



**LOS ANGELES COUNTY
SANITATION DISTRICTS**
Converting Waste Into Resources

Sewer System Management Plan (SSMP)

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1 Sewer System Management Plan Goal and Introduction

Chapter 1 of this SSMP addresses the requirements included in Attachment D-1 of the Order. The requirements state:

Goal: *The goal of the SSMP is to provide a plan and schedule to: (1) properly manage, operate, and maintain all parts of the sanitary sewer system(s), (2) reduce and prevent spills, and (3) contain and mitigate spills that do occur.*

1.1 Introduction

On May 2, 2006 the State Water Resources Control Board (SWRCB) adopted Order No. 2006-003-DWQ (2006 Order) which established General Waste Discharge Requirements (WDRs) for all publicly owned or operated sanitary sewer systems within the State of California. The WDRs require that owners and operators of sewer collection systems: 1) report sanitary sewer spills in the California Integrated Water Quality System (CIWQS), an electronic reporting system developed by the SWRCB, and 2) develop and implement a Sewer System Management Plan (SSMP) with the goal of reducing sanitary sewer spills. In short, the SSMP is a document that details how a specific sewer collection system is operated, maintained, repaired, and funded.

On July 30, 2013, SWRCB adopted Order No. WQ 2013-0058-EXEC amending the monitoring and reporting procedures listed in the original Order (Amendments).

The Los Angeles County Sanitation Districts' first SSMP was certified in May 2009. According to the 2006 Order, the SSMP was required to be updated and recertified a minimum of once every 5 years, and audits were to be conducted every two years. To meet this requirement, the 2009 SSMP was updated and recertified in February 2014 and February 2019, and audits were conducted every two years.

On December 6, 2022 the SWRCB adopted Order No. WQ 2022-0103-DWQ (2022 Order) which updated the requirements of the 2006 WDR and 2013 MRP. The 2022 Order requires updates to the SSMP every six (6) years after the required due date of the permittee's last Plan update, and an internal audit of the SSMP at a minimum frequency of once every three years. Subsequently, this 2025 SSMP update will address the findings of the most recent audits conducted in 2021 and 2024.

The SSMP developed by the Los Angeles County Sanitation Districts (Sanitation Districts) is organized into 11 chapters to parallel the requirements included in the WDRs. Each section or subsection of each chapter addresses the individual elements of the SSMP.

1.2 Regulatory Context

The goal of the Sanitation Districts' SSMP is four-fold and ensures that:

- Collection system facilities are properly managed, operated, and maintained to eliminate preventable sanitary sewer spills;
- Response measures are in place and that all feasible steps are taken to mitigate the impacts of spills to public health and the environment when they occur;
- Reporting procedures are in place to notify the appropriate regulatory and health authorities of spills within the required time frames; and
- Spill events, mitigation measures, and corrective actions are documented, and necessary procedural updates are made in a timely manner.

To measure performance of the above goals, levels of service have been established for each separate Sanitation District and for the Joint Outfall System. The levels of service are:

- Zero (0) preventable spills per 100 miles of sewer per year;
- Less than 5 odor complaints per year;
- Complete 100% of scheduled preventative maintenance work per year; and
- Respond to the scene of a spill within 1 hour of notification.

1.3 Sewer System Management Plan Update Schedule

The Sanitation Districts is a confederation of 24 independent special districts. Each Sanitation District with a wastewater collection system, as well as the collectively owned Joint Outfall (JO) sewers, was enrolled as a separate sewer collection system under the State Water Resources Control Board’s (SWRCB) General Waste Discharge Requirements (WDRs). Those Sanitation Districts with less than one mile of sewer – Sanitation District Nos. 9, 23, 27, and 34 – did not require enrollment. The WDRs stipulate schedules for electronic spill reporting, SSMP development, SSMP Adoption, SSMP Audits, and lastly SSMP Recertification.

Due to the administrative framework of the Sanitation Districts, a single SSMP was adopted for all Sanitation Districts during Board of Director meetings held on February 11 and February 25, 2009. In accordance with the 2022 Order, the specific SSMP-related due dates for individual districts are provided in the table below. In past years, the Sanitation Districts have conducted the SSMP audits internally. Following a significant spill that occurred in late 2021 due to a Sanitation Districts’ sewer collapse during a significant rain event, an independent external audit was conducted that included a comprehensive review of the Sanitation Districts’ sewer system management practices. The recommendation was to use an external consultant for future SSMP audits. The goal of the audit is to evaluate the effectiveness of the SSMP and to evaluate compliance with SSMP requirements in the WDRs, including identification of any deficiencies in the SSMP and steps to correct them. A detailed schedule and list of required audit contents is denoted in section 10 of this SSMP.

In September 2021, to improve management of shared assets, the Sanitation Districts’ Joint Outfall Districts approved a new Joint Outfall Agreement to re-classify all wastewater collection facilities currently owned by certain individual Joint Outfall Districts, as Joint Outfall System assets. Under this agreement, effective July 1, 2022, 14 of 17 Joint Outfall Districts’ that owned and operated over one mile of sewer and were registered in the State Water Resources Control Board California Integrated Water Quality System (CIWQS) per the WDRs, were consolidated into the Los Angeles County Sanitation Districts’ Joint Outfall System collection system. A summary of the current Sanitation Districts registered under the WDRs is listed in the table below.

District No.	SSMP Recertification Due Date	1 st SSMP Audit Due Date*	2 nd SSMP Audit Due Date*	Next SSMP Recertification Date
JOS	5/2/2025	5/2/2027	5/2/2030	5/2/2031
4	8/2/2025	8/2/2027	8/2/2030	8/2/2031
14	5/2/2025	5/2/2027	5/2/2030	5/2/2031
20	5/2/2025	5/2/2027	5/2/2030	5/2/2031
29	8/2/2025	8/2/2027	8/2/2030	8/2/2031
NR	8/2/2026	8/2/2028	8/2/2031	8/2/2032
SCV	5/2/2025	5/2/2027	5/2/2030	5/2/2031

*Audit reports are due six months after the audit due date.

1.4 Sewer System Asset Overview

The Los Angeles County Sanitation Districts (Sanitation Districts or Districts or LACSD) are a confederation of 24 independent special districts that serve the wastewater and solid waste management needs of approximately 5.5 million people in Los Angeles County (LA County). The Sanitation Districts' service area covers approximately 850 square miles and encompasses 78 cities and unincorporated territory within LA County. Within the Sanitation Districts' service area, there are approximately 9,500 miles of sewers that are owned and operated by the Cities and County that are tributary to the Sanitation Districts' wastewater collection system. The Districts' service area is comprised of an estimated 94% Residential, 4% Commercial and 2% Industrial service connections. The Sanitation Districts own, operate, and maintain the larger regional sewer system within the service area. The cities or Los Angeles County Department of Public Works (Consolidated Sewer Maintenance District) own and/or operate the smaller local collector sewers. Homeowners and businesses are responsible for maintaining their drainage plumbing and sewer laterals. The Sanitation Districts have several permitted facilities that discharge stormwater into the sewer system. These facilities either store stormwater and release it after the rains have ended or are only allowed to discharge stormwater when sewer levels can accommodate the added flow.

The Sanitation Districts' pipes range from 8 to 144 inches in diameter; and convey approximately 400 million gallons per day of wastewater to 11 treatment plants. LACSD utilizes an up-to-date geographic information system (GIS) based sewer atlas map that depicts the location of gravity sewer lines and manholes, pumping facilities, and force main pipelines. The Sanitation Districts also utilize a computerized maintenance management system for all maintenance tasks (currently Oracle Work and Asset Management, in transition to Maximo) for the collection system including pump stations. Included in the Sanitation Districts' wastewater collection system are 49 active pumping plants located throughout the County. The Sanitation Districts' service area includes sewer systems located within the Los Angeles County Basin, the Santa Clarita Valley, and the Antelope Valley.

The Sanitation Districts collaborates directly with Cities, Counties, and other public agencies when sewer system assets cross service boundaries. This collaboration is formalized through agreements that outline the responsibilities for operations and maintenance.

2 Organization

Chapter 2 of this SSMP addresses the requirements included in Attachment D-2 of the Order. The requirements state:

Organization: *The SSMP must identify:*

- (a) The name of the Legally Responsible Official as required in Section 5.1 of the Order;*
- (b) The position titles, email addresses, and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific SSMP elements;*
- (c) Organizational lines of authority; and*
- (d) The chain of communication for reporting spills from receipt of a complaint or other information, including the person responsible for reporting spills to the State and Regional Water Board and other agencies if applicable (for example, Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).*

2.1 Description of Organization

The Los Angeles Sanitation Districts' (LACSD) wastewater collection system is maintained out of four centralized maintenance facilities described below. [Attachment 2.1](#) shows these facilities and their maintenance coverage areas.

- Compton Field Office (City of Compton): Responsible for maintaining the Southern Service Area bounded by the I-5 Freeway to the north, by the City of Los Angeles to the northwest, by the I-110 Freeway to the west, by the Pacific Ocean to the south, and Orange County to the east. This facility is assigned to the Wastewater Collection Systems Section.
- Carson Sewer Maintenance Yard (City of Carson): Responsible for maintaining the Southern Service Area bounded by the City of Los Angeles to the north, by the Pacific Ocean to the west and south, and the I-110 Freeway to the east. This facility is assigned to the Wastewater Collection Systems Section.
- San Gabriel Valley Field Office (City of West Covina): Responsible for maintaining the Northern Service Area bounded by the San Gabriel Mountains to the north, by the Cities of Glendale and Los Angeles to the west, by the I-5 Freeway to the south, and by San Bernardino County to the east. This facility is assigned to the Wastewater Collection Systems Section.
- Palmdale Water Reclamation Plant (City of Palmdale): Responsible for maintaining the Desert Service Area bounded by the Santa Clarita and Antelope Valleys. This facility is assigned to the Water Reclamation Plants Section.

The number of active operation and maintenance staff assigned to the Sanitation Districts' sewer collection system is updated annually to the California Integrated Water Quality System (CIWQS). CIWQS is a SWRCB computer system used to track information about environmental interests including the electronic reporting requirements of the WDRs.

Of the 24 independent special districts, 20 own and operate over one mile of sewer and have been registered in CIWQS per the WDRs. Seventeen of the 24 independent special districts have joined together to share a regional, interconnected sewerage system called the Joint Outfall System, which includes sewers that cross multiple districts. The Joint Outfall System owns and operates over one mile of sewer and is registered in CIWQS per the WDRs. On July 1, 2022, fourteen Sanitation Districts' enrollees were consolidated into the

Joint Outfall Collection System (WDID No. 4SSO11388). These 14 enrollees were previously owned by the individual Joint Outfall Districts but have now been reclassified as Joint Outfall System assets. The table below identifies the 14 Joint Outfall District Collection Systems and their WDID numbers, as well as the remaining six LACSD Collection Systems that will retain their separate WDID numbers, for a total of seven current LACSD sanitary sewer collection systems.

LACSD Sanitary Sewer Collection Systems and Consolidation

SANITARY SEWER COLLECTION SYSTEM	WDID NO.
County Sanitation District Joint Outfall CS	4SSO11388
Collection Systems Consolidated into County Sanitation District Joint Outfall CS¹	
County Sanitation District No. 1 CS	4SSO11386
County Sanitation District No. 2 CS	4SSO11387
County Sanitation District No. 3 CS	4SSO11389
County Sanitation District No. 5 CS	4SSO11391
County Sanitation District No. 8 CS	4SSO11392
County Sanitation District No. 15 CS	4SSO11394
County Sanitation District No. 16 CS	4SSO11395
County Sanitation District No. 17 CS	4SSO11396
County Sanitation District No. 18 CS	4SSO11397
County Sanitation District No. 19 CS	4SSO11398
County Sanitation District No. 21 CS	4SSO11400
County Sanitation District No. 22 CS	4SSO11401
County Sanitation District No. 28 CS	4SSO11402
South Bay Cities Sanitation District CS	4SSO11404
Collection Systems to Remain Separate	
County Sanitation District No. 4 CS	4SSO11390
County Sanitation District No. 14 CS	6SSO11393
County Sanitation District No. 20 CS	6SSO11399
County Sanitation District No. 29 CS	4SSO11403
Santa Clarita Valley Sanitation District of Los Angeles County CS	4SSO11405
Newhall Ranch CS	4SSO18115

¹All WDID Nos. for these collection systems have been terminated and consolidated under WDID No. 4SSO11388.

2.2 Authorized Representative

As described in Section 5.1 of the Order, all reports required by the Order and other submittals required by the State or Regional Water Board shall be signed and certified by a person designated as either a principal executive officer or ranking elected official, or by a duly authorized representative of that person. An individual is a duly authorized representative only if (a) the authorization is made in writing by the person designated as either a principal executive officer or ranking elected official; and (b) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity.

The Chief Engineer and General Manager of the Sanitation Districts is responsible for signing and certifying all reports required by the Order, as well as other submittals required by the State or Regional Water Board. As indicated in [Attachment 2.2](#), the Chief Engineer and General Manager has authorized any individual occupying the positions of Supervising Engineer, Senior Environmental Scientist, Division Engineer,

Manager, Assistant Department Head, or Department Head in the Technical Services, Wastewater Management, Solid Waste Management, or Facilities Planning Departments, as duly authorized representatives for any submittal to the State Water Board or Regional Water Boards related to Sanitation Districts' facilities. For purposes of electronic reporting of spills, an electronic signature and accompanying certification, as provided by CIWQS, the electronic reporting system developed by SWRCB, meet this certification requirement.

2.3 Organizational Charts and Contact Information

An organizational chart for the Sanitation Districts is included as [Attachment 2.3](#). The Wastewater Collection Systems Section and Water Reclamation Plants Section of the Wastewater Management Department are responsible for implementing the measures included in this SSMP. Organization tables for the Wastewater Collection Systems and the Water Reclamations Plants Sections, including names, position titles, and contact information, are included as [Attachment 2.4](#).

The Engineering Department is responsible for maintaining the measures included in Chapter 5, Design and Performance Provisions. An organization table for the Office Engineering Department, which includes names, position titles, and contact information, is included as [Attachment 2.5](#).

The Industrial Waste Section of the Wastewater Management Department is responsible for implementing the measures included in Chapter 7, Fats, Oils, and Grease (FOG) Control Program. An organization table for the Industrial Waste Section, which includes names, position titles, and contact information, is included as [Attachment 2.6](#).

The Reuse and Compliance Section of the Technical Services Department is responsible for maintaining measures included in Chapter 9, Monitoring, Measurements, and Program Modification, and Chapter 10, SSMP Program Audits. An organization table for the Reuse and Compliance Section, which includes names, position titles, and contact information, is included as [Attachment 2.7](#).

2.4 Chain of Communication for Spill Reporting

The Sanitation Districts have a regulatory requirement to immediately report spills to the Los Angeles County Department of Public Health (Public Health). The Long Beach Main Central Alarm Center (CAC), which is staffed 24 hours a day, has been designated by the Sanitation Districts to receive spill reports and relay the information to Public Health. Once any Sanitation Districts' employee observes or receives a complaint or information regarding a potential spill event, that employee immediately notifies the CAC, as outlined in [Attachment 2.8](#). Any Sanitation Districts' employee who observes a sewage spill event or receives a tip from the public and cannot transfer the call or information to a live person at the CAC must document the location of the spill, the reporting party's name and phone number (if possible), and time the call was received. This information shall immediately be relayed to the CAC at (562) 437-6520 or (562) 437-1881.

The CAC phone number is listed as the emergency contact number on information disseminated to the public (e.g. brochures) and on the Sanitation Districts' website, thus, the CAC also receives emergency and complaint phone calls directly from the public and other agencies. The CAC personnel then follow a Spill Notify Flow Chart (see [Attachment 2.9](#)) to ensure all necessary agencies are contacted and informed if the spill is confirmed as an LACSD spill, including regulatory agencies (e.g., public health agencies, the Regional Water Quality Control Board, Cal OES, etc.) and interested parties (e.g., Heal the Bay). The Flow Chart also includes emergency contact information for Sanitation Districts' personnel at the Compton/San Gabriel Valley Field Offices and the Santa Clarita/Antelope Valley Water Reclamation Plants.

In response to a spill event, the Wastewater Collection Systems Section and Water Reclamation Plants Section immediately implement a Spill Emergency Response Plan (Response Plan), which is further discussed in Section 6.2.

3 Legal Authority

Chapter 3 of this SSMP addresses the requirements included in Attachment D-3 of the Order. The requirements state:

Legal Authority: *The Plan must include copies or an electronic link to the Enrollee's current sewer system use ordinances, service agreements, and/or other legally binding procedures to demonstrate the Enrollee possesses the necessary legal authority to:*

- (a) Prevent illicit discharges into its sanitary sewer system (examples may include infiltration/inflow (I/I), unauthorized stormwater; chemical dumping; unauthorized debris; roots; fats, oils, and grease; and trash, including rags and other debris that may cause blockages;*
- (b) Collaborate with storm sewer agencies to coordinate emergency spill responses, ensure access to storm sewer systems during spill events, and prevent unintentional cross connections of sanitary sewer infrastructure to storm sewer infrastructure;*
- (c) Require that sewer system components and connections be properly designed and constructed;*
- (d) Ensure access for maintenance, inspection, and/or repairs for portions of the service lateral owned and/or operated by the Enrollee;*
- (e) Enforce any violation of its sewer ordinances, service agreements, or other legally binding procedures; and*
- (f) Obtain easement accessibility agreements for locations requiring sewer system operations and maintenance, as applicable.*

3.1 Legal Authority

The Sanitation Districts' legal authority to operate, maintain, and manage its sewer system is derived from the County Sanitation District Act, California Health and Safety Code, §§4700 through 4859 and exercises authority conferred by law that includes but is not limited to Health and Safety Code, §§5400 through 5474, and California Government Code, §§54725 through 54740. The Sanitation Districts have organized much of their authority into the *County Sanitation Districts of Los Angeles County Wastewater Ordinance (Wastewater Ordinance)* available at www.lacsd.org. The most recently amended version of this document was completed on July 1, 1998. Table 3.1 provides the source of the Sanitation Districts' authority for each of the items required in Section D-3 of the Order.

As necessary, the Sanitation Districts enter into service agreements, maintain easements, and use rights-of-way with municipalities or public agencies to access, operate, and maintain its sewer system for both routine maintenance and emergency spill response. The Sanitation Districts also have a variety of other ordinances related to service charges, connection fees, and surcharge rates to fund sewer design and construction. More information on the ordinances is available at www.lacsd.org.

Table 3.1 – Sanitation Districts’ Sewerage System Legal Authority

SSMP Required Functions	Sanitation Districts’ Legal Authority
Prevent illicit discharges into its sanitary sewer system (examples may include I/I, storm water, chemical dumping, unauthorized debris and cut roots, etc.).	Wastewater Ordinance §§305 and 406
Require that sewers and connections be properly designed and constructed.	Wastewater Ordinance §§302, 303, and 308; California Health and Safety Code §4762.1
Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Sanitation Districts.	Wastewater Ordinance §§301, 302, 303, and 308; California Health and Safety Code §4762.1
Limit the discharge of fats, oils, and grease and other debris that may cause blockages.	Wastewater Ordinance §406
Enforce any violation of its sewer ordinances.	California Government Codes §§54739 and 54740; California Health and Safety Code §§4762.1 and 4766

4 Operation and Maintenance Program

Chapter 4 of this SSMP addresses the requirements included in Attachment D-4 of the Order. The requirements state:

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, and procedures for maintaining and providing State and Regional Water board Staff access to the map(s). The map(s) must show all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable storm water conveyance facilities within the sewer system service area boundaries;

(b) Describe a scheduling system and a data collection system for preventive operation and maintenance activities conducted by staff and contractors. The scheduling system must include: inspection and maintenance activities, high-frequency inspections and maintenance of known problem areas, (including areas with tree root problems), and regular visual and closed-circuit television (CCTV) inspections of manholes and sewer pipes. The data collection system must document data from system inspection and maintenance activities, including system areas/components prone to root-intrusion potentially resulting in system backup or failure.

(c) Provide in-house and external training on a regular basis for sanitary sewer system operations and maintenance staff and contractors. The training must cover: the requirements of the General Order, the Enrollee's Spill Emergency Response Plan and practice drills, skilled estimation of spill volume for field operators, and electronic CIWQS reporting procedures for staff submitting data; and

(d) Provide sewer system equipment and replacement part inventories, including identification of critical replacement and spare parts.

4.1 Updated Map of Sanitary Sewer System

The Sanitation Districts utilize Geographic Information System (GIS) and hard copy maps of its wastewater collection system for daily operations. These mapping systems are described below.

- **Geographic Information System (GIS):** The Sewerage Facilities GIS application was developed in-house by the Sanitation Districts and provides a map-driven geographical interface to sewerage data. The District has several maps and GIS services available, including service area and watershed maps, as well as GIS maps of sanitation district facilities, sewer system and active construction projects. The GIS is a powerful tool used daily by Sanitation Districts' staff. Besides Sanitation Districts' sewers, GIS provides staff access to a variety of location specific data, including non-Sanitation Districts sewers from other local agencies, storm drain alignments, topographic maps, aerial photos, industrial waste connections, and locations of historical spills. The GIS is kept up to date by a dedicated GIS Group that maintains data licenses and works with other Sanitation Districts' Departments to modify, add, and delete data as it changes. These GIS maps are available in an interactive application and printable field map format via the Sewerage Facilities application.
- **ArcGIS Field Maps:** Sanitation Districts' staff use the ArcGIS Field Maps application to access Sewerage Facilities GIS data in real-time, directly from mobile devices in the field.

- Sewer Maintenance Map Books: These maps show the collection system facilities and are created from Sanitation Districts' GIS information. The Sewer Maintenance Map Books are organized by individual Sanitation District and are used to locate collection system facilities when a computer is not available. The map books detail the Sanitation Districts' sewer alignments, including siphon locations and manholes, in relation to a street base layer. The map books are updated periodically by Sanitation Districts' staff. A comprehensive update is currently underway and is expected to be completed in 2026.

4.2 Preventive Operation and Maintenance Activities

4.2.1 Work and Asset Management System

The Sanitation Districts currently utilize a Work and Asset Management System (WAM) developed by Oracle to schedule and document maintenance and repair of its wastewater collection system. WAM is a Work Order System that can selectively schedule Preventative Maintenance (PM) activities or reactively schedule Work Orders (WO). The PM schedule identifies all routine sewer maintenance tasks such as line cleaning, CCTV inspection, and pumping plant maintenance. For each PM task, the frequency, crew, number of workers, expected hours, and month of the year the task is scheduled is provided. On the first of each month, a report is generated and distributed to the crews showing the PM tasks due that month. This allows the Sanitation Districts' Supervisor and crew leader to prioritize the tasks to be done for that month. This information is updated in WAM to capture PM history for each asset.

Each WO identifies and tracks work, other than scheduled PM tasks, that is required to maintain the collection system. Work can be written by an individual to identify repairs or other items requiring labor beyond what is performed under a PM task. Each WO describes the problem and is routed for supervisor approval and crew assignment. After the work is completed, WAM itemizes the labor and material costs for account tracking.

On July 1, 2025, the Sanitation Districts plan to replace the WAM system with the Maximo Application Suite (Maximo), an industry-leading product that will improve asset management and maintenance management processes.

4.2.2 Preventive Operation and Maintenance Activities

The Sanitation Districts conduct a number of operations and maintenance activities to help achieve its SSMP goals. A list of these programs is as follows:

4.2.2.1 Collection System Preventive Operations and Maintenance Activities

- **Line Cleaning**: The Sanitation Districts use a variety of devices to line clean such as winch bags and combination hydraulic/vacuum units. Cleaning frequencies are established based on several factors including sewer diameter, flow rates, maintenance history (presence of roots, grease, debris, etc.), CCTV inspection data and prior operational issues. Large diameter sewers are cleaned on a case-by-case basis. Cleaning frequencies are documented in the WAM System and are adjusted when new problems are discovered. Each line cleaning job, or set-up, is documented as it is accomplished, and the schedule is modified as needed. Job notes, such as traffic concerns or special equipment requirements, are also documented in WAM. Problem cleaning areas such as root intrusion or grease accumulation are scheduled and performed more frequently to ensure unobstructed sewer flow and prevent spills.

- Line Checking: Sewer reaches that are not cleaned or inspected during routine maintenance activities are visually checked for anomalies at least once every two years. These topside inspections check for structural condition of manholes, and normal wastewater flows and/or anomalies.
- Siphon Cleaning: Siphon cleaning frequencies are established based on several factors including sewer diameter, flow rates, maintenance history, and prior operational issues. Each cleaning job, or set-up, is evaluated as it is accomplished, and the schedule is modified as needed. Bag cleaning and combination hydraulic/vacuum units are the two main methods used.
- Manhole Cover Adjustment: Manhole cover adjustments are performed on an as needed basis to replace broken or worn manhole frames and covers to protect public safety.

4.2.2.2 Pumping Plant Preventive Operations and Maintenance Activities

- Pumping Plant Operations: The Sanitation Districts operate and maintain 49 pumping plants throughout its wastewater collection system. Pumping Plant Operators (PPOs) are responsible for the inspection and operation of the Sanitation Districts' pumping plants. Stationary Mechanics and Electrical/Instrumentation (E/I) Technicians perform preventive maintenance and repairs.
- Pumping Plant Maintenance: All the Sanitation Districts' pumping plants are maintained in accordance with schedules maintained in WAM. WAM coordinates schedules and tracks all routine maintenance tasks. The Work Order module of WAM is used to identify and track repairs or other maintenance activities that require labor beyond what is performed under a PM task. PPOs, Stationary Mechanics, and E/I Technicians perform the pumping plant maintenance tasks.
- Pumping Plant Visits: All pumping plants operated by WCS are visited multiple times per week by PPOs, with most being visited every day. The frequency of visits is generally determined by the location and complexity of the pumping plant. A.K. Warren Facility staff visits the Lomita Pumping Plant and staff from the WRP Section's Valencia Water Reclamation Plant visits the Castaic Pumping Plant.
- As part of their routine visits, the PPOs follow standard inspection procedures that include inspection of major assets including pumps, piping, valves, electrical equipment, and force mains. Normal operation of the plant is confirmed and any deficiencies that would require follow up work are noted. Any necessary follow up work is entered and scheduled in WAM.
- An emergency manual has been developed for each pumping plant. The emergency manual documents procedures that would be followed upon the onset of an emergency such as pump or force main failure. A copy of the emergency manual is posted at each pumping plant and distributed to various personnel that could be involved with emergency response.
- All pumping plants can be remotely monitored and operated through a Supervisory Control and Data Acquisition (SCADA) System. The SCADA system can be accessed at the Long Beach Main Central Alarm Center (CAC), the Compton Field Office, and the Joint Administration Building (located in Whittier). The CAC is continuously staffed by PPOs who have primary responsibility to monitor the performance of the plants in real time through the SCADA system and, as necessary, remotely operate the plants to respond to alarms or abnormal conditions.
- Pumping plants without a gravity bypass have back up emergency generators that automatically start up in response to a power failure and are capable of returning the

pumping plant to operation. Standard operation and maintenance procedures include exercising the generators, typically on a monthly basis, to assess proper function.

- The pumping plants are generally designed¹ for uninterruptible operation through features such as redundant pumps, redundant force mains, and backup generators. Nevertheless, the Sanitation Districts maintain additional back up pumps, generators, and piping at their centralized maintenance facilities that could be dispatched to a pumping plant to assist with emergency response.

4.2.2.3 Odor and Corrosion Control

- **Carbon Canisters:** Fiberglass canisters filled with activated carbon are installed just below the manhole cover to control the emission of odorous gas in sensitive areas. As venting sewer headspace air passes passively through the activated carbon, the odorous constituents of the air are removed before it is discharged to the atmosphere.
- **Mobile Odor Scrubbers:** The Sanitation Districts use trailer-mounted mobile odor scrubbers to provide odor control at sewer rehabilitation work sites. These units are designed to treat 2,500 – 3,000 cubic feet per minute of sewer headspace air. Each mobile odor scrubber consists of an engine-driven low-velocity blower, carbon filter tank, appurtenant piping, gages, and electrical equipment.
- **Stationary Carbon Scrubbers:** The Sanitation Districts maintain five stationary odor control stations. The purpose of the odor control stations is to maintain a negative pressure on the sewer line or pumping plant wet well and to draw sewer headspace air through activated carbon filters before release to the atmosphere. The stations generally consist of motor-driven blowers, carbon filter chambers, electrical switchboards, and associated piping.
- **Ferrous Chloride Treatment:** The Sanitation Districts operate five ferrous chloride addition stations. Ferrous chloride is added continuously to regional sewers to control sulfides in the wastewater and thus control hydrogen sulfide that causes sewer odors and corrosion. Ferrous chloride addition stations generally consist of chemical storage tanks, chemical metering valves or pumps, electrical control panels, and associated piping.
- **Caustic Shock Dosing Treatment:** To supplement its ferrous chloride treatment, the Sanitation Districts use sodium hydroxide (caustic) shock dosing treatments. Caustic shock dosing controls sulfide by raising sewage pH to inactivate bacteria that reduce sulfate to sulfide and cause odors and corrosion.
- **Crown Spray Program:** The Crown Spray Process is used to control sulfide corrosion in concrete sewers. The process involves spraying the non-submerged surfaces of the sewer with high pH magnesium hydroxide slurry. The high pH slurry neutralizes the sulfuric acid formed on the sewer crown and inactivates sulfur oxidizing bacteria.

4.2.2.4 Collection System Monitoring

- **Closed-Circuit Television (CCTV) Inspection:** The Sanitation Districts perform CCTV inspection of all in-service, non-submerged gravity sewers and manholes to assess the physical condition of the sewer pipe and appurtenances and to support maintenance of

¹ The design features of each pumping plant are assessed on a case-by-case basis. For example, some plants do not require emergency generators because they can gravity bypass flow if the operation of the pumping plant is interrupted.

the collection system. CCTV inspections are dependent on the condition rating of the sewer structure and can range anywhere between one to 15 years in frequency. Sewers and manholes are given a condition rating between one and four, with one representing those structures in immediate need of repair, and four representing a good condition assessment with no visible corrosion, cracks or defects. See Section 8.2 for more information on condition assessments.

- Physical Inspection: Collection system structures, concrete pipes, and manholes susceptible to corrosion are inspected on an as-needed basis to determine their physical condition. During physical inspections, observations and measurements of a structure's condition are recorded.
- Flow Monitoring: The Sanitation Districts measure dry weather flow at representative manholes in each trunk sewer on a three to five-year frequency depending on the remaining capacity, spill experience, and population growth within the tributary area. Non-regional sewers that serve small drainage areas, or that are not subject to regional flow increases, are monitored as needed.

4.3 Training

The Sanitation Districts provide technical and safety training on a regular basis for its collection system operations and maintenance staff. Formalized components of this training program include monthly technical and safety meetings, annual WDR and Spill Emergency Response Plan training, and training manuals for the various aspects of operations and maintenance activities. Informal components include “hands-on” training and tailgate meetings.

Safety training and supporting resources are centralized and managed by the Environmental Health and Safety (EH&S) Section. The EH&S Section maintains a Training Matrix that defines required safety training programs and training frequencies for each employment classification and is responsible for updating the Training Matrix on a monthly basis.

The Sanitation Districts require contractors to be appropriately trained. Prior to performing any work within Sanitation Districts' facilities, a contractor must submit copies of an Injury and Illness Prevention Program, as well as any other specialized safety programs (e.g., Confined Space Entry, etc.), for Sanitation Districts' review and acceptance. The EH&S Section is responsible for reviewing the contractor's safety programs. Contractors involved in sewer repair, rehabilitation and replacement projects that involve flow bypass are also required to submit for review and approval a Flow Bypass Plan and an Emergency Spill Response Plan in accordance with the Sanitation Districts' Standard Specifications. These plans are enforced by Sanitation Districts' field staff administering the contract and require the contractor to have redundant pumping systems that are continuously monitored to prevent spills.

Appropriate staff are trained annually on the *Sanitary Sewer Spill Volume Estimation Procedures* using the Sanitation Districts' *Spill Volume & Computation Form Package* (see [Attachment 6.2](#)). Formalized training covers various estimation methods based on visual observations and flow rates.

All staff who submit spill reports assume the role of “Data Submitter” and are trained on CIWQS reporting procedures. In addition, staff are provided with annual training on CIWQS spill reporting. Training includes spill category determination and completion of draft and certified spill report forms.

4.4 Equipment Inventory

4.5.1 Vehicles and Equipment Inventory

Each maintenance facility is assigned vehicles and equipment to perform day-to-day operations and maintenance activities as well as equipment for emergencies. Equipment inventories are maintained

in the Sanitation Districts' WAM System. Emergency response equipment lists are also kept at each maintenance facility and are updated periodically as needed.

4.5.2 Replacement Parts Inventory

Parts and materials for sewer maintenance are housed at each maintenance facility and in the Sanitation Districts' stock rooms located throughout its service area. Major pumping plant parts such as emergency bypass connection fittings are stored at each plant. Stock of regularly used parts and supplies for equipment and vehicles is maintained in the WAM System. A minimum and re-stock quantity for each spare part and material is defined in WAM. Once the inventory item reaches its minimum quantity, the stockroom or warehouse coordinator replenishes that item to its re-stock quantity. This procedure ensures all critical parts/equipment are available when needed.

5 Design and Performance Provisions

Chapter 5 of this SSMP addresses the requirements included in Attachment D-5 of the Order. The requirements state:

Design and Performance Provisions:

(a) Updated design criteria, and construction standards and specifications, for the construction, installation, repair, and rehabilitation of existing and proposed system infrastructure components, including but not limited to pipelines, pump stations, and other system appurtenances. If existing design criteria and construction standards are deficient to address the necessary component-specific hydraulic capacity as specified in section 8 (System Evaluation, Capacity Assurance and Capital Improvements) of Attachment D or the General Order, the procedures must include component-specific evaluation of the design criteria.

(b) Procedures and standards for inspecting and testing the newly constructed and newly installed, repaired and rehabilitated sewer system pipelines pumps, and other equipment and appurtenances.

5.1 Design Criteria and Construction Standards and Specifications

The Sanitation Districts have established standards and guidelines to ensure that its wastewater collection system facilities are properly designed and constructed. These facilities include, but are not limited to, gravity sewers, force mains, pumping plants, and other related infrastructure. In addition, the Sanitation Districts have developed standards and guidelines to govern the rehabilitation and repair of existing wastewater collection system facilities.

Design guidelines for the construction and rehabilitation of gravity sewers, force mains, and other appurtenances include, but are not limited to, environmental record searches, alignment selection, hydraulic analysis, capacity, pipe design, survey, substructure verification, and soil testing. Specific criteria have been established for zoning, friction coefficients, minimum and maximum slopes and velocities, manhole spacing, and materials.

Similarly, the Sanitation Districts has developed design guidelines for the construction and upgrade of pumping plants. Most of the pumping plants are considered “uninterruptible” facilities, meaning that continuous operation of the facilities is a critical part of the Sanitation District’s sewerage system. As a result, the design criteria for the pumping plants have been developed to allow for adequate redundancy of key features such as pumps, power supply, and force mains to ensure that continuous operation is maintained. The design guidelines also include the installation of telemetry infrastructure that allows for real time, remote monitoring and control of the pumping plants from a centralized location (typically, the Long Beach Main Central Alarm Center). Among other standards, the design criteria for selecting pumps conform to the standards of the Hydraulic Institute (HI) and the American National Standards Institute (ANSI). In addition, the design guidelines incorporate operational considerations to allow for safe, efficient operation and maintenance of the pumping plants. For example, easy opening vault hatches, stable work platforms, and adequate lighting are included in the design of the pumping plants to allow for safe worker access to critical infrastructure for routine and non-routine maintenance activities. Lastly, the design guidelines include upgrades to enhance security measures such as security cameras, adequate lighting to the interior and exterior of pumping plants, fencing around pumping plants, and personnel emergency pushbuttons.

For each design project, the Sanitation Districts develop contract documents that are specifically tailored for that facility. For sewer projects, the Sanitation Districts rely heavily on the latest *Standard Specifications for Public Works Construction (Standard Specifications)* and the Sanitation Districts’ *Amendments to the Standard Specifications for Public Works Construction (Amendments)*. Drawing details of commonly used items in Sanitation Districts’ projects are contained in its *Standard Drawings for Construction*. A copy of the

Sanitation Districts' latest *Amendments and Standard Drawings for Construction* is available at www.lacsd.org. In addition, facility design and construction requirements incorporate a number of industry accepted standards including, but not limited to:

- American Society of Mechanical Engineers (ASME) Standards;
- American National Standards Institute (ANSI) Standards;
- American Society for Testing and Material (ASTM) Standards;
- American Water Works Association (AWWA) Standards;
- Hydraulic Institute Standards (HIS);
- American Concrete Institute (ACI) Standards;
- National Electric Code (NEC);
- Los Angeles County Building, Fire and Mechanical Codes;
- State of California Industrial Safety Orders; and
- All applicable State and Federal regulations.

If existing design criteria and construction standards are deficient to address the necessary component-specific hydraulic capacity requirements as specified in Section 8 (Sewer System Evaluation and Capacity Assurance Plan (SSECAP) and Capital Improvements Plan (CIP)), the procedures must include component-specific evaluation of the design criteria. To further assure that wastewater collection facilities are properly designed and constructed, design of all project drawings, by both in-house and outside consultants, follow an established review procedure.

Licensed engineers supervise and/or perform all facility design. Project drawings are checked and reviewed by licensed Sanitation Districts' engineers prior to approval for construction. All contract drawings are stamped and signed by licensed engineers.

Recordkeeping procedures have been established to track all incoming and outgoing correspondence, shop drawings submittals, extra work and change orders. Once a project has been awarded, the Sanitation Districts adhere to a rigorous shop drawing submittal and approval process for all equipment and material required by the Special Provisions. Factory testing of critical mechanical equipment is also required to confirm specified performance criteria are met or exceeded.

5.2 Procedures and Standards for Inspections and Testing

The Sanitation Districts have established procedures and standards for the inspection of new construction, as well as facility repair and rehabilitation projects. These projects include, but are not limited to, construction of new sewers, force mains and pumping plants; repair and rehabilitation of existing sewers; upgrade of existing pumping plants; and appurtenant work associated with wastewater conveyance and treatment facilities.

For each new construction or repair project, the Sanitation Districts enforce the requirements of its Contract Drawings and Special Provisions, as well as any specifications and standards referenced therein. These documents contain specific requirements for the quality of materials, acceptable construction methods, inspection and testing procedures, and criteria for acceptance of the project. Full-time inspection of a project typically begins at the time materials are being fabricated. Sanitation Districts' engineering and inspection staff, or an independent inspection/testing laboratory approved by the Sanitation Districts, is present at the manufacturing facility to ensure that materials being supplied comply with the contract requirements. Inspection staff are present at the construction site to oversee the actual construction. Prior to final acceptance of a project, the interior of the completed facilities is inspected for deficiencies and functional testing is performed to verify operational integrity. Any noted deficiencies are corrected, and then reviewed and approved by licensed engineers before the Sanitation Districts accept completion of the project and allow activation of the facility. The Sanitation Districts maintain "As Built" drawings of all completed projects.

6 Spill Emergency Response Plan

Chapter 6 of this SSMP addresses the requirements included in Attachment D-6 of the Order. The requirements state:

Spill Emergency Response Plan: *Each Enrollee shall develop and implement a Spill Emergency Response Plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:*

- (a) Notify primary responders, appropriate local officials, and appropriate regulatory agencies of a spill in a timely manner;*
- (b) Notify other potentially affected entities (for example, health agencies, water suppliers, etc.) of spills that potentially affect public health or reach waters of the State;*
- (c) Comply with the notification, monitoring and reporting requirements of this General Order, State law and regulations, and applicable Regional Water Board Orders;*
- (d) Ensure that appropriate staff and contractors implement the Spill Emergency Response Plan and are appropriately trained;*
- (e) Address emergency system operations, traffic control and other necessary response activities;*
- (f) Contain a spill and prevent/minimize discharge to waters of the State or any drainage conveyance system;*
- (g) Minimize and remediate public health impacts and adverse impacts on beneficial uses of waters of the State;*
- (h) Remove sewage from the drainage conveyance system;*
- (i) Clean the spill area and drainage conveyance system in a manner that does not inadvertently impact beneficial uses in the receiving waters;*
- (j) Implement technologies, practices, equipment, and interagency coordination to expedite spill containment and recovery;*
- (k) Implement pre-planned coordination and collaboration with storm drain agencies and other utility agencies/departments prior, during, and after a spill event;*
- (l) Conduct post-spill assessments of spill response activities;*
- (m) Document and report spill events as required in the General Order; and*
- (n) Annually, review and assess effectiveness of the Spill Emergency Response Plan, and update the Plan as needed.*

6.1 Spill Emergency Response Goals

Upon receiving a report of a suspected spill, Sanitation Districts' staff responds as follows:

- Immediate notification is made to the Sanitation Districts' Long Beach Main Central Alarm Center (CAC).
- A determination is made whether the spill could involve Sanitation Districts using sewerage facility maps and other resources. If it is possible that Sanitation Districts facilities are involved, staff immediately mobilizes primary responders and notifies regulatory agencies.
- If it is not possible that Sanitation Districts' facilities are involved, staff determines the probable responsible party and refers the matter to them for response. If Sanitation Districts' facilities are possibly involved, primary responders are mobilized to the scene within one-hour

of notification of a spill to assess the situation. If the primary responders confirm that a spill involving Sanitation Districts' facilities is in progress, all necessary equipment, vehicles, and crews are dispatched to the scene and/or recalled to the field offices to assist with spill relief, containment, and clean-up activities.

- If Districts' staff arrive on the scene and determine the spill was not caused by a problem within the Sanitation Districts' system, the responsible agency and regulatory agencies are promptly notified. Districts' staff will try to assist with the spill if they have the required equipment and it is safe to do so.

Once it has been determined that Sanitation Districts' facilities are involved in the spill, Sanitation Districts' goals regarding spill response are to:

- Prevent the spill from reaching the storm drain, if possible;
- Limit public access to the spill area to prevent public contact with wastewater and any areas contaminated by wastewater;
- Stop the spill as soon as possible;
- Contain the spill as close as practical to the spill location to prevent or minimize any environmental impact;
- Recover the spill and return it to the sewer system;
- Clean up the area contaminated by the spill;
- Gather and compile pertinent information pertaining to the spill, coincident with response efforts, and notify appropriate regulatory agencies of the spill and response status as soon as practical; and
- Conduct investigations to determine the probable cause of the spill, document the events during the spill and response activities, and identify and implement measures to prevent recurrence.

6.2 Spill Emergency Response Plan

The Sanitation Districts have established a standard procedure for reports of sewage spills that has been distributed to all Sanitation Districts' staff (see [Attachment 2.8](#)). Among other things, the procedure dictates that staff must immediately contact the Sanitation Districts' Long Beach Main Central Alarm Center (CAC) upon becoming aware of a potential sewage spill. Accordingly, the CAC is continuously staffed 24 hours per day and staff at the CAC are trained to: a) receive relevant information from the person reporting the possible spill (e.g., location, time of onset, estimate of flow, contact information for complainant); b) assess whether it is possible that Sanitation Districts' facilities are involved in the possible spill; c) dispatch Sanitation Districts' personnel to investigate or contact outside agencies if Sanitation Districts' facilities are not involved; and d) begin required notifications to regulatory agencies. These procedures are summarized in a *Notifications Flow Chart* (see [Attachment 2.9](#)) that is posted at the CAC and periodically updated. Once the Sanitation Districts receive a complaint or information regarding a spill event, the responsible section (Wastewater Collection Systems Section or Water Reclamation Plants Section) is immediately notified. If the event is confirmed to be a Sanitation Districts' spill, the responsible section immediately implements the *Spill Emergency Response Plan (Response Plan)*. The *Response Plan* provides goals and guidance for the response measures necessary to minimize impacts to public health and the environment in the event of a sanitary sewer spill. The *Response Plan* is included as [Attachment 6.1](#) and references and incorporates other documents including the *Notification and Reporting Procedures for Sewage Spills, Recycled Water Spills, and Noncompliant Conditions* and the *Procedure for Internal Notification and Sampling in Case of Sewage Spills*. These documents are continuously maintained and distributed to staff responsible for spill response activities.

The *Procedure for Internal Notification and Sampling in Case of Sewage Spills* specifies that authorized Sanitation Districts' personnel report spill events to the State and Regional Water Board and other agencies,

as applicable (e.g., County Health Officer, County Environmental Health Agency, State Office of Emergency Services, etc.). The *Sanitary Sewer Spill Volume Estimation Procedure* outlines the main methods the Sanitation Districts' personnel use to estimate the volume of a spill (see [Attachment 6.2](#)). This estimated volume is reported to the SWRCB through CIWQS.

In compliance with the Statewide Waste Discharge Requirements for Sanitary Sewer Systems and applicable NPDES permits, the Sanitation Districts has developed a Spill Water Quality Monitoring Program, which will be used to assess impacts from spills spilled to surface waters. The Water Quality Monitoring Program includes the following required elements:

1. Protocols for water quality monitoring;
2. Methods to account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, access restrictions, etc.);
3. A requirement that all water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory; and
4. Calibration standards for monitoring instruments and devices.

After becoming aware of a spill spilled to surface waters, the Sanitation Districts will conduct daily water quality sampling at representative locations for the following constituents: a) ammonia; b) total and fecal coliform; c) *Escherichia coli* (if fecal coliform tests positive); and d) enterococcus. The sampling results will be submitted to the State and Regional Water Quality Control Boards as part of the required spill Technical Report.

6.3 Training on Spill Emergency Response Plan

Training on standard procedures for response to sanitary sewer spills occurs at least once per year and has been integrated into the annual training schedule for the WCS Section and the WRP Section's Palmdale Water Reclamation Plant personnel. At this training, all staff that could be called on to respond to a sanitary sewer spill are reminded of equipment and materials available for containment/cleanup activities (e.g., sandbags, back up pumps, piping), preventing public contact with sewage through the use of traffic and crowd control, and regulatory requirements to contain and prevent discharge of sewage. Additionally, staff are reminded that they must immediately contact the Sanitation Districts' Long Beach Main Central Alarm Center (CAC) upon becoming aware of a potential sewage spill. The written procedures for spill response that are contained in the *Spill Emergency Response Plan* and associated documents are presented and discussed.

Personnel stationed at the CAC often receive the first report of a possible spill. As such, additional training for these personnel is conducted that focuses on: a) obtaining relevant information from the person reporting the spill (e.g., start time, location, amount of flow); b) determining if it is possible that Sanitation Districts' facilities could be involved; c) immediately disseminating information on possible spills to affected agencies and key Sanitation Districts' staff; and d) directing necessary resources to the site of the reported spill to assess the field conditions. The training also covers the standard phone and email scripts that have been developed to assist these personnel in making the initial notifications regarding a spill.

6.4 Construction Contracts

Construction activity involving Sanitation Districts' sewerage facilities can increase the risk of possible spills. These additional risks can arise from construction activity that impacts sewerage assets such as limiting the pumping capacity of a pumping plant, removing sewer assets from service, or requiring flow bypasses/diversions. As a result, the special provisions for construction projects that may impact sewerage infrastructure include means to minimize the risk of spills during construction. Typical requirements in the special provisions include:

- The contractor is required to submit all bypass and diversion plans for Sanitation Districts' review.

- A five-day clear weather forecast (i.e., no rain is forecast for five consecutive days) is required prior to starting many projects that limit the capacity of sewerage assets.
- The contractor is required to submit an Emergency Spill Response Plan (ESRP) for any construction-related bypass/diversion. Through the ESRP, the contractor certifies that they have proper equipment and trained personnel available to respond to spills resulting from the construction activities.
- The contractor is required to contact the CAC immediately upon becoming aware of a spill.

In addition, Sanitation Districts' personnel develop Containment and Recovery Plans (CRP) in advance of the start of critical construction projects. The CRP contains information relevant to spill response such as likely sewage flow path, optimum containment locations, and required spill response equipment. This CRP is distributed to staff so that response activities in the event of a spill can begin more expeditiously.

6.5 Notification for Spills

Upon receiving a report of a possible spill involving Sanitation Districts' facilities, personnel at the CAC immediately begin notifications to responsible agencies and key Sanitation Districts' staff. The first notification is typically an email that has the following general format and has "*Notification of a Potential Sewer Spill*" in the subject line:

This is (BLANK) with the Los Angeles County Sanitation Districts' Central Alarm Center.

The Sanitation Districts have received a report of a potential sewer spill at the intersection of (STREET) and (STREET) in the city of (CITY).

Sewerage system personnel will investigate.

If you need to reach this alarm center, please call (562)437-6520 or (562)437-1881

This email certifies notification of the potential discharge has been given by telephone or by this email to: The Los Angeles County Department of Public Health, California Emergency Management Agency, Los Angeles and Lahontan Regional Water Quality Control Boards, City of Long Beach Department of Health and Human Services, City of Vernon Health and Environmental Control, and Pasadena Public Health Department.

As noted in the body of the email, the distribution list includes: The Los Angeles County Department of Public Health, California Emergency Management Agency, Los Angeles and Lahontan Regional Water Quality Control Boards, City of Long Beach Department of Health and Human Services, City of Vernon Health and Environmental Control, and Pasadena Public Health Department. In addition to the email, the responsible section will make a follow-up phone call to the Los Angeles County Department of Public Health.

Once Sanitation Districts' personnel arrive on scene, they attempt to confirm the report of a spill and determine if Sanitation Districts' facilities are involved. If no spill is found or it does not involve Sanitation Districts' facilities, a follow up email is sent to the same distribution list indicating the circumstances. If the spill involves another entity's facilities, this entity is contacted so that they can begin response activities. If Sanitation Districts' facilities are involved, follow-up notifications are made to various agencies based upon the location of the spill and the severity of the event.

7 Sewer Pipe Blockage Control Program

Chapter 7 of this SSMP addresses the requirements included in Attachment D-7 of the Order. The requirements state:

Sewer Pipe Blockage Control Program: *Each Enrollee shall evaluate its service area to determine whether a sewer pipe blockage control program is needed. If an Enrollee determines that a sewer pipe blockage control program is not needed, the Enrollee must provide justification for why it is not needed.*

- (a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of pipe-blocking substances;*
- (b) A plan and schedule for the disposal of pipe-blocking substances 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 substances generated within a sanitary sewer system service area;*
- (c) The legal authority to prohibit discharges to the system and identify measures to prevent spills and blockages;*
- (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) Implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified above.*

7.1 Public Education and Outreach Program

The Sanitation Districts maintain a wastewater collection and conveyance system that receives wastewater flow from approximately 9,500 miles of tributary sewers that are owned and operated by local cities and Los Angeles County (County). The local cities and County are responsible for business licenses and regulations on food service establishments (FSEs). The Sanitation Districts work directly with these local agencies and encourage their development of fats, oils, and grease (FOG) programs and ordinances.

As part of the Sanitation Districts' ongoing public education, the Sanitation Districts produced a multi-language (English, Spanish, and Chinese) best management practices (BMPs) poster, in cooperation with the California Restaurant Association (CRA). A second version of the BMPs poster was produced in cooperation with the CRA, Los Angeles County Department of Health Services (DHS) and Los Angeles County Department of Public Works (LADPW) and includes information on stormwater and surface water issues. LADPW distributes the BMPs poster to all new and existing permitted FSEs within their jurisdiction. DHS also distributes the poster to all restaurants covered under its Stormwater Program.

Printed and electronic copies of the BMP poster are also distributed to cities and municipalities upon request.

The Sanitation Districts have developed a training program that is available to City and County sewerage system management and maintenance personnel. The training program specifically addresses the following topics:

- Basic elements needed in a local FOG control ordinance;
- How to inspect FSEs;
- BMPs to be used by restaurants;
- Sewer overflow reporting obligations;
- Proper cleaning procedures to be followed if grease deposits are detected in local sewers;
- Where to dispose of FOG and the availability of local rendering companies; and
- Review of grease trap and grease interceptor devices.

Additionally, the Sanitation Districts participated in a special California FOG (Cal FOG) work group, comprised of several cities and sanitation districts. Documents and grease control guidelines prepared by the Sanitation Districts were incorporated into their website <http://calfog.org> for public access. These include a model Grease Control Ordinance and fact sheets for Best Management Practices for *Fats, Oils and Grease; Managing Food Materials; Restaurant Oil and Grease Rendering; and Considerations in Establishing a Municipal Oil and Grease Program.*

7.2 Removal and Disposal of Sewer Pipe Blocking Substances from the Sewer Collection System

FOG in the wastewater collection system is either broken up and conveyed downstream to the Sanitation Districts' treatment plants or recovered, taken to a treatment plant for dewatering, and later disposed of at a landfill. Other debris, such as grit and rags, is either disposed of at the A.K. Warren Facility in Carson or taken directly to a landfill.

7.3 Legal Authority to Prohibit FOG Discharges to the Sewer Collection System

In 1972, the Sanitation Districts adopted a *Wastewater Ordinance* which provides the legal authority to enforce Sanitation Districts' local requirements, as well as all appropriate state and federal regulations.

The Sanitation Districts' Industrial Waste Section regulates grease discharges from industrial sources in accordance with Section 406 of the Wastewater Ordinance. Section 406(D) prohibits the discharge of "any solids or viscous substances of such size or in such quantity, condition, or nature that they may cause obstruction to flow in the sewer..." and Section 406(I) prohibits the discharge of "any waste containing excessive quantities or concentrations...of dispersed biodegradable oils, fats and grease, such as lard, tallow or vegetable oil."

These narrative prohibitions are supplemented with a vigorous program to minimize the discharge of FOG to the sewer. FOG can contribute to sewer flow obstructions, and thus control of FOG is essential for overflow prevention. As previously mentioned, while the Sanitation Districts maintain a regional collection and conveyance system, it does not maintain local sewers and laterals. These are the responsibility of local jurisdictions within the Sanitation Districts' service area. FSEs are the primary sources of FOG and discharge directly into local sewers.

Industrial facilities that have the potential to discharge excessive quantities of FOG have been subject to requirements in individual permits. The Sanitation Districts currently regulate FSEs with wastewater flows greater than 500 gallons per day and regulate facilities with lesser flows if it is determined that they are capable of discharging excessive quantities of FOG. These regulations are included in industrial wastewater discharge permits issued in conjunction with local agencies responsible for the administration of the tributary collection system. Food processing facilities that are permitted by the Sanitation Districts and whose

wastewater could contribute to grease blockages are evaluated on a case-by-case basis and are usually assigned a FOG limit of 500 mg/L, based on best professional judgment. Occasionally, facilities are also required to install additional pretreatment equipment such as a dissolved air flotation unit.

7.4 Requirements to Install Grease Removal Devices, Design Standards for the Removal Devices, Maintenance Requirements, BMP Requirements, Records Keeping and Reporting Requirements

Local sewers and laterals, which connect to the Sanitation Districts' sewer lines, are the responsibility of the city or County agencies. The large majority of FSEs within the Sanitation Districts' service area discharge directly to these local sewers and laterals. Section 4762.1 of the California Health and Safety Code provides the Sanitation Districts the authority to require the local cities to implement a sewer maintenance program for its sewers and laterals that meets the Sanitation Districts' specifications.

7.5 Inspection and Enforcement Authorities

In the event of a blockage of an unknown source of oil and grease, an industrial waste inspector will investigate the incident, identify any responsible industrial dischargers and, together with the Sanitation Districts' engineering staff, evaluate the need for on-site treatment equipment and imposition of appropriate FOG limits. Repeat offenders who are unwilling to correct the problem can be referred to the Los Angeles County District Attorney or the Sanitation Districts' attorney for civil or criminal action.

7.6 Identification and Maintenance of Sewer System Sections Subject to FOG Blockages

The Sanitation Districts draw data from its operation and maintenance programs to identify those sanitary sewer system sections subject to FOG blockages. Based on this information, the Sanitation Districts modify line cleaning and monitoring frequencies where needed. Those sections identified as FOG problem areas are assigned a more frequent line cleaning and monitoring schedule.

7.7 Development and Implementation of Source Control Measures

For direct dischargers to the Sanitation Districts' collection system, the Industrial Waste Section issues industrial wastewater discharge permits. In the event of a blockage of an unknown source of FOG, an industrial waste inspector will investigate the incident, identify any responsible industrial dischargers and, together with the Sanitation Districts' engineering staff, evaluate the need for on-site treatment equipment and imposition of appropriate FOG limits. Repeat offenders who are unwilling to correct the problem can be referred to the Los Angeles County District Attorney or the Sanitation Districts' attorney for civil or criminal action.

8 Sewer System Evaluation, Capacity Assurance, and Capital Improvements

Chapter 8 of this SSMP addresses the requirements included in Attachment D-8 of the Order. The requirements state:

System Evaluation and Capacity Assurance Plan: *The SSMP must include procedures and activities for: routine evaluation and assessment of system conditions; capacity assessment and design criteria; prioritization of corrective actions; and a capital improvement plan.*

(a) System Evaluation and Condition Assessment: The Plan must include procedures to evaluate the sanitary sewer system assets utilizing the best practices and technologies available. The evaluation must identify and justify the amount (percentage) of its system for its condition to be assessed each year and prioritize system areas that hold a high level of environmental or human health consequences. The evaluation must also assess the system conditions using visual observations, video surveillance, and/or other comparable system inspection methods, and utilize observations/evidence of system conditions that may contribute to exiting of sewage from the system which can reasonably be expected to discharge into a water of the State. The Plan must include the maintenance and retention of system evaluation and condition assessment inspections and activities. Furthermore, the Plan must identify system assets vulnerable to direct and indirect impacts of climate change, including sea level rise, increased flooding and erosion, power disruptions, and wildfires.

(b) Capacity Assessment and Design Criteria: The Plan must include procedures to identify system components that are experiencing or contributing to spills caused by hydraulic deficiency and/or limited capacity. System hydraulic capacity must account for dry-weather peak flow conditions and data from historical system condition assessments, inspections, audits and other available information.

(c) Prioritization of Corrective Action: The findings of the condition assessments and capacity assessments must be used to prioritize corrective actions.

(d) Capital Improvement Plan: The Capital Improvement Plan Report (CIP) must include project schedules, internal and external project funding sources, and joint coordination between operation and maintenance staff, and engineering staff/consultants during planning, design, and construction of capital improvement projects; and interagency coordination with other impacted utility agencies.

8.1 Sewer System Evaluation and Capacity Assurance Plan (SSECAP)

The Sanitation Districts have maintained a Sewer System Evaluation and Capacity Assurance Plan (SSECAP) since the 1950's. The SSECAP is comprised of several programs, annual reports, and a Capital Improvement Plan Report (CIP) that are designed to evaluate sewer system capacity and prioritize and budget relief projects for key sewer system components.

The SSECAP outlines procedures that evaluate portions of the sanitary sewer system that are experiencing or contributing to spills caused by hydraulic deficiency. This evaluation identifies the amount (percentage) of the system's condition that will be assessed during each year where areas are given priority according to the highest level of environmental or human health consequences. This evaluation also provides estimates of peak flows (including flows from spills that escape from the system) associated with conditions like those causing spill events, estimates of the capacity of key system components, hydraulic deficiencies, and the major sources that contribute to peak flows during spill events. The SSECAP also outlines the maintenance of documents and recordkeeping of system evaluation and condition assessment inspections and activities. One component of the SSECAP, the Climate Change Vulnerability Assessment and Management Plan for the Collection

System, identifies system assets vulnerable to the impacts of climate change, including sea level rise, flood vulnerability, sea level rise, drought vulnerability, extreme temperature vulnerability, wind vulnerability, wildfire vulnerability, and existing and recommended resilience measures. The last component of SSECAP is the Capital Improvement Plan Report (CIP), (see [Attachment 6.3](#)), that denotes project schedules for all portions of the capital improvement program, funding sources, and a record of coordination between staff and outside consultants and impacted parties during said projects.

The Capital Improvement Plan Report (CIP) summarizes the status of all damaged, deteriorated, or near-capacity sewerage facilities. The report includes prioritization of projects based on condition severity using a Priority Rating system. Priority Rating 1 and 2 are typically recommended for repair within five and 10-year time periods, respectively. Priority 3 sewers are monitored. Projects to address the repair needs for sewer or pumping plant assets are identified and budgeted in the Capital Improvement Plan Report (CIP) of each Sanitation District. The CIP is prepared annually and identifies short-term and long-term projects which are scheduled within the next 20 years based on their priority rating. Additional information on the Sanitation Districts CIP and revenue program is included in Section 8.4 below and in [Attachment 4.1](#).

The Sanitation Districts also maintain a Rehabilitation and Replacement Program to: 1) prioritize and ensure the timely repair of sewer facilities in imminent danger of failure or blockage; 2) provide for the long-term rehabilitation or replacement of obsolete or aging assets; and 3) improve system performance and reduce spills caused by defects or mechanical failures. The Rehabilitation and Replacement Program uses data from the Sanitation Districts' CCTV inspection and flow monitoring programs, as well as feedback from regular maintenance activities, to prioritize and schedule the rehabilitation and replacement projects.

As part of the SSECAP, the Sanitation Districts currently have identified 14 relief projects to be designed and constructed over the next 10 years to increase the system's hydraulic capacity. In addition, a system-wide hydraulic model is in development to better identify sewer capacity needs and plan for relief or replacement sewers. Currently, the Sanitation Districts' sewer system has sufficient capacity to handle peak dry weather flows. There are also no pump stations that currently pose a risk of capacity related overflows. Since 2006, the Sanitation Districts have upgraded the Castaic and Western Ave Pumping Plants, the only stations identified for relief. In addition, the Long Beach Main, Marina No. 3, and Vesta Street Pumping Plants were upgraded primarily due to age, as they had exceeded their useful life. During these upgrades, the pumps were upsized to handle current peak dry and wet weather flows.

8.2 System Evaluation and Condition Assessment

The Sanitation Districts evaluate sewer capacity using data collected from the flow monitoring program, experience with spills or near spills during wet weather, the potential for planned developments that could significantly reduce sewer capacity, and hydraulic modeling.

The dry weather flow monitoring program includes over 2,600 gauging locations throughout the sewer network. These locations are monitored for a one to two-week period every three to five years depending on the potential for growth within a tributary area of the sewer. Peak dry weather flow is measured at representative manholes in each trunk and Joint Outfall sewer and is plotted on charts known as Clearance Diagrams. Clearance Diagrams graphically present the clearance between the existing peak dry flow and pipe capacity under non-pressurized conditions. Clearance Diagrams provide a conservative estimation of pipe capacity since the actual pipe capacity is higher under surcharged (pressurized) conditions. Clearance Diagrams are then reviewed to determine where capacity restrictions exist as part of the capacity assessment program. The flow monitoring program and development of Clearance Diagrams may change as the Sanitation Districts transition to use of a hydraulic flow model, which is currently in development.

The wet weather flow monitoring program includes approximately 50 gauging locations where sewers are reaching capacity during wet weather and/or where sewers have overflowed or nearly overflowed in the past. These locations are continuously monitored from October to April every year. Remote alarm sensors are also utilized in various locations to notify personnel when the water surface rises above a predetermined level so

that measures can be taken to prevent overflows.

Sewers with dry peak flow depths near or above 70% of the diameter, or where a sewer has spilled or nearly spilled during wet weather, are studied in detail through flow analysis and field investigation to determine if the higher levels are caused by sewer blockage, structural failure, unusually high discharges by industrial users, or continued growth in the area. The cleaning history and feedback from other programs including line checking, sulfide monitoring, crown spray, and CCTV inspection are also reviewed.

Sewers are then ranked based on the capacity rating system described below.

Rating	Description
A	Peak dry weather flow depth is at or above 90% pipe diameter, and flows are continuing to increase. The sewer spills or nearly spills during wet weather.
B	Peak dry weather flow depth is at 80 to 90% pipe diameter; or peak flow depth is below 80% pipe diameter but flows are increasing rapidly; or peak flow depth is at or above 90% pipe diameter, but flows have not changed in years.
C	Peak dry weather flow depth is at 70 to 80% pipe diameter.

Sewers with a capacity rating of “A” are recommended for relief. Sewers with a capacity rating of “B” or “C” are monitored annually and biennially, respectively. The ratings are re-evaluated based on the most recent flow measurement and prioritized accordingly. Some sewers can remain at a “B” or “C” priority for an extended period, if flows in the area tributary to the sewer do not significantly increase.

There are also sewers where the existing hydraulic conditions may not warrant immediate or near-term relief; however, the sewer may need relief in the distant future due to additional projected flow from pending developments. Depending on the estimate of the maximum flow anticipated from development projects and the remaining capacity in the sewer, a separate classification “Development Impact” is assigned to these sewers and they are rated as either “A”, “B”, or “C”. Priority “A” rankings are assigned to sewers where development is impending or where the estimated flow from the proposed development substantially exceeds available sewer capacity. Priority “B” rankings are assigned to sewers where the proposed development can cause the peak flow depth to exceed 80% of the pipe diameter. Priority “C” rankings are assigned to sewers where the proposed development can cause a peak flow depth to exceed 70% of the pipe diameter.

Sewers that have been assigned an “A”, “B”, or “C” ranking are added to the CIP. In each case, sewers that have been assigned an “A” ranking are then prioritized considering the severity of the consequences of their potential spills. Thus, sewers that hold a high level of environmental or human health consequences (e.g. are within the vicinity of surface waters, steep terrain, high groundwater elevations, environmentally sensitive areas, or a receiving water currently with a bacterial-related impairment on the Clean Water Act section 303(d) list) are to be relieved imminently.

The Sanitation Districts have historically developed and maintain a condition assessment database that is used to track changes in sewer conditions and used to develop the scope of each rehabilitation project and its priority. This data was incorporated into a more robust sewer Risk Model that ranks each pipe by a risk score based on both likelihood and consequence of failure. The most valuable tool utilized by the Sanitation Districts to determine sewer condition is CCTV. Criteria used to categorize the pipe condition as a condition rating 1, 2A or 2B, 3, or 4 priority are described in the table below. Subcategory 2 is divided into two (2) subcategories for reinforced concrete pipe (RCP) to prioritize RCP sewers for rehab projects. The frequency of future inspections varies from one to 15 years, depending on the current condition of the pipe and pipe material.

Condition Rating	Description
1	Broken or missing pipe; deformed or buckling pipe; concrete corrosion with corroded or missing rebar; moderate to severe longitudinal or spiral fractures longer than joint-to-joint; severe circumferential cracks; large offset, angular, or separated joints.
2A	Concrete corrosion with rebar continuously visible or projecting; medium offset, angular, or separated joints; sag in the line. (RCP only)
2B	Concrete corrosion with any rebar visible or projecting; slight to moderate longitudinal or spiral fractures longer than joint-to-joint; moderate circumferential or longitudinal fractures shorter than joint-to-joint.
3	Significant concrete corrosion with aggregate projecting or missing but no rebar visible; slight circumferential or longitudinal cracks shorter than joint-to-joint.
4	No visible indication of corrosion, cracks, or other defects. Pipe is in good condition.

In 2023, the Sanitation Districts established a manhole CCTV inspection program, with over 25,000 manholes in need of inspection and rating. Inspections commenced in spring 2024. A condition rating system is currently being developed for use in the formation of manhole rehabilitation projects.

8.3 Capacity Assessment and Design Criteria

The Sanitation Districts have a long-established set of design criteria used for designing sewers. Each sewer construction project undergoes a comprehensive investigation to determine ultimate peak flows using an area study based on land use and population projections, other terrain and geographical factors, a separate industrial source flow based on the sum of Industrial Wastewater discharge permit flows, and the consideration of data from system condition assessments, inspections, audits, and spill history. The ultimate design peak flow, including storm flow data, if necessary and if available, are used to determine the size of new, relief or replacement sewers. The Sewer Design Guidelines, as described in Chapter 5 of this SSMP, are maintained by the Engineering Department and undergo periodic review and updates to incorporate the latest advances in design and construction techniques.

8.3.1 Capacity Enhancement Measures

Sewer capacity is enhanced by constructing relief projects and/or implementing measures to reduce flow from infiltration/inflow (I/I). Through hydraulic condition assessment, population and development forecasts, and hydraulic modeling, sewers with hydraulic capacity concerns are identified, rated, and included in the Capital Improvement Plan Report (CIP). Sewers that have been identified with a capacity rating “A” are recommended for relief to the Engineering Department to begin design and are included in the short-term CIP. Sewers that have a capacity rating of “B” or “C” are re-evaluated annually based on the most recent data and are included in the long-term CIP.

As part of the annual update of the CIP, the Sanitation Districts evaluates new relief projects to determine the project’s criticality in terms of its consequence and likelihood of failure. Based on this examination, projects are prioritized and added to the CIP as either a short-term or long-term project. Projects and their estimated costs are added to the CIP throughout the year as needs are identified. Additional information regarding the Sanitation Districts CIP and Revenue Program is included in [Attachment 4.1](#). Relief projects can include construction of a parallel sewer, replacement with a larger diameter sewer, and/or projects that increase or provide redundant pumping capacity. The design of a relief sewer normally takes a minimum of 14 months,

the bidding process takes two to three months, and the average construction duration is approximately 8 months. Thus, it takes approximately two years to design and construct a typical relief sewer with some projects taking much longer depending on the scope of the project and obstacles to be overcome such as easement issues and/or construction moratoria imposed by cities. The Sanitation Districts have been able to maintain a high level of quality in the construction of its infrastructure by performing the design and construction management work in-house.

Infiltration and inflow reduction measures include reviewing flow data to identify where I/I is a significant source of flow and investigating the causes by using closed circuit television inspection, installing additional flow meters, and/or direct field observations during wet weather. In addition, the Sanitation Districts are evaluating additional measures to find and control sources of inflow during dry weather, specifically, staff are reviewing use of smoke and/or sound to investigate suspected sources. The majority of the sewer system within the Sanitation Districts' service area is comprised of local sewers outside the Sanitation Districts purview and as such, the Sanitation Districts can exert little direct control over sources of I/I from local sewers that are tributary to their sewerage system. Nevertheless, it is the Sanitation Districts' philosophy that limiting the amount of I/I that enters the sewerage system is the best practice to minimize spills and sewage conveyance and treatment costs.

If the I/I source is identified as originating from tributary sewers, the Sanitation Districts will engage satellite agencies to investigate sources of inflow, offer technical assistance in evaluating potential solutions to reduce I/I, and follow up to verify if the reduction measures have been implemented. One example of this collaborative effort involved working with the Los Angeles County Public Works Department (LADPW) to seal manhole covers that are subject to submergence during wet weather. These areas were identified using a GIS shape file of unmet drainage needs provided by LADPW and comparing it with the Sanitation Districts' GIS database.

8.4 Prioritization of Corrective Action

The primary goal of the Sanitation Districts' SSECAP has been and will remain the protection of public health and the environment. The Sanitation Districts have always placed high priority on capacity assurance and are committed to the timely completion of improvements to its collection system and to the achievement of all possible reductions in the number and volume of overflows from its collection system. As a result of the system evaluation and condition assessments, fourteen (14) relief projects and ninety-eight (98) rehabilitation projects have been identified over the next ten years. Of these projects, nine (9) of the relief projects and ninety-one (91) of the rehab projects are listed as high priority.

8.5 Capital Improvement Plan

The Capital Improvement Plan Report (CIP) contains the following items: project schedules, including completion dates for all portions of the capital improvement program, internal and external project funding sources for each project, and a record of joint coordination efforts between operation and maintenance (O&M) staff, engineering staff/consultants during the planning, design and construction of capital improvement projects, and interagency coordination with impacted parties.

The CIP includes a comprehensive list of all Wastewater Collection Systems (WCS) projects recommended for rehabilitation, relief and/or facility improvements. The list helps to identify and prioritize all capital improvement projects recommended by WCS to facilitate in the planning, budgeting, and coordination of these projects. Sewer rehabilitation projects are scheduled and categorized based on condition assessment and risk, which includes factors such as pipe condition, pipe material, inflow and infiltration defects, and other operational concerns. Sewer relief projects are scheduled and categorized based on flow measurements and pending development impacts. Over the past two (2) years, WCS has worked to place all NRCP, RCP-CTL, and all other corrodible pipe materials onto discrete CIP projects. Over the next year, WCS will transition all remaining Priority 2 and 3 projects into discrete CIP projects.

9 Monitoring, Measurement, and Program Modifications

Chapter 9 of this SSMP addresses the requirements included in Attachment D-9 of the Order. The requirements state:

Monitoring, Measurement, and Program Modifications: *The Enrollee shall:*

- (a) Maintain relevant information, including audit findings to establish and prioritize appropriate SSMP activities;*
- (b) Monitor the implementation and, measure the effectiveness of each element of the SSMP;*
- (c) Assess the success of the preventative operation and maintenance program;*
- (d) Update Plan procedures and activities, as appropriate, based on results of monitoring and performance evaluations; and*
- (e) Identify and illustrate spill trends, including spill frequency, locations, and estimated volumes.*

9.1 Maintain Relevant Information to Establish and Prioritize SSMP Activities

Relevant data for all work performed to meet the goals of this SSMP are currently captured in the Sanitation Districts' WAM System. Primarily, this data consists of Preventative Maintenance (PM) schedules, audit findings, and Work Order System records. WAM provides scheduling and tracking capability to ensure required work is completed. Crews are able to look ahead and plan work and are alerted to close work orders, thereby ensuring that work assigned to an asset is not missed. In addition, the Sanitation Districts thoroughly document spill events. The information documented during these events has been incorporated into a spill Database and spill location information is available as a layer in the Sanitation Districts' Geographical Information System.

The Sanitation Districts also document potential surcharge conditions in WAM. Where these surcharge conditions occur as a result of a blockage in the sewer, crews are dispatched to investigate the cause of the blockage using CCTV and, as necessary, clean the sewer to clear the blockage. If required, the frequency of line cleaning or CCTV inspection is adjusted based upon these reports of surcharged conditions to prevent re-occurrence that could lead to a spill. The Sanitation Districts document and characterize these potential blockages using the WAM Service Request and Work Order modules. Sanitation Districts' staff is directed to document the following information for all confirmed surcharge events: a) location of the blockage, b) cause of the blockage, c) remedial actions taken to clear the blockage, and d) change in frequency of PMs to prevent re-occurrence of the blockage. The WAM system can be queried to identify sewer reaches that are cleaned more frequently than a normal schedule, along with the notes identifying the cause for the schedule adjustment.

9.2 SSMP Implementation and Effectiveness

Routine reports created from the information stored in WAM enable the Sanitation Districts to monitor and measure performance. Performance Indicators (PIs) are used to compare the Sanitation Districts' performance with other agencies and thereby measure the effectiveness of the program elements of the SSMP. These PIs include, but are not necessarily limited to:

- Number of Spills Per 100 Miles of Collection System Per Year
 - Total
 - Non-Preventable
 - Preventable
 - Wet weather capacity-related
 - Discharging to waters of the United States
- Volume of Spills Per 100 Miles of Collection System Per Year
 - Total
 - Non-Preventable
 - Preventable
 - Wet weather capacity-related
 - Discharging to waters of the United States
- Breakdown of Causes of Spills
- Breakdown of Spills by District
- Percent of Scheduled PM Work Accomplished

9.3 Assess the Success of the Preventative Maintenance Program

The Sanitation Districts consider its PM program to be successful when a minimum of 90% of the scheduled PM work specifically related to preventing spills, such as cleaning activities and line checking, is completed annually and the PIs for number and volume of spills per 100 miles of collection system per year meet or exceed those PIs for agencies with similarly-sized collection systems. Regardless of the performance of other agencies with similarly-sized collection systems, the Sanitation Districts have established levels of service, as outlined in Section 1.2, to assess the success of the Preventive Maintenance Program.

9.4 Updating SSMP Program Elements

Based on the above monitoring and performance evaluations, the program elements of the SSMP will be updated or modified, as appropriate. At a minimum, the SSMP will be updated every six (6) years and include any significant program changes. The updated SSMP will be re-certified by the Sanitation Districts' Chief Engineer and General Manager or authorized representatives and be presented to the Sanitation Districts' Board of Directors for approval at a public meeting. The Sanitation Districts' authorized representative will also complete the certification portion in the online electronic reporting database, CIWQS, by checking the appropriate milestone box, printing and signing the automated form and sending a hard copy of the signed form to the State Water Resources Control Board.

9.5 Identify and Illustrate Spill Trends

With the use of the spill Database, the Sanitation Districts are able to readily identify and illustrate spill trends, including frequency, location, and volume. In addition, since each spill event includes one or more corresponding manhole locations, the Sanitation Districts can readily plot these locations using its GIS-based Sewerage Facilities System. These plots can be used to identify hot spots within the Sanitation Districts' collection systems.

10 Internal Audits

Chapter 10 of this SSMP addresses the requirements included in Attachment D-10 of the Order. The requirements state:

SSMP Program Audits: *The Plan shall include internal audit procedures, appropriate to the size and performance of the system, for the Enrollee to comply with section 5.4 (Sewer System Management Plan Audits) of the General Order.*

10.1 Internal Audit

The Enrollee shall submit its Sewer System Management Plan Audit and other pertinent audit information, in accordance with section 5.4 (Sewer System Management Plan Audits) of the General Order, to the online CIWQS Sanitary Sewer System Database **by six (6) months after the end of the 3-year audit period**. Per the 2022 WDR, internal audits are to be conducted at a minimum frequency of once every three (3) years. The audit will use data collected as part of *Chapter 9: Monitoring, Measurement, and Program Modifications* and performance indicators to: 1) evaluate the effectiveness of the Sanitation Districts' SSMP; 2) ensure compliance with WDR requirements; and 3) identify and correct SSMP deficiencies.

Key collection system performance indicators will include number and type of spills, completed CCTV and line cleaning footages, spill trends, and employee safety. The most recent report of the audit will be available electronically and in hard copy upon request.

Following a significant spill event in late 2021, the Sanitation Districts conducted a comprehensive review of its sewer system management practices and determined that an external audit performed by an unbiased third party would provide the most useful information to optimize and update current procedures and to update its SSMP. The Sanitation Districts hired Expert Environmental Consulting (EEC) to perform the external audit and it was submitted into CIWQS in November 2024.

10.2 Audit Requirements

According to the 2022 Order the Enrollee shall conduct an audit of its Sewer System Management Plan, and implementation of its Plan, appropriately scaled to the scale of the Enrollee's system and the number of spills, after the end of the last required audit period. The legally responsible official shall submit an audit report into the online CIWQS Sanitary Sewer System Database per the requirements in section 3.10 (Sewer System Management Plan Audit Reporting Requirements) of Attachment E1 of the 2022 Order.

The Enrollee's sewer system operators must be involved in completing the audit. At a minimum, the audit must:

- Evaluate the implementation and effectiveness of the Enrollee's Sewer System Management Plan in preventing spills.
- Evaluate the Enrollee's compliance with the 2022 Order;
- Identify Sewer System Management Plan deficiencies in addressing ongoing spills and discharges to waters of the State; and
- Identify necessary modifications to the Sewer System Management Plan to correct deficiencies.
- The Enrollee shall submit a complete audit report that includes:
 - Audit findings and recommended corrective actions.
 - A statement that sewer system operators' input on the audit findings has been considered.
 - A proposed schedule for the Enrollee to address the identified deficiencies.

10.3 Audit Schedule

Audits must be conducted during the audit period-and must include audit reports that are due within six months after the end of the audit period. Audit reports must be submitted into the online CIWQS Sanitary Sewer System Database no later than November 2 of the following calendar year.

The Sanitation Districts will perform audits every three years and upload the audit reports within six months after each audit period to the CIWQS database. The last audit period ended on May 2, 2024 and the audit report was electronically submitted to CIWQS by November 2, 2024. The next audit period ends on May 2, 2027, and the associated audit report is due in CIWQS by November 2, 2027.

District No.	SSMP Recertification Due Date	SSMP Approval Date	1 st SSMP Audit Due Date*	2 nd SSMP Audit Due Date*	SSMP Recertification Due Date
JOS	5/2/2025	4/9/2025	5/2/2027	5/2/2030	5/2/2031
4	8/2/2025	6/11/2025	8/2/2027	8/2/2030	8/2/2031
14	5/2/2025	4/9/2025	5/2/2027	5/2/2030	5/2/2031
20	5/2/2025	4/9/2025	5/2/2027	5/2/2030	5/2/2031
29	8/2/2025	4/9/2025	8/2/2027	8/2/2030	8/2/2031
NR	8/2/2026	6/10/2025	8/2/2028	8/2/2031	8/2/2032
SCV	5/2/2025	4/9/2025	5/2/2027	5/2/2030	5/2/2031

* Audit reports are due six months after the audit due date.

11 Communication Program

Chapter 11 of this SSMP addresses the requirements included in Attachment D-11 of the Order. The requirements state:

Communication Program: *The Enrollee shall include procedures to communicate with:*

The public for:

- (a) Spills and discharges resulting in closures of public areas, or that enter a source of drinking water, and*
- (b) The development, implementation, and update of its Plan, including opportunities for public input to Plan implementation and updates.*

Owners/operators of systems that connect into the Enrollee's system, including satellite systems, for:

- (a) System operation, maintenance, and capital improvement-related activities.*

11.1 Communication

The Sanitation Districts have made several spill-related plans and documents, including the SSMP, available to the public via the LACSD website (www.lacsd.org). This website is used to deliver general information as well as notices during maintenance, construction, and spill events that impact the public. This SSMP can be found under the Documents tab in the Wastewater Publications and Reports section.

The Sanitation Districts' website also contains a dedicated Community Outreach section. Under this tab are links to the Sanitation Districts' social media channels on Facebook, Instagram, Facebook and YouTube that engage the public with pertinent information. The Sanitation Districts have also established guidelines for communications with the public regarding sewer projects in residential areas as described below.

11.1.2 Communication during Sewer Spill Events

For spills or discharges that result in the closure of public areas or enter a drinking water source, the Sanitation Districts contact the affected city's Public Works Director or Public Information Officer to notify them of the spill. Depending on the nature and size of the spill, public information staff use different approaches to communicate with the public. Sanitation Districts staff may go on-site to inform residents and/or businesses of the spill to help answer questions and offer translation services. Districts staff may create flyers, a dedicated spill website, utilize social media channels, create a contact list for affected parties, inform local community groups, present updates at City Council meetings and/or issue press statements if/when necessary.

During emergency sewer repairs, the Sanitation Districts create flyers to notify residents and/or businesses from impacted areas. These emergency repair flyers are also posted to the Construction Project Website and have the same accessibility features as described above. City staff are notified as directed to ensure effective communication with the public.

11.1.3 Communication with Tributary Systems

The Sanitation Districts consist of 24 independent special districts serving Los Angeles County. Each district has a Board of Directors consisting of the mayor of each city served, and the Chair of the County Board of Supervisors for unincorporated territory. Through the Board of Directors, the Sanitation Districts maintain a

direct connection with tributary and satellite sewer system owners. Additionally, the Sanitation Districts' Construction Management and Sewer Design Sections collaborate with these cities and other public agencies during the planning, development, and implementation phases of each sewer improvement project.

The Sanitation Districts create or modify project flyers to notify residents of upcoming construction projects. The project flyers are distributed by the Construction Management (CM) staff or other Districts employees to residents in affected areas. The flyers are also posted to the [Construction Project Website](#) and are made readily available in English and Spanish. The webpage is also auto-translatable via Google Translate plug-in. Additionally, CM staff are given the website address for each project to share with city staff and interested parties.

11.2 Sewer System Management Plan Availability

The Sanitation Districts provide all stakeholders and interested parties, the general public and other agencies, with access to the SSMP on the LACSD website under the Documents tab in the Wastewater Publications and Reports section. The website also allows the public to submit comments and provide input on the SSMP by contacting the Public Information Section at info@lacs.org. A staff person at the Sanitation Districts has been assigned the responsibility of responding to and documenting responses to comments. This person will ensure that all comments are considered and evaluated for incorporation into the SSMP.

Copies of the SSMP are also maintained in the Sanitation Districts' Joint Administrative Office, as well as at the Compton Field Office, San Gabriel Valley Field Office, and Palmdale Water Reclamation Plant. The document shall also be made readily available to Regional Water Quality Control Board representatives upon request.

List of Attachments

Attachment Number	Document Title	Document Number
Attachment 2.1	County Sanitation Districts Sewer Maintenance Service Areas	N/A
Attachment 2.2	Signatory Letter	6746416
Attachment 2.3	Los Angeles County Sanitation Districts Organization Chart	N/A
Attachment 2.4	Wastewater Management Department (Wastewater Collection Systems and Water Reclamation Plant Section)	N/A
Attachment 2.5	Engineering Department Overview	N/A
Attachment 2.6	Wastewater Management Department (Industrial Waste Section)	N/A
Attachment 2.7	Technical Services Department (Reuse and Compliance Section)	N/A
Attachment 2.8	Reports of Sewage Spills	3599143
Attachment 2.9	Sanitation Districts' Engineering Spill Notify Flow Chart & Long Beach Main Spill Notify Chart	970276
Attachment 4.1	Districts Revenue Program	3462626
Attachment 6.1	Spill Emergency Response Plan (SERP)	6919830
Attachment 6.2	Sanitary Sewer Overflow Spill Volume Estimation Procedures	4778050
	Spill Volume and Flowrate Computation Form Package	3209618
Attachment 6.3	WCS 2023 CIP Report	7243872

List of Referenced Documents

Document Title	Document Number
Procedures for Clean-Up Activities After Sewage Spill to Pervious Land Areas	3434942
Procedures for Sampling and Internal Notification in Case of Sewage Overflows	3434940
Collection System Spill Notification Procedures and Sewage Spill Response Summary	3434941
Rules, Regulations, and Policies for the Purchase or Lease of Materials, Supplies, Equipment, Services, and Construction Projects, and for the Sale and Disposition of Districts' Property	6471307
Statewide Waste Discharge Requirements General Order for Sanitary Systems	7416624

Attachment 2.1

Attachment 2.2



**LOS ANGELES COUNTY
SANITATION DISTRICTS**
Converting Waste Into Resources

Robert C. Ferrante

Chief Engineer and General Manager

1955 Workman Mill Road, Whittier, CA 90601-1400

Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998

(562) 699-7411 • www.lacsd.org

June 2, 2023

Ms. Eileen Sobeck, Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Ms. Sobeck:

**Duly Authorized Representatives for Sanitation Districts' Submittals to the
State Water Resource Control Board and Regional Water Quality Control Boards**

The purpose of this letter is to provide authorization for certain employees of the Sanitation Districts of Los Angeles County (Sanitation Districts) to serve as duly authorized representatives for submittals to the California Regional Water Quality Boards (Regional Water Boards) or the California State Water Resources Control Board (State Water Board) related to Sanitation Districts' permits and operations, including but not limited to NPDES permits and Waste Discharge Requirements. Per this letter, I hereby authorize the Assistant Chief Engineer and Assistant General Manager and any individual occupying the positions of Supervising Engineer, Senior Environmental Scientist, Division Engineer, Manager, Assistant Department Head, or Department Head in the Technical Services, Wastewater Management, Solid Waste Management, or Facilities Planning Departments as duly authorized representatives for any submittal to the State Water Board or Regional Water Boards related to Sanitation Districts' facilities.

If you have any questions concerning this letter, please contact Lysa Gaboudian at (562) 908-4288, extension 2811 or lgaboudian@lacsd.org.

Very truly yours,

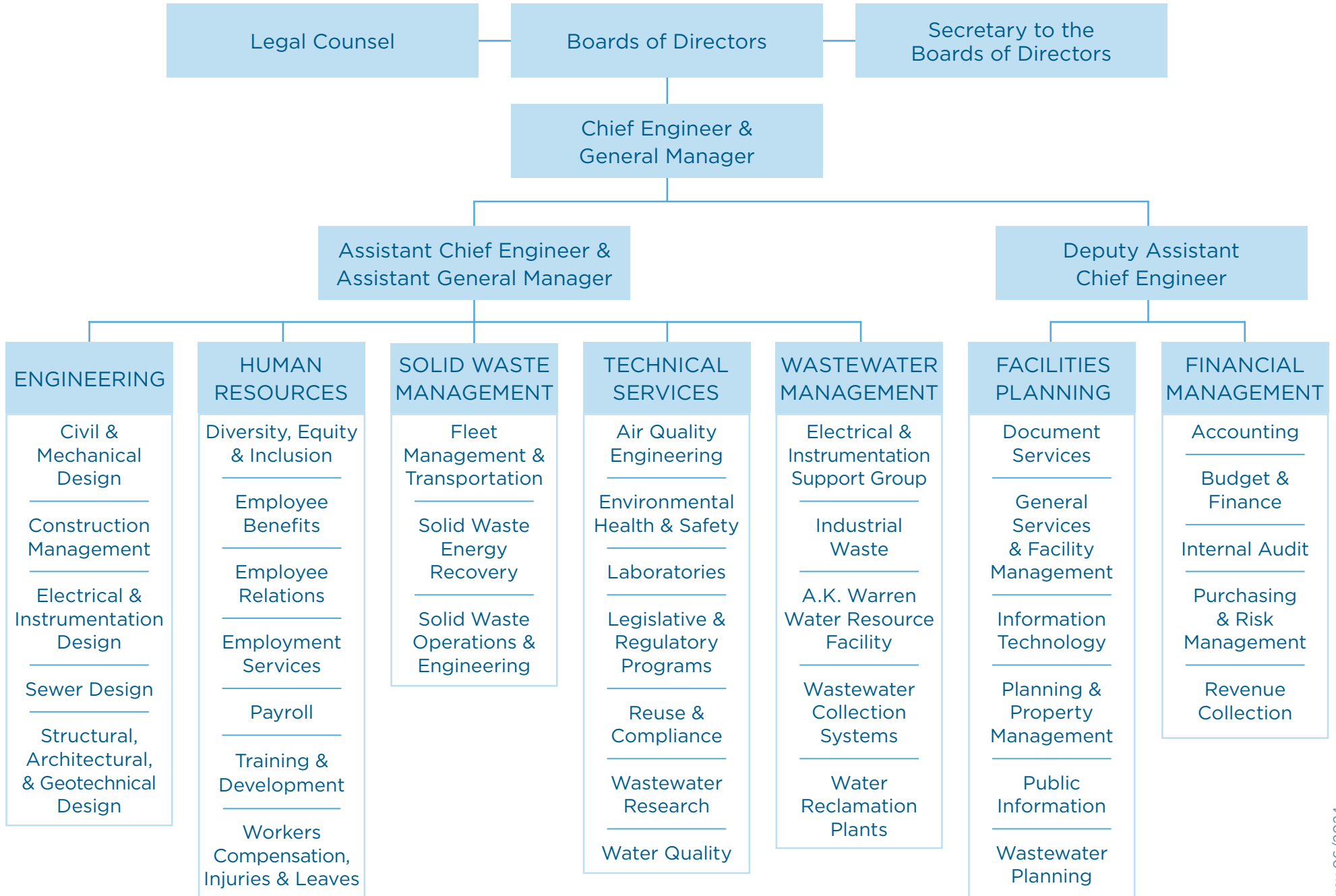

Robert C. Ferrante

RCF:LG:ER:nm

cc: Mr. Patrick Pulupa, Executive Officer, Central Valley Regional Water Board
Ms. Paula Rasmussen, Executive Officer Colorado River Basin Regional Water Board
Mr. Michael Plaziak, Executive Officer, Lahontan Regional Water Board
Ms. Susana Arredondo, Executive Officer, Los Angeles Regional Water Board
Ms. Jayne Joy, Executive Officer, Santa Ana Regional Water Board

Attachment 2.3

ORGANIZATION CHART

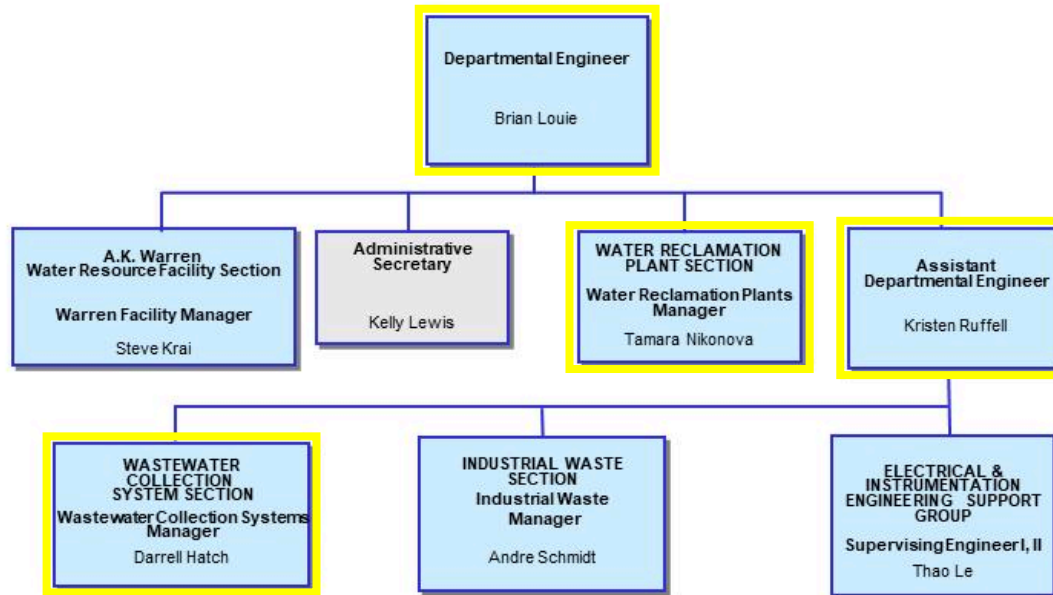


Attachment 2.4

Wastewater Management

Wastewater Management Department

Authorized staffing as of 8-24



 Legally Responsible Official

SSMP – Organization Contact Information

Wastewater Management Department

Position	Name	Telephone Number	Email Address
Departmental Engineer LEGALLY RESPONSIBLE OFFICIAL	Brian Louie	(562) 699-7411 ext. 1701	blouie@lacsds.org
Assistant Departmental Engineer LEGALLY RESPONSIBLE OFFICIAL	Kristen Ruffell	(562) 699-7411 ext. 1703	kruffell@lacsds.org
Industrial Waste Section			
Industrial Waste Manager	Andre Schmidt	(562) 699-7411 ext. 2902	aschmidt@lacsds.org
Wastewater Collection Systems Section			
Wastewater Collection Systems Manager LEGALLY RESPONSIBLE OFFICIAL	Darrell Hatch	(562) 699-7411 ext. 6808	dhatch@lacsds.org
Water Reclamation Plants Section			
Water Reclamation Plants Manager LEGALLY RESPONSIBLE OFFICIAL	Tamara Nikonova	(562) 699-7411 ext. 3502, 6931	tnikonova@lacsds.org
Warren Facility			
Warren Facility Manager	Steve Krai	(562) 699-7411 ext. 5245	skrai@lacsds.org
Assistant Warren Facility Manager	Sejal Patel	(562) 699-7411 ext. 5252	spatel@lacsds.org

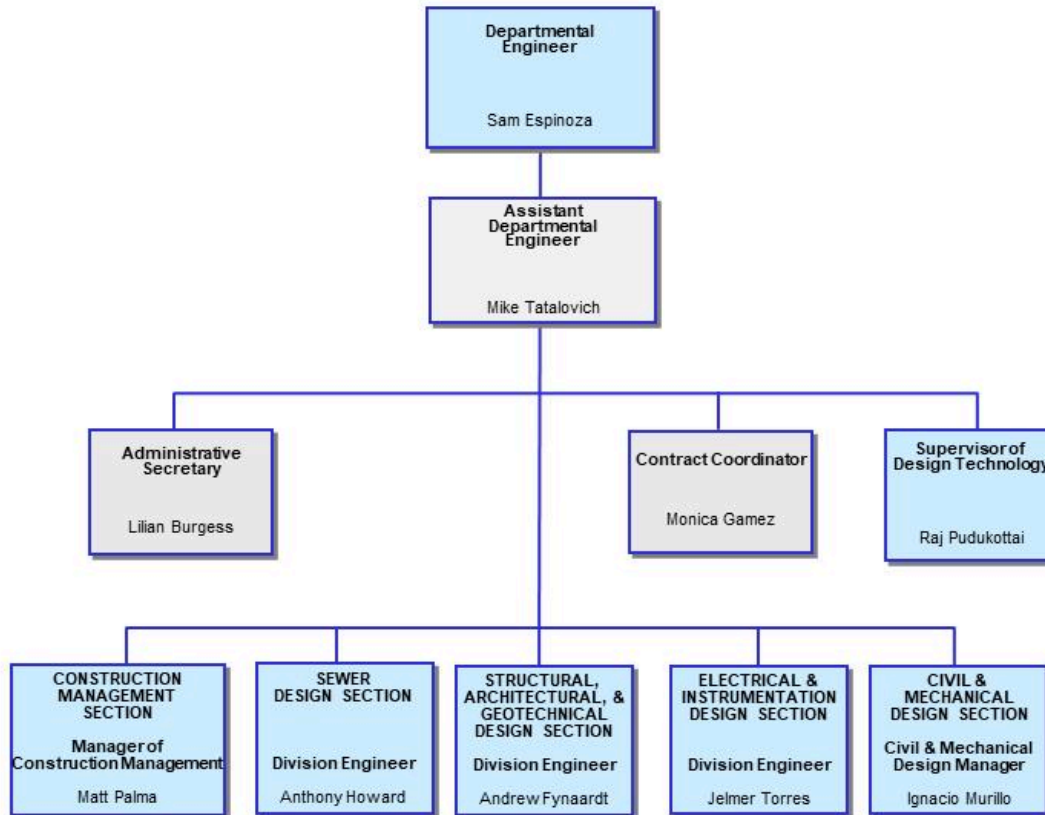
Attachment 2.5

Overview of Engineering Sections

Engineering Department Overview

All Offices at JAO, unless noted

Authorized staffing as of 10-24



SSMP – Organization Contact Information

Engineering Department

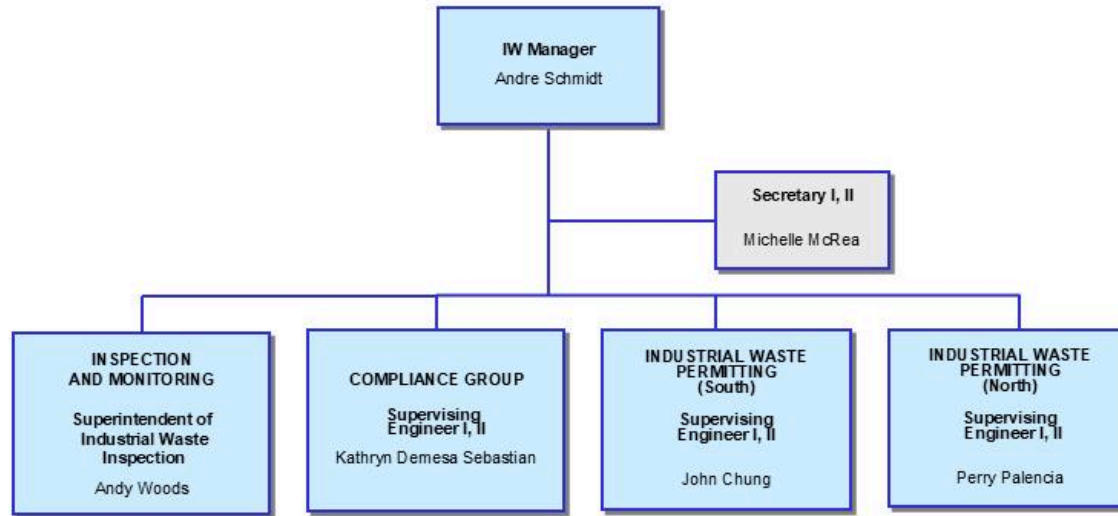
Position	Name	Telephone Number	Email Address
Departmental Engineer	Samuel Espinoza	(562) 699-7411 ext. 2101	sespinoza@lacsds.org
Assistant Departmental Engineer	Mike Tatalovich	(562) 699-7411 ext. 2102	mtatalovich@lacsds.org
Civil & Mechanical Design Section			
Civil and Mechanical Design Manager	Ignacio Murillo	(562) 699-7411 ext. 2105	imurillo@lacsds.org
Construction Management Section			
Construction Management Manager	Matt Palma	(562) 699-7411 ext. 2106	mpalma@lacsds.org
Design Technology Section			
Supervisor of Design Technology	Raj Pudukottai	(562) 699-7411 ext. 2135	kpudukottai@lacsds.org
Electrical & Instrumentation Design Section			
Division Engineer	Jelmer Torres	(562) 699-7411 ext. 2207	jtorres@lacsds.org
Sewer Design Section			
Division Engineer	Anthony Howard	(562) 699-7411 ext. 1602	ahoward@lacsds.org
Structural, Architectural, & Geotechnical Design Section			
Division Engineer	Andrew Fynaardt	(562) 699-7411 ext. 2037	andrewfynaardt@lacsds.org

Attachment 2.6

Industrial Waste

Wastewater Management Department Industrial Waste Section All Offices at JAO

Authorized staffing as of 01-25



SSMP – Organization Contact Information
Wastewater Management Department
Industrial Waste Section

Position	Name	Telephone Number	Email Address
Industrial Waste Manager	Andre Schmidt	(562) 699-7411 ext. 2902	aschmidt@lacsds.org
Compliance Group			
Supervising Engineer	Kathryn Demesa Sebastian	(562) 699-7411 ext. 2961	kdemesasebastian@lacsds.org
Inspection and Monitoring Group			
Superintendent of IW Inspection	Andy Woods	(562) 699-7411 ext. 2907	awoods@lacsds.org
Industrial Waste Permitting Group (North)			
Supervising Engineer	Perry Palencia	(562) 699-7411 ext. 2921	ppalencia@lacsds.org
Industrial Waste Permitting Group (South)			
Supervising Engineer	John Chung	(562) 699-7411 ext. 2931	jchung@lacsds.org

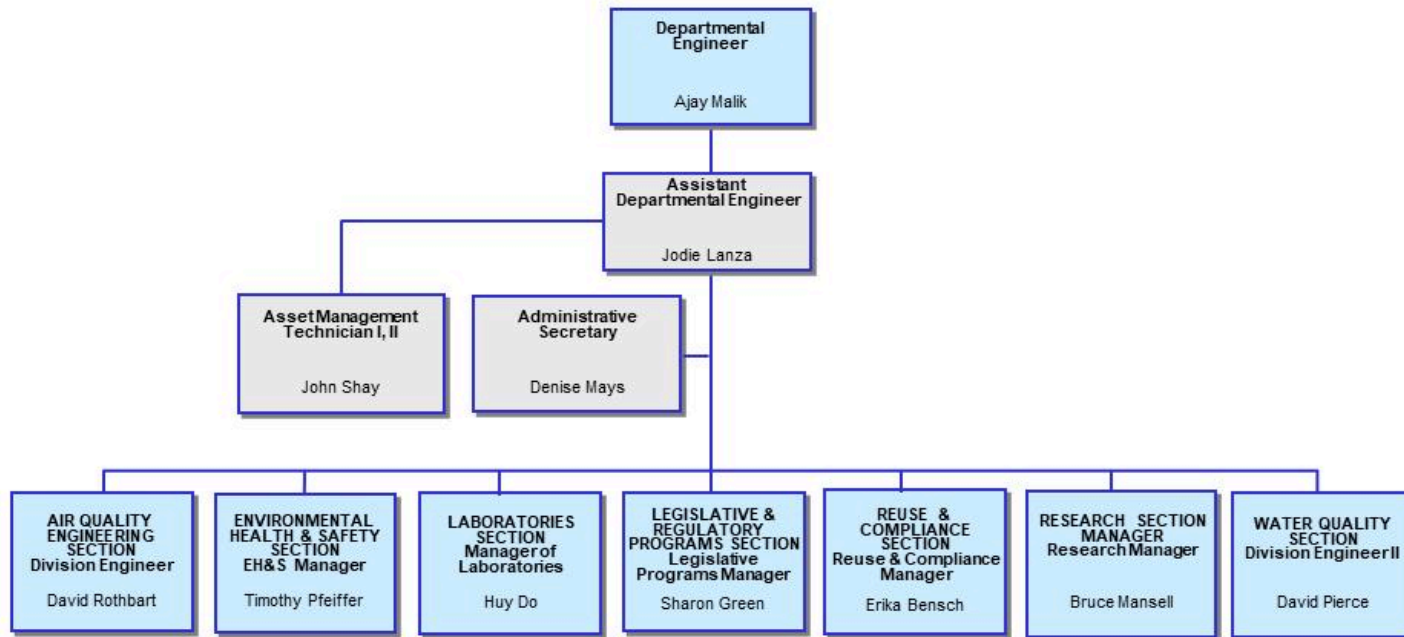
Attachment 2.7

Technical Services

Technical Services Department Overview

(All offices at JAO)

Authorized staffing as of 12-24



SSMP – Organization Contact Information

Technical Services Department

Position	Name	Telephone Number	Email Address
Departmental Engineer	Ajay Malik	(562) 699-7411 ext. 2501	mjones@lacsd.org
Assistant Departmental Engineer	Jodie Lanza	(562) 699-7411 ext. 2502	jlanza@lacsd.org
Air Quality Engineering Section			
Division Engineer	Warisa Niizawa	(562) 699-7411 ext. 2126	warisaniizawa@lacsd.org
Environmental Health & Safety Section			
EH&S Manager	Timothy Pfeiffer	(562) 699-7411 ext. 1355	timpfeiffer@lacsd.org
Laboratories Section			
Laboratories Manager	Huy Do	(562) 699-7411 ext. 3001	hdo@lacsd.org
Legislative & Regulatory Programs Section			
Legislative Programs Manager	Sharon Green	(562) 699-7411 ext. 2503	sgreen@lacsd.org
Reuse & Compliance Section			
Reuse & Compliance Manager	Erika Bensch	(562) 699-7411 ext. 2801	erikabensch@lacsd.org
Wastewater Research Section			
Research Manager	Bruce Mansell	(562) 699-7411 ext. 2839	bmansell@lacsd.org
Water Quality Section			
Division Engineer	David Pierce	(562) 699-7411 ext. 2513	dpierce@lacsd.org

Attachment 2.8



GRACE ROBINSON HYDE
Chief Engineer and General Manager

Memorandum

Date: February 1, 2016

To: All Districts' Employees
From: Grace Robinson Hyde *GRH*
Chief Engineer and General Manager
Subject: Reports of Sewage Spills

The Sanitation Districts have a regulatory requirement to immediately report sewage spills to the Los Angeles County Department of Public Health (Public Health). The Long Beach Main Alarm Center, which is staffed 24-hours a day, has been designated by the Sanitation Districts to receive sewage spill reports and relay the information to Public Health. It is, however, recognized that various Sanitation Districts' staff may receive sewage spills reports from the public because they may be unaware of how to reach the appropriate Section within the Sanitation Districts. Because of this, it is imperative that any sewage spill observed by or reported to a Sanitation Districts' employee be immediately relayed to the Long Beach Main Alarm Center.

Any Sanitation Districts' employee who observes a sewage spill event or receives a sewage spill report via telephone or other forms of communication from the public, or other agencies and cannot transfer the call or information to a live person at the Long Beach Main Alarm Center shall document the following:

1. The location of the spill (i.e., the address, or the intersection, and the city);
2. The reporting party's name and phone number (if the reporting party is willing to provide this information); and
3. The time the call was received.

This information shall be immediately relayed to the Long Beach Main Alarm Center at (562) 437-6520 or (562) 437-1881. Failure by the Sanitation Districts to notify Public Health of a sewage spill could result in civil penalties against the agency.

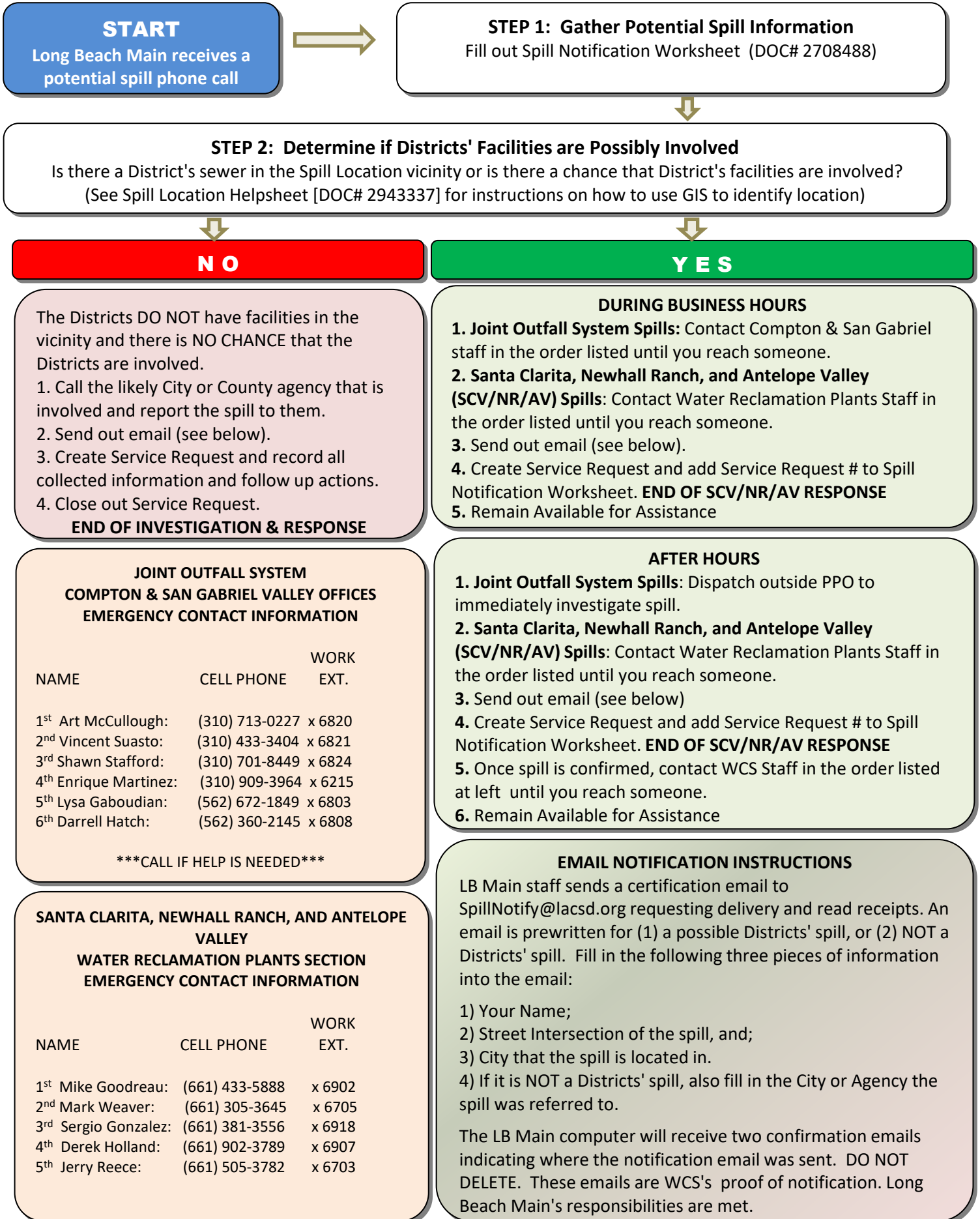
Department Head Administrative Secretaries and telephone operators should have received training for sewage spill reporting procedures. If you have any questions regarding training or would like to request training for additional staff, please contact Denise Springer at extension 1706. If you have any questions regarding Spill Reporting Procedures, please contact Andrew Hall at extension 2803.

Attachment 2.9

LONG BEACH MAIN SPILL NOTIFICATION FLOW CHART

DOC # 970276

Revised: May 2025



START

Long Beach Main receives a potential spill phone call

STEP 1: Gather Potential Spill Information

Fill out Spill Notification Worksheet (DOC# 2708488)

STEP 2: Determine if Districts' Facilities are Possibly Involved

Is there a District's sewer in the Spill Location vicinity or is there a chance that District's facilities are involved?
(See Spill Location Helpsheet [DOC# 2943337] for instructions on how to use GIS to identify location)

NO

The Districts DO NOT have facilities in the vicinity and there is NO CHANCE that the Districts are involved.

1. Call the likely City or County agency that is involved and report the spill to them.
2. Send out email (see below).
3. Create Service Request and record all collected information and follow up actions.
4. Close out Service Request.

END OF INVESTIGATION & RESPONSE

YES

DURING BUSINESS HOURS

1. **Joint Outfall System Spills:** Contact Compton & San Gabriel staff in the order listed until you reach someone.
2. **Santa Clarita, Newhall Ranch, and Antelope Valley (SCV/NR/AV) Spills:** Contact Water Reclamation Plants Staff in the order listed until you reach someone.
3. Send out email (see below).
4. Create Service Request and add Service Request # to Spill Notification Worksheet. **END OF SCV/NR/AV RESPONSE**
5. Remain Available for Assistance

AFTER HOURS

1. **Joint Outfall System Spills:** Dispatch outside PPO to immediately investigate spill.
2. **Santa Clarita, Newhall Ranch, and Antelope Valley (SCV/NR/AV) Spills:** Contact Water Reclamation Plants Staff in the order listed until you reach someone.
3. Send out email (see below)
4. Create Service Request and add Service Request # to Spill Notification Worksheet. **END OF SCV/NR/AV RESPONSE**
5. Once spill is confirmed, contact WCS Staff in the order listed at left until you reach someone.
6. Remain Available for Assistance

EMAIL NOTIFICATION INSTRUCTIONS

LB Main staff sends a certification email to SpillNotify@lacs.org requesting delivery and read receipts. An email is prewritten for (1) a possible Districts' spill, or (2) NOT a Districts' spill. Fill in the following three pieces of information into the email:

- 1) Your Name;
- 2) Street Intersection of the spill, and;
- 3) City that the spill is located in.
- 4) If it is NOT a Districts' spill, also fill in the City or Agency the spill was referred to.

The LB Main computer will receive two confirmation emails indicating where the notification email was sent. **DO NOT DELETE.** These emails are WCS's proof of notification. Long Beach Main's responsibilities are met.

**JOINT OUTFALL SYSTEM
COMPTON & SAN GABRIEL VALLEY OFFICES
EMERGENCY CONTACT INFORMATION**

NAME	CELL PHONE	WORK EXT.
1 st Art McCullough:	(310) 713-0227	x 6820
2 nd Vincent Suasto:	(310) 433-3404	x 6821
3 rd Shawn Stafford:	(310) 701-8449	x 6824
4 th Enrique Martinez:	(310) 909-3964	x 6215
5 th Lysa Gaboudian:	(562) 672-1849	x 6803
6 th Darrell Hatch:	(562) 360-2145	x 6808

CALL IF HELP IS NEEDED

**SANTA CLARITA, NEWHALL RANCH, AND ANTELOPE VALLEY
WATER RECLAMATION PLANTS SECTION
EMERGENCY CONTACT INFORMATION**

NAME	CELL PHONE	WORK EXT.
1 st Mike Goodreau:	(661) 433-5888	x 6902
2 nd Mark Weaver:	(661) 305-3645	x 6705
3 rd Sergio Gonzalez:	(661) 381-3556	x 6918
4 th Derek Holland:	(661) 902-3789	x 6907
5 th Jerry Reece:	(661) 505-3782	x 6703

SANITATION DISTRICTS' ENGINEERING SPILL NOTIFY FLOW CHART

DOC#970276

Revised: May 2025

A report of potential spill received by a Sanitation Districts' employee. (Note: Whoever receives the call must log the date and time the call was received, the location of the event, and the caller's contact information.)



The employee who received the call must immediately notify LB Main at 562-437-6520 or 562-437-1881.



Long Beach Main staff follow a separate flow chart (see back side). [DOC# 970276]



**WCS/WRP*
NEXT STEP**
Does the spill involve a Districts' facility?

NO

A

B

YES

The potential spill turned out not to be a spill. WCS or WRP staff send follow up email to SpillNotify@lacsds.org (see B below).

END OF INVESTIGATION & RESPONSE

If the spill involves another agency or private party, LB Main staff notifies the other agency or party of the spill. WCS or WRP staff sends a follow-up email to SpillNotify@lacsds.org:

"The Los Angeles County Sanitation Districts have completed an initial investigation of the potential sewer spill at the intersection of _____ in the City of _____ (or other description of the location). As follow-up to the e-mail sent to your office on [provide date and time], we have determined that Districts' facilities were not involved in this event, and that no further action is required on our part. This matter has been referred to _____ for resolution." **END OF INVESTIGATION**

Within 15 min of confirmation of an LACSD spill, contact LA County Department of Health Services at (213) 974-1234 and provide information on spill location, volume, status (ongoing/stopped), and if the spill reached surface waters. Obtain Ticket Number for records.

Within 2 hours of becoming aware of any spill that is a Category 1 SSO greater than or equal to 1,000 gallons spilled to or that may reach a surface water, notify the California Office of Emergency Services (Cal-EMA) at (800) 852-7550. Obtain Control Number for records.

Required telephone notifications per WCS Spill Notification Procedures include: 1) Regional Water Quality Control Board (for a spill that did, or may, reach Waters of the State or have public exposure); and 2) a follow up call to Cal-EMA. Additionally, if the spill entered Orange, San Bernardino, Kern, or Ventura Counties, the WCS or WRP Section shall send an additional certification email (See DOC# 1202454 for Contact List) within 24 hours to the Los Angeles RWQCB identifying any additional agencies that were notified stating:

"This is _____ with the Los Angeles County Sanitation Districts. Sewerage system personnel are investigating a potential sewer spill at _____ the intersection of _____ in the city of _____ which has potentially travelled outside the County of Los Angeles. If you need to reach the alarm center please call (562) 437-6520.

This email certifies notification of the potential spill has been given by telephone to The (insert county name) County Department of Public Health."

Provide courtesy notification to cities affected by spill or containment activities using contacts in DOC# 3474313 .

* WRP Section is responsible for potential spills in Santa Clarita and Antelope Valleys; WCS is responsible for all others.

Attachment 4.1

DISTRICTS' REVENUE PROGRAM

A major consideration in proposing any capital construction program is the cost and impact it would have on both existing and future users. The Sanitation Districts have developed a comprehensive revenue program to address these issues. In general, this means a program, including appropriate ordinances, to allocate costs and collect revenues as needed from the users of the wastewater management system to ensure sufficient revenues for the construction and subsequent operation of facilities.

The Districts first addressed the issue of a revenue program in the May 1979 *Report on the Future Revenue Program of the Sanitation Districts of Los Angeles County*. This report has been updated numerous times as subsequent facilities plans were submitted to the State Water Resources Control Board (SWRCB) in conjunction with State Revolving Fund (SRF) loan applications. In summary, these reports recommended a revenue program based on maximum utilization of existing sources of revenue, supplemented by revenues from two additional programs: the Service Charge Program and the Connection Fee Program. Historically, existing sources of revenue included ad valorem taxes, grants and loans, investment income, contracts, industrial waste surcharge, and annexation fees. The two new programs (Service Charge Program and the Connection Fee Program) were made necessary as a consequence of the reduction in ad valorem taxes following the adoption of Proposition 13, the California Property Tax Initiative.

Key elements of the **Service Charge Program** include:

- Existing users are charged for operation and maintenance (O&M) and upgrade capital costs.
- Charges are based on usage of the system (estimated by user category and facility size).
- Charges are based on a combination of flow and strength (chemical oxygen demand and suspended solids).
- Dischargers may receive a rebate based on demonstrated water usage below the estimated loading of their particular user category.
- Charges are collected as a specific lien on the property tax bill.

Key elements of the **Connection Fee Program** include:

- New users or existing users who significantly increase their discharge are charged a one-time fee for the incremental cost of expanding capital facilities to accommodate the new discharge.
- Charges are based on the anticipated usage of the system (estimated by user category and facility size).
- Charges are based on a combination of flow and strength (chemical oxygen demand, and suspended solids).

Capital improvement projects necessitated by increased flows or strengths are funded through the Districts' Connection Fee Program. Each District has implemented a Master Connection Fee Ordinance which establishes the structure and mechanism for levying and collecting connection fees. Connection fees are levied upon all dischargers who either are connecting to the sewerage system for the first time or who are significantly increasing their level of discharge. The program is designed such that each user pays for the cost of constructing the capacity required to accommodate the user's anticipated discharge. In this way, existing users will not be obligated to subsidize new users as they enter the system. Anticipated discharge is measured in terms of flow and strength (chemical oxygen

demand and suspended solids), and based on loadings per unit of usage (for residential and commercial users) or by an engineer's evaluation of the actual facility (for industrial waste users). The connection fee rate is divided into two parts, the capital portion and the operational cost portion. The capital portion shall be determined by multiplying the total revenue received by the proportion of the connection fee rate attributable to the capital components. The remainder of the fee, the operational cost portion, shall be deposited into the District's Operating Fund. The capital portion of the are only withdrawn to pay for capital projects or to make interfund loans to pay for other capital projects as provided in the Master Connection Fee Ordinance.

Budgetary Process

Each District's budget consists of three major categories: (i) operation and maintenance, (ii) capital, and (iii) debt service. Costs within the first two categories can be further subdivided into two sub-groups: those related to the operation and ownership of joint facilities and those related to a District's individually owned and operated facilities. For those Districts that are members of the Joint Outfall System, the vast majority of these costs are joint. With respect to the outlying Districts, almost all the costs are individual costs and any joint costs are those pertaining to joint administration of the Districts.

O&M Budget

Operation and maintenance budget estimates are prepared each year by the Districts' staff members based upon historical information and projected changes in the sewerage facilities or requirements for the upcoming fiscal year. As many of the costs (e.g., pumping and chemicals) are directly related to flow, projections of the anticipated flows at each facility are made concurrently. Staffing requirements and changes in salaries and wages are also incorporated into the budget. These figures are projected over 20 years, and anticipated changes or other anomalies are incorporated.

Capital Budget

Capital budget estimates for the collection system are based on the Report of Recommended Facility Improvements, which is updated annually. Projects for each Sanitation District are rated and scheduled in the Capital Improvement Plan (CIP) based on priority.

For the treatment plants, recommended capital improvements to various treatment plants are based on operational considerations and scheduled based on priority. Costs and estimated schedules are developed and the projects are included in the CIP.

Debt Service

Debt service consists of the annual interest and principal payments on both bonds and loans. Each year these amounts are adjusted to include any new bonds or loans that may have been issued or incurred during the previous year. Adjustments are also made for any bonds or loans that may have been retired during the previous year.

Once all the costs (operations, maintenance and capital, including debt service) have been identified, joint costs are apportioned to the respective Districts. The apportionment is based on the proportionate

usage, as measured by total sewage units in each District. The apportioned joint costs are then added to each District's individual costs (including debt service) to determine that District's total budget.

The known revenue sources are identified after budget expenditures are projected. The Districts' primary revenue sources (other than service charges and industrial waste surcharges) include the Districts' share of ad valorem taxes, investment income, and contract revenue. To the degree that there are expansion-related capital projects, the capital improvement fund (accumulated connection fees) will also be utilized as a revenue source. Bond and loan proceeds are used as a revenue source to offset capital expenses if they are available; the corresponding debt service will be included as an expense in subsequent years. The remaining difference between the expenditures and known revenues equals the amount of supplemental revenue that must be collected through the user charge program. The user charge rate is equal to the required supplemental revenue divided by the total number of equivalent users (sewage units) in the District. This process is repeated for each year of the planning period, and adjustments are made for to stabilize rates. Transfers to and from each District's Designated Reserves may occur each year depending on whether there is a net surplus or deficit when comparing the expenses and revenues above.

Every year each District's Board of Directors is presented with a preliminary budget and projected service charge rates. If a rate increase is recommended, individual mailed notices are sent to every property owner which comply with to the terms of Proposition 218 informing them of a scheduled public hearing. As described herein, after the public hearing and review by the Directors, the Board of Directors sets the service charge rates by ordinance. If no rate increase is proposed, the Board of Directors need only consider the adoption of a resolution for the continuation of the collection of the service charge on the tax roll. In June each Board of Directors is presented with a final budget (including any revisions to its preliminary budget) for its consideration and approval. At the same time, pursuant to California law, each District's Board of Directors must adopt an appropriations limit relating to the proceeds of taxes.

Attachment 6.1



SPILL EMERGENCY RESPONSE PLAN (SERP)

INTRODUCTION

The primary goal of the Sanitation Districts' sewer maintenance program is the protection of public health and the environment. An effective system-wide management program must encompass the response measures necessary to minimize any public health and environmental impact when spills do occur. To accomplish this, the Sanitation Districts operate a two-pronged response to spills that directs efforts to stop the spill simultaneously with efforts to contain and recover the wastewater discharged. Quick response to emergency situations has prevented many releases of wastewater to receiving waters.

SPILL RESPONSE GOALS

The Sanitation Districts' goals regarding spill response are:

1. Respond to the scene within one hour of notification of a spill and assess the situation. Promptly notify the responsible agency if the spill is not from a Sanitation Districts facility.
2. Prevent the spill from reaching the storm drain, if possible.
3. Limit public access to the spill area to prevent public contact with wastewater and any areas contaminated by wastewater.
4. Stop the spill as soon as possible.
5. Completely contain the spill as close as practical to the spill location to prevent or minimize any environmental impact.
6. Completely recover the contained spill and return it to the sewer system.
7. Clean up the area contaminated by the spill.
8. Repair damaged facilities that caused or contributed to the spill.
9. Gather and compile pertinent information pertaining to the spill, simultaneous with response efforts, and notify appropriate regulatory agencies of the spill and response status as soon as practical.
10. Conduct investigations to determine the probable cause of the spill, document the events during the spill and response activities, estimate the approximate volume of the spill, and identify and implement measures to prevent recurrence.

NOTIFICATION, INVESTIGATION AND MOBILIZATION

The Sanitation Districts maintain a continuously staffed Central Alarm Center at its Long Beach Main Pumping Plant. When a report of an SSO is received, the on-duty operator asks for pertinent information, such as, the caller's name, address and phone number, the spill location and a description of the spill. This information is transmitted immediately to the LACSD first responder. Reports of spills to the Central Alarm Center are logged into an asset management database as a service request.

The following occurs upon receipt of notification of a potential spill:

- *Determination if Sanitation Districts' Facilities Could be Involved* – Staff makes a determination of whether the spill could involve a Sanitation Districts facility using sewerage facility maps and

SPILL EMERGENCY RESPONSE PLAN

other resources. If it is possible that Sanitation Districts' facilities are involved, staff immediately mobilizes primary responders and notifies regulatory agencies as detailed below.

- *Dispatch of Personnel to Investigate* – If it is possible that Sanitation Districts Facilities could be involved, a Sanitation Districts representative is immediately dispatched¹ to the location of the reported spill to investigate.
- *Spill Notification* – Procedures are initiated in accordance with spill notify chart (SSMP Attachment 2.8)
- *Dispatch of Staff and Equipment* – When the initial report indicates with high likelihood that a wastewater spill has been caused by a problem with a Sanitation Districts' facility, scheduled work is stopped and all necessary equipment, vehicles, and crews are dispatched to the location of the spill or they are recalled to the field offices to support with spill relief, containment and clean-up activities. During non-workday hours, staff members are contacted and directed to report to their work site for instructions.
- *Notification of Sewer Agencies* – When staff determines from the initial report or from the reports from the first responder in the field that a spill is not discharging from any portion of the Sanitation Districts' facilities, the potentially responsible agency is notified. Actual dispatch of staff and equipment occurs only after the on-site investigation indicates that the spill was discharged from any portion of the Sanitation Districts' sewer system.
- *Notification of Management Personnel* – Appropriate management personnel are notified (if they have not already been notified) and any personnel necessary for office support of the field response are mobilized.

RESPONSE

The spill response is directed in the field by supervisors and/or managers who are trained to implement this response plan and experienced in responding to spills with additional operations, maintenance, and engineering staff available for support. Although each spill event is unique, the Sanitation Districts respond to spills as required in the monitoring and reporting requirements of this General Order, state law and regulations, and applicable Regional Water Board Orders and permits. Most spill responses follow a reasonably standardized fashion:

- Several crews are sent to the scene, each under the direction of a lead worker or supervisor.
- One crew is responsible for corrective action needed to stop the spill.
- Another crew is responsible for containment, recovery, and cleanup of the spill.
- Personnel from the above two crews and/or separate crewmembers are responsible for managing the public/traffic in the area affected by the spill.

The individual steps involved in the response to a wastewater spill event include the following:

1. Corrective Action and Site Control
2. Containment and Recovery
3. Cleanup
4. Sampling
5. Notification and Reporting
6. Post-Cleanup Activities, Mitigation, and Spill Prevention

¹ Staff are available to investigate reports of an SSO on a 24-hour per day, 7-day per week basis.

SPILL EMERGENCY RESPONSE PLAN

1. Corrective Action and Site Control

Upon arriving at the spill location, concurrent actions taken by the various crews are:

- Prevent Public Access – Access to the immediate area of the spill is restricted to minimize potential impacts to public health by redirecting pedestrian and automobile traffic away from the spill using traffic cones, caution tape, barricades, or local law enforcement.

Sanitation Districts' personnel assess the extent of the spill and its potential impacts to the public health. This process involves determining if any private property owners/residents may be exposed to raw sewage, making direct contact with private property owners/residents who have been or may be directly affected by the spill, advising private property owners/residents of the potential health hazards associated with contact with raw sewage, and identifying prudent measures to be taken by private property owners/residents, such as vacating the property, to prevent contact with the spill.

Simultaneous efforts include determining the path and final destination of the sewage spill and potential exposure to the public. If wastewater from the spill is ponding in a location that can be isolated, then Sanitation Districts' personnel set up barricades to prevent public access until it can be recovered. Traffic control is set up to prevent vehicles from entering locations where the spill has contaminated public or private streets. Sanitation Districts' personnel direct pedestrians and automobile traffic away from the path and final destination of the spill. The Sanitation Districts cooperate with local law enforcement and public works officials to ensure that public exposure to the spill is minimized and to ensure spill site security.

- Prevent Wastewater Entry to Storm Drain System – The Sanitation Districts maintain a GIS mapping layer of storm drain conveyance systems and utilize it to determine the route of spill travel. When possible, Sanitation Districts' personnel contain and recover the spill in the immediate vicinity before it enters a storm drain catch basin to avoid adverse impacts to beneficial uses. Measures to affect such containment include damming the spill path with soil or sandbags in the street gutter and recovering the impounded water with a vacuum truck or combination jet-vector or using sandbags to divert the spill back into a nearby sewer manhole.
- Stop the Spill – The cause of the spill is investigated, and the necessary corrective action is taken to stop the spill and/or correct the condition that caused the spill if the spill has already stopped.

Typical corrective actions to stop a sewer spill include:

- o Clearing a pipe blockage with a jet-vector,
- o Removing debris from a manhole,
- o Upstream flow diversion,
- o Bypass of wastewater around the blockage using vacuum trucks or pumps, and
- o Bypass and repair of damaged pipe.

Corrective actions to stop a spill caused by pumping plant or force main failure include:

- o Restoring power by use of engine driven electrical generators,
- o Bypass of the pumping plant and repair or replacement of pumps or electrical switchgear, and
- o Bypass and repair of a damaged force main.

Bypass pumping is typically accomplished using portable pumps and hoses to convey flow around the blocked or damaged sewer, the inoperative pumping plant or the damaged force main. The Wastewater Collection Systems Section maintains a Spill Response Trailer, which is equipped with portable pumps and hoses of various sizes, fittings, and tools and is designed to bypass flows of up to 450 gallons per

SPILL EMERGENCY RESPONSE PLAN

minute. Larger trailer-mounted engine driven pumps are used to bypass higher flows. Vacuum tankers can also be used to draw wastewater from upstream of the affected area and discharge back to the system downstream of the affected area. When possible, diversions are used to redirect a portion or all the wastewater around the affected area in the system.

Many of the Sanitation Districts' pumping plants are specially configured to facilitate installation and operation of emergency bypass pumps in the event the normal sewage pumps are inoperable. The emergency bypass pumps are typically portable pumps sized to handle peak wastewater flow from the plant. The bypass pump can be connected to the force main or to a temporary above ground force main. The bypass pump can be powered by a portable electrical generator, if necessary.

Emergency Procedures Manuals specific to each Sanitation Districts' pumping plant are issued to and available as references for operations, maintenance, and engineering staff. The manuals provide comprehensive information on the proper response to pumping plant failures and potential spills. Available information includes proper response to power failure, high wet well level, telemetry system failure, control system failure, procedures to bypass the plant and force main, and emergency spill response information including low manhole location, storage time in the tributary sewer system, and containment location and estimated travel time to the containment location. Contingency plans for force main leaks and failures are incorporated into the individual manuals.

When a damaged gravity sewer or force main pipe causes a spill, emergency repairs are immediately initiated. The Sanitation Districts' Wastewater Collection Systems Section (or Water Reclamation Plants Section) will obtain assistance from Sanitation Districts Field Engineering Section, who will hire and manage a contractor to perform the repairs based upon established guidelines.

2. Containment and Recovery

Containment and recovery of the spill should occur as close as possible to the site of the spill, preferably in the street curb and gutter, to minimize the length of the storm drain system affected by the wastewater. In some cases, the spill enters the storm drain system prior to arrival of the Sanitation Districts first response personnel due to the urban nature of most of the Sanitation Districts' service area. In some cases, engineering, supervisory and/or management staff identify the most practical containment location in the storm drain system downstream of the spill. In the selection of the best containment location, staff must consider many factors, including:

- The time the spill started,
- The spill route through the storm drain system,
- The time needed to install a containment dam,
- The travel time for the spill to reach the containment location,
- Safe access to the containment location for personnel and equipment, and
- The availability of a nearby sewer with sufficient capacity into which recovered wastewater can be returned.

Once a suitable containment location is identified, the crew responsible for containment performs the following:

- Deploys a sandbag containment dam or otherwise prevents the flow of wastewater and contaminated street runoff into the storm drain system, and
- Deploys vacuum trucks or portable pumps and piping, as necessary to discharges the contained wastewater, dry weather runoff, and potable water (used for cleaning) back to the sewer system.

SPILL EMERGENCY RESPONSE PLAN

3. Cleanup

After the spill has been stopped, the following steps are taken:

- Recover Locally Impounded Wastewater – All locally impounded wastewater is recovered with a vacuum truck or combination jetter-vacuum truck and returned to the sewer system.
- Collect Wastewater Debris – All visible debris of wastewater origin from the spill location(s), street(s), curb and gutters, and the spill runoff path is physically removed.
- Flush Affected Area – Spill location(s), street(s), curb and gutters, and the runoff path are flushed with potable water. The flush water is also recovered and discharged to the sewer system.
- Flush Storm Drain and Conduct Dye Study – When possible or needed, additional potable water is used to flush the spill runoff path within the storm drain system. When appropriate, this flush water is marked with a nontoxic, visible dye. Arrival of the dye at the containment location establishes the actual travel time to the containment location. Recovery of the dye confirms completion of spilled wastewater and flush water recovery.

In cases where a spill affects pervious surfaces, the Sanitation Districts perform clean up in accordance with its *Procedures for Clean-Up Activities After Sewage Spill to Pervious Land Areas*.

Private properties impacted by spills or backups within the Sanitation Districts system are cleaned up by a professional restoration company dispatched by the Sanitation Districts. The Sanitation Districts' Insurance and Claims Coordinator handles claims for property damage.

4. Sampling

Samples should be taken of spills as soon as possible by the first responder. Whenever there is a possibility that a spill may reach receiving waters, samples are taken to evaluate the potential impact on water quality. Samples should be drawn from the location(s) most likely to be impacted by the spill and also from a location or locations that can be used to establish background water quality. Wastewater Collection Systems Section and Reuse and Compliance Section engineers and scientists determine the appropriate number and locations for monitoring. Staff in the Client Services Group at the Sanitation Districts' Laboratory are contacted and informed as to when the samples will be delivered to the laboratory, so that bacterial testing can begin immediately.

Sampling is conducted by Engineering Technicians who have been trained in proper sampling techniques. The samples are analyzed for ammonia, total coliform, fecal coliform, *Escherichia coli* (if fecal coliform tests positive), *Enterococcus*, and other constituents that may be appropriate based on the nature of the receiving water and the spilled wastewater. The laboratory results are compared with background levels of the receiving waters. Because it takes approximately 24 hours for the bacterial analyses, a second round of sampling is conducted within 24 hours of the first unless full containment and recovery of the spill can be confirmed. If sample results indicate elevated levels in receiving waters, sampling is continued until the results of two consecutive sets of bacteriological monitoring indicate a return to background levels. Detailed sampling procedures are described in the Sanitation Districts' *Procedures for Sampling and Internal Notification in Case of Sewage Spills*.

5. Notification and Reporting

The Sanitation Districts are required to report wastewater spills within two hours of confirming the spill to various regulatory agencies, including the appropriate Regional Water Quality Control Board, the County Department of Health Services (County Operator), and the State Office of Emergency Services. All spills are reported to the State Water Resources Control Board using the California Integrated Water Quality System (CIWQS) as required by the Monitoring and Reporting Program for Order No. 2022-0103, "Statewide General Waste Discharge Requirements for Sanitary Sewer Systems." The reporting

SPILL EMERGENCY RESPONSE PLAN

requirements under this program vary according to location of the spill and the amount of wastewater spilled. Sanitation District' document *Collection System Spill Notification Procedures and Sewage Spill Response Summary* guide staff for notification and reporting procedures for different categories of spills. National Pollution Discharge Elimination System (NPDES) permits for water reclamation plants and wastewater treatment plants downstream of a spill contain additional reporting requirements. The Sanitation Districts' Technical Services Department Reuse and Compliance Section assists in evaluation of reporting requirements and preparation of written reports.

6. Post-Cleanup Activities, Mitigation, and Spill Prevention

Once clean-up of a spill is complete, the incident must be reviewed and any appropriate measures to prevent recurrence must be implemented. Follow-up CCTV inspection is performed when a spill was caused by a blockage to verify complete removal of the material causing the blockage. If the spill was avoidable by preventative maintenance, then maintenance activities are added or adjusted as necessary. An example is to increase the frequency of line cleaning where heavy grease build-up has caused a spill to occur, while source control efforts are reviewed. If the spill was caused by factors generally outside the Sanitation Districts' control, such as vandalism, steps are still taken to minimize recurrence such as strengthening security by locking down manhole covers, and increasing area surveillance, and requesting neighborhood assistance in reporting vandalism, as practical.

Regardless of the size or type of spill, all spills are investigated thoroughly. Following the investigation, the Sanitation Districts documents and includes the following as part of the Sanitation Districts' internal spill records:

- Time, date, duration, and events of the spill
- Probable cause of the spill
- Spill volume estimation as described in the Sanitation Districts' document *Sanitary Sewer Spill Volume Estimation*
- Discharge route and containment location map
- Clean up activities
- Pipe age, size, and material
- Measures to prevent recurrence

Policies and procedures are upgraded as appropriate to prevent recurrence of accidental spills due to procedural errors by Sanitation Districts' staff and contractors. Sanitation Districts' personnel administering contract sewer repair, rehabilitation and replacement projects are required to enforce contract provisions. Especially important is enforcing the Contractors' approved *Emergency Spill Response Plans*, which are intended to prevent and limit the impact of accidental spills, and the Contractors' *Bypass Pumping Plans*, which are required when contract work requires sewage to be bypass pumped. These plans include provisions for the following:

- Redundant piped-up bypass systems,
- Constant monitoring of water levels in pump suction or upstream manholes during bypass operations,
- Surge limitations during bypass operations,
- Sealing of storm drain catch basins, and
- On-site availability of vacuum trucks.

EMERGENCY RESPONSE PERSONNEL AND EQUIPMENT

The Sanitation Districts maintain resources to respond to emergencies, including power failure, mechanical and electrical equipment breakdown, sewer blockage, pipe failure, and vandalism. The urgency and seriousness of any wastewater spill results in the full commitment and availability of all staff in the

SPILL EMERGENCY RESPONSE PLAN

Wastewater Collection Systems Section to respond. Additional Sanitation Districts' personnel are utilized for specialized assistance as needed. Contractors with emergency response capabilities are also used to assist in emergencies as needed.

Internal Personnel

An emergency contact list is maintained which includes the home phone number of all employees in the Wastewater Collection Systems Section. All supervisors and managers in the Wastewater Collection Systems Section are assigned cell phones and are accessible 24-hours a day, 7 days a week. The Wastewater Collection Systems Section is generally divided into two groups - Operations & Maintenance and Engineering. The Operations & Maintenance Group is further divided into subgroups – Sewer Maintenance, Pumping Plant Operation & Maintenance, Engineering Technicians, and Electrical and Instrumentation Technicians.

When needed, the Sanitation Districts' Construction Management Section supervises emergency work performed by contractors. A list of pre-qualified emergency response contractors is maintained. Contractors can be retained to perform emergency repair work on a time and materials basis under the emergency authority granted the Chief Engineer and General Manager by the Sanitation Districts' Boards of Directors. This emergency authority is granted for each incident and is described in the document, *Rules, Regulations, and Policies for the Purchase or Lease of Materials, Supplies, Equipment, Services, and Construction Projects, and for the Sale and Disposition of Districts' Property* which was adopted by the Sanitation Districts' various Boards of Directors between 2022 and 2023.

External Contacts

The Sanitation Districts maintain a comprehensive list of external agency contacts for notification and coordination with emergency response. The list includes contacts for health departments, cities, adjacent counties and Regional Water Quality Control Boards. These lists are updated annually to facilitate prompt response to spill events.

Emergency Equipment

In addition to the normal compliment of equipment utilized by the Sanitation Districts for maintenance and repair of the sewerage system, specific items are maintained for use during emergency conditions. Such equipment includes:

- Combination jetter-vacuum truck to clear pipe blockages.
- Portable engine driven electrical generators for use at pumping plants during power outages.
- Vacuum tankers to transport flow around blockages or to remove wastewater from a containment location in a street or storm drain.
- Submersible pumps for use as emergency pumps to bypass wastewater around a pipe blockage or a malfunctioning pumping plant.
- Pre-filled sand bags, flat bed and boom trucks for use in establishing containment dams.
- Front loaders for emergency earth moving operations.
- Portable engine driven centrifugal pumps (trash pumps) to bypass wastewater around pipe blockages and remove wastewater from storm drain channel containment locations.
- Hoses and lightweight quick connecting piping in various sizes for use in bypass pumping.
- Pipe repair clamps, inflatable sewer plugs, and other miscellaneous pipe repair parts.
- Water trucks for use in clean up operations.
- Portable lights, air compressors, centrifugal blowers, and other miscellaneous equipment.

SPILL EMERGENCY RESPONSE PLAN

POST-SPILL ASSESSMENT

After each spill, a post-spill questionnaire will be completed by Sanitation Districts staff from each section that participated in the spill response. The questionnaire allows for feedback and the ability to address areas of immediate concern between annual updates of this SERP.

TRAINING

Training of Wastewater Collection Systems Section, Reuse and Compliance Section, Laboratories Section, Water Reclamation Plant Section, and Palmdale WRP personnel in the goals and procedures of this SERP is accomplished in annual emergency response classroom training. Each training session requires staff to complete a checklist to record pertinent information regarding the various procedures completed during a spill response. On-the-job training is administered to subordinate staff, by experienced supervisors and lead workers, during and following actual spill events to further reinforce the annual training and to analyze event specific issues. Lastly, appropriate staff is trained on collecting spill water quality samples for clean-up and reporting purposes when assigned the task and every three years subsequently.

ANNUAL SPILL EMERGENCY RESPONSE PLAN UPDATE

Annual assessment of this SERP is conducted in coordination with the annual classroom training. A compilation of all post spill assessments for the year is evaluated, and suggestions are incorporated into the SERP to better serve staff response to spill events.

CHANGE LOG

June 4, 2023 - 1.0 - Initial Spill Emergency Response Plan update from Overflow Emergency Response Plan to satisfy reissued Sanitary Sewer System Waste Discharge Requirements (SSS WDR).

Attachment 6.2



LOS ANGELES COUNTY SANITATION DISTRICTS

Converting Waste Into Resources

SANITARY SEWER OVERFLOW SPILL VOLUME ESTIMATION PROCEDURES

This document outlines the three main methods used by the Sanitation Districts to estimate the volume of a sanitary sewer spills. Staff will prepare a spill volume estimate utilizing the most appropriate method or combination of methods with best information available for each sewer spill.

All sanitary sewer overflow spill volumes are estimated using the Sanitation Districts' *Spill Volume & Computation Form Package* included in these procedures. The package includes the most applicable forms, worksheets and spreadsheets to estimate spill rates and volumes. Staff should gather detailed information about the sanitary sewer overflow and choose one or more of estimation methods to best calculate the spill volume. Below is a brief description of each estimation method:

- 1) Visual Estimation: This method is used for smaller spills of short duration. Staff make their best estimate of how many containers (e.g. 1 gallon jugs, 5 gallon buckets, or 55 gallon drums) are required to capture the spill. The corresponding number of containers and respective volumes are summed up to calculate the spill volume.
- 2) Area-Volume Estimation: This method is used to estimate spill volumes for medium to large spills that have stopped and where wastewater has ponded. Staff use the included *Area-Volume Estimation Worksheet* to sketch the spill area shape and measurements are confirmed using a measuring tape or wheel. Staff can then separate the larger area into smaller squares, rectangles, or triangles to more easily calculate area. The smaller areas are added up to provide the overall spill area. Staff also measure spill depth, which is then multiplied by the overall spill area, to calculate the spill volume.
- 3) Flowrate Estimation: This method is generally used for medium to large spills that have already flowed or are actively flowing from a sewer or manhole. Flow rate data can be acquired from multiple sources. The flowrate results are multiplied by the spill duration to obtain the total estimated spill volume. The following methods are used for estimating flowrate:

- a. Flow Monitoring Data: The Sanitation Districts regularly monitor flow in its sewers. Staff look to see if recent flow data near a spill area is available to represent the flowrate from a spill event. If no recent flow data is available, staff may deploy monitoring equipment after a spill to more accurately estimate the flowrate.
- b. Manhole Pick-hole and Manhole Ring Flowrate Estimation: Staff use pictures or field measurements to estimate the water height flowing out of the manhole pick-hole and gap between the manhole cover and ring. This data is then input into a spreadsheet titled *Flowrate from Manhole Pick-hole and Manhole Ring* to estimate the flowrate and spill volume using the spill start and end times. The spreadsheet uses hydraulic orifice equations to estimate the flows.
- c. Street Gutter Flowrate Estimation: Staff measure and/or estimate the water depth, the flow path width, and the street slope. This information is then used to fill out the spreadsheet titled *Street Gutter Flowrate* to estimate the flowrate and then the spill volume using the spill start and end times. The spreadsheet uses a Manning's hydraulic equation to estimate the flows.
- d. Manhole Flowrate Visual Estimation: Staff may sometimes estimate the flowrate coming from a manhole based on pictures or eyewitness accounts by referencing the *Manhole Flowrate Visual Estimation*. The guide shows pictures of a standard 24-inch manhole with a simulated spill rates using potable water. Staff compare pictures or spill descriptions to these pictures to better estimate spill flowrates.
- e. Sewer Flowrate Estimation: Staff use the sewer pipe diameter, slope, and flow level in the sewer to estimate the flowrate using the spreadsheet titled *Sewer Flowrate Worksheet*. The spill volume can then be estimated using the flowrate and spill start and end times. The spreadsheet uses a Manning's hydraulic equation to estimate the flowrate.

General Information of SSO for Volume Estimations

Date Notified _____

Time Notified _____

Name of Sewer or
Pumping Plant _____

Manhole Number
(if applicable) _____

Estimated SSO Start Date _____ Time _____

Estimated SSO End Date _____ Time _____

Estimated Duration of
spill (minutes) _____

Spill Description _____

Circle/Highlight Impacted Surface type

- Asphalt Concrete Soil
- Landscape Building Other: _____

Visual Estimation Worksheet

Use best judgement on how many containers will capture the spill using the table below

*Fill out yellow filled cells and all other numbers will calculate

Container Type	Number of containers	Volume of Container (Gallon)	Estimated Volume
1 Gallon jug		1	0
5 Gallon Bucket		5	0
55 Gallon Drum		55	0
Estimated Total Volume			0

Gallons

Area - Volume Estimation Worksheet

Circle Surface Type

Asphalt

Concrete

Soil

Landscape

Building

Other: _____

1. Draw/Sketch outline of spill footprint
2. Draw as many squares/rectangles needed to cover entire spill area
3. Estimate percentage of spill each square/rectangle encompasses

For stain on concrete use depth of 0.0026'

For stain on asphalt use depth of 0.0013'

	Length (ft)		Width(ft)		Average Depth (ft)		% wet (in decimal)		Conversion from ft ³ to gallons	Estimated Volume
Area 1	_____	x	_____	x	_____	x	_____	x	7.48	_____
Area 2	_____	x	_____	x	_____	x	_____	x	7.48	_____
Area 3	_____	x	_____	x	_____	x	_____	x	7.48	_____
Area 4	_____	x	_____	x	_____	x	_____	x	7.48	_____
Area 5	_____	x	_____	x	_____	x	_____	x	7.48	_____
Area 6	_____	x	_____	x	_____	x	_____	x	7.48	_____
Area 7	_____	x	_____	x	_____	x	_____	x	7.48	_____

Estimated Total Volume

Gallons

Flowrate from Manhole Pick-hole and Manhole Ring Worksheet

Spill flowrate and volume determination based on flow out pick-hole or opening		
Diameter of pick-hole or opening	1	inches (typically pick-hole is 1 inch)
Height of water out of pick-hole/opening		inches
Flowrate per pick-hole/opening (gpm)	0	gpm
# of pick-holes/openings	2	(typically have 2 pick-holes on manhole)
Total flowrate (gpm)	0	gpm
Duration of spill (minutes)		minutes
Total flow (gallons)	0	gallons
<u>Calculations</u>		
Area (A)	0.005451389 ft ²	
Height in feet (h)	0 ft	
Flowrate (Q) (cfs)	0 cfs	
$Q = 0.639 * A * (2 * 3.2 * h)^{(1/2)}$		
Spill flowrate and volume determination based on flow from around the ring of a MH cover		
Diameter of MH	24	inches (our manhole covers typically are 24 inches or 36 inches)
Gap between Frame and cover	0.0625	inches (Based on half of a 1/8" gap) (typically do not change this value)
Height of water around Cover		inches
Flowrate from ring/gap (gpm)	0	gpm
Total flowrate (gpm)	0	gpm
Duration of spill (minutes)		minutes
Total flow (gallons)	0	gallons
<u>Calculations</u>		
Gap Area Between MH Ring and Cover	0.032793511	ft ²
Flow Rate (Q) (cfs) ring/gap	0	cfs
Flow Rate (Q) (gpm) ring/gap	0	gpm
$Q = 0.639 * A * (2 * 3.2 * h)^{(1/2)}$		
ESTIMATED TOTAL VOLUME		
Total flow (gallons) (Pick-hole + Gap)	0	gallons

*Fill out yellow filled cells and all other numbers will calculate

Street Gutter Flowrate Worksheet

Spill flowrate and volume determination based on flow in gutter along curb		
Depth of flow at curb face (inches)		inches
Extension of flow into street/gutter (inches)		inches
Slope of gutter/street		
Flow rate (gpm)	#DIV/0!	gpm
Duration of spill (minutes)		minutes
Total flow (gallons)	#DIV/0!	gallons
<u>Calculations</u>		
Area of flow (bxh/2) (A)		0 ft ²
Parameter (b+h) (P)		0 ft (assume base length of triangle equals hypotenuse of cross section flow)
Hydraulic Radius (R = A/P)	#DIV/0!	ft ²
Slope (S)		0.00%
Flowrate (Q) (cfs)	#DIV/0!	cfs
$Q = 1.49/0.014 * A * R^{(2/3)} * S^{0.5}$		

*Fill out yellow filled cells and all other numbers will calculate

Manhole Flowrate Visual Estimation

1. Compare Picture of SSO Manhole with pictures below

*Sanitation Districts used potable water at set flow rates to pump through a 24" manhole and cover.

Notice that the top row are pictures of unsealed manholes and the bottom row are pictures of sealed manholes.

UNSEALED MANHOLES



10 GPM



20 GPM



50 GPM



100 GPM



150 GPM

SEALED MANHOLES



10 GPM



20 GPM



50 GPM



100 GPM



150 GPM

*The pictures are from DOC # 2932015 titled *WCS OVERFLOW ESTIMATION METHOD*

2. Estimate which picture best describes the spill. If the flow coming out of the manhole appears to be in between two of the pictures, use the pictures to determine a flow rate that is in between.

Estimated SSO Flow Rate: _____ GPM

Estimated Spill Duration: _____ Minutes

Estimated Total Spill Volume: _____ Gallons

Sewer Flowrate Worksheet

Flowrate in a sewer based on diameter and flow depth						
Pipe diameter	8	inches	0.67	ft	$D^{(8/3)}$	0.339175
Calc Min Slope	0.0087	based on 3 fps at half full				
Actual Slope	0.0040					
Flow level		Actual Slope Flowrate (cfs)	Actual Slope Flowrate (gpm)	Calc Min Slope Flowrate (cfs)	Calc Min Slope Flowrate (gpm)	
10%	Full	0.01	7	0.02	10	
20%	Full	0.06	28	0.09	41	
25%	Full	0.10	44	0.14	64	
30%	Full	0.14	62	0.20	92	
40%	Full	0.24	107	0.35	158	
50%	Full	0.36	159	0.52	234	
60%	Full	0.48	213	0.70	314	
70%	Full	0.59	266	0.88	392	
75%	Full	0.65	290	0.95	426	
80%	Full	0.69	311	1.02	458	
90%	Full	0.76	339	1.11	499	
100%	Full	0.71	318	1.04	468	

Useful Conversions Sheet

inches	to	feet
1/8	=	0.01
1/4	=	0.02
3/8	=	0.03
1/2	=	0.04
5/8	=	0.05
3/4	=	0.06
7/8	=	0.07
1	=	0.08
2	=	0.17
3	=	0.25
4	=	0.33
5	=	0.42
6	=	0.50
7	=	0.58
8	=	0.67
9	=	0.75
10	=	0.83
11	=	0.92
12	=	1.00

1 ft³ = 7.48 gallons

1 CFS = 449 GPM

1 ft = 12 inches

Wet Stain on a Concrete Surface - For a stain on concrete, use **0.0026'** (1/32"). For a stain on asphalt use **0.0013'** (1/64"). These were determined to be a reasonable depth to use on the respective surfaces through a process of trial and error. A known amount of water (one gallon) was poured onto both asphalt and concrete surfaces. Once the Area was determined as accurately as possible, different depths were used to determine the volume of the wetted footprint until the formula produced a result that (closely) matched the one gallon spilled. 1/32" was the most consistently accurate depth on concrete and 1/64" for asphalt. This process was repeated several times.

Attachment 6.3



Memorandum

Date: June 12, 2024

To: Andre Schmidt *AS*
Wastewater Collection Systems Manager
Wastewater Collection Systems Section

From: Darrell Hatch *DH*
Supervising Engineer
Wastewater Collection Systems Section

Subject: **Wastewater Collection Systems 2023 Capital Improvement Plan Report**

The *2023 Wastewater Collection Systems Section Capital Improvement Plan Report* (WCS-CIP Report), prepared by the Wastewater Collection Systems Section (WCS), includes a comprehensive list of all WCS projects recommended for rehabilitation, relief and/or facility improvements. The purpose of this Report is to identify and prioritize all capital improvement projects recommended by WCS to facilitate in the planning, budgeting, and coordination of these projects. The main body of this report is now being delivered via the WCS intranet site through a Microsoft Power BI dashboard (described in Table 1), which dynamically links WCS’s condition assessment database to other relevant databases to allow real-time access to project data. The dashboard name is **WCS 2023 CIP Report** and can be accessed from the [Power BI \(powerbigov.us\)](https://powerbigov.us) link on the WCS Intranet page.

Table 1: Power BI Dashboard Descriptions

Dashboard Name	Description
WCS CIP Projects	A list of all active Proposed Projects entered by WCS into Unifier.
CIP Project Reach Data (Planning)	A reach-by-reach list of all projects entered into Unifier by WCS and as listed in the WCS CIP Database.
CIP Project Reach Data (Design/Construction)	A reach-by-reach list of all discrete projects in Unifier and as listed in the Sewers-In-Design Database.
All Reaches Data	A table of all sewer reaches with a data comparison of the WCS CIP and Sewers-In-Design Databases.
Gantt Chart	A chart of all active projects and the start and end dates from Unifier.
Structural Condition	Collection System Structural Condition Pie Chart based on current Condition Ratings.
Rehab Progress	Bar Chart showing sum (by length) of all Condition Rating 1, 2A, 2B and 3 reaches and their project status (Not on a project, Planning Phase, In Design, or In Construction).
Budget by Project Phase - Districts	Sum of Districts’ Budgets separated into project status (Planning Phase, In Design, or In Construction).
Budget by Project Phase – JOS	Sum of JOS’ Budgets separated into project status (Planning Phase, In Design, or In Construction).
WCS Projects	List of discrete projects to be completed by WCS or later packaged for Sewer Design or C&M Design.

Sewer Design Projects	List of discrete projects to be completed by Sewer Design.
C&M Projects	List of discrete projects to be completed by C&M Design.

Sewer rehabilitation projects are scheduled and categorized based on condition assessment and risk, which includes factors such as pipe condition, pipe material, inflow and infiltration defects, and other operational concerns. Sewer relief projects are scheduled and categorized based on flow measurements and pending development impacts. Over the past two (2) years, WCS has worked to place all NRCP, RCP-CTL, and all other corrodible pipe materials onto discrete CIP projects. Over the next year, WCS will transition all remaining Priority 2 and 3 “bucket projects” into discrete CIP projects.

Descriptions of the Districts’ Condition Assessment, Capacity Assurance, Gravity Sewer and Force Main Risk Modeling, and Rehabilitation Criteria are described below.

CONDITION ASSESSMENT

Condition assessments are routinely performed on all Districts’ sewers. The criteria currently used to categorize the pipe condition as a condition rating 1, 2A/2B, 3 or 4 priority are described below in Table 2. During the past year condition rating 2 was divided into two (2) subcategories for reinforced concrete pipe (RCP) to prioritize RCP sewers for rehab. WCS is currently developing a procedure to automate condition rating assignments based on NASSCO PACP Structural Quick Scores, which catalogs the number and severity of defects in a particular pipe reach.

Table 2: Condition Rating Criteria

Condition Rating	Description
1	Broken or missing pipe; deformed or buckling pipe; concrete corrosion with corroded or missing rebar; moderate to severe longitudinal or spiral fractures longer than joint-to-joint; severe circumferential cracks; large offset, angular, or separated joints.
2A	Concrete corrosion with rebar continuously visible or projecting; medium offset, angular, or separated joints; sag in the line. (RCP only)
2B	Concrete corrosion with any rebar visible or projecting; slight to moderate longitudinal or spiral fractures longer than joint-to-joint; moderate circumferential fractures or longitudinal fractures shorter than joint-to-joint.
3	Significant concrete corrosion with aggregate projecting or missing but no rebar visible; slight circumferential or longitudinal cracks shorter than joint-to-joint.
4	No visible indication of corrosion, cracks, or other defects. Pipe is in good condition.

The most valuable tool utilized by the Districts to determine sewer condition is CCTV. Nearly all the Districts’ sewers that can be inspected utilizing CCTV have been inspected but not all have been assigned a condition rating. The frequency of future inspection varies from one to 15 years, depending on the current condition of the pipe and pipe material, as described below in Table 3.

Table 3: CCTV Inspection Frequencies

Condition Rating	Sewer Pipe Material	CCTV Inspection Frequency (years)*
1	All Materials	1
2	Concrete and Miscellaneous Materials	1
2	Vitrified Clay	2
3	Concrete	3
	Vitrified Clay and Miscellaneous Materials	5
4	Unlined Concrete (Includes NRCP, Clay-Tile Lined RCP and Top Encased Pipe)	5
	Vitrified Clay and Miscellaneous Materials	10
	Lined Concrete and Non-corrodible Materials	15

*Inspection frequencies place a greater priority on concrete sewers because these sewers typically deteriorate at a more rapid rate than VCP sewers. Refer to memo dated June 13, 2014 (DOC 3006804) for more information on inspection frequencies.

The WCS Section has developed and maintains a condition assessment database of sewer reaches that have been inspected and assigned a condition rating. The condition assessment database is used to track changes in sewer conditions and determine the scope of each rehabilitation project and its priority. The condition assessment database does not include condition ratings for force mains or sewers needing protection from surface erosion since these projects are not associated with the internal condition of the pipe.

CAPACITY ASSURANCE

Assessing capacity for gravity sewers involves utilizing data from: 1) flow monitoring of Districts' sewers for past Clearance Diagrams and now for development of a comprehensive flow model; and 2) a capacity relief assessment program which involves the continued evaluation of the Districts' near capacity sewers. The Districts' current capacity rating system is described below in Table 4. Historically, sewers with a Capacity Rating of "A" have been recommended for relief. Sewers with a Capacity Rating of "B" or "C" are monitored annually and biennially, respectively. Relief recommendations for sewer facilities are provided on the individual project information sheets and/or the Design Requests for the given sewer facility.

Table 4: Sewer Capacity Rating

Rating	Description
A	Peak flow depth is at or above 90% pipe diameter and flows are continuing to increase; or the sewer overflows or nearly overflows during wet weather.
B	Peak flow depth is at 80 to 90% pipe diameter; peak flow depth is below 80% pipe diameter, but flows are increasing rapidly; or peak flow depth is at or above 90% pipe diameter but flows have not changed in years.
C	Peak flow depth is at 70 to 80% pipe diameter.

In addition to the capacity assessment classifications, sewers that have the potential to be impacted by future development are identified in the project description. The existing hydraulic conditions in these sewers may not

warrant immediate or near-term relief, but the sewer may need relief in the future due to additional projected flow from pending developments. These projects are tracked in coordination with the Property Management Section to determine the schedule of pending developments and rated based on when relief is needed.

GRAVITY SEWER AND FORCE MAIN RISK MODELING

Risk is a function of the likelihood of failure and consequence of failure of an asset. Likelihood of failure is defined as the probability an asset will fail in one or more ways (failure modes). Consequence of failure is defined as a qualitative measure of the direct or indirect costs of asset failure (e.g., economic, social or environmental impacts). Likelihood and consequence of failure are estimated using risk factors which are used to evaluate each asset according to established criteria. The risk factors and criteria are translated to a score where a higher score means a higher likelihood or consequence of failure. Factor scores are often weighted based on their relative importance, data quality/reliability, and the specific characteristics and/or constraints of the system and/or agency. Using the resulting likelihood and consequence of failure scores, risk is estimated using the conventional risk equation:

$$Risk = Likelihood \times Consequence$$

In addition to the numeric risk score, a risk level (e.g., from Very Low to Very High risk) was assigned to each pipe. Using a matrix of the range of likelihood and consequence of failure scores, engineering judgement is used to assign a risk level to each combination. Risk levels are useful for grouping risk scores based on agency or system specific conditions or constraints. For the Districts, the likelihood of failure carries more importance than consequence of failure because likelihood of failure can be reduced (and thus risk reduced) with a rehabilitation action, whereas consequence cannot. Therefore, likelihood of failure was weighted greater during assignment of risk levels. This can be seen in Figure 1 below as a skew of red (High and Very High risk) to the likelihood of failure top axis. More detailed descriptions of the Districts’ risk modeling efforts for gravity sewers and force mains can be referenced in reports prepared by the Districts’ consultant West Yost (see DOC 6842592, DOC 7244500 and DOC 7244499).

Figure 1: Risk Matrix with Count of Pipes (Gravity Sewers)

		Likelihood of Failure									
		1	2	3	4	5	6	7	8	9	10
Consequence of Failure	1	-	3	6	-	1	-	-	-	-	-
	2	56	516	80	224	227	99	5	-	-	-
	3	43	1,201	129	645	287	198	36	1	-	-
	4	74	1,935	806	998	1,038	405	314	76	9	-
	5	149	1,449	1,209	984	1,310	552	433	234	41	3
	6	169	702	695	465	909	493	317	171	36	-
	7	80	278	314	230	469	235	172	73	12	-
	8	80	58	154	79	218	123	94	24	3	-
	9	33	10	34	41	63	33	41	10	1	-
	10	4	-	2	3	9	3	10	1	-	-
Risk Levels		Very Low		Low		Medium		High		Very High	
Count of Pipes		2,203		12,362		6,668		2,057		27	
% of Total Count		9.4%		53.0%		28.6%		8.8%		0.1%	

REHABILITATION CRITERIA

Gravity sewers are scheduled for rehabilitation based on multiple criteria. The following criteria are established for initiation of rehabilitation, typically within the next five (5) years.

- All Condition Rating (CR) 1 sewers regardless of material and risk rating.
- All sewers categorized as “very high risk” in the sewer risk model.
- High risk CR2 RCP sewers (overall risk score ≥ 48).
- All sewers of corrodible materials for which condition is difficult to assess due to lack of visual indicators for determining severity of corrosion (NRCP, ACP, steel, ductile iron, cast iron, brick).
- All RCP clay tile lined sewers.
- CR2 RCP sewers with localized and/or accelerated corrosion due to high turbulence.
- All CR2A RCP sewers.
- All CR2 sewers that have significant inflow/infiltration defects.
- Sewers over channels or other above ground crossings that do not meet current seismic and/or structural design standards.
- All CR2A & CR2B RCP siphons.

Other considerations for initiating rehabilitation include:

- Sewers with permitting, access or environmental issues that present significant potential to impact project completion timelines and which present significant risk based on condition or overall risk rating. Examples include crossings under USACE channels.
- Sewers at risk of being exposed due to soil erosion.

When defining project scope, the following considerations are considered:

- For RCP sewers, adjacent or parallel CR2B and CR3 reaches are considered for inclusion on the project where doing so reduces overall/long-term rehab costs (by taking advantage of bypass setups, etc.) and/or significantly reduces overall/long-term impacts to traffic/residents. This is done with the understanding that these reaches would likely be rehabilitated within the next 10 years if they were not included on the project.
- For VCP sewers, adjacent CR2 reaches are considered for inclusion on the project where the necessary diversion, bypass, and/or construction setup allows for their rehabilitation with minimal additional cost other than installation of the liner.
- Other adjacent high-risk reaches are considered for inclusion on the project where there is benefit to taking advantage of the necessary bypass or diversion. This includes any unlined RCP siphon regardless of condition due to common occurrence of localized/accelerated corrosion and difficulty in accurately assessing condition because of poor inspection conditions.