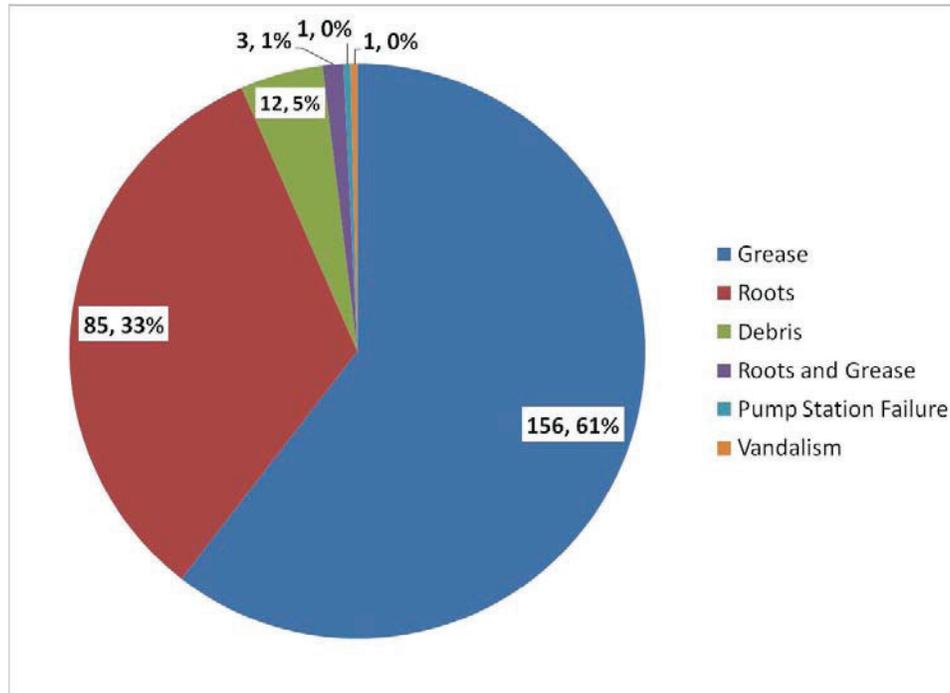


This is further illustrated by the steady decrease in the City's average response time to SSOs which is between 25 to 30 minutes on average.



An analysis of all City separated system sewer overflows in the SWRCB CIWQS database reported between September 5, 2007 and February 18, 2011 indicate majority of SSOs (61 percent) are caused due to grease accumulation. The next highest cause of SSOs is root blockages.

**Breakdown of SSO Causes for SSOs Occurring Since September 5, 2007**



The overall State average as of the May 2010 Statewide SSO Reduction Program Annual Compliance Update noted similar trend reversals in overflow volumes. However, only 25 percent of the statewide spill volume is recovered, while the City routinely recovers 100 percent of spill volume. In addition, 82 percent of all statewide sewage spills reached a surface water while the City did not experience any spill volume reaching surface waters during the same period.

With respect to collection system performance, Statewide grease and roots blockages were found to occur in similar ratio to the City's with approximately 78 percent of the SSOs in the State caused by grease and root blockages. However, City overflow rates overall were higher than the statewide averages. Approximately 56 percent of the City pipes are 6 inches in diameter. This size pipe has been found to result in higher overflow rates.

## 7.1 Overall Conclusion of SSMP Effectiveness Analysis

The City has made progress in improving emergency response and reducing the amount of sewer overflow spill volume per SSO. Due to staffing constraints and reductions as well as information system implementation challenges within the Field Services section, the City has not been able to fully implement key strategies which lead to improved SSO performance. SSMP performance can be improved through full implementation of key strategies already identified by the City as well as implementation of the compliance corrective actions listed in Section 6.

# 2013 City of Sacramento Sewer System Management Plan Audit

May 2011 thru June 2013

## INTRODUCTION

In 2006 the State Water Resources Control Board issued Order No. 2006-0003, the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR). The purpose of the WDR is to help reduce and prevent sanitary sewer overflows (SSOs). As part of the WDR, all public agencies that own or operate more than one mile of sanitary sewer systems were required to enroll. As part of enrollment, agencies are required to prepare a Sewer System Management Plan (SSMP) to document and assist in the management, operation, and maintenance of their sewer system. As part of the SSMP, agencies are required to conduct an internal program audit of the SSMP appropriate to the size of the system at least every two years. This report describes the City of Sacramento's (City) SSMP program audits and its associated tasks. This SSMP audit is being performed to:

- Evaluate the effectiveness of the current SSMP program
- Identify potential weaknesses of the current SSMP program
- Determine corrective actions to address deficiencies and/or improvement compliance with the SSMP requirements

## WDR REQUIREMENTS FOR SSMP ELEMENT 10: SSMP PROGRAM AUDITS

As part of the SSMP, the Enrollee 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 the Enrollee'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.

## CITY OF SACRAMENTO COMPLIANCE APPROACH – AS STATED IN THE SSMP

The City of Sacramento (City) will produce internal audits every two years to determine the effectiveness of the SSMP elements and programs. The program audit will include a review of relevant data and trends maintained as part of the SSMP Monitoring and Measurements Program to determine opportunities to improve compliance with the WDR requirements. A list of recommended corrective actions will be updated as part of the audit program. Recommended corrective actions will be used to develop program modifications. An overview of SSMP related work completed between audits will be included in the program audit.

The City will review the SSOs from the previous year and provide details in the audit on the causes of the SSOs and what actions were taken to prevent similar SSOs from occurring in the future. If any deficiencies are determined, the list of recommended corrective actions will be updated accordingly.

The program audit will include a final report reviewing the City's performance and identifying findings.

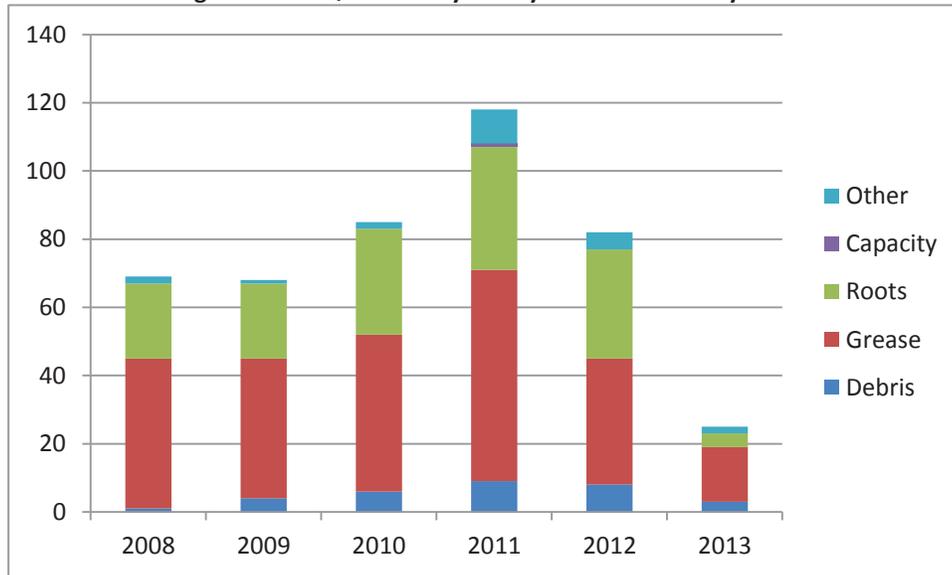
## CITY OF SACRAMENTO SYSTEM DESCRIPTION AND PERFORMANCE

Wastewater collection in the City of Sacramento is provided by both the City and the County of Sacramento. The Sacramento Area Sewer District (SASD) maintains approximately 35 percent of the public collection system within the City limits, primarily in the northwest and southeast sections of the City. The City Department of Utilities (DOU) maintains the remaining portion of the public collection system, which includes a combined sewer system in the older central City area with a total service area of approximately 7,545 acres and approximately 305 miles of 4 to 120 inch diameter pipes. The separated sewer system is located primarily in the northeast, east and southwest sections of the City with a total service area of about 25,435 acres.

**Table 1. CIWQS Summary of City SSO's 2008 – May 2013**

| Calendar Year | SSO Count | SSO Cause |        |       |          |       |
|---------------|-----------|-----------|--------|-------|----------|-------|
|               |           | Debris    | Grease | Roots | Capacity | Other |
| 2008          | 69        | 1         | 44     | 22    | 0        | 2     |
| 2009          | 68        | 4         | 41     | 22    | 0        | 1     |
| 2010          | 85        | 6         | 46     | 31    | 0        | 2     |
| 2011          | 118       | 9         | 62     | 36    | 1        | 10    |
| 2012          | 82        | 8         | 37     | 32    | 0        | 5     |
| 2013          | 25        | 3         | 16     | 4     | 0        | 2     |

**Figure 2. CIWQS Summary of City SSO's 2008 – May 2013**



## AUDIT TASKS

To ensure that the audit is performed objectively, this task has been assigned to individuals that are fairly well removed from the day-to-day activities of the City’s collection system operations and have enough authority to carry out the necessary data gathering to perform the audit. In addition to filling out the attached SSMP Audit Form, the following tasks are associated with the SSMP audits:

1. Review operation and maintenance philosophy/strategy with field staff including preventative maintenance.
2. Conduct interviews of operational staff and staff that respond to SSOs to verify familiarity with the SSMP and SSO response procedures.
3. Review maintenance records to ensure that a match exists between operation and maintenance philosophy/strategy and everyday practice.
4. Review condition assessment/rehabilitation philosophy/strategy and discuss with the Asset Management Section. Ensure that there is a condition assessment/rehabilitation schedule.
5. Review the 2011 Audit to verify that previous audit findings have been addressed.
6. Review the past 5 years of SSO data and verify if additional corrective action is needed.
7. Record all findings during the audit process on the attached SSMP Audit Form. This form will be the final audit report for the City’s performance and recommended corrective actions. The report will be kept on file.

8. Conduct interviews with City staff to assist in the audit tasks listed above.

This internal audit is focused on the eleven categories as required by the State WDR. The evaluation of each element in each category is herewith standardized with a WDR compliance ranking, the measure of evidence obtained from City staff during the audit process. Compliance ranking is based on WDR audit guidelines and sufficiency. Recommendations have been provided when there is enough information to support it. The City’s compliance ranking pertains to its compliance with the State WDR and may not be in compliance with what is stated in the SSMP. In such cases, recommendations for an update to the SSMP language will be issued as a corrective action.

**WDR Compliance Ranking:**

- In Compliance – SSMP and/or City programs address the requirements of the WDR.
- Partial Compliance – SSMP and/or City programs make significant strides in achieving the WDR goals and requirements but need updates and revisions to be fully compliant.
- Not in Compliance - SSMP and City programs do not address requirements of the WDR.

**CONCLUSION**

The City adopted the SSMP in 2008-09 and conducted an audit in 2011. The past five (5) years has seen dramatic changes of the number of SSOs in the City’s separated sewer collection system. The downturn in the economy caused the City to reduce its budget which resulted in the elimination of some maintenance staff positions and a reduced capacity to purchase and replace equipment. This restricted financial capacity may have contributed to an increase in SSOs in 2010 and 2011. Over the past two (2) years the City has made significant strides to reduce SSOs and has restructured their organization to provide more efficient and effective management as well as implemented new programs to improve maintenance and operations of the collection system. These changes have resulted in a downward trend of SSOs since 2012.

This biennial SSMP audit consists of a WDR compliance ranking for all eleven (11) elements of the SSMP requirements. The rankings are based on available information referenced to the WDR requirements. This audit identifies the recommended corrective actions to bring the SSMP into full compliance with the WDRs. A list of the recommended corrective actions can be seen in the following section. The findings of this audit will be used to gauge the City’s performance in the next biennial SSMP audit.

**RECOMMENED CORRECTIVE ACTIONS**

As a summary of the attached SSMP Audit Form, the following recommended corrective actions are identified in Table 3 below.

**Table 3. 2013 SSMP Recommended Corrective Actions**

| SSMP Section | Recommended Corrective Action  | Previous Audit Recommendation |
|--------------|--|-------------------------------|
| II           | Update the SSMP to reflect the City’s reorganization as well as include updated contact information and responsibilities of operations and maintenance supervisors responsible for implementing key SSMP initiatives or programs.  | Yes                           |
| II           | Review and revise sewer overflow response procedure and notification flow charts in the SSMP that identifies the chain of communication from receipt of the complaint to applicable notifications. Ensure flow charts developed for the emergency overflow SOP also incorporates the changes within the organizational | No                            |

|      |   |     |
|------|---|-----|
|      | structure.  |     |
| III  | Consider expansion of the City's legal authority to provide additional tools for FOG enforcement related issues.  | No  |
| III  | Update references within the SSMP to include 2013 changes to the SRCSD ordinance.   | No  |
| IV.a | Provide further QA/QC of pipe attribute information, such as pipe material, that is being identified with CCTV inspection activities  | No  |
| IV.b | Update the SSMP to reflect actual business process for evaluation of the Targeted Maintenance Program.  | Yes |
| IV.b | Implement a data capture process, CMMS system configuration, and data QA/QC process resulting in more accurate maintenance history data capture.  | Yes |
| IV.b | Develop and implement a cleaning schedule for every pipe in the system so that findings are documented and tracked.   | No  |
| IV.b | Implement a process and information system to capture and store coded maintenance feedback for sewer cleaning when the new CMMS is implemented in 2014. This should result in an electronic database of coded maintenance feedback history by specific asset. Continue to build on this process with the implementation of a risked based approach for updating frequency and schedule dates. | Yes |
| IV.b | Fully implement the root control program. The root control program should focus on pipes with an elevated risk for a root related SSOs and should schedule root control treatment for elevated risk pipes.  | No  |
| IV.b | Coordinate pump station work orders such that they can be scheduled on a station by station basis. Pump stations are shut down for quarterly wet well cleaning, coordinate electrical and mechanical work orders and inspections to coincide with the pump station shut down.   | No  |
| IV.c | Update the SSMP to reference the CIP Programming Guide (Guide) and annually adopted CIP to provide information on the projected CIP project lists and anticipated funding levels. The Guide will include the CIP projects and their priority based on, but not limited to, condition assessment, work order history, criticality, and design life.  | Yes |
| IV.c | Update the SSMP to reflect the current inspection plan and schedule.  | Yes |
| IV.c | Consider the development of a manhole inspection program using NASSCO's MACP defect coding system.  | No  |
| IV.c | Develop and implement an automated pipe re-inspection   | No  |

|      |   |     |
|------|---|-----|
|      | process through CMMS.   |     |
| IV.c | Provide further QA/QC of Granite XP pip inspection data.  | No  |
| IV.d | Update the SSMP to include a description of the newly developed training program as well as a description of the SSO emergency overflow response training program.  | No  |
| IV.e | Identify critical spare parts required at pump stations. Include a plan to either acquire spare parts in the replacement parts inventories or a timely means for fabricating or acquiring critical spare parts in the event of a failure.   | Yes |
| IV.e | Implement the condition assessment program for pump station mechanical parts and equipment. The condition assessment comments should be tracked in CMMS. Update the SSMP to reflect the condition assessment program implementation.  | No  |
| V    | Update the Design and Procedures Manual.  | No  |
| V    | Update the SSMP to reference the updated Standard Specifications and Design Procedures Manual when they are completed and post the updated documents online.  | No  |
| VI   | Update SSMP to adequately incorporate descriptions of the most current SSO response and notification procedures.  | No  |
| VI   | Develop pump station failure contingency standard procedures indicating each pump station's: location, wet well capacity, estimate of how much storage time the wet wells would provide under different flow conditions, alarm capacities, on-site back-up pumps, back-up power generators, and an operations or bypass approach in the case of a force main failure. For any stations that lack back-up pumps and generators, the plan should specify a protocol for prompt delivery of portable pumps or generators in the event of a station failure. The procedures should also identify where an SSO will occur if a station fails and where bypass intake and discharge should be set up. | Yes |
| VII  | Update the SSMP to reflect the current FOG Source Control Program being implemented by the FROG group.  | No  |
| VII  | Implement a process and information system to capture and store coded maintenance feedback for sewer cleaning when the new CMMS is implemented in 2014. See Section IV.b. Preventative Operations & Maintenance for more information.   | No  |
| VII  | Consider expansion of the City's legal authority to provide additional tools for FOG enforcement related issues. Add language in the legal authority to require   | No  |

|      |  |     |
|------|--|-----|
|      | FSEs to install interceptors as well as language that clearly identify FOG BMPs and FSE inspection procedures.   |     |
| VII  | Develop “FOG Program Rules and Regulations” and refer to these guidelines within the SSMP when discussing FOG related items.   | No  |
| VII  | Develop a process to routinely transmit data regarding building permits involving new or modified grease removal equipment to Department of Utilities for use in updating the FSEs inspection inventory.   | Yes |
| VII  | Refer to the proper use of interceptor and grease removal terminology such that the language within the City Code and the SSMP are compatible.   | No  |
| VII  | Develop formalized interceptor inspection procedures.  | No  |
| VII  | Develop standardized interceptor sizing requirements in design codes and interceptor requirements for specific locations.  | No  |
| VII  | Develop servicing/maintenance requirements of interceptors by FSEs.  | No  |
| VII  | Develop an enforcement response guide.   | No  |
| VIII | Expand flow monitoring and implement an I/I Reduction Program in 2014.   | No  |
| VIII | Utilize the collected flow data to compare against the previously completed spreadsheet analysis capacity assessments and identify any projects that are needed to address capacity needs.   | No  |
| VIII | Update the Design and Procedures Manual to include design criteria used for hydraulic analysis.  | No  |
| IX   | Remove the Update Schedule page from the SSMP.   | No  |
| IX   | Update the SSMP to indicate the most current preventative maintenance and inspection programs.   | No  |
| X    | Conduct the 2 year audit frequency and annually evaluate the effectiveness and compliance of the operations and maintenance programs.  | No  |
| XI   | The City should update the City of Sacramento public website to return a link related to the Sewer System Management Plan if a search is performed for “SSMP” or “Sewer System Management Plan”. The City should remove the information on the Sewer webpage indicating that a draft SSMP is available for viewing at 1395 35th Ave and update the information to indicate the final version is available and provide a link to the pdf. The DOU website should also indicate a process for the public to provide comment that is directed to the appropriate City contact person. | Yes |



# ATTACHMENT 1

## SSMP AUDIT FORM

|                                |  |              |                      |
|--------------------------------|--|--------------|----------------------|
| Agency & System                | City of Sacramento   |              |                      |
| Name of Auditor                | Alex Palmatier and Gabe Apgar, HDR Engineering; Sherill Huun and Roxanne Dilley, City of Sacramento, Department of Utilities |              |                      |
| Date of Audit                  | July 2013  | Audit Period | 1/1/2011 – 6/30/2013 |
| System Overview                |  |              |                      |
| Miles of gravity sewer mains   | 563 miles  |              |                      |
| Miles of force main            | 7 miles  |              |                      |
| Total Miles of all sewer lines | 563 miles  |              |                      |
| Number of pump stations        | 40 pump stations   |              |                      |
| Population served              | 169,980  |              |                      |

### I. GOALS

- Are the goals stated in the SSMP still appropriate and accurate?

#### Audit Elements

- City’s SSMP Section V Chapter 1

#### Audit Findings

- The goals stated in the SSMP are still appropriate and accurate. The purpose of the City’s SSMP is to properly manage, operate, and maintain all parts of the sanitary sewer system to reduce and prevent SSOs, as well as mitigate any SSOs that do occur. The City’s stated goal is also to comply with the requirements set forth in Section D-13 of the WDR (Order No. 2006-0003).

#### Recommended Corrective Actions and Current Status

- None.

**WDR Compliance Ranking:** In Compliance

### II. ORGANIZATIONAL STRUCTURE

- Is the SSMP’s organization chart & phone list up-to-date?

#### Audit Elements

- City’s SSMP Organizational Charts
- SSO Response Plan
- SSO Reporting Chain of Communication Organizational Charts

#### Audit Findings

- The maintenance supervisors responsible for implementing key maintenance programs included in the SSMP are not included on the SSMP Contact List.
- The chain of communication for reporting SSOs including person responsible for reporting SSOs to the State and Regional Water Board and other agencies is not adequately documented in Chapter 2 or Chapter 6 of the SSMP. The Standard Operating Procedures (SOP) for Emergency Response is in the process of being updated, and includes more detailed chain of communications, spill response procedure flow charts and notification flow charts.

- The City has undergone reorganization during the 2012/2013 fiscal year, which has redefined the operations roles and responsibilities.

Recommended Corrective Actions and Current Status

- Update the SSMP to reflect the City’s reorganization as well as include updated contact information and responsibilities of operations and maintenance supervisors responsible for implementing key SSMP initiatives or programs. (Outstanding 2011 Audit Finding.)
- Review and revise sewer overflow response procedure and notification flow charts in the SSMP that identify the chain of communication from receipt of the complaint to applicable notifications. Ensure flow charts developed for the emergency overflow SOP also incorporate the changes within the organizational structure.

**WDR Compliance Ranking:** Partial Compliance – SSMP updates needed.

**III. LEGAL AUTHORITY**

- Does the SSMP contain up-to-date information about the City’s legal authority?
- Does the City have sufficient legal authority to control sewer use and maintenance?

Audit Elements

- City’s Municipal Code
- Sacramento Regional County Sewer District (SCRSD) Sewer Use Ordinance

Audit Findings

- The City’s SSMP contains references to the City’s legal authority through the use of the local municipal codes relating to the sanitary sewer system required by the WDR. The City is also granted legal authority by the SRCSD Sewer Use Ordinance for the operation of the City collection system. SRCSD ordinances have been consolidated and updated in February 2010. This ordinance is now known as the “Consolidated Ordinance,” and the most recent update to this ordinance occurred in February of 2013.
- The City changed its legal authority to address FOG related issues.

Recommended Corrective Actions and Current Status

- Consider expansion of the City’s legal authority to provide additional tools for FOG enforcement related issues.
- Update references within the SSMP to include 2013 changes to the SRCSD ordinance.

**WDR Compliance Ranking:** In Compliance

**IV. OPERATIONS & MAINTENANCE PROGRAM**

**a. Collection System Maps & Information**

- Does the SSMP contain up-to-date information about the City’s maps?
- Are the City’s collection system maps complete, up-to-date, and sufficiently detailed?

Audit Elements

- City’s Facilities Operations Information System (FIOS)
- City’s Geographic Information System (GIS)
- Staff interviews of collection system O&M staff

Audit Findings

- The City has Geographic Information System (GIS) based mapping for all sewer and drainage pipelines and structures. The GIS mapping includes important attribute information regarding manholes, gravity sewer pipes, drainage pipes, and force mains. The GIS also includes pump stations, valves and vents, waterways,

levees, drop inlets, and gutter drains. Having both sewer and drainage systems on one set of GIS maps is an important tool in containing SSOs that may enter the drainage system. Pipe installation dates have been added to the pipe attribute data in the GIS layers. Also, known pipe material is validated through CCTV inspections, and when the pipe material is missing it is added to the GIS database.

- The City's FOIS web-based application serves as a repository for record drawings; improvement plans prepared by staff, outside consultants, and other agencies; specifications; operations and maintenance manuals; and facility photographs as they relate to the collection system.
- The City has developed mapping tools for tracking sewer cleaning efforts, sewer overflows, and areas of the City with accumulation of roots and grease.
- The City has installed SCADA in all pump stations and monitors pump stations 24-7. Pump station alarms are communicated through SCADA and response is dispatched immediately.
- Current system is regularly updated and meets the needs of the City.

#### Recommended Corrective Actions and Current Status

- The GIS mapping system meets the City's needs.
- Provide further QA/QC of pipe attribute information, such as pipe material, that is being identified with CCTV inspection activities.

#### **WDR Compliance Ranking:** In Compliance

##### **b. Preventative Operations & Maintenance**

- Does the SSMP contain up-to-date information about the City's preventative maintenance activities?
- Are the City's preventative maintenance activities sufficient and effective in reducing and preventing SSOs?

#### Audit Elements

- Work orders, service requests, SSO tracking, and planning in Computerized Maintenance Management System (CMMS)
- Staff interviews of collection system O&M staff

#### Audit Findings

- The City re-organized to create crews dedicated to achieving the overall system-wide cleaning and inspection goals of the SSMP. This has enabled the City to maintain a focus on accomplishing objectives of the SSMP. The City has also hired additional personnel to expand the number of crews and has established positions for a scheduler and an IT manager for improved maintenance organization and optimization.
- Currently the City has embarked on a system-wide cleaning program with the goal of cleaning the entire system in 5 years. All feedback and information obtained during cleaning will be used to develop a system-wide, risk based cleaning schedule.
- The SSMP states that part of the sewer cleaning effectiveness evaluation includes a review of the data collected in the maintenance crew feedback forms. These forms do not appear to be in use. Cleaning condition data is collected in the CMMS however the data is generalized across every pipe segment within the work order.
- At this time, the collection system CMMS is not used for scheduling most work and is only used as a tracking tool for completed work. The City is moving towards a risk-based cleaning schedule based on data currently being collected.
- Beginning in 2012, the City is continuously evaluating the causes of SSOs and rescheduling cleaning of all pipes based on the risk of an SSO and other relevant data.

- SSOs are tracked in a separate spreadsheet to report to the State and not tracked in CMMS as stated in the SSMP.
- The City has implemented a cleaning QA/QC program to ensure the pipes are being properly cleaned.
- The City has recently developed a Fats, Roots, Oils, and Grease (FROG) group to take a more focused and proactive approach to dealing with FOG and roots.
- The City is developing a root control program to reduce the number and impact of root related SSOs. The root control program will focus on pipes with an elevated risk for a root related SSOs. The root control program will schedule chemical root treatment for the elevated risk pipes.
- Pump stations are visited weekly, wet wells are cleaned quarterly, mechanical and electrical equipment is inspected annually. All maintenance and inspection activities are tracked in CMMS. If an immediate need is observed, a work order is generated through CMMS.
- Plant Services maintains a database of prioritized pump station maintenance needs, which is reviewed once per week by the Maintenance Supervisor. Feedback is entered into CMMS in the work order comments section.
- Pump station maintenance inspections are not coordinated to occur during the quarterly cleaning and shut-down event.

Recommended Corrective Actions and Current Status

- Update the SSMP to reflect actual business process for implementation and evaluation of the Targeted Maintenance Program. (Outstanding 2011 Audit Action.)
- Implement a data capture process, CMMS system configuration, and data QA/QC process resulting in more accurate maintenance history data capture. (Outstanding 2011 Audit Action.)
- Develop and implement a cleaning schedule for every pipe in the system so that findings are documented and tracked.
- Implement a process and information system to capture and store coded maintenance feedback for sewer cleaning when the new CMMS is implemented in 2014. This should result in an electronic database of coded maintenance feedback history by specific asset. Continue to build on this process with the implementation of a risked based approach for updating frequency and schedule dates. (Outstanding 2011 Audit Action.)
- Fully implement the root control program. The root control program should focus on pipes with an elevated risk for a root related SSOs and should schedule root control treatment for elevated risk pipes.
- Coordinate pump station work orders such that they can be scheduled on a station-by-station basis. Pump stations are shut down for quarterly wet well cleaning. The electrical and mechanical work orders and inspections should be scheduled to coincide with the pump station wet well cleaning and shut down.

**WDR Compliance Ranking:** Partial Compliance – SSMP updates needed.

**c. Rehabilitation & Replacement Plan**

- Does the SSMP contain up-to-date information about the City’s inspections and condition assessment?
- Are the City’s scheduled inspections and condition assessment system effective in locating, identifying, and addressing deficiencies?

Audit Elements

- Interview Asset Management Staff

Audit Findings

- The City is projected to spend \$13.2 million of rehabilitation and replacement capital improvements over the next five years on the separated system.

- The City has embarked on an inspection program for pipes with small diameter (less than 16-inches) and greater than 10 years old. The CCTV inspection program has been expanded to include all 525 (285 miles completed to date) miles of the small diameter separated system pipes. The goal is to inspect the entire system by June 2017.
- The City has developed a pipe decision workflow process for repair, rehabilitation, and replacement.
- Each pipe segment inspected will be scheduled for re-inspection based on a pipe assessment decision matrix.
- The City tracks all pipe repair, rehabilitation, and replacement work in CMMS and GIS.
- Manhole repair is issued on an as-needed basis. Field staff issue a work order through CMMS if manhole damage is observed during cleaning and/or CCTV inspection activities.
- The CIP Programming Guide (Guide) identifies the processes, methodologies, and funding sources used in developing the Wastewater Capital Improvement Program (CIP). Such methodologies are used to rank and prioritize the repair, rehabilitation, and replacement of infrastructure assets.

Recommended Corrective Actions and Current Status

- Update the SSMP to reference the Guide and annually adopted CIP to provide information on the projected CIP project lists and anticipated funding levels. The Guide will include the CIP projects and their priority based on, but not limited to, condition assessment, work order history, criticality, and design life. (Outstanding 2011 Audit Action.)
- Update the SSMP to reflect the current inspection plan and schedule. (Outstanding 2011 Audit Action.)
- Consider the development of a manhole inspection program using NASSCO’s MACP defect coding system.
- Develop and implement an automated pipe re-inspection process through CMMS.
- Provide further QA/QC of Granite XP pipe inspection data

**WDR Compliance Ranking:** Partial Compliance – SSMP updates needed.

**d. Staff Training**

- Does the SSMP contain up-to-date information about the City’s training expectations and programs?
- Do supervisors believe that their staff is sufficiently trained?
- Are staff satisfied with the training opportunities and support offered?

Audit Elements

- Employee training records
- Interview collection system staff

Audit Findings

- Training to implement sanitary sewer system operation and maintenance procedures identified in the SSMP was evaluated, and an additional training program was developed. Implementation of this was conducted in June 2013, and refresher training will be conducted annually thereafter.
- The City has developed and implemented an internal training program for SSO emergency response training. See Section VI for more information.

Recommended Corrective Actions and Current Status

- Update the SSMP to include a description of the newly developed training program as well as a description of the SSO emergency overflow response training program.

**WDR Compliance Ranking:** Partial Compliance – SSMP updates needed to reflect current training practices.

**e. Major Equipment & Critical Spare Parts Inventories**

- Does the SSMP contain up-to-date information about equipment and replacement inventories?
- Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?

Audit Elements

- Equipment and parts inventory
- Interview collection system staff

Audit Findings

- The City has machinists and a fabrication shop capable of manufacturing a majority of mechanical pump station components in the case of mechanical component wear or failure.
- All replacement parts and inventory is tracked in CMMS. Purchase orders for replacement parts are made as they leave inventory via a CMMS work order.
- The City maintains multiple spare submersible pumps in the event that they are needed during a pump station failure.
- The City does not have a critical spare parts list; however, spare parts with long lead times are contained in the inventory.
- The City is developing a condition assessment plan for mechanical pump station components that is to be integrated with CMMS and will provide criticality for CIP prioritization.

Recommended Corrective Actions and Current Status

- Identify critical spare parts required at pump stations. Include a plan to either acquire spare parts in the replacement parts inventories or a timely means for fabricating or acquiring critical spare parts in the event of a failure. (Outstanding 2011 Audit Action.)
- Implement the condition assessment program for pump station mechanical parts and equipment. The condition assessment comments should be tracked in CMMS. Update the SSMP to reflect the condition assessment program implementation.

**WDR Compliance Ranking:** Partial Compliance – SSMP updates needed, critical parts list needed.

**V. DESIGN AND PERFORMANCE**

- Does the SSMP contain up-to-date information about the City’s design and construction standards?
- Are design and construction standards, as well as standards for inspection and testing of new and rehabilitated facilities sufficiently comprehensive and up-to-date?

Audit Elements

- The City Standard Specifications
- City of Sacramento Design and Procedure Manual
- Department of Utilities Engineering Division - Standard Special Provisions

Audit Findings

- A City-wide committee evaluates the Standard Specifications and meets on a semi-annual basis. The committee represents each City department and votes on procedural changes and issues an addendum upon approval. This is an on-going process, and the approved Specification addenda’s are posted online. The City-wide goal is to update the Specifications every 5 years.
- The Design and Procedures Manual is in the process of being updated. There is no formalized system for recommended updates outside of internal discussions amongst managerial staff within the Department of Utilities Engineering Division.
- Standard Special Provisions are updated on an as-needed basis. The Standard Special Provisions are

maintained on a restricted server to prevent unintended modifications to the documents. Review and recommendations of the Provisions are done on an on-going and as-needed basis.

Recommended Corrective Actions and Current Status

- Update the Design and Procedures Manual.
- Update the SSMP to reference the updated Standard Specifications and Design Procedures Manual when they are completed and post the updated documents online.

**WDR Compliance Ranking:** In Compliance

**VI. OVERFLOW EMERGENCY RESPONSE PLAN**

- Does the SSMP contain up-to-date version of the City's Overflow Emergency Response Plan?
- Considering the information in table 1 (SSO history), is the Overflow Emergency Response Plan effective in handling SSO's?

Audit Elements

- Compare CIWQS data with City records
- SSO Response Plan for the City collection system
- SSO Response Plan Quick Reference
- SSO Response Plan website on City Intranet?

Audit Findings

- The City has developed a reliable sewer overflow reporting process and procedures along with training and quality control protocols resulting in consistent internal and external documentation.
- The chain of communication for reporting SSOs including person responsible for reporting SSOs to the State and Regional Water Board and other agencies is not adequately documented in Chapter 2 or Chapter 6 of the SSMP. The Standard Operating Procedures (SOP) for Sewer Overflow/Outflow Emergency Response is in the process of being updated, and includes more detailed chain of communication, response procedure and notification flow charts.
- The City has a process to quickly update the cell phone contact lists of all collection system field employees, supervisors, and management staff. This process keeps the contact phone numbers for emergency response up-to-date.
- The City has installed GPS on all first responder vehicles to support efficient routing of first responder resources to sewer overflow calls. Dispatch utilizes a system enabling them to map the location of customer complaints, to determine the location of an event such as an overflow, and whether the department has responsibility for overflow response or another entity.
- The City has implemented a swing shift to improve SSO response in the evenings.
- The update to the overflow emergency response SOP is considering language for SSO response and notifications for overflows from pump stations. Overflows from pump station locations can create significant volumes of sewage in a short amount of time and benefit from having contingency plans in place in the event of a failure.
- The City has implemented a program to perform event-driven preventive maintenance activities during rain events called Rain Patrol. This program includes a Winter Prep Manual communicating the activities to be performed. The program is focused on addressing potential maintenance issues in known problem locations during rain events.

- The City maintains a Sump Book documenting every sewer and drainage pump station including maps of the station location, number of pumps, horsepower and pumping capacity of pumps, force main locations and discharge locations, and the amount of time the pumps can be out of service before the station overflows. This is an important tool for supporting emergency response to a pump station-related failure potentially resulting in an SSO event.
- The City's geographical system configuration and protocols for coordination between Field Services and Plant Services results in a very high capture rate for sewage spilled from the system. Since 2007, the City has not released any sewage to surface waters.
- The City has installed quick connects at pump stations to enable Plant Services crews to quickly bypass the flow from a pump station.

Recommended Corrective Actions and Current Status

- Update SSMP to adequately incorporate descriptions of the most current SSO response and notification procedures.
- Develop pump station failure contingency standard procedures indicating each pump station's: location, wet well capacity, estimate of how much storage time the wet wells would provide under different flow conditions, alarm capacities, on-site back-up pumps, back-up power generators, and an operations or bypass approach in the case of a force main failure. For any stations that lack back-up pumps and generators, the plan should specify a protocol for prompt delivery of portable pumps or generators in the event of a station failure. The procedures should also identify where an SSO will occur if a station fails and where bypass intake and discharge should be set up. (Outstanding 2011 Audit Action.)

**WDR Compliance Ranking:** Partial Compliance – SSMP updates needed, development of general pump station spill response standard operating procedure needed.

## VII. FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM

- Does the SSMP contain up-to-date version of the City's FOG control program?
- Is the City's FOG control program sufficient to reducing FOG related SSO's?

Audit Elements

- FOG related work orders in Cityworks
- Interview FOG control program staff

Audit Findings

- The City has developed a fats, oils, and grease (FOG) door hanger to communicate best practices to customers and collection system crews are distributing the door hangers when grease issues are identified in the sewer system. First responder crews and/or maintenance crews distribute the door hangers to homes and apartment complex managers found to be the cause of a FOG-related SSO and in areas where maintenance crews find heavy grease in the system.
- The City developed a FOG microsite ([www.sacramentofatfreedrains.com](http://www.sacramentofatfreedrains.com)) with information and videos for residential customers to learn how to use best practices for FOG disposal and Food Service Establishments (FSEs) to learn about the ordinance, inspection program and best practices.
- A FOG bill stuffer was developed and inserted in the November 2012 utility bills encouraging residents to follow best practices for FOG disposal and directing them to the website.
- The City utilized electronic billboards and the Sacramento Bee to promote proper FOG disposal during the winter holidays. Additionally, the City and Sacramento Area Sewer District (SASD) partnered for three on-air interviews on local television stations to promote use of best FOG disposal practices for residential customers.
- The City developed a media packet that is utilized by FOG control inspectors in communicating the overall FOG program to food service establishments (FSEs). The media packet includes information about the

overall program, best management practices for grease source control, a list of local haulers, and a best practices poster.

- The City developed a multi-lingual video in the 2012/2013 fiscal year on the FOG program and best management practices for grease source control for the FOG control inspectors to use during FSE inspections. The video is available in English, Spanish, Hmong, and Chinese.
- Beginning in 2012, the City is continuously evaluating the causes of SSOs (e.g., grease) and rescheduling all pipes based on the risk of an SSO and other relevant data.
- Several City departments are involved in different aspects of the FOG control program involving FSEs including:
  - City Development Department Building Division (Responsible for building permit approval and grease removal device installation)
  - County Environmental Management Department, Environmental Health Division (Reviews health department permits prior to permit issuance)
  - City FOG control staff (Responsible for routine inspections and enforcement)
  - EMD Water Protection Division stormwater inspectors and EMD Health Inspectors (Refer issues to City FOG control staff and conduct enforcement)
- The City developed a Fats, Roots, Oils, and Grease (FROG) group to take a more focused and proactive approach to dealing with FOG and roots in 2012/2013 fiscal year.
  - The City purchased additional equipment to support the FOG control program (two trucks, inspection dip rods, tablets, and a sea snake with a laptop interface.)
- DOU allocated 2.5 full time staff to implement the FOG control inspection program in the 2012/2013 fiscal year. Annual inspection will be conducted starting in the 2013/2014 fiscal year and will be prioritized based on CCTV and maintenance data showing heavy grease.
  - This inspection staff has the primary responsibility of performing routine inspections and conducting enforcement to ensure food service establishments (FSEs) are in compliance with the City’s ordinance and to verify the maintenance and performance of the FSE’s grease removal device.
  - The inspectors started inspections at FSEs in January 2013 and have inspected approximately 248 FSEs as of June 5, 2013. The first inspection at an FSE focused on providing information about proper fats, oils and grease disposal and the City’s requirements and an inspection of their grease removal device.
  - The City Community Development Department Building Division and the DOU Field Services Division has not developed an effective process for communicating information with each other regarding grease removal equipment existence, acceptance, or attributes.

#### Recommended Corrective Actions and Current Status

- Update the SSMP to reflect the current FOG Source Control Program being implemented by the FROG group.
- Implement a process and information system to capture and store coded maintenance feedback for sewer cleaning when the new CMMS is implemented in 2014. See Section IV.b. Preventative Operations & Maintenance for more information. (Outstanding 2011 Audit Action.)
- Consider expansion of the City’s legal authority to provide additional tools for FOG enforcement related issues. Add language in the legal authority to require FSEs to install interceptors as well as language that clearly identify FOG BMPs and FSE inspection procedures.
- Develop “FOG Program Rules and Regulations” and refer to these guidelines within the SSMP when discussing FOG related items.

- Develop a process to routinely transmit data regarding building permits involving new or modified grease removal equipment to Department of Utilities for use in updating the FSEs inspection inventory. (Outstanding 2011 Audit Action.)
- Refer to the proper use of interceptor and grease removal terminology such that the language within the City Code and the SSMP are compatible.
- Develop formalized interceptor inspection procedures.
- Develop standardized interceptor sizing requirements in design codes and interceptor requirements for specific locations.
- Develop servicing/maintenance requirements of interceptors by FSEs.
- Develop an enforcement response guide.

**WDR Compliance Ranking:** In Compliance – Update the SSMP to reflect current FOG program.

## VIII. SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

- Does the SSMP contain up-to-date information about the City’s capacity assessment?
- Has the City completed a capacity assessment and identified and addressed any hydraulic deficiencies in the system?

### Audit Elements

- Master Interagency Agreement
- Collection System Master Plan
- Construction projects list
- SSO data

### Audit Findings

- The City has been installing more flow monitoring equipment in areas where capacity issues are of concern. A contractor manages the installation and data management.
- The City has begun installing “smart” lids in manholes in 2012. This equipment is used to identify SSOs. A contractor manages the installation and data management of the equipment.
- The City is planning to expand its Inflow/Infiltration (I/I) Reduction Program. Funding for the I/I Reduction Program is included in the CIP.
- Master plans based on flow monitoring and hydraulic modeling have been prepared for some basins. City is also conducting a sewer rehabilitation program (including pre- and post-rehab flow monitoring) in one basin identified as having high I/I to identify most effective approaches to reduce infiltration.
- The City has assessed capacity of trunk sewer network for entire separated system (49 basins) using a spreadsheet analysis which compares estimated peak wet weather flows for a design event to an estimate of full pipe capacity based on a uniform set of design criteria. Mini-Master Plans were developed for all basins that include the spreadsheet analysis, and available flow data in some basins indicate that the assumptions within these mini-master plans are conservative. Additional analyses (e.g., flow monitoring, surveying or as-built drawing research) are conducted on an ongoing basis, and are compared with the spreadsheet analysis.
- As additional analysis, including flow data, has been evaluated, the design criteria for calculating the various flow rates will be modified.
- The City has experienced one (1) capacity related SSO in the past five (5) years and does not have hydraulic and capacity deficiencies.

Recommended Corrective Actions and Current Status

- Expand flow monitoring and implement an I/I Reduction Program.
- Utilize the collected flow data to compare against the previously completed spreadsheet analysis capacity assessments and identify any projects that are needed to address capacity needs.
- Update the Design and Procedures Manual to include design criteria used for hydraulic analysis.

**WDR Compliance Ranking:** Partial Compliance – update Design and Procedures Manual.

**IX. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS**

- Does the SSMP contain up-to-date information about the City’s data collection and organization?
- Is the City’s data collection and organization sufficient to evaluate the effectiveness of your SSMP?

Audit Elements

- PM/CM/EM Work History
- Job Plans and Schedules
- List of Assets and Spare Parts
- SSO History and Details
- Staff Training Records
- Condition Assessment Data
- Hydraulic Modeling Results/Capacity Assurance
- Flow Monitoring Data

Audit Findings

- The City has tracked progress and collects enough data to conduct an audit that evaluates its current collection system activity effectiveness and performance goals with respect to the State WDRs.
- The City conducts an audit at the minimum required frequency, biennial, but missed this frequency by two months on the 2013 audit due to City staffing issues.
- The SSMP has not been updated to reflect any changes in the City’s organization or maintenance and inspection programs since the SSMP was adopted in 2008-09.

Recommended Corrective Actions and Current Status

- Remove the Update Schedule page from the SSMP.
- Update the SSMP to indicate the most current preventative maintenance and inspection programs.

**WDR Compliance Ranking:** Partial Compliance – SSMP updates needed.

**X. SSMP PROGRAM AUDITS**

- Does the City conduct periodic internal audits appropriate to the size of the system and the number of SSOs?

Audit Findings

- The City formally audits the SSMP every 2 years and annually evaluates the effectiveness and compliance of the operations and maintenance programs with the State WDRs.

Recommended Corrective Actions and Current Status

- Conduct the 2-year-audit frequency and annually evaluate the effectiveness and compliance of the operations

and maintenance programs.

**WDR Compliance Ranking:** In Compliance

## **XI. COMMUNICATION PROGRAM**

- Does the SSMP contain up-to-date information about the City’s public outreach activities?
- Does the SSMP contain up-to-date information about the City’s communications with satellite and tributary agencies?
- Has the City effectively communicated with the public and other agencies about the SSMP, and addressed feedback?

### Audit Elements

- City website
- Evaluate frequency and effectiveness of WDR Coordination Meetings

### Audit Findings

- The City participates in periodic meetings with regional partners including Sacramento Regional County Sanitation District, Sacramento Area Sewer District, and City of Folsom. These meetings provide an effective and timely forum for communicating and resolving issues between regional agencies as well as opportunities for working together on regional initiatives or sharing information on effective programs.
- The regular communication with the public of the implementation and performance of the SSMP can be improved. Currently, a search on the City of Sacramento’s public website for “SSMP” or “Sewer System Management Plan” does not result in a link to any information on the SSMP. Within the Department of Utilities (DOU) public webpage under Sewer, there is mention of a draft “Sanitary Sewer Management Plan” being available for review at 1395 35th Ave. On the main Utilities public webpage, a “Sewer Management Plan” link provides access to a pdf of the current final Sewer System Management Plan. The SSMP can also be accessed on the Utilities Department webpage within the Publications found under the Media Room link.

### Recommended Corrective Actions and Current Status

- The City should update the City of Sacramento public website to return a link related to the Sewer System Management Plan if a search is performed for “SSMP” or “Sewer System Management Plan”. The City should remove the information on the Sewer webpage indicating that a draft SSMP is available for viewing at 1395 35th Ave and update the information to indicate the final version is available and provide a link to the pdf. The DOU website should also indicate a process for the public to provide comment that is directed to the appropriate City contact person.

**WDR Compliance Ranking:** Partial Compliance – City’s website updates needed.



# Sewer System Management Plan

## Internal Audit for FY 13/14 - FY 14/15

December 2015

Prepared By:



**WATERWORKS**  
E N G I N E E R S

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# CITY OF SACRAMENTO DEPARTMENT OF UTILITIES

## Sewer System Management Plan (SSMP)

### Internal Audit for FY 13/14 – FY 14/15

**December 2105**

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## SECTION 1 Audit Objectives

This report summarizes the findings of the required Sewer System Management Plan (SSMP) internal audit process (SSMP Audit) for the areas served by the City of Sacramento's separated sewer system. This SSMP Audit covers the Fiscal Year (FY) 13/14 and FY 14/15 evaluation period. The purpose of the SSMP is to provide a written framework for sanitary sewer collection system management, operation, and maintenance programs executed by the City of Sacramento (City) Department of Utilities (DOU) with the ultimate goal of minimizing sanitary sewer overflows (SSOs) and sustaining compliance with California State Water Resources Control Board (SWRCB) Order No. 2006-0003-DWQ, the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (SSS WDR). The SSMP Audit is based on a review of performance measures established by the City to evaluate the City's success in achieving compliance with various requirements of the SSS WDRs and implementing programs as stated in the SSMP. The SSMP Audit process allows the SSMP document to evolve over time through the identification of potential enhancements and the implementation of changes to address any deficiencies in the management, operation and maintenance of the sanitary sewer collection system.

The City DOU is committed to completing biennial SSMP Audits of the SSMP consistent with the procedure outlined in Section 5 Chapter 10 of the SSMP. The City had its first biennial SSMP Audit completed by RMC Water and Environment (May 2011), while HDR Inc. completed its second biennial SSMP Audit (June 2013). The City has contracted with Water Work Engineers to perform this, the City's third internal SSMP Audit. The key objective of this SSMP Audit is to review implementation of City's SSMP compliance and effectiveness. The following tasks were performed as part of this internal SSMP Audit:

1. Review records from previous internal audits, to confirm deficiencies have been addressed (see **Section 2.1**).
2. Analyze the City's historical SSO data and the performance measures listed in the City's SSMP (see **SECTION 3**).
3. Establish a standardized procedure for this and potentially future SSMP Audits (see **SECTION 4**).
4. Review the City's performance in achieving compliance with all of the various requirements of the SSS WDRs (see **SECTION 5**).
5. Analyze the City's preventative maintenance program and Rehabilitation and Replacement (R&R) plan as it relates to the operation and maintenance of the separated sewer system (see **Section 5.4**).
6. Review Emergency Response Plan (ERP) for SSOs and identify improvements if needed (see **Section 5.6**).
7. Record all findings during the audit process and retain the SSMP Audit on file (see **SECTION 6**).

## SECTION 2 Agency Background / System Information

The City of Sacramento is situated at the confluence of the Sacramento River and the American River in the northern Central Valley area. As the cultural and economic core of the Sacramento metropolitan area, Sacramento has previously been named one of the most diverse cities in the nation. The City covers approximately 100 square miles, 98% of which is land with the other 2% being water. The terrain of Sacramento is relatively flat throughout.

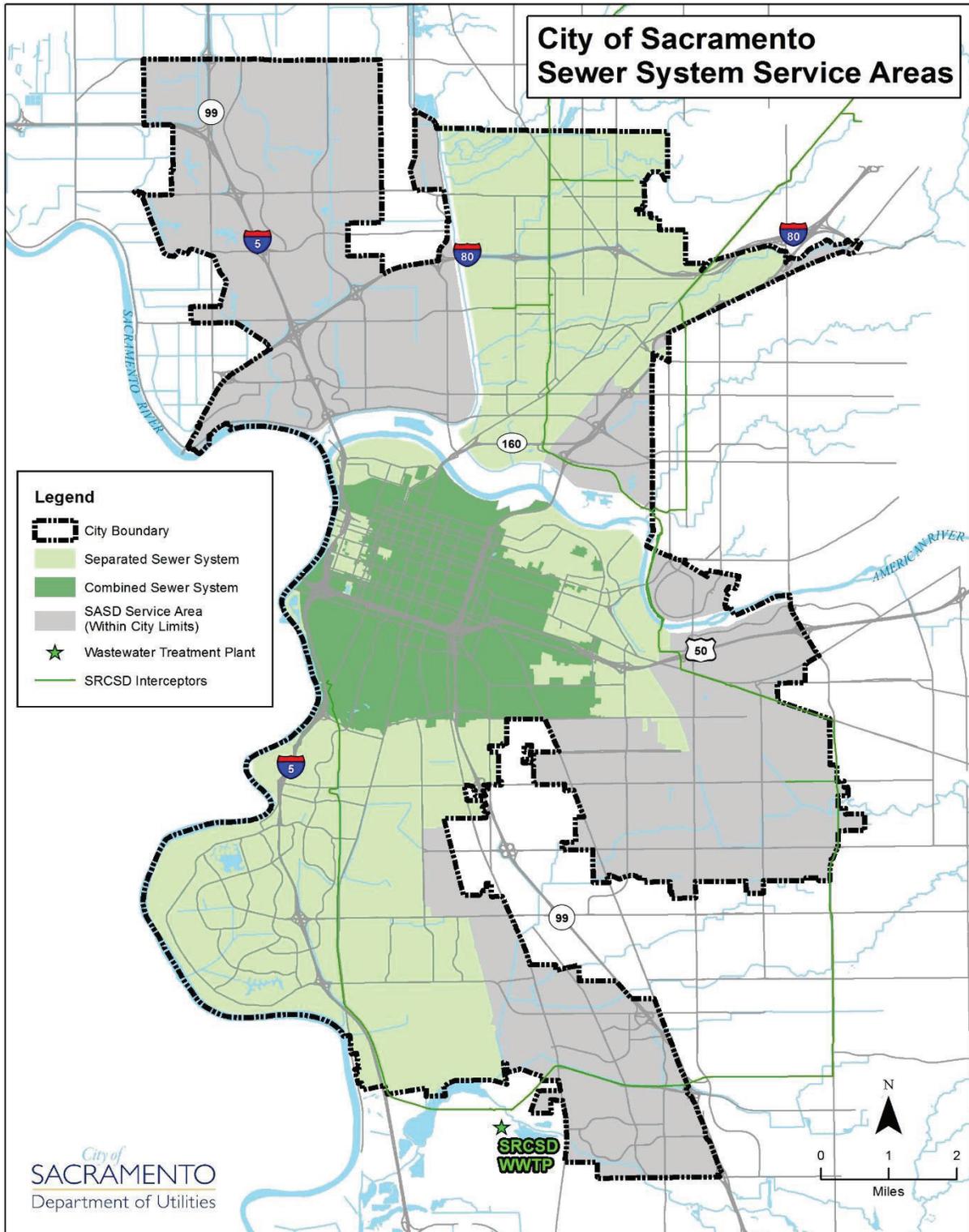
The collection of wastewater in the City is provided by both the City and the Sacramento Area Sewer District (SASD), as shown in **Figure 1**. The SASD maintains about 35 percent of the public collection system within City limits and the City DOU maintains the remaining 65 percent. The portion of the collection system managed by the City DOU is comprised of a Combined Sewer System (CSS), which resides in the older central portion of the City and encompasses a total service area of about 7,545 acres. The CSS is unique in California, and its collection and treatment system is covered under an individual National Pollutant Discharge Elimination System (NPDES) permit issued by the Central Valley Regional Water Quality Control Board (Region 5) (WDR No. R5-2015-0045, NPDES No. CA0079111). The separated sewer system, which resides primarily in the northeast, east, and southwest sections of the City, encompasses a service area of about 25,435 acres. **Table 1** provides additional information about the separated sewer system over the current SSMP Audit time period. This SSMP Audit covers compliance activities related to the separated sewer system only.

**Table 1. Overview of System Indicators**

| Audit                             | FY 13/14 – 14/15 |
|-----------------------------------|------------------|
| Miles of Mainline                 | 545              |
| Pump stations                     | 40               |
| Population served                 | 180,124          |
| Dedicated Sewer Maintenance Staff | 74               |
| Category 1 SSOs (FY1 / FY2)       | 1 / 0            |
| Category 2 SSOs (FY1 / FY2)       | 1 / 0            |
| Category 3 SSOs (FY1 / FY2)       | 27 / 18          |

Wastewater is conveyed from the City’s separated sewer system to the Sacramento Regional County Sanitation District’s (SRCSD) treatment plant known as the Sacramento Regional Wastewater Treatment Plant (SRWTP). The City’s wastewater is routed to the SRWTP via an interceptor system (also owned by SRCSD) consisting of large diameter pipes and pump stations. There are also portions of the SSS that about the CSS on the north and east, which connect to, and flow through the CSS to the SRCSD interceptor system.

Figure 1: City of Sacramento Service Areas



## 2.1 Review of Last SSMP Audit

The previous internal audit of the City's SSMP was conducted and concluded on June 30, 2013, and reviewed the activities and performance related to the SSMP from January 1, 2011 to June 30, 2013. This internal SSMP Audit was organized to correspond with the SSMP document section for ease of reference. **Table 2** summarizes the identified deficiencies, the recommended corrective actions outlined in the previous SSMP audit, and show the current status of the corrective actions per City tracking efforts.

**Table 2. Summary of Findings from the Last SSMP Internal Audit**

| Element  | Action Item   | Status                            |
|--|---|-----------------------------------|
| 2 – Organization   | Update the SSMP to reflect the City’s reorganization as well as include updated contact information and responsibilities of operations and maintenance supervisors responsible for implementing key SSMP initiatives or programs.   | Completed<br>April 22 2014        |
|  | Review and revise sewer overflow response procedure and notification flow charts in the SSMP that identifies the chain of communication from receipt of the complaint to applicable notifications. Ensure flow charts developed for the emergency overflow SOP also incorporates the changes within the organizational structure.   | Completed<br>December 2014        |
| 3 – Legal Authority  | Consider expansion of the City’s legal authority to provide additional tools for FOG enforcement related issues.  | In Progress                       |
|  | Update references within the SSMP to include 2013 changes to the SRCSD ordinance.   | Completed<br>April 22 2014        |
| 4 – O&M Program  | Provide further QA/QC of pipe attribute information, such as pipe material, that is being identified with CCTV inspection activities.   | Ongoing                           |
|  | Update the SSMP to reflect actual business process for evaluation of the Targeted Maintenance Program.  | Completed<br>April 22 2014        |
|  | Implement a data capture process, CMMS system configuration, and data QA/QC process resulting in more accurate maintenance history data capture.  | Completed                         |
|  | Develop and implement a cleaning schedule for every pipe in the system so that findings are documented and tracked.   | Completed                         |
|  | Implement a process and information system to capture and store coded maintenance feedback for sewer cleaning when the new CMMS is implemented in 2014. This should result in an electronic database of coded maintenance feedback history by specific asset. Continue to build on this process with the implementation of a risked based approach for updating frequency and schedule dates. | Completed /<br>Ongoing<br>Updates |
|  | Fully implement the root control program. The root control program should focus on pipes with an elevated risk for a root related SSOs and should schedule root control treatment for elevated risk pipes.  | Ongoing                           |
|  | Coordinate pump station work orders such that they can be scheduled on a station by station basis. Pump stations are shut down for quarterly wet well cleaning, coordinate electrical and mechanical work orders and inspections to coincide with the pump station shut down.   | No Progress                       |
|  | Update the SSMP to reference the CIP Programming Guide (Guide) and annually adopted CIP to provide information on the projected CIP project lists and anticipated funding levels. The Guide will include the CIP projects and their priority based on, but not limited to, condition assessment, work order history, criticality, and design life.  | Completed<br>April 22 2014        |
|  | Update the SSMP to reflect the current inspection plan and schedule.  | Completed<br>April 22 2014        |
| Consider the development of a manhole inspection program using NASSCO’s MACP defect coding system. | Considered  |                                   |

**Table 2 (continued). Summary of Findings from the Last SSMP Internal Audit**

| Element                               | Action Item   | Status                     |
|---------------------------------------|---|----------------------------|
| 4 – O&M Program                       | Develop and implement an automated pipe re-inspection process through CMMS.   | Completed                  |
|                                       | Provide further QA/QC of Granite XP pipe inspection data.   | Ongoing                    |
|                                       | Update the SSMP to include a description of the newly developed training program as well as a description of the SSO emergency overflow response training program.  | Completed<br>April 22 2014 |
|                                       | Identify critical spare parts required at pump stations. Include a plan to either acquire spare parts in the replacement parts inventories or a timely means for fabricating or acquiring critical spare parts in the event of a failure.   | No Progress                |
|                                       | Implement the condition assessment program for pump station mechanical parts and equipment. The condition assessment comments should be tracked in CMMS. Update the SSMP to reflect the condition assessment program implementation.  | Ongoing                    |
| 5 – Design and Performance Provisions | Update the Design and Procedures Manual.  | Ongoing                    |
|                                       | Update the SSMP to reference the updated Standard Specifications and Design Procedures Manual when they are completed and post the updated documents online.  | In Progress                |
| 6 – OERP                              | Update SSMP to adequately incorporate descriptions of the most current SSO response and notification procedures.  | Completed<br>April 22 2014 |
|                                       | Develop pump station failure contingency standard procedures indicating each pump station's: location, wet well capacity, estimate of how much storage time the wet wells would provide under different flow conditions, alarm capacities, on-site back-up pumps, back-up power generators, and an operations or bypass approach in the case of a force main failure. For any stations that lack back-up pumps and generators, the plan should specify a protocol for prompt delivery of portable pumps or generators in the event of a station failure. The procedures should also identify where an SSO will occur if a station fails and where bypass intake and discharge should be set up. | In Progress                |
| 7 – FOG Control Program               | Update the SSMP to reflect the current FOG Source Control Program being implemented by the FROG group.  | Completed<br>April 22 2014 |
|                                       | Implement a process and information system to capture and store coded maintenance feedback for sewer cleaning when the new CMMS is implemented in 2014. See Section IV.b. Preventative Operations & Maintenance for more information.   | Completed                  |
|                                       | Consider expansion of the City's legal authority to provide additional tools for FOG enforcement related issues. Add language in the legal authority to require FSEs to install interceptors as well as language that clearly identify FOG BMPs and FSE inspection procedures.  | In Progress                |
|                                       | Develop "FOG Program Rules and Regulations" and refer to these guidelines within the SSMP when discussing FOG related items.  | In Progress                |

**Table 2 (continued). Summary of Findings from the Last SSMP Internal Audit**

| Element                    | Action Item  | Status                     |
|----------------------------|--|----------------------------|
| 7 – FOG Control Program    | Develop a process to routinely transmit data regarding building permits involving new or modified grease removal equipment to Department of Utilities for use in updating the FSEs inspection inventory.   | No Progress                |
|                            | Refer to the proper use of interceptor and grease removal terminology such that the language within the City Code and the SSMP are compatible.   | In Progress                |
|                            | Develop formalized interceptor inspection procedures.  | In Progress                |
|                            | Develop standardized interceptor sizing requirements in design codes and interceptor requirements for specific locations.  | In Progress                |
|                            | Develop servicing/maintenance requirements of interceptors by FSEs.  | In Progress                |
|                            | Develop an enforcement response guide.   | In Progress                |
| 8 – SECAP                  | Expand flow monitoring and implement an I/I Reduction Program in 2014.   | Ongoing                    |
|                            | Utilize the collected flow data to compare against the previously completed spreadsheet analysis capacity assessments and identify any projects that are needed to address capacity needs.   | Ongoing                    |
|                            | Update the Design and Procedures Manual to include design criteria used for hydraulic analysis.  | In Progress                |
| 9 – MMM                    | Remove the Update Schedule page from the SSMP.   | Completed<br>April 22 2014 |
|                            | Update the SSMP to indicate the most current preventative maintenance and inspection programs.   | Completed<br>April 22 2014 |
| 10 – SSMP Program Audits   | Conduct the 2 year audit frequency and annually evaluate the effectiveness and compliance of the operations and maintenance programs.  | Ongoing                    |
| 11 – Communication Program | The City should update the City of Sacramento public website to return a link related to the Sewer System Management Plan if a search is performed for “SSMP” or “Sewer System Management Plan”. The City should remove the information on the Sewer webpage indicating that a draft SSMP is available for viewing at 1395 35th Ave and update the information to indicate the final version is available and provide a link to the pdf. The DOU website should also indicate a process for the public to provide comment that is directed to the appropriate City contact person. | Completed                  |

## 2.2 Review of FY13/14 and FY14/15

Over the past two fiscal years it has been a priority of the City to reduce the number of SSOs as well as identify and address the prime SSO causes. A few of the key improvements made related to this priority are:

- Conducted an analysis to identify pipes at an elevated risk of root-related SSOs resulting in 250 miles of pipe being chemically treated in FY 13/14.
- Implemented and improved a FOG program through new practices and guiding documents leading to a decrease in FOG-related SSOs since the last audit.
- Completed flow monitoring in preparation for hydraulic modeling efforts as part of upcoming master planning efforts for various sewer basins identified for assessment.

## SECTION 3 SSO Trends

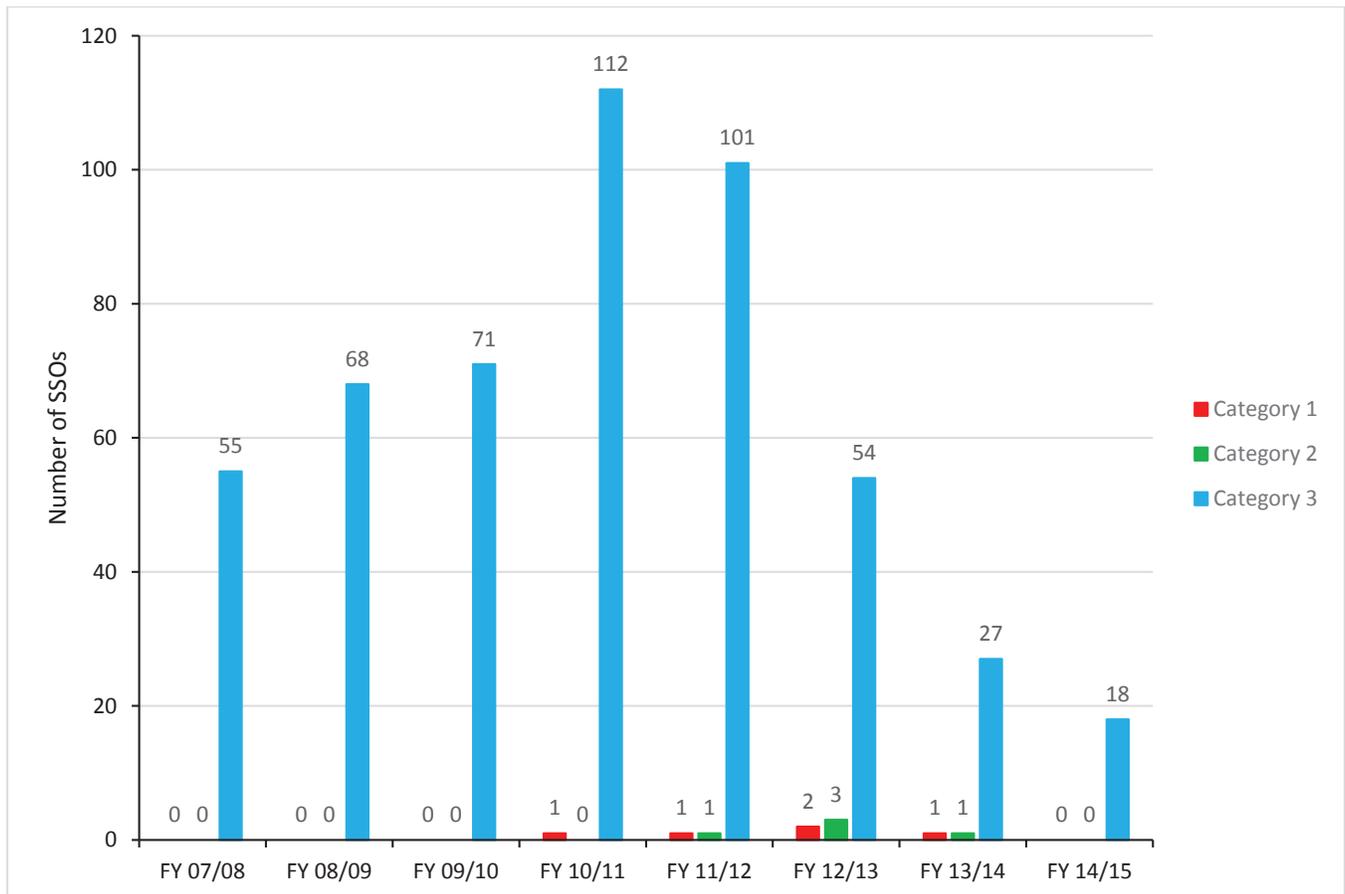
### 3.1 Historical SSO Data

A total of 47 spills occurred during fiscal years 2013/14 (27 SSOs) and 2014/15 (18 SSOs). Information regarding these SSOs is located in **Section 7.1** and includes information such as date, location, spill type, spill volume, spill volume recovered, spill recovery percentage of total spill volume, and spill cause.

The City strives to maintain quality data regarding historical SSOs so that trends in the occurrences and potential causes of SSOs can be investigated. The following discussion investigates the City’s historical SSO data to identify potential SSO trends so that future efforts can be targeted to reduce SSOs.

**Figure 2:** Number and Type of SSOs per Fiscal Year shows that since FY 11/12, the number of SSOs per year has decreased significantly every year. For FY 13/14 and FY 14/15, the City’s number of SSOs per 100 miles of collection system piping is lower than the average of all municipal agencies in Region 5 (to which the City belongs ) per the SWRCB’s Annual Performance Reports. These reports and their related data can be found online at the following link: [http://www.waterboards.ca.gov/about\\_us/performance\\_report\\_1415/](http://www.waterboards.ca.gov/about_us/performance_report_1415/). The particular data for this discussion can be found in **Table 3**.

**Figure 2: Number and Type of SSOs per Fiscal Year**



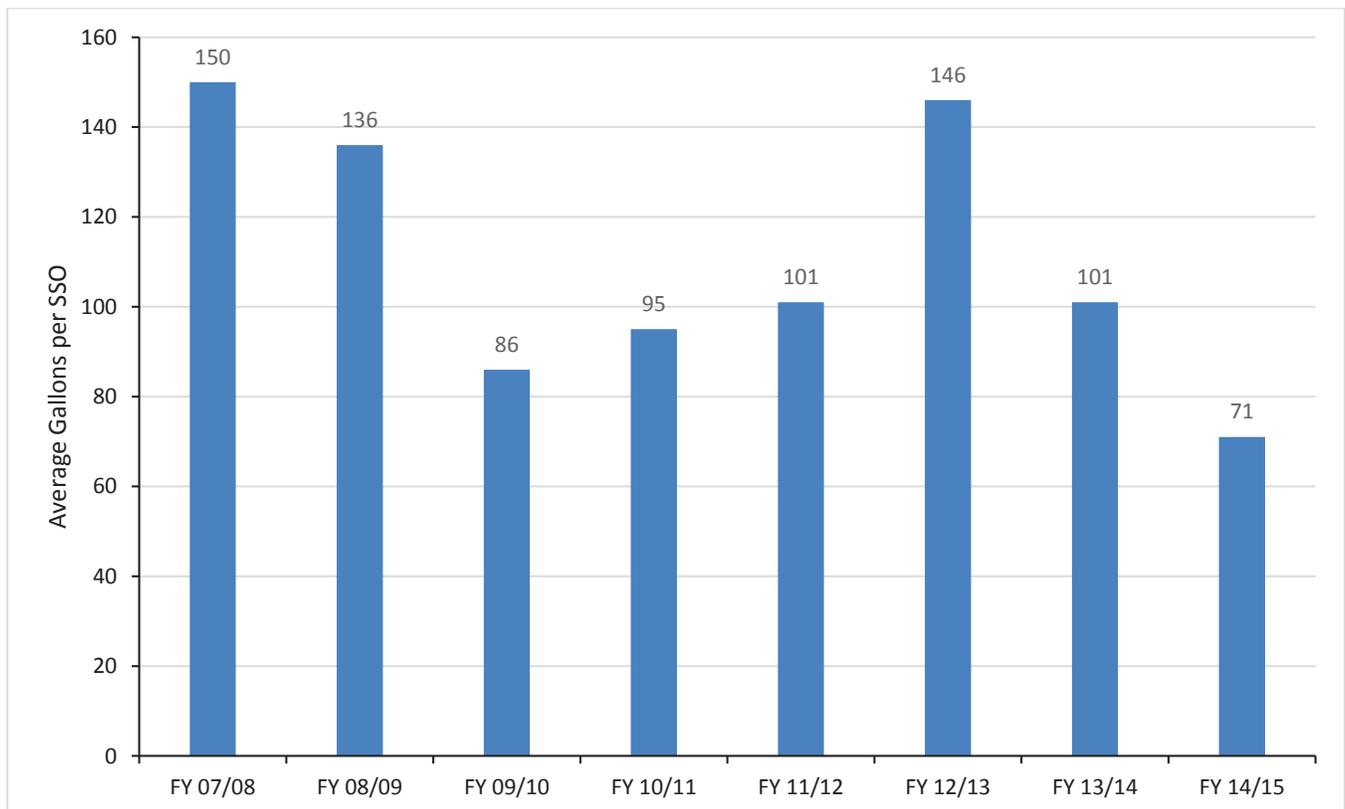
The SWRCB defined new three SSO categories as of September 13<sup>th</sup>, 2013. A Category 1 SSO is currently defined as a spill of any volume that reaches surface water. A Category 2 SSO is currently defined as a spill greater than or equal to 1,000 gallons that does not reach surface water. A Category 3 SSO is currently defined as a spill less than 1,000 gallons that does not reach surface water.

**Table 3. Comparison of SSO Data**

| Fiscal Year | Average # of SSOs per 100 miles (number) |          | Average Spill Volume per 100 miles (gallons) |          |        |
|-------------|--|----------|--|----------|--------|
|             | City                                     | Region 5 | City   | Region 5 | State  |
| 10/11       | 20.73                                    | 5.23     | 1,883  | 7,637    | 66,705 |
| 11/12       | 18.90                                    | 10.25    | 1,822  | 3,678    | 15,788 |
| 12/13       | 10.83                                    | 10.84    | 1,506  | 15,020   | 10,074 |
| 13/14       | 5.32                                     | 9.84     | 513  | 5,280    | 5,097  |
| 14/15       | 3.30                                     | 9.91     | 224  | 6,324    | 11,484 |

**Figure 3:** Average Spill Volume per SSO shows that since FY 12/13, the average spill volume per SSO has decreased every year. From FY 10/11 to FY 14/15, the City’s average spill volume per 100 miles of collection system piping is significantly lower than the average of other municipal agencies in the State and Region 5 per the SWRCB’s Annual Performance Reports. The summary of this data can be found in **Table 3**.

**Figure 3: Average Spill Volume per SSO**



The City’s California Integrated Water Quality System (CIWQS) SSO records were queried to identify the leading causes of SSOs. **Table 4** shows the leading causes of SSOs in the City by 1) the number of SSOs, 2) the spill volume of SSOs, and 3) the average spill volume per SSO.

**Table 4. Leading Causes of SSOs in FY 13/14 and FY 14/15**

| By Number            |        | By Volume            |         | By Average Volume per SSO |         |
|----------------------|--------|----------------------|---------|---------------------------|---------|
| Cause                | Number | Cause                | Gallons | Cause                     | Gallons |
| FOG                  | 20     | Pipe Failure         | 1986    | Pipe Failure              | 993     |
| Roots                | 12     | FOG                  | 701     | Debris & FOG              | 169     |
| Debris               | 9      | Roots                | 440     | Pump Station Failure      | 150     |
| Pipe Failure         | 2      | Debris               | 557     | Debris                    | 62      |
| Debris & FOG         | 2      | Debris & FOG         | 337     | Roots                     | 37      |
| Roots & FOG          | 1      | Pump Station Failure | 150     | FOG                       | 35      |
| Pump Station Failure | 1      | Roots & FOG          | 28      | Roots & FOG               | 28      |

**Table 4** shows that Fats, Oils, and Grease (FOG) and root growth have been the leading causes of SSO occurrences, and pipe failures have been the major cause for SSOs with large spill volumes. The actions planned as a result of this SSMP Audit will target the leading causes to most effectively reduce the number and spill volume of SSOs.

### 3.2 Performance Measures

The City utilizes multiple performance measures to assess the performance and effectiveness of its SSMP in achieving proper management and operation of the separated sewer system, thereby helping to reduce and/or prevent SSOs. While the City may use other performance measures during its evaluation, the following measures are typically used:

- SSO Rate (SSOs per 100 miles of collection system piping per year)
- Number of SSOs for each cause (roots, FOG, debris, pipe failure, capacity, pump station failures, etc.)
- Median SSO volume (gallons)
- Percentage of SSOs greater than 100 gallons (%)
- Percentage of SSOs reported as Category 1 (%)
- Percentage of SSO volume recovered (%)
- Percentage of SSO volume reaching a surface water (%)

The City’s CIWQS SSO records were queried to analyze each performance measure from FY 07/08 to FY 14/15, and the data can be found in **Table 5**.

**Table 5. Performance Measures**

| Performance Measure                         |                      | FY 07/08 Value | FY 08/09 Value | FY 09/10 Value | FY 10/11 Value | FY 11/12 Value | FY 12/13 Value | FY 13/14 Value | FY 14/15 Value |
|---|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| SSO Rate, SSOs/100 miles                    |                      | 10.09          | 12.48          | 13.03          | 20.73          | 18.90          | 10.83          | 5.32           | 2.57           |
| SSO Cause                                   | FOG                  | 37             | 41             | 39             | 62             | 49             | 33             | 13             | 8              |
|   | Roots                | 14             | 24             | 24             | 35             | 43             | 12             | 9              | 3              |
|   | Debris               | 2              | 3              | 5              | 7              | 9              | 6              | 4              | 5              |
|   | Debris & FOG         | 0              | 0              | 0              | 0              | 2              | 1              | 0              | 1              |
|   | Debris & Roots       | 0              | 0              | 0              | 1              | 0              | 1              | 0              | 0              |
|   | Roots & FOG          | 1              | 0              | 2              | 2              | 0              | 2              | 1              | 0              |
|   | Pipe Failure         | 0              | 0              | 0              | 1              | 0              | 1              | 2              | 0              |
|   | Pump Station Failure | 0              | 0              | 1              | 2              | 0              | 0              | 0              | 1              |
|   | Vandalism            | 1              | 0              | 0              | 0              | 0              | 0              | 0              | 0              |
|   | Capacity             | 0              | 0              | 0              | 1              | 0              | 0              | 0              | 0              |
|   | Contractor           | 0              | 0              | 0              | 0              | 0              | 1              | 0              | 0              |
| Unknown/Other                               | 0                    | 0              | 0              | 2              | 0              | 2              | 0              | 0              |                |
| Median SSO Volume, gallons                  |                      | 85             | 78             | 60             | 50             | 30             | 27             | 19             | 26             |
| % of SSOs greater than 100 gallons, %       |                      | 41.8           | 36.8           | 21.1           | 18.6           | 26.2           | 13.6           | 17.2           | 16.7           |
| Category 1 % of Total SSOs, %               |                      | 0.0            | 0.0            | 0.0            | 0.9            | 1.0            | 3.4            | 3.4            | 0.0            |
| % of Spill Volume Recovered, %              |                      | 100            | 100            | 100            | 100            | 96             | 84             | 83             | 94             |
| % of Spill Volume Reaching Surface Water, % |                      | 0.0            | 0.0            | 0.0            | 4.7            | 1.0            | 10.0           | 1.3            | 0.0            |

Currently, the City’s SSO Rate has decreased significantly over the current audit time period. As was previously discussed in **Section 3.1**, the City’s SSO Rate is much smaller than the Region 5 average for FY 13/14 and continues to decrease as shown for FY 14/15. Historically, FOG and root growth have been the leading causes of SSO occurrences. While that is still the case for the current audit time period, a more focused approach on dealing with FOG issues and root growth has helped in reducing the number of SSOs related to these causes. The City’s median SSO volume has continually decreased since FY 07/08 up until FY 14/15, when a modest upswing in volume is seen. The percentage of SSOs greater than 100 gallons in volume has increased from FY 12/13, but still remains at an acceptable level when compared to the City’s performance in previous years. Also, the percentage of SSOs reported as Category 1 has decreased during the current audit time period, which goes hand in hand with the decrease in percentage of spill volume reaching surface waters. Lastly, the City has continued to maintain its efficiency in recovering a high percentage of total spill volume. Overall, the City has improved their performance on most of the performance measures found in **Table 5**.

## SECTION 4 Audit Procedure

Per SSS WDR Section D.13.x, the objective of this SSMP Audit is to focus on evaluating the effectiveness of implementing the SSMP and the City's compliance with the SSMP requirements identified in the SSS WDR Order. This section describes the procedure used to accomplish this objective.

### 4.1 Review of SSMP Compliance

An assessment of the City DOU's SSMP against the requirements outlined in the SSS WDR was conducted as part of the audit. The subsections of **SECTION 5** below are organized by SSMP element. Each subsection contains a table which lists the requirements of section D.13 of the SSS WDR and indicates the level of compliance of the SSMP against that requirement. The compliance status of the City's SSMP is indicated with one of the following ratings: **Yes** - *in compliance*, **No** - *not in compliance*, or **N/A** – *not applicable with a written justification in the SSMP*. If there are deficiencies with regard to compliance, an explanation of the deficiency is given. Each deficiency will have associated SSMP enhancements which may include action items, SSMP adjustments, and/or timelines of planned completion.

### 4.2 Review of SSMP Effectiveness

Subsequent to the indication of the level of compliance of the SSMP in relation to the requirements of the SSS WDR, an evaluation of the effectiveness of the SSMP elements has been conducted to comply with the requirements for SSMP audits per subsection D.13.x of the SSS WDR. The discussion reviews if the plan outlined for each section is being followed, and how effective the plan is at reaching the desired objectives. Where appropriate, recommendations will be made based on the results of this SSMP Audit to identify tasks to improve the effectiveness of SSMP activities. Wherever possible, performance metrics will be used to measure the effectiveness of SSMP elements.

This section will not repeat the information and plans presented in each section of the SSMP. The focus of these sections is to evaluate the effectiveness of the stated plans for each SSMP element. The reader should reference the City's SSMP to obtain the information reviewed by this SSMP Audit.

A summary of the recommended modifications made throughout this SSMP Audit is included in **SECTION 6** – Audit Summary.

## SECTION 5 Audit of SSMP Elements

This chapter evaluates all elements of the City’s SSMP. Each section of this chapter is associated with one of the eleven elements of the SSMP required by SSS WDR section D.13. Each element is evaluated for compliance and effectiveness using the procedure described above in **Sections 4.1** and **4.2**, respectively.

### 5.1 Goals

#### 5.1.1 Compliance

**Table 6. Compliance with SSS WDR D.13.i - Goals**

| SSMP Requirement  | Compliance | Deficiencies |
|---|------------|--------------|
| i Properly manage, operate, and maintain all portions of the District’s wastewater collection system. | Yes        | -            |

#### 5.1.2 Effectiveness of SSMP Elements and Recommended Modifications

##### Goals (SSMP Section V Chapter 1.2)

- Level of Effectiveness: The City currently has five general goals identified in the SSMP. The SSMP references the City DOU’s Strategic Plan as the source of the goals. Four actions that the Operations and Maintenance (O&M) Division implement align with the SSS WDR and the Strategic Plan. All of the goals that the City DOU recorded in the SSMP and Strategic Plan have been effective in guiding the activities of the City to properly manage, operate, and maintain all parts of the sanitary sewer system.
- Recommendations: No recommended modifications at this time.

### 5.2 Organization

#### 5.2.1 Compliance

**Table 7. Compliance with SSS WDR D.13.ii - Organization**

| SSMP Requirement                                  | Compliance | Deficiencies |
|---|------------|--------------|
| ii(a) Identify Legally Responsible Official (LRO) | Yes        | -            |
| ii(b) SSMP responsibility and organization chart  | Yes        | -            |
| ii(c) Chain of communication for reporting SSOs   | Yes        | -            |

#### 5.2.2 Effectiveness of SSMP Elements and Recommended Modifications

##### Identify Legally Responsible Official (LRO) (SSMP Section V Chapter 2.2)

- Level of Effectiveness: Both the O&M Division Manager (Mike Malone) and the O&M Division Superintendent – Wastewater Maintenance (Rob Jack) are designated Legally Responsible Officials (LROs) for the City’s separated sewer system. Those positions are authorized to certify all CIWQS electronic

reports. However, in the City SSMP's Section IV SSMP Contact List, the O&M Division Superintendent – Drainage Collection (William Roberts) is also described as an LRO. The current organization of LROs and Data Submitters has proven effective in appropriately reporting SSOs to meet the requirements of the Monitoring and Reporting Program.

- Recommendations:
  - Update the text in Chapter 2.2 of Section V of the City SSMP to state that the O&M Division Superintendent – Drainage Collection position is an LRO.

### **SSMP Responsibility Organization Chart (SSMP Section V Chapter 2.2)**

- Level of Effectiveness: Section IV SSMP Contact List of the City SSMP is referenced in this chapter. Section IV contains a table that provides the title, name, phone number, e-mail address, and a short description of each individual's job responsibilities. The SSMP also includes an organization chart to identify lines of authority. The combination of the table and the chart in the SSMP effectively outlines individuals responsible for implementing the SSMP and their names and contact information.
- Recommendations:
  - Either add a table to the SSMP that lists all of the elements of the SSMP and the responsible party or amend the existing table in Section IV SSMP Contact List to include a column for "SSMP Element(s)" that are applicable to each position.

### **Chain of Communication Reporting Chart (SSMP Section V Chapter 2.2)**

- Level of Effectiveness: The SSMP outlines the chain of communication for reporting all three SSO Categories from the receipt of a complaint to CIWQS reporting. The figures in the SSMP that show the chain of communication for SSO reporting delineate which position within the City's organizational structure is responsible for each action. The City's chain of communication for SSO reporting appears to be effective based on the completeness and thoroughness of the information documented on the CIWQS database.

The City currently does not consistently perform quality assurance / quality control (QA/QC) of SSO data between CIWQS and City records.

The City's internal SSO data is currently tracked through an Excel spreadsheet entitled "SSO TRACK REPORTING." However, the City does not track all of the information required to be entered into CIWQS. The City can benefit from ensuring consistency between the internal SSO records and the CIWQS database. The City should consider tracking the following pieces of data in the "SSO TRACK REPORTING" spreadsheet:

- Spill volume reaching land.
- Spill volume recovered.
- Spill volume reaching surface water.
- Final spill destination.

- SSO start time.
- Agency notification time.
- Operator arrival date and time.
- SSO end date and time.

- Recommendations:
  - Develop a process to periodically perform QA/QC to ensure consistency between CIWQS and City records pertaining to SSOs.
  - Consider tracking the pieces of SSO data listed above to ensure consistency between internal SSO records and the CIWQS database.

## 5.3 Legal Authority

### 5.3.1 Compliance

**Table 8. Compliance with SSS WDR D.13.iii – Legal Authority**

| SSMP Requirement  | Compliance | Deficiencies |
|---|------------|--------------|
| iii(a) Prevent illicit discharges                             | Yes        | -            |
| iii(b) Properly designed and constructed sewers               | Yes        | -            |
| iii(c) Ensure access to laterals owned/maintained by District | Yes        | -            |
| iii(d) Limit the discharge of FOG and other debris            | Yes        | -            |
| iii(e) Enforce any violation of District ordinances           | Yes        | -            |

### 5.3.2 Effectiveness of SSMP Elements and Recommended Modifications

#### Prevent Illicit Discharges Authority (SSMP Section V Chapter 3.2)

- Level of Effectiveness: City Municipal Code 13.08.040 lists the various substances that are prohibited from being discharged to the sewer system. City Municipal Code 13.08.130 prohibits cross connections between sanitary sewer pipes and the storm drain system. City Municipal Code 13.08.160 requires property owners to repair any leak or defect found in a private sewer line and gives the City the power to perform the repair at the cost of the property owner if the property owner fails to do so.
- Recommendations: No recommended modifications at this time.

#### Design and Construction Standards (SSMP Section V Chapter 3.2)

- Level of Effectiveness: City Municipal Code 13.08.360 requires that the application requesting City sewer service contain plans and specifications for the proposed sewer facilities that conform to the City Standard Specifications. City Municipal Code 13.08.380 gives the City the right to inspect all work performed, and all work must be approved by the City before connection to the sewer system can be completed.
- Recommendations: No recommended modifications at this time.

### **Sewer Access Authority (SSMP Section V Chapter 3.2)**

- Level of Effectiveness: City Municipal Code 13.08.240 prohibits the construction of any permanent structure on top of public water, sewer or drainage pipelines. City Municipal Code 13.08.290 provides the City with the legal authority to inspect private sewer or storm drain facilities to enforce any provision in the sewer service system chapter of the City’s Municipal Code.
- Recommendations: No recommended modifications at this time.

### **Limit FOG Discharges Authority (SSMP Section V Chapter 3.2)**

- Level of Effectiveness: City Municipal Code 13.08.040 lists the various substances that are prohibited from being discharged to the sewer system. City Municipal Code 13.08.090 requires that all Food Service Establishments (FSEs) comply with best management practices (BMPs) that the City Council establishes from time to time by resolution. City Municipal Code 13.08.100 gives the City the legal authority to require businesses other than FSEs to install interceptors of a type and capacity approved by the City.
- Recommendations: No recommended modifications at this time.

### **Enforcement Authority (SSMP Section V Chapter 3.2)**

- Level of Effectiveness: City Municipal Code 13.08.060 describes the City’s legal authority to enforce any violation(s) of its sewer ordinances. City Municipal Code 13.08.340 describes what is considered a violation of its sewer ordinances.

The City’s previous audit included a recommendation to “consider expansion of the City’s legal authority to provide additional tools for FOG enforcement related issues.” The City has drafted proposed edits to the pertinent code sections, and these proposed edits are currently being reviewed by the FOG Program Team. If these edits are accepted and adopted in the City’s Municipal Code, ensure the SSMP is updated to reflect the changes.

- Recommendations:
  - The FOG Program Team should determine if the proposed edits to pertinent code sections are to be accepted and adopted.
  - If the edits to the City’s Municipal Code sections are accepted and adopted by the City, ensure the SSMP is updated to reflect the changes.

## 5.4 Operation and Maintenance Program

### 5.4.1 Compliance

**Table 9. Compliance with SSS WDR D.13.iv – O&M Program**

| SSMP Requirement                                | Compliance | Deficiencies  |
|---|------------|---|
| iv(a) Collection system maps                    | Yes        | -   |
| iv(b) Preventative O&M activities               | Yes        | -   |
| iv(c) Rehabilitation and Replacement (R&R) plan | Yes        | The City does have an R&R plan in place but additional improvements should be implemented (see below).                    |
| iv(d) Training                                  | Yes        | The City provides regular training but additional improvements to the training program should be implemented (see below). |
| iv(e) Equipment and critical replacement parts  | No         | List of critical parts for pump stations still needed.  |

### 5.4.2 Effectiveness of SSMP Elements and Recommended Modifications

#### Collection System Maps (SSMP Section V Chapter 4.2)

- Level of Effectiveness:** The City maintains an updated ArcGIS mapping system that contains the entire separated sewer collection system, the storm drainage system, and applicable sewer appurtenances (e.g. pump stations, valves, etc.). The maps are continually updated by the GIS staff through map corrections from field visits, data review, internal review, and new utility projects.

The electronic (PDF) sewer and drainage map book pages are available through the DOU intranet site. While Wastewater Maintenance crews from the O&M Division can access the intranet map books via the mobile laptop computers provided to them, they (and any other pertinent staff member) can print hard copy map book pages as seen fit.

The City’s Facilities Operations Information System (FOIS), which is maintained by the DOU Engineering and Water Resources Division, is a web-based application on the City’s intranet that serves as the repository for record drawings; improvement plans prepared by staff, outside consultants, and other agencies; specifications; O&M manuals; and facility photographs, etc., as they relate to the collection system. When record drawings or improvement plans are entered into the FOIS, the Engineering Technician determines whether or not a change or revision to the GIS map data is necessary. A map correction request is sent to a GIS staff member, who then makes changes to the GIS data. This process typically takes two to three weeks to complete.

Currently, field identified map corrections are recorded using a simple redline markup tool that is included in CityWorks Computerized Maintenance Management System (CMMS). The redline markup tool provides

a snapshot of the reline which is attached to the work order. If the map correction is complex, and cannot clearly be depicted using the redline tool, a scanned hand drawings may be attached to the work order to provide better clarity. DOU GIS staff updates the GIS data from the work orders that have map corrections. DOU is pilot testing alternative field data collection software that could simplify workflow for this activity.

- **Recommendations:**
  - Develop an SOP (Standard Operating Procedure) for the process of updating the collection system maps. Currently there is no written SOP for this process.

### **Preventative Operations & Maintenance Activities (SSMP Section V Chapter 4.3)**

- **Level of Effectiveness:** The City engages in programs to complete routine preventative maintenance activities, which include jet cleaning, root control, FOG inspections, CCTV inspections, and pump station maintenance. Over this audit period, the City has modified these programs.
  - The City's CityWorks CMMS has been configured to schedule daily cleaning and CCTV work orders through unique algorithms within the CMMS. The CMMS also documents cleaning findings for each pipe as they are cleaned.
  - The Root Control Program consists of mechanical and chemical methods. Mechanical rodding is performed on pipes that have been identified as having a potential for root-related blockages, with their frequencies modified based on previous mechanical rodding results and historical knowledge. The City conducted an analysis that identified approximately 250 miles of pipe that had an elevated risk of root-related SSOs. These pipes were chemically treated in FY 13/14.
  - With regard to the use of chemicals in other applications, this SSMP Audit verified that the City no longer uses chemicals to remove FOG buildup in areas prone to accumulation.
  - Lastly, the City continues to perform monthly inspections of pump stations. However, the City's previous SSMP Audit included a recommendation to "...coordinate electrical and mechanical work orders and inspections to coincide with the pump station shut down." Pump stations are shut down for quarterly wet well cleaning, and coordinating the regular electrical and mechanical work orders and inspections with this cleaning will increase the City's efficiency as it relates to pump station preventative maintenance.

The City is currently in the process of developing new SOPs as they relate to the current and developing preventative maintenance activities. This is an important step to take to increase efficiency and consistency of the work product across the entire DOU.

The City's previous SSMP Audit included a recommendation to "provide further QA/QC of pipe attribute information, such as pipe material, that is being identified with CCTV inspection activities." The City currently does not consistently perform QA/QC of CCTV data collected as a part of the preventative maintenance program. Quality data is a foundational element of effective asset management programs.

Overall, the City's preventative maintenance activities have been effective in maintaining the condition of the separated sewer system, which correlates the reduction of in both volume and the frequency of SSOs. This is evidenced by the City's significant reduction in SSOs caused by FOG, roots, debris, and combinations of these factors.

- Recommendations:
  - Finalize the new SOPs that are currently being developed and ensure consistency between them and the SSMP.
  - Update the SSMP to reflect the changes in preventative maintenance activities as previously discussed.
  - Develop an SOP that describes how the CityWorks CMMS decides daily work orders, specifically as it pertains to the newly developed algorithms for daily cleaning and CCTV inspections. As an alternative, the City could describe these algorithms within their respective new SOPs (Scheduled Maintenance and CCTV Survey).
  - Develop a process to periodically perform QA/QC of CCTV data, such as pipe material, to ensure consistency and accuracy across all inspections.
  - Continue implementing the City's Root Control Program, with a focus on pipes with an elevated risk for root-related SSOs. Continue to schedule root control chemical treatment as determined through future analyses.
  - Consider coordinating electrical and mechanical work orders and inspections to coincide with the quarterly pump station shut down for wet well cleaning (recommendation carried over from 2013 audit).

#### **Rehabilitation and Replacement Plan (SSMP Section V Chapter 4.4)**

- Level of Effectiveness: The City regularly CCTV inspects pipelines using the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) coding standard. The O&M Division reviews the CCTV inspection reports and determines what type of work is required to address the defects found. This work may entail a re-inspection, a spot repair, or a capital improvement project (CIP).
  - If it is determined that a re-inspection is warranted, condition assessment scores of 1, 2, or 3 are analyzed and scheduled for re-inspection through a pipe assessment decision matrix.
  - With regard to spot repairs, PACP score 5s are immediately scheduled for repair. Score 4s are subject to the afore-mentioned pipe assessment decision matrix in which pipe size and number of defects are evaluated to determine a next inspection date, referral to engineering, and/or whether it makes sense to conduct a field spot repair (resulting in some score 4s being placed into the scheduled repair queue).
  - If it is determined that a CIP is warranted, a CIP work order is created and submitted to the Engineering Division for review. These potential CIPs are then analyzed and prioritized as described in the Capital Improvement Programming Guide (Programming Guide). The Programming Guide includes short-term (5-year) and long-term (30-year) plans for R&R actions.

The funding of these CIPs is assessed by the Integrated Planning and Asset Management (IPAM) Division. If funding is secured, the CIP is put out for bid and constructed. If funding is not secured, the CIP is left on the Approved Funding List for consideration in the next FY. The City's R&R plan appears effective in identifying and planning the projects to be completed in the short- and long-term to address high risk areas of the system.

After discussions with the three DOU disciplines involved with the R&R plan (O&M, Engineering, and IPAM), there were improvements identified that may prove beneficial to the City. The City could benefit from conducting periodic meetings between the aforementioned disciplines to ensure staff are aware of and understand the entire R&R plan and their role within it. These meetings could eliminate confusion and misunderstandings so that the City can more efficiently implement and potentially modify the R&R plan for the betterment of the separated sewer system.

After meeting with Engineering staff, it appears that the analysis and prioritization process for potential CIPs is based on a technical memorandum entitled "CIP Prioritization System." While this document has some similarities with the Programming Guide in regard to ranking and prioritizing CIPs, there are enough differences to warrant an update of the SSMP to reflect the actual methodology used in this process.

The City has developed a flowchart entitled "CIP Project Initiation Workflow" that illustrates how a potential CIP is initiated through its completion. There have been changes in the actual overall process that differ from the flowchart description, but the flowchart has not been updated to reflect these changes. The City can benefit from updating the CIP Project Initiation Workflow and incorporating it within the SSMP itself.

Talks with staff from the IPAM Division revealed that there are work orders that contain multiple condition assessment scores of 4 that are not submitted by the O&M Division specifically as a CIP work order (as noted above). The IPAM Division is planning on analyzing these particular work orders, but has not established a protocol to do this as of yet.

The City is planning on integrating their CCTV inspection software Granite XP with their CityWorks CMMS. Having CityWorks contain CCTV inspection data alongside other data such as cleaning findings and preventative maintenance history will help the City to be more efficient in utilizing the CMMS for processes such as modifying assets' planned preventative maintenance or deciding if an asset is worthy of a CIP.

The City's CIP Prioritization System technical memorandum does not appear to incorporate a capacity-based parameter in its evaluation of CIPs. The City should consider modifying the technical memorandum to include capacity-based scores/parameters in one of the three models (Defect, Vulnerability, and Criticality). Capacity analyses are intended to identify hydraulic deficiencies in the system that should have

short and/or long-term alternative solutions. These alternatives should be prioritized and scheduled for implementation, with the City's CIP Prioritization System suitable for this evaluation.

The City's last internal SSMP Audit recommended that the City "consider the development of a manhole inspection program using NASSCO's Manhole Assessment Certification Program (MACP) defect coding system." The City has stated that consideration was conducted, but that the "development of this type of inspection program is currently low on the priority list." The City should continue to monitor the priority of developing a manhole inspection program that uses NASSCO's MACP defect coding system. The City also stated that summary-level manhole inspections are conducted on a routine basis with CCTV and maintenance programs. However, the SSMP does not include discussion on this process.

The City's last internal SSMP Audit recommended that the City "provide further QA/QC of Granite XP pipe inspection data." This particular recommendation is not being carried over to the current audit because this issue is covered in another recommendation for SSMP requirement iv(b). The recommendation for SSMP requirement iv(b) is as follows: Develop a process to periodically perform QA/QC of CCTV data, such as pipe material, to ensure consistency and accuracy across all inspections.

The City does not have a program in place to perform condition assessment of force mains in the system. The development and implementation of such a program is recommended to ensure the City remains in compliance with this SSMP requirement. The City can begin this program by performing a paper assessment in which all force mains' age, pipe material, maintenance history, etc. is recorded. Further internal discussion is warranted to determine a path forward for procedures to allow for CCTV condition assessment of force mains. Potential options include constructing parallel force mains to allow for temporary shutdown during condition assessment or performing temporary bypass operations during condition assessment. Results shall be recorded in the City's current CMMS.

- Recommendations:
  - Conduct periodic meetings between the O&M, Engineering, and IPAM to ensure that everyone is aware of and understands the entire R&R plan and their role within it.
  - Update the SSMP to reflect the actual methodology used from the CIP Prioritization System technical memorandum to rank and prioritize potential CIPs.
  - Update the flowchart entitled "CIP Project Initiation Workflow" and reference this document within the SSMP as an overall view of a CIP's lifespan.
  - Establish a periodic basis to analyze work orders with multiple condition assessment scores of 4 to determine what type of work is required to address the defects.
  - Consider integrating Granite XP with CityWorks such that CCTV inspection data is accessible through the CMMS.
  - Consider modification of the CIP Prioritization System technical memorandum to incorporate capacity-based scores/parameters.

- Consider development of a manhole inspection program using NASSCO's MACP defect coding system (recommendation carried over from 2013 audit).
- Update the SSMP to reflect the City's current process for summary manhole inspections.
- Consider the development and implementation of a force main condition assessment program.

### **Training (SSMP Section V Chapter 4.5)**

- Level of Effectiveness: The City requires its crews to receive annual maintenance training by an industry professional. This particular training program is focused around best practices for the cleaning, inspection, operation, and maintenance of the City's mainline sewer pipes.

Training on the operation of equipment used by the O&M Division is initially provided by the vendor or manufacturer of the equipment. Continual training afterwards is provided through on-the-job training and rotation among the different maintenance crews and equipment.

The City tracks training mostly through sign-in sheets. The supervisors turn in these sheets to the City Typist Clerk, who then files them away for record-keeping.

Within the last year, the City has begun using a training management software program called TargetSolutions. After talks with staff from the O&M Division, it was found that there is a push for tracking data electronically, including training records. TargetSolutions seems to be a suitable software for this effort.

- Recommendations:
  - Identify the required training for each employee and document that each employee has received their required training in an electronic manner, whether through TargetSolutions or a spreadsheet.
  - Develop a process where pertinent supervisors are notified when required training is coming due for an employee. Either a person needs to be assigned this task, or DOU should investigate if this functionality is programmed within TargetSolutions.
  - Develop a schedule for regular training on the specific equipment that the City owns. The scheduled equipment training should identify the frequency of training, the proposed instructors, appropriate referencing of SOPs and manuals, and the individuals required to take the training.
  - Utilize the newly developed SOPs as a training tool for the City staff. The SOPs should be developed so that they 1) provide a framework for the consistent delivery of required information, skills, and familiarity with equipment and 2) can be used to demonstrate competence of an individual in the particular subject.

### **Equipment and Critical Replacement Parts (SSMP Section V Chapter 4.6)**

- Level of Effectiveness: The Logistics section of the O&M Division is responsible for managing the inventory of major sewer maintenance equipment and critical parts.

While the City maintains multiple spare submersible pumps in its inventory in the event of a pump station failure, the DOU is still in the process of identifying and compiling a list of critical parts for pump stations. The City aims to acquire and store these critical parts in inventory for future use.

The City is capable of quickly fabricating nearly all hard replacement parts for pumps and pump station equipment through their fabrication shops.

In addition, the City is currently making an effort to expand their Condition Assessment efforts to cover pump station mechanical parts and equipment. It is anticipated that CityWorks will track condition assessment comments. The City is planning on sending out an RFP (Request for Proposal) for consultant services to assist with the development and methodology for the Condition Assessment effort as it relates to pump stations.

- Recommendations:
  - Identify critical replacement parts for pump stations. Include a plan to either acquire spare parts in the replacement parts inventories or a timely means for fabricating or acquiring critical spare parts in the event of a failure (outstanding 2011 and 2013 Audit Actions).
  - Implement the Condition Assessment Program for pump stations once it has been finalized. Update the SSMP to reflect this implementation.

## 5.5 Design and Performance Provisions

### 5.5.1 Compliance

**Table 10. Compliance with SSS WDR D.13.v – Design and Performance Provisions**

| SSMP Requirement  | Compliance | Deficiencies |
|---|------------|--------------|
| v(a) Sanitary sewer design and construction specifications                    | Yes        | -            |
| v(b) Procedures and standards for inspecting and testing new and R&R projects | Yes        | -            |

### 5.5.2 Effectiveness of SSMP Elements and Recommended Modifications

#### Sanitary Sewer Design and Specifications (SSMP Section V Chapter 5.2)

- Level of Effectiveness: The City DOU’s Standard Specifications and the Design and Procedure Manual (DPM) are effective in ensuring that new or rehabilitated infrastructure is designed and constructed in an acceptable manner. Both of these documents are accessible to interested parties on the City DOU’s website.

The Standard Specifications are periodically updated through addenda as changes are developed, and these addenda are consolidated with the main document every five years. The DPM is currently undergoing major revisions, with the City is planning on completing the updated DPM in 2016.

- **Recommendations:**
  - Update the DPM, post the updated DPM on the City DOU’s website, and ensure the SSMP is updated to reflect this change (carried over from 2013 audit).
  - Continue to post any updated version(s) of the Standard Specifications on the City DOU’s website (carried over from 2013 audit).

**Sanitary Sewer Inspection and Testing Provisions (SSMP Section V Chapter 5.3)**

- **Level of Effectiveness:** The City DOU’s Standard Specifications include procedures for the testing of new/rehabilitated assets and has been effective in ensuring that recently constructed assets perform as expected.
- **Recommendations:** No recommended modifications at this time.

**5.6 Overflow Emergency Response Plan**

**5.6.1 Compliance**

**Table 11. Compliance with SSS WDR D.13.vi - OERP**

| SSMP Requirement  | Compliance | Deficiencies  |
|---|------------|---|
| vi(a) Proper notification procedures  | Yes        | -   |
| vi(b) Program for appropriate SSO response  | No         | Complete development of pump station failure contingency standard procedures. |
| vi(c) Procedure for prompt notification to regulatory agencies  | Yes        | -   |
| vi(d) Procedures for appropriate training of staff and contractors  | Yes        | -   |
| vi(e) Procedures to address emergency operations (e.g., traffic, crowd control)                                 | Yes        | -   |
| vi(f) Program to ensure containment of SSO to prevent discharge and minimize adverse impacts on the environment | Yes        | -   |

**5.6.2 Effectiveness of SSMP Elements and Recommended Modifications**

**Notification Procedures (SSMP Section V Chapter 6.3)**

- **Level of Effectiveness:** The average SSO response time (*i.e.*, notification of SSO to operator arrival time) over the period of this SSMP Audit is 43 minutes. The average SSO response time since September of 2007 is 37 minutes. This indicates that the notification procedures employed by the City are effective in facilitating a rapid response from the City’s first responders (Specialists and On Call personnel).

The City's SOP for Sewer Overflow/Outflow Emergency Response clearly outlines the notification procedures for the various situations that may be encountered and lists the contact information of all potentially applicable agencies and City staff. These resources have proven effective for notifying appropriate agencies in response to an SSO.

- Recommendations: No recommended modifications at this time.

#### **Response Program (SSMP Section V Chapter 6.4)**

- Level of Effectiveness: The City's SOP for Sewer Overflow/Outflow Emergency Response effectively outlines the program that the City uses to appropriately respond to an SSO event. This SOP has been recently updated and encapsulates the best practices of the City in responding to an SSO. Section II of the SOP for Sewer Overflow/Outflow Emergency Response contains the procedures employed by the City. These procedures include an investigation and debriefing on the spill event after the spill has been appropriately responded to by City staff. This is effective in documenting the level of effectiveness of the SOP, the solutions to unique problems encountered during the response, and suggested improvements to the SOP while the information from the spill event is still fresh in the responders' minds. The SOP for Sewer Overflow/Outflow Emergency Response has been effective in responding to SSOs appropriately.

The City is currently in the process of developing emergency operating procedures for sewer pump station failures. The goal of this SOP is to ensure that pertinent information that is needed for an SSO emergency is available at each sewer pump station.

- Recommendations:
  - Complete the development of pump station failure contingency standard procedures indicating each pump station's location, wet well capacity, estimate of how much storage time the wet wells would provide under different flow conditions, alarm capacities, on-site back-up pumps, back-up power generators, and an operations or bypass approach in the case of a force main failure. For any stations that lack back-up pumps and generators, the procedures should specify a protocol for prompt delivery of portable pumps or generators in the event of a station failure. The procedures should also identify where an SSO will occur if a station fails and where bypass intake and discharge should be set up (outstanding 2011 and 2013 Audit Actions).

#### **Regulatory Notification Procedure (SSMP Section V Chapter 6.5)**

Level of Effectiveness: The O&M Division Manager, Wastewater Superintendent, and Drainage Superintendent are the legally responsible officials (LROs) for certification of SSO reports submitted to the CIWQS database. The current arrangement of LROs has met the needs of the City in effectively reporting to the CIWQS database in a timely manner.

The regulatory notification procedure has proven effective because to date, the City has not encountered a situation in which notification information for a required party was not available to City staff responding to an SSO.

- Recommendations: No recommended modifications at this time.

### **Staff and Contractors Training (SSMP Section V Chapter 6.6)**

- Level of Effectiveness: Any new City employee will be trained on the contents of the City's SOP for Sewer Overflow/Outflow Emergency Response prior to being placed in a position that may need to respond to a spill event. Current employees receive annual refresher training on the SOP as well.

The SOP for Sewer Overflow/Outflow Emergency Response will be trained on for all contractor personnel that may have to respond to a spill event, report to the City, and/or mitigate a spill.

Overall, the implementation of the training program has been effective as indicated in recent SSO trends.

- Recommendations:
  - Update SSMP text to state that pertinent contractor personnel will also be trained on the SOP for Sewer Overflow/Outflow Emergency Response.

### **Emergency Response Coordination (SSMP Section V Chapter 6.7)**

- Level of Effectiveness: The City's SOP for Sewer Overflow/Outflow Emergency Response addresses emergency operations such as traffic and crowd control. The measures outlined in the SOP have proven effective for the situations that the City has encountered to date.
- Recommendations: No recommended modifications at this time.

### **Spill Mitigation and Containment Procedure (SSMP Section V Chapter 6.8)**

- Level of Effectiveness: The City's SOP for Sewer Overflow/Outflow Emergency Response includes procedures for activities such as estimating spill volumes, containing and mitigating spills, and an SSO Water Quality Monitoring Plan (Attachment 1 of the SOP). The SOP has been effective in defining the steps to be taken to contain and prevent an SSO from discharging to waters of the United States and to minimize any adverse impact on the environment. This is evidenced by the City's relatively low number of Category 1 SSOs and high rate of spill volume recovery since 2007.
- Recommendations: No recommended modifications at this time.

## 5.7 FOG Control Program

### 5.7.1 Compliance

**Table 12. Compliance with SSS WDR D.13.vii – FOG Control Program**

| SSMP Requirement  | Compliance | Deficiencies |
|---|------------|--------------|
| vii(a) Public education plan  | Yes        | -            |
| vii(b) FOG disposal plan  | Yes        | -            |
| vii(c) Legal authority to prohibit SSOs and blockages caused by FOG discharges                                | Yes        | -            |
| vii(d) Grease removal devices, design standards, BMPs, maintenance, recordkeeping, and reporting requirements | Yes        | -            |
| vii(e) Authority to inspect and enforce FOG ordinance   | Yes        | -            |
| vii(f) FOG Characterization Assessment and Associated Cleaning Schedule                                       | Yes        | -            |
| vii(g) FOG Source Control Measures  | Yes        | -            |

The City is currently in the process of developing the documents that comprise its FOG control program. These documents include a FOG Program Manual, FOG/Collection System Interaction Process Flow Diagram, FSE Conditional Waiver, FOG Inspection SOP, and the FOG Enforcement Response Guide (FOG ERG).

- Recommendations: Complete and finalize the FOG program documents and update the SSMP to reference these documents and their implementation. Ensure consistency between the SSMP and the FOG program documents.

The City’s last internal SSMP Audit included multiple recommendations which are listed below:

- “Develop “FOG Program Rules and Regulations” and refer to these guidelines within the SSMP when discussing FOG related items.”
- “Develop formalized grease interceptor inspection procedures.”
- “Develop standardized grease interceptor sizing requirements in design codes and interceptor requirements for specific locations.”
- “Develop servicing/maintenance requirements of grease interceptors by FSEs.”
- “Develop an enforcement response guide.”

These particular recommendations are not being carried over to the current audit because these issues are covered in the recommendation above that reads: Complete and finalize the FOG program documents and update the SSMP to reference these documents and their implementation. Ensure consistency between the SSMP and the FOG program documents.

## 5.7.2 Effectiveness of SSMP Elements and Recommended Modifications

### Public Education Plan (SSMP Section V Chapter 7.3)

- Level of Effectiveness: The City developed the “Sacramento Fat Free Drains” website ([www.sacramentofatfreedrains.com](http://www.sacramentofatfreedrains.com)) that provides restaurant owners and managers with useful information and documents that could benefit training programs within these restaurants. There are even multiple versions of videos in different languages to aid City inspectors in explaining the process and reason for their visit. This website is also an important part of the residential outreach program. In addition to the website, the City places informational brochures that show proper FOG disposal techniques in City utility bills annually in the fall. Any apartment complex and/or home that has a FOG-related SSO has a door tag placed on their door to inform them of this problem. Door tags are also placed on the doors of homes that are upstream of the location of a FOG-related SSOs. The City’s commercial and residential FOG outreach and educational programs appear to be effective as evidenced by the City’s significant yearly decrease in FOG-related SSOs since FY 2010/11.
- Recommendations: No recommended modifications at this time.

### FOG Disposal Plan (SSMP Section V Chapter 7.4)

- Level of Effectiveness: The City informs the public of multiple FOG disposal options and their respective schedules through the public outreach efforts previously discussed. Examples of these options include landfills for small quantities of grease, Household Hazardous Waste Facilities for larger quantities of grease, and commercial grease hauling companies. Information on disposal can also be found on the “Sacramento Fat Free Drains” website. The City’s FOG disposal plan appears effective as evidenced by the decreasing trend in FOG-related SSOs.
- Recommendations: No recommended modifications at this time.

### Legal Authority to Prevent SSOs/Blockages Caused by FOG Discharges (SSMP Section V Chapter 7.5)

- Level of Effectiveness: City Municipal Code 13.08.040 lists the various substances that are prohibited from being discharged to the sewer system. City Municipal Code 13.08.090 requires that all Food Service Establishments (FSEs) comply with best management practices (BMPs) that the City Council establishes from time to time by resolution. City Municipal Code 13.08.100 gives the City the legal authority to require businesses other than FSEs to install interceptors of a type and capacity approved by the City. These City Municipal Codes appear effective in organizing the type of equipment required to reduce FOG discharges from FSEs, as well as indicating the authority of the City to prohibit SSOs and blockages due to FOG.

The City’s previous internal SSMP Audit included a recommendation to “consider expansion of the City’s legal authority to provide additional tools for FOG enforcement related issues. Add language in the legal authority to require FSEs to install grease interceptors as well as language that clearly identify FOG BMPs and FSE inspection procedures.” This particular recommendation is not being carried over to the current audit because this issue is covered in two other recommendations for SSMP requirement iii(e). The

recommendations for SSMP requirement iii(e) are as follows: The FOG Program Team should determine if the edits to pertinent code sections are to be accepted and adopted. If the edits to the City's Municipal Code sections are accepted and adopted by the City, ensure the SSMP is updated to reflect the changes.

- Recommendations:
  - Ensure that grease interceptor and grease removal terminology is consistent between the City Municipal Code and the SSMP.

### **Grease Removal Device Requirements (SSMP Section V Chapter 7.6)**

- Level of Effectiveness: Requirements for the installation of grease removal devices, design standards for the devices, maintenance requirements, BMP requirements, record keeping requirements, and reporting requirements are covered in Title 15 of the City Municipal Code. As it pertains to the FOG program, Title 15 adopts and incorporates into the City Municipal Code the 2013 California Plumbing Code (CPC). The City's Community Development Department, Building Division, is responsible for implementing these requirements and standards. The City's efforts to disseminate information regarding these requirements appear effective as can be seen by the continual decrease in FOG-related SSOs in recent years.
- Recommendations:
  - Develop a process to routinely transmit data regarding building permits involving new or modified grease removal equipment to the DOU for use in updating the FSEs inspection inventory (outstanding 2011 and 2013 Audit Actions).

### **Inspection and Enforcement Authority – FOG Producers (SSMP Section V Chapter 7.7)**

- Level of Effectiveness: City Municipal Code 13.08.290 provides City staff right of entry to inspect FSEs and the proper authority to enforce provisions of pertinent sewer-related ordinances. The City DOU allocated dedicated FOG inspection staff to implement this part of the FOG program. This allocation of staff appears sufficient to inspect and enforce FOG ordinances. The FOG program has a goal to inspect every FSE at least once a year, with 609 FSEs discharging to the combined system and the remaining 500 FSEs discharging to the separated sewer system. The appropriate City Municipal Codes and dedicated FOG inspection staff appear effective in inspecting FSEs and enforcing FOG ordinances if necessary.
- Recommendations: No recommended modifications at this time.

### **FOG Characterization Assessment and Associated Cleaning Schedule (SSMP Section V Chapter 7.8)**

- Level of Effectiveness: The City uses Service Requests, historical knowledge, experience, CCTV inspection, and CMMS data to prioritize its preventative maintenance activities. In regards to FOG-related maintenance, O&M staff analyzes the previously mentioned data along with weekly cleaning findings to adjust scheduled maintenance cleaning frequencies. In principle, finding medium and/or heavy amounts of grease will trigger that pipe asset to be placed on a higher frequency. In contrast, clear findings will trigger that pipe asset to be placed on a lower frequency. The cleaning maintenance schedules for sections

of the separated sewer system subject to FOG blockages appears to be effective, as evidenced by the significant decrease in FOG-related SSOs in recent years.

- Recommendations:
  - Develop an SOP describing the process of how pipeline cleaning frequencies are modified as a result of FOG-related analysis.

### FOG Source Control Measures (SSMP Section V Chapter 7.9)

- Level of Effectiveness: The City’s FOG source control measures are comprised of the various elements of the FOG program as a whole, which include public/FSE educational outreach efforts, FSE inspections and enforcement actions, and disposal options.
- Recommendations: No recommended modifications at this time.

## 5.8 System Evaluation and Capacity Assurance Plan

### 5.8.1 Compliance

Table 13. Compliance with SSS WDR D.13.viii - SECAP

| SSMP Requirement                                     | Compliance | Deficiencies |
|--|------------|--------------|
| viii(a) Evaluate hydraulic deficiencies              | Yes        | -            |
| viii(b) Establish design criteria                    | Yes        | -            |
| viii(c) Establish short- and long-term CIP           | Yes        | -            |
| viii(d) Develop schedule of completion dates for CIP | Yes        | -            |

### 5.8.2 Effectiveness of SSMP Elements and Recommended Modifications

#### Evaluation of Hydraulic Deficiencies (SSMP Section V Chapter 8.3)

- Level of Effectiveness: The City performed a capacity evaluation for each of the 54 separated sewer system basins using a spreadsheet analysis. This analysis differentiated between existing and future land use conditions.

For the existing conditions analysis, 15 basins were found to have potential capacity deficiencies but there was no documented or anecdotal field data to indicate that these basins are experiencing surcharging. This, combined with the fact that the City has had no capacity-related spills in the past four years (and only one total since 2007) and the spreadsheet static models were developed with conservative (high flow) values, the City has implemented a flow monitoring and ongoing analysis program to confirm the spreadsheet results and intend to continue with this approach before constructing improvements that are potentially not needed.

For the future conditions analysis, 12 of these same 15 basins still exhibited potential capacity deficiencies after taking into account future infill and redevelopment (including potential pipe improvements to support increased use) while the other three did not continue to exhibit limitations after development. In addition to the 12, two additional (not part of the original 15) basins were found to have potential future capacity deficiencies. For all of these basins, the City plans to develop hydraulic models through outside consultants to confirm potential future deficiencies and identify required upgrades. To aid the modeling efforts, the City has already performed flow monitoring in several of the identified basins to ensure accurate dry and wet weather flow calibration of the models. The City plans to continue flow monitoring on an as-needed basis to prepare for future models.

The City's efforts in evaluating the separated sewer system for hydraulic deficiencies are ongoing and appear to be effective in determining basins with a potential for capacity issues.

- Recommendations:
  - Continue flow monitoring and development of hydraulic models to confirm and update spreadsheet results. Continue to communicate with field staff on a frequent basis (after every storm) that there are no documented field conditions or anecdotal comments indicating any of the 15 basins identified in the spreadsheet analysis as having "current" capacity limitation are surcharging or showing similar signs of capacity deficiency. If these efforts identify a basin, move that basin immediately to the top of the priority list for evaluation with hydraulic modeling and begin process for making upgrades to system to eliminate deficiency.
  - Continue long-term evaluation process of developing hydraulic models for all basins where the future conditions spreadsheet and/or flow monitoring analysis indicate capacity deficiencies. Utilize hydraulic models to identify/confirm future hydraulic deficiencies and plan, design and construct improvements as needed to eliminate them.

#### **Design Criteria (SSMP Section V Chapter 8.4)**

- Level of Effectiveness: Table 8.2 in the City's SSMP shows the proposed design criteria for determining the various flow rates that were used by the spreadsheet analysis. Once these design criteria are adopted in the City DOU's Design and Procedures Manual, they will be used in the development of future hydraulic models. The City established a 10-year 6-hour peak wet weather design storm, which appears to be an appropriate design storm to effectively account for the impact of wet weather events on the separated sewer system for current and future system capital improvement planning.

- Recommendations:
  - Update the Design and Procedures Manual to include design criteria used for hydraulic analysis. (Outstanding 2013 Audit Action.) Ensure the SSMP text reflects the adoption of the updated Design and Procedures Manual.

### **Short-term and Long-term Capital Improvement Plan (SSMP Section V Chapter 8.5)**

- Level of Effectiveness: The City has identified short and long-term CIPs based on sewer basin master plans previously prepared by outside consultants. The SSMP states that the Engineering and Water Resource Division of the DOU will study various CIP alternatives to correct identified hydraulic deficiencies. In addition, the Asset Management Section of the DOU will assist in prioritizing the proposed CIPs. However, the processes used by these divisions/sections to develop the proposed CIPs have not been documented. The City should consider the development of an SOP or Technical Memorandum that documents the procedure(s) used to create and/or modify the capacity-related CIP list. This should include how projects are prioritized, an alternatives analysis, implementation schedules, and sources of funding.
- Recommendations:
  - Develop an SOP to document the procedure(s) used to create and/or modify the list of potential CIPs to address capacity-related deficiencies in the separated sewer system.

### **Capital Improvement Program Schedule (SSMP Section V Chapter 8.6)**

- Level of Effectiveness: Table 8.3 in the City's SSMP shows a schedule for completion of all portions of the Capital Improvement Program. This schedule appears effective in identifying the timing with which certain portions of the Capital Improvement Program are to be completed.
- Recommendations: No recommended modifications at this time.

## 5.9 Monitoring, Measurement, and Program Modifications

### 5.9.1 Compliance

**Table 14. Compliance with SSS WDR D.13.ix – MMM**

| SSMP Requirement   | Compliance | Deficiencies   |
|--|------------|--|
| ix(a) Maintain information to establish and prioritize SSMP activities | Yes        | -  |
| ix(b) Measure effectiveness of SSMP elements                           | No         | The City currently does not maintain a set of clear measurable goals that can be used as performance indicators for specific elements of the SSMP. |
| ix(c) Assess preventative maintenance program                          | No         | The City currently does not track measures/metrics specific to the activities of the preventative maintenance program.                             |
| ix(d) Update elements based on evaluations                             | Yes        | -  |
| ix(e) Identify and illustrate SSO trends                               | Yes        | -  |

### 5.9.2 Effectiveness of SSMP Elements and Recommended Modifications

#### Relevant Information to Establish and Prioritize SSMP Activities (SSMP Section V Chapter 9.2)

- Level of Effectiveness: The City tracks a number of measures to prioritize SSMP activities and assess the associated production and level of effort. The measures listed in the City’s SSMP appear effective in gauging the level of performance and the efficiency of the work completed throughout the year, while also aiding the City to prioritize future activities as they relate to the SSMP.
- Recommendations: No recommended modifications at this time.

#### Measure Effectiveness of SSMP Elements (SSMP Section V Chapter 9.2)

- Level of Effectiveness: The City currently tracks performance using a number of measures. However, none of these measures are associated with specific SSMP elements. None of these measures have identified targets or goals. These measures can be used to gauge the level of effort, but without associating measures to specific SSMP elements and without setting goals for each measure it is difficult to monitor the effectiveness of the SSMP.

The City may want to consider incorporating the various goals from the California Sportfishing Protection Alliance (CSPA) Consent Decree (CD) with the targets/goals for the performance measures tracked by the City. This would help to ensure that the City continues to maintain the separated sewer system in a proactive manner even after the CSPA CD has ended.

- Recommendations:
  - Identify measures/metrics that correspond with specific elements of the SSMP and develop numerical goal ranges so the data collected and monitored by the City can be used as performance indicators (PIs) to quantitatively monitor SSMP effectiveness. The ultimate measure of SSMP effectiveness is the limiting of SSOs. However, setting goals for activities related to various SSMP elements and measuring performance against those goals will help determine how success in those elements relates to the overall effectiveness of limiting SSOs. Associating measures/metrics with specific SSMP elements will allow for direct assessment of those elements and provide consistency in their evaluation in future audits. Assign the individuals responsible for the various elements of the SSMP to complete the Performance Indicator Assessment Forms that are developed for their SSMP elements. A sample Performance Indicator Assessment Form is included in **Appendix 7.2** of this internal SSMP Audit. Performance Indicator Assessment Forms can be developed for each measure/metric and assessed periodically by the person responsible, according to the suggested audit frequency for that measure/metric. At the time of the next internal SSMP Audit, the completed Performance Indicator Assessment Forms can be used to evaluate the effectiveness of SSMP elements and included as attachments to the audit findings.
  - Evaluate and consider incorporation of various goals established in the CSPA CD with the numerical goals for identified measures/metrics as mentioned above.

### **Assess Preventative Maintenance Program (SSMP Section V Chapter 9.5)**

- Level of Effectiveness: The City's currently-tracked measures/metrics allow for a limited quantitative evaluation of the performance of preventative maintenance activities. The City may benefit from expanding the tracked measures/metrics to include specific preventative maintenance activities such as the miles of sewer main flushed every year or the miles of sewer main CCTV-inspected every year. Setting identified numerical targets or goals for each of these measures/metrics, including those that are already being tracked, will help the City to quantitatively determine how successful the preventative maintenance program has been. This will also allow the City to monitor the performance of particular activities against other measures/metrics (*e.g.*, SSO trends, number of SSOs per cause) to determine correlations between the data.
- Recommendations:
  - Expand the specific measures/metrics tracked by the City to include activities of the preventative maintenance program.
  - Develop numerical goals for the measures/metrics that track preventative maintenance activities and identify the person/position responsible for tracking data against those goals.

### **SSMP Performance Monitoring and Update Process (SSMP Section V Chapter 9.6)**

- Level of Effectiveness: The City performs a comprehensive review and update of the SSMP at least every five years. Based on biennial audits and the annual performance evaluation, the City may determine an increased frequency is required for reviewing and updating the SSMP.

The City’s SSMP has undergone one five-year (major) revision, but does not seem to document changes made to the SSMP, either in the interim or between major revisions. Documenting pertinent information such as the date of the revision, the SSMP element that was changed, a brief description of the change, who made the change, etc., via a “change log” or similar instrument will allow the City to monitor the evolution of the SSMP.

- Recommendations:
  - Develop and document a process for responsible parties to suggest changes to the electronic version of the SSMP through Microsoft Word’s Track Changes and provide training to all responsible parties on how to add Track Changes so that more individuals are involved with the SSMP modification process. The process may also include identifying the individual who maintains the most current version of the SSMP, the steps in which suggested modifications are received (by internal staff or the public), how suggestions are routed to the individual/position responsible for the SSMP element associated with suggested modification(s), the process for review, and the process for updating the SSMP on the City website and archiving prior SSMP versions.

**SSO Trends – Frequency, Location and Volume (SSMP Section V Chapter 9.7)**

- Level of Effectiveness: The City tracks a number of key pieces of information to identify trends in SSO data. The SSMP contains multiple figures and tables that illustrate these trends through information such as SSO frequency, SSO causes, and SSO volumes. These SSO trends appear effective in communicating the highest priorities for attempting to minimize the number of severity of SSOs.
- Recommendations: No recommended modifications at this time.

**5.10 SSMP Program Audits**

**5.10.1 Compliance**

**Table 15. Compliance with SSS WDR D.13.x – SSMP Program Audits**

| SSMP Requirement          | Compliance | Deficiencies |
|---------------------------|------------|--------------|
| x Conduct periodic audits | Yes        | -            |

**5.10.2 Effectiveness of SSMP Elements and Recommended Modifications**

**Periodic SSMP Internal Audits (SSMP Section V Chapter 10.2)**

- Level of Effectiveness: The City conducts an internal SSMP Audit biennially to maintain an effective SSMP in order to properly manage, operate, and maintain all parts of the separated sewer system. The internal SSMP Audits are helpful in identifying areas of improvement. The regular review of the SSMP assures the usefulness of the planned activities.

The City has posted the most current version of the SSMP with the previous two internal audits on the DOU’s website.

The first internal biennial SSMP Audit was conducted in FY 2011/12 and the second internal biennial SSMP Audit was conducted in FY 2012/13. The City should consider setting a specified time to complete the biennial audits moving forward so as to ensure consistency between the audits over time.

The City’s last internal SSMP Audit generated a recommendation that the City “conduct the 2 year audit frequency and annually evaluate the effectiveness and compliance of the operations and maintenance programs.” This particular recommendation is not being carried over to the current audit because this issue is covered in another recommendation for SSMP requirement x. The recommendation can be seen below.

- Recommendations:
  - Schedule the next internal SSMP Audit for October-November 2017 so that the entire two previous fiscal years’ data is available. Continue using this time frame for all subsequent internal SSMP Audits for consistency (*i.e.*, the next audit would be completed October-November 2019, then October-November 2021, and so on).

## 5.11 Communication Program

### 5.11.1 Compliance

**Table 16. Compliance with SSS WDR D.13.xi – Communications Program**

| SSMP Requirement  | Compliance | Deficiencies |
|---|------------|--------------|
| xi(a) Communicate on a regular basis with the public and tributary/satellite systems regarding SSMP | Yes        | -            |

### 5.11.2 Effectiveness of SSMP Elements and Recommended Modifications

#### Internal Communication – Staff and Board of Directors (SSMP Section V Chapter 11.2)

- Level of Effectiveness: The City communicates information about the SSMP and its related programs to the public on a regular basis using print media, social media, public hearings, and the City DOU’s website. This website contains the most up-to-date version of the SSMP, with both of the previous internal SSMP Audits attached. There is also a contact provided if the public would like to make comments/suggestions regarding the SSMP and billing inserts are distributed by the City to inform its customers of upcoming issues related to the SSMP.

The City also continually participates in the regional State WDRs’ coordinating committee that includes SASD and SRCSD. SASD provides sewer service to residents inside the City, while SRCSD delivers City flows

to the wastewater treatment plant. In addition, the City attends quarterly coordination meetings at SRCSD. These meetings appear effective in discussing both regional and local collection system issues.

- Recommendations: No recommended modifications at this time.

## SECTION 6 Audit Summary

This section summarizes the level of compliance of the SSMP with the SSMP requirements identified in subsection D.13 and the identified deficiencies as described in **Section 4.1**. **Table 17** is a summary of the results of that evaluation.

**Table 17. Summary of SSMP Compliance Deficiencies**

| SSMP Requirement                               | Compliance | Deficiencies   |
|--|------------|--|
| iv(e) Equipment and critical replacement parts | No         | The City is still in need of a list of critical parts for pump stations.   |
| vi(b) Program for appropriate SSO response     | No         | The City needs to complete the development of pump station failure contingency standard procedures.  |
| ix(b) Measure effectiveness of SSMP elements   | No         | The City currently does not maintain a set of clear measurable goals that can be used as performance indicators for specific elements of the SSMP. |
| ix(c) Assess preventative maintenance program  | No         | The City currently does not track measures/metrics specific to the activities of the preventative maintenance program.                             |

**Table 18** summarizes the particular recommendations that will mitigate the City’s non-compliance with the SSMP requirements noted in **Table 17** above.

**Table 18. Summary of Recommendations to Mitigate Non-Compliance**

| SSMP Section V Chapter | Recommendation   | Timeline for Completion |
|------------------------|--|-------------------------|
| 4.6                    | Identify critical replacement parts for pump stations. Include a plan to either acquire spare parts in the replacement parts inventories or a timely means for fabricating or acquiring critical spare parts in the event of a failure (outstanding 2011 and 2013 Audit Actions).  | June 2016               |
| 6.4                    | Complete the development of pump station failure contingency standard procedures indicating each pump station’s location, wet well capacity, estimate of how much storage time the wet wells would provide under different flow conditions, alarm capacities, on-site back-up pumps, back-up power generators, and an operations or bypass approach in the case of a force main failure. For any stations that lack back-up pumps and generators, the procedures should specify a protocol for prompt delivery of portable pumps or generators in the event of a station failure. The procedures should also identify where an SSO will occur if a station fails and where bypass intake and discharge should be set up (outstanding 2011 and 2013 Audit Actions). | June 2016               |

| SSMP Section V Chapter | Recommendation  | Timeline for Completion |
|------------------------|---|-------------------------|
| 9.2                    | Identify measures/metrics that correspond with specific elements of the SSMP and develop numerical goal ranges so the data collected and monitored by the City can be used as performance indicators (PIs) to quantitatively monitor SSMP effectiveness. The ultimate measure of SSMP effectiveness is the limiting of SSOs. However, setting goals for activities related to various SSMP elements and measuring performance against those goals will help determine how success in those elements relates to the overall effectiveness of limiting SSOs. Associating measures/metrics with specific SSMP elements will allow for direct assessment of those elements and provide consistency in their evaluation in future audits. Assign the individuals responsible for the various elements of the SSMP to complete the Performance Indicator Assessment Forms that are developed for their SSMP elements. A sample Performance Indicator Assessment Form is included in <b>Appendix 7.2</b> of this internal SSMP Audit. Performance Indicator Assessment Forms can be developed for each measure/metric and assessed periodically by the person responsible, according to the suggested audit frequency for that measure/metric. At the time of the next internal SSMP Audit, the completed Performance Indicator Assessment Forms can be used to evaluate the effectiveness of SSMP elements and included as attachments to the audit findings. | December 2016           |
| 9.5                    | Expand the specific measures/metrics tracked by the City to include activities of the preventative maintenance program.   | December 2016           |
| 9.5                    | Develop numerical goals for the measures/metrics that track preventative maintenance activities and identify the person/position responsible for tracking data against those goals.   | December 2016           |

This section also summarizes the recommended enhancements made during the process of evaluating each SSMP element’s effectiveness as described in **Section 4.2**. **Table 19** is a summary of those recommendations. This table is inclusive of recommendations from previous audits that should continue.

**Table 19. Summary of Audit Recommendations**

| SSMP Section V Chapter | Recommendation  | Timeline for Completion |
|------------------------|---|-------------------------|
| 2.2                    | Update the text in Chapter 2.2 of Section V of the City SSMP to state that the O&M Division Superintendent – Drainage Collection position is an LRO.  | April 2016              |
| 2.2                    | Either add a table to the SSMP that lists all of the elements of the SSMP and the responsible party or amend the existing table in Section IV SSMP Contact List to include a column for “SSMP Element(s)” that are applicable to each position. | April 2016              |
| 2.2                    | Develop a process to periodically perform QA/QC to ensure consistency between CIWQS and City records pertaining to SSOs.  | December 2016           |

| SSMP<br>Section<br>V<br>Chapter | Recommendation   | Timeline for<br>Completion |
|---------------------------------|--|----------------------------|
| 2.2                             | Consider tracking the pieces of SSO data listed above to ensure consistency between internal SSO records and the CIWQS database.   | April 2016                 |
| 3.2                             | The FOG Program Team should determine if the edits to pertinent code sections are to be accepted and adopted.  | June 2016                  |
| 3.2                             | If the edits to the City’s Municipal Code sections are accepted and adopted by the City, ensure the SSMP is updated to reflect the changes.  | July 2016                  |
| 4.2                             | Develop an SOP (Standard Operating Procedure) for the process of updating the collection system maps.  | December 2016              |
| 4.3                             | Finalize the new SOPs that are currently being developed and ensure consistency between them and the SSMP.   | June 2016                  |
| 4.3                             | Update the SSMP to reflect the changes in preventative maintenance activities as previously discussed.   | July 2016                  |
| 4.3                             | Develop an SOP that describes how the CityWorks CMMS decides daily work orders, specifically as it pertains to the newly developed algorithms for daily cleaning and CCTV inspections. As an alternative, the City could describe these algorithms within their respective new SOPs (Scheduled Maintenance and CCTV Survey). | December 2016              |
| 4.3                             | Develop a process to periodically perform QA/QC of CCTV data, such as pipe material, to ensure consistency and accuracy across all inspections.  | December 2016              |
| 4.3                             | Continue implementing the City’s Root Control Program, with a focus on pipes with an elevated risk for root-related SSOs. Continue to schedule root control chemical treatment as determined through future analyses.  | Ongoing                    |
| 4.3                             | Consider coordinating electrical and mechanical work orders and inspections to coincide with the quarterly pump station shut down for wet well cleaning. (Carried over from 2013 audit.)   | December 2016              |
| 4.4                             | Conduct periodic meetings between O&M, Engineering, and IPAM to ensure that everyone is aware of and understands the entire R&R plan and their role within it.   | June 2016                  |
| 4.4                             | Update the SSMP to reflect the actual methodology used from the CIP Prioritization System technical memorandum to rank and prioritize potential CIPs.  | April 2016                 |
| 4.4                             | Update the flowchart entitled “CIP Project Initiation Workflow” and reference this document within the SSMP as an overall view of a CIP’s lifespan.  | April 2016                 |
| 4.4                             | Establish a periodic basis to analyze work orders with multiple condition assessment scores of 4 to determine what type of work is required to address the defects.  | June 2016                  |
| 4.4                             | Consider integrating Granite XP with CityWorks such that CCTV inspection data is accessible through the CMMS.  | December 2016              |
| 4.4                             | Consider the modification of the CIP Prioritization System technical memorandum to incorporate capacity-based scores/parameters.   | December 2016              |
| 4.4                             | Consider the development of a manhole inspection program using NASSCO’s MACP defect coding system (carried over from 2013 audit).  | December 2017              |
| 4.4                             | Update the SSMP to reflect the City’s current process for summary manhole inspections.   | April 2016                 |

| SSMP<br>Section<br>V<br>Chapter | Recommendation   | Timeline for<br>Completion |
|---------------------------------|--|----------------------------|
| 4.4                             | Consider the development and implementation of a force main condition assessment program.  | December 2017              |
| 4.5                             | Identify the required training for each employee and document that each employee has received their required training in an electronic manner, whether through TargetSolutions or a spreadsheet.   | December 2016              |
| 4.5                             | Develop a process where pertinent supervisors are notified when required training is coming due for an employee. Either a person needs to be assigned this task, or DOU should investigate if this functionality is programmed within TargetSolutions.   | December 2016              |
| 4.5                             | Develop a schedule for regular training on the specific equipment that the City owns. The scheduled equipment training should identify the frequency of training, the proposed instructors, appropriate referencing of SOPs and manuals, and the individuals required to take the training.  | December 2016              |
| 4.5                             | Utilize the newly developed SOPs as a training tool for the City staff. The SOPs should be developed so that they 1) provide a framework for the consistent delivery of required information, skills, and familiarity with equipment and 2) can be used to demonstrate competence of an individual in the particular subject.  | December 2016              |
| 4.6                             | Identify critical replacement parts for pump stations. Include a plan to either acquire spare parts in the replacement parts inventories or a timely means for fabricating or acquiring critical spare parts in the event of a failure (outstanding 2011 and 2013 Audit Actions).  | June 2016                  |
| 4.6                             | Implement the Condition Assessment Program for pump stations once it has been finalized. Update the SSMP to reflect this implementation.   | December 2017              |
| 5.2                             | Update the DPM, post the updated DPM on the City DOU’s website, and ensure the SSMP is updated to reflect this change (carried over from 2013 audit).  | July 2016                  |
| 5.2                             | Continue to post any updated version(s) of the Standard Specifications on the City DOU’s website (carried over from 2013 audit).   | As Needed                  |
| 6.4                             | Complete the development of pump station failure contingency standard procedures indicating each pump station’s location, wet well capacity, estimate of how much storage time the wet wells would provide under different flow conditions, alarm capacities, on-site back-up pumps, back-up power generators, and an operations or bypass approach in the case of a force main failure. For any stations that lack back-up pumps and generators, the procedure should specify a protocol for prompt delivery of portable pumps or generators in the event of a station failure. The procedure should also identify where an SSO will occur if a station fails and where bypass intake and discharge should be set up (outstanding 2011 and 2013 Audit Actions). | June 2016                  |
| 6.6                             | Update SSMP text to state that pertinent contractor personnel will also be trained on the SOP for Sewer Overflow/Outflow Emergency Response.   | April 2016                 |
| 7                               | Complete and finalize the FOG program documents and update the SSMP to reference these documents and their implementation. Ensure consistency between the SSMP and the FOG program documents.  | June 2016                  |

| SSMP<br>Section<br>V<br>Chapter | Recommendation  | Timeline for<br>Completion |
|---------------------------------|---|----------------------------|
| 7.5                             | Ensure that interceptor and grease removal terminology is consistent between the City Municipal Code and the SSMP.  | July 2016                  |
| 7.6                             | Develop a process to routinely transmit data regarding building permits involving new or modified grease removal equipment to the DOU for use in updating the FSEs inspection inventory (outstanding 2011 and 2013 Audit Actions).  | December<br>2016           |
| 7.8                             | Develop an SOP describing the process of how pipeline cleaning frequencies are modified as a result of FOG-related analysis.  | December<br>2016           |
| 8.3                             | Continue flow monitoring and development of hydraulic models to confirm and update spreadsheet results. Continue to communicate with field staff on a frequent basis (after every storm) that there are no documented field conditions or anecdotal comments indicating any of the 15 basins identified in the spreadsheet analysis as having “current” capacity limitation are surcharging or showing similar signs of capacity deficiency. If these efforts identify a basin, move that basin immediately to the top of the priority list for evaluation with hydraulic modeling and begin process for making upgrades to system to eliminate deficiency. | Ongoing                    |
| 8.3                             | Continue long-term evaluation process of developing hydraulic models for all basins where the future conditions spreadsheet and/or flow monitoring analysis indicate capacity deficiencies. Utilize hydraulic models to identify/confirm future hydraulic deficiencies and plan, design and construct improvements as needed to eliminate them.   | Ongoing                    |
| 8.4                             | Update the Design and Procedures Manual to include design criteria used for hydraulic analysis (outstanding 2013 Audit Action). Ensure the SSMP text reflects the adoption of the updated Design and Procedures Manual.   | July 2016                  |
| 8.5                             | Develop an SOP to document the procedure(s) used to create and/or modify the list of potential CIPs to address capacity-related deficiencies in the separated sewer system.   | December<br>2016           |

| SSMP<br>Section<br>V<br>Chapter | Recommendation  | Timeline for<br>Completion |
|---------------------------------|---|----------------------------|
| 9.2                             | Identify measures/metrics that correspond with specific elements of the SSMP and develop numerical goal ranges so the data collected and monitored by the City can be used as performance indicators (PIs) to quantitatively monitor SSMP effectiveness. The ultimate measure of SSMP effectiveness is the limiting of SSOs. However, setting goals for activities related to various SSMP elements and measuring performance against those goals will help determine how success in those elements relates to the overall effectiveness of limiting SSOs. Associating measures/metrics with specific SSMP elements will allow for direct assessment of those elements and provide consistency in their evaluation in future audits. Assign the individuals responsible for the various elements of the SSMP to complete the Performance Indicator Assessment Forms that are developed for their SSMP elements. A sample Performance Indicator Assessment Form is included in <b>Appendix 7.2</b> of this internal SSMP Audit. Performance Indicator Assessment Forms can be developed for each measure/metric and assessed periodically by the person responsible, according to the suggested audit frequency for that measure/metric. At the time of the next internal SSMP Audit, the completed Performance Indicator Assessment Forms can be used to evaluate the effectiveness of SSMP elements and included as attachments to the audit findings. | December<br>2016           |
| 9.2                             | Consider the incorporation of the CSPA CD's various goals with the numerical goals for identified measures/metrics as mentioned above.  | December<br>2016           |
| 9.5                             | Expand the specific measures/metrics tracked by the City to include activities of the preventative maintenance program.   | December<br>2016           |
| 9.5                             | Develop numerical goals for the measures/metrics that track preventative maintenance activities and identify the person/position responsible for tracking data against those goals.   | December<br>2016           |
| 9.6                             | Develop and document a process for responsible parties to suggest changes to the electronic version of the SSMP through Microsoft Word's Track Changes and provide training to all responsible parties on how to add Track Changes so that more individuals are involved with the SSMP modification process. The process may also include identifying the individual who maintains the most current version of the SSMP, the steps in which suggested modifications are received (by internal staff or the public), how suggestions are routed to the individual/position responsible for the SSMP element associated with suggested modification, the process for review, and the process for updating the SSMP on the District website and archiving SSMP versions.   | June 2016                  |
| 10.2                            | Schedule the next internal SSMP Audit for October-November 2017 so that the entire two previous fiscal years' data is available. Continue using this time frame for all subsequent internal SSMP Audits for consistency ( <i>i.e.</i> , the next audit would be completed October-November 2019, then October-November 2021, and so on).  | October<br>2017            |

## **SECTION 7 Appendices**

7.1 Appendix – Historical SSO Data

7.2 Appendix – Sample Performance Indicator Assessment Form

## **7.1 Appendix – Historical SSO Data**

| Date of SSO | Address of SSO                          | Spill Type | Spill Volume (gal) | Spill Volume Recovered (gal) | Spill Recovery Percentage (%) | Spill Cause                        |
|-------------|---|------------|--------------------|------------------------------|-------------------------------|------------------------------------|
| 9/20/2013   | 1000 Front Street, Sacramento, CA       | Category 3 | 136                | 106                          | 78                            | Grease Deposition (FOG)            |
| 9/25/2013   | 3736 Schutt Way, Sacramento, CA         | Category 3 | 17                 | 17                           | 100                           | Root Intrusion                     |
| 10/4/2013   | 7079 Remo Way, Sacramento, CA           | Category 3 | 30                 | 30                           | 100                           | Grease Deposition (FOG)            |
| 10/24/2013  | 6661 Fordham Way, Sacramento, CA        | Category 3 | 28                 | 28                           | 100                           | Grease Deposition & Root Intrusion |
| 10/31/2013  | 695 Plaza Ave, Sacramento, CA           | Category 3 | 119                | 119                          | 100                           | Grease Deposition (FOG)            |
| 11/2/2013   | 6589 Demaret Dr, Sacramento, CA         | Category 3 | 140                | 140                          | 100                           | Root Intrusion                     |
| 11/8/2013   | 5011 South Land Park Dr, Sacramento, CA | Category 3 | 6                  | 6                            | 100                           | Root Intrusion                     |
| 11/14/2013  | 5352 Karbet Way, Sacramento CA          | Category 3 | 14                 | 14                           | 100                           | Debris-General                     |
| 11/20/2013  | 2101 Catskill Way, Sacramento, CA       | Category 3 | 10                 | 8                            | 80                            | Grease Deposition (FOG)            |
| 11/23/2013  | 2101 Catskill Way, Sacramento, CA       | Category 3 | 5                  | 5                            | 100                           | Grease Deposition (FOG)            |

| Date of SSO | Address of SSO                         | Spill Type | Spill Volume (gal) | Spill Volume Recovered (gal) | Spill Recovery Percentage (%) | Spill Cause                     |
|-------------|--|------------|--------------------|------------------------------|-------------------------------|---------------------------------|
| 12/1/2013   | 15 Don Merlino Ct, Sacramento, CA      | Category 3 | 19                 | 19                           | 100                           | Grease Deposition (FOG)         |
| 12/9/2013   | 100 Lindley Dr, Sacramento, CA         | Category 3 | 34                 | 34                           | 100                           | Grease Deposition (FOG)         |
| 12/26/2013  | 2924 Marysville Blvd, Sacramento, CA   | Category 3 | 20                 | 20                           | 100                           | Pipe Structural Problem/Failure |
| 1/7/2014    | 2922 Marysville Blvd, Sacramento, CAs  | Category 2 | 1966               | 1966                         | 100                           | Pipe Structural Problem/Failure |
| 1/11/2014   | 1430 27th Ave, Sacramento, CA          | Category 3 | 5                  | 2                            | 40                            | Grease Deposition (FOG)         |
| 1/18/2014   | 7020 Wilshire Cir, Sacramento, CA      | Category 3 | 15                 | 15                           | 100                           | Root Intrusion                  |
| 1/19/2014   | 2401 34th Ave, Sacramento, CA          | Category 3 | 19                 | 18                           | 95                            | Root Intrusion                  |
| 1/27/2014   | 6000 Belleau Wood Lane, Sacramento, CA | Category 3 | 6                  | 4                            | 67                            | Grease Deposition (FOG)         |
| 2/3/2014    | 135 Baxter Ave, Sacramento, CA         | Category 3 | 35                 | 5                            | 14                            | Debris-General                  |
| 2/5/2014    | 2629 Evergreen St, Sacramento, CA      | Category 3 | 18                 | 10                           | 56                            | Debris-General                  |

| Date of SSO | Address of SSO                          | Spill Type | Spill Volume (gal) | Spill Volume Recovered (gal) | Spill Recovery Percentage (%) | Spill Cause             |
|-------------|---|------------|--------------------|------------------------------|-------------------------------|-------------------------|
| 2/18/2014   | 1806 Los Robles Blvd,<br>Sacramento, CA | Category 3 | 21                 | 21                           | 100                           | Grease Deposition (FOG) |
| 2/22/2014   | 1371 Munger Way,<br>Sacramento, CA      | Category 3 | 3                  | 2                            | 67                            | Root Intrusion          |
| 3/28/2014   | 883 Parklin Ave,<br>Sacramento, CA      | Category 3 | 52                 | 52                           | 100                           | Grease Deposition (FOG) |
| 4/1/2014    | 7266 Amherst St, Sacramento,<br>CA      | Category 1 | 38                 | 0                            | 0                             | Grease Deposition (FOG) |
| 4/9/2014    | 4428 Euclid Ave,<br>Sacramento, CA      | Category 3 | 13                 | 13                           | 100                           | Root Intrusion          |
| 5/11/2014   | 641 45th St,<br>Sacramento, CA          | Category 3 | 17                 | 17                           | 100                           | Root Intrusion          |
| 6/3/2014    | 3701 Ivy St,<br>Sacramento, CA          | Category 3 | 3                  | 3                            | 100                           | Debris-General          |
| 6/15/2014   | 5241 25th St,<br>Sacramento, CA         | Category 3 | 115                | 115                          | 100                           | Root Intrusion          |
| 6/19/2014   | 3329 Belden St,<br>Sacramento, CA       | Category 3 | 19                 | 0                            | 0                             | Grease Deposition (FOG) |
| 7/14/2014   | 6725 Demaret Dr, Sacramento,<br>CA      | Category 3 | 62                 | 62                           | 100                           | Root Intrusion          |

| Date of SSO | Address of SSO                           | Spill Type | Spill Volume (gal) | Spill Volume Recovered (gal) | Spill Recovery Percentage (%) | Spill Cause                     |
|-------------|--|------------|--------------------|------------------------------|-------------------------------|---------------------------------|
| 10/23/2014  | 3812 Taylor Ave,<br>Sacramento, CA       | Category 3 | 334                | 317                          | 95                            | Grease Deposition (FOG)         |
| 10/29/2014  | 3846 Kern Street,<br>Sacramento, CA      | Category 3 | 23                 | 23                           | 100                           | Grease Deposition (FOG)         |
| 11/17/2014  | 181 Loveland Way,<br>Sacramento, CA      | Category 3 | 12                 | 12                           | 100                           | Grease Deposition (FOG)         |
| 11/19/2014  | 1109 2nd St,<br>Sacramento, CA           | Category 3 | 3                  | 3                            | 100                           | Debris-Rags & Grease Deposition |
| 1/11/2015   | 4290 Warren Ave,<br>Sacramento, CA       | Category 3 | 28                 | 28                           | 100                           | Root Intrusion                  |
| 1/23/2015   | 567 Garden St,<br>Sacramento, CA         | Category 3 | 15                 | 13                           | 87                            | Debris-General                  |
| 2/10/2015   | 2398 Cambridge St,<br>Sacramento, CA     | Category 3 | 4                  | 4                            | 100                           | Grease Deposition (FOG)         |
| 1/13/2015   | 4507 Bollenbacher Ave,<br>Sacramento, CA | Category 3 | 212                | 212                          | 100                           | Debris-General                  |
| 2/13/2015   | 3253 O'Farrell Dr,<br>Sacramento, CA     | Category 3 | 15                 | 11                           | 73                            | Grease Deposition (FOG)         |

| Date of SSO | Address of SSO                        | Spill Type | Spill Volume (gal) | Spill Volume Recovered (gal) | Spill Recovery Percentage (%) | Spill Cause                       |
|-------------|---------------------------------------|------------|--------------------|------------------------------|-------------------------------|-----------------------------------|
| 2/17/2015   | 2347 67th Ave,<br>Sacramento, CA      | Category 3 | 10                 | 10                           | 100                           | Grease Deposition (FOG)           |
| 3/11/2015   | 2011 Oregon Dr,<br>Sacramento, CA     | Category 3 | 85                 | 85                           | 100                           | Debris-General                    |
| 3/15/2015   | 66 Taylor Way,<br>Sacramento, CA      | Category 3 | 5                  | 2                            | 40                            | Root Intrusion                    |
| 3/23/2015   | 1 Capitol Mall,<br>Sacramento, CA     | Category 3 | 150                | 150                          | 100                           | Instrumentation Equipment Failure |
| 4/28/2015   | 1405 Claremont Way,<br>Sacramento, CA | Category 3 | 48                 | 48                           | 100                           | Debris-Rags                       |
| 6/3/2015    | 1090 Rio Lane,<br>Sacramento, CA      | Category 3 | 127                | 127                          | 100                           | Debris-General                    |
| 6/7/2015    | 320 South Ave,<br>Sacramento, CA      | Category 3 | 128                | 118                          | 92                            | Grease Deposition (FOG)           |
| 6/21/2015   | 7409 Mooncrest Way,<br>Sacramento, CA | Category 3 | 15                 | 15                           | 100                           | Grease Deposition (FOG)           |

## **7.2 Appendix – Sample Performance Indicator Assessment Form**

|   |                  |                                    |                   |                   |
|---|------------------|------------------------------------|-------------------|-------------------|
| <b>Goal:</b>  |                  | <b>O&amp;M PM – SSS WDR-D.iv.b</b> |                   |                   |
| <b>Responsible Person (RP):</b>   |                  | O&M Superintendent – WWC           |                   |                   |
| <b><u>Description of Performance Indicator(s) (PIs):</u></b>  |                  |                                    |                   |                   |
| The PIs listed below will be used to measure the effectiveness of the activities outlined in the City SSMP related to the requirements of section D.iv.b of the SSS WDR.  |                  |                                    |                   |                   |
| <b><u>PIs and Data Analysis Methods:</u></b>  |                  |                                    |                   |                   |
| 1. <i>Miles of sewer main flushed each year.</i><br><b>Discussion &amp; Scoring Criteria:</b> This PI measures the miles of separated sewer system flushed with high velocity vacuum cleaning as part of the preventative maintenance program. Cleaning the entire sewer system (~550 miles) every 5 years is acceptable per industry standards, every 3 years is good, and every 2 years is excellent. Query the CityWorks CMMS database to determine the total length of the separated sewer system that was flushed during the previous fiscal year. |                  |                                    |                   |                   |
| 2. <i>Miles of sewer main CCTV inspected each year.</i><br><b>Discussion &amp; Scoring Criteria:</b> This PI measures the miles of separated sewer system CCTV inspected as part of the preventative maintenance program. CCTV inspecting the entire sewer system (~550 miles) every 10 years is acceptable per industry standards, every 6 years is good, and every 4 years is excellent. Query the CityWorks CMMS database to determine the total length of the separated sewer system that was inspected during the previous fiscal year.            |                  |                                    |                   |                   |
| <b>PI</b>   | <b>Excellent</b> | <b>Good</b>                        | <b>Acceptable</b> | <b>Below Goal</b> |
| 1   | > 275            | > 180                              | > 110             | < 110             |
| 2   | > 135            | > 90                               | > 55              | < 55              |

| <b>Performance Tracking</b> |                       |  |
|-----------------------------|-----------------------|--|
| <b>PI</b>                   | <b>Measured Value</b> | <b>Performance Assessment Comments / Related Information / Justification</b> |
| 1                           |                       |  |
| 2                           |                       |  |

**Recommendations for Programmatic or SSMP Updates**

**PI 1 – Miles of sewer main flushed each year**

Recommendation:

**PI 2 – Miles of sewer main CCTV inspected each year**

Recommendation:

|  |              |
|--|--------------|
| <b>Signature of Responsible Person: (sign when complete)</b> | <b>Date:</b> |
|  |              |