

CITY OF COVINA - SEWER ENHANCED MAINTENANCE AREAS 2010

No.	LOCATION	MANHOLE		DATE
		TOOL	FOOTAGE	
1	216 N. Azusa Ave, Popeye's (North) n/o Badillo	B	500' N	
2	Azusa & Glentana (East & South) c/o Northwoods	B	600' E & 300' S	
3	Rey's Tepeyac - N. Azusa X St. Covina	B	250' North	
4	Azusa & Arrow Hwy f/o Pet's Mart (North)	B	300' N	
5	Azusa & Arrow Hwy (Northeast) Buffet (West & East)	B	450' W	
6	Conwell X/St. n/o Covina Blvd (North)	B	300' N	
7	n/b Hollenbck s/o Arrow Hwy, Gragmont x/st Heathdale	H	NE 600'	
8	Citrus & Benbow (North, East and South)	B	N 600', 50' E, 200' S	
9	524 Ivescrest (North) x/st Wingate e/o Glendora	H	low pressure 300' N	
10	1078 Wanamaker & Dodsworth (North & East) n/o Badillo e/o Grand	H	120' E	
11	E. Ruddock St. Westridge East.	H	600' E	
12	s/b Grand Ave x/st s/o Navilla Place (North)	H	145' N	
13	739 E. San Bernardino Rd (East) e/o Barranca Bender Auto	B	600' E	
14	315 E. San Bernardino Rd in alley (North & South) b/Sutton Plumb	H	180' N & 240' E	
15	San Bernardino Rd/2nd Ave (Bud's Burger/alley)	H	400' N	
16	Behind 222 San Bernardino Rd in alley (North & East)	H	215' N & 100' E	
17	119 San Jose (North & East) x/st n/o Badillo	H	E 500' & 300' N	
18	130 N. 1st Ave (North & East) x/st n/o Badillo	H	N 200' & E 600'	
19	E. College St in Alley East 600 ft r/o 31 Flavors	H	E 750'	
20	E. Center x/st Badillo North	H	N 750'	
21	Citrus between College & 21 Cottage behind Casa Moreno N 90 ft E 600 Pull line before 11a.m.	H	N 120', E 750', 300	
22	315 N. 3rd Ave f/o hospital (East) x/st s/o San Bernardino Rd	B	E 500'	
23	San Bernardino Rd & Cedar (East)	H	E 600'	
24	409 N. Cedar x/st Palm	H	N 200'	
25	San Bernardino Rd x/st Rimsdale to 1st manhole (East)	H	E 400'	
26	688 Rimsdale s/e corner (North & East)	B	N 500' & E 600'	
27	688 Rimsdale @ entrance (East)	B	S 550' E 750'	
28	Glentana x/st Vogue	H	600' & 600'	
29	576 Lark Ellen (North & East) x/st n/o San Bernardino Rd	B	400'	
30	Shoppers Ln. (alley) all manholes N. Citrus down alley East	H	N 550' Citrus E 600'	
31	Center alleyway w/o Citrus in alley to Hollenbeck Ave (East)	H	4 pulls in alley 2.440	
32	La Serena / Rowland	B	E 300'	
33	Citrus / College (Starbucks)	B	195'	

B = Bar
H = Hook

UPDATED
03/04/10

CITY OF COVINA
AGENDA ITEM COMMENTARY

MEETING DATE: July 21, 2009

ITEM NO.: PH 1

STAFF SOURCE: Steve Henley, Director of Public Works

ITEM TITLE: Public Hearing - Approval of the City's State-Mandated Sewer System Management Plan

STAFF RECOMMENDATION

- a. Conduct the public hearing; and
- b. Approve the City's state-mandated Sewer System Management Plan (SSMP) as presented.

FISCAL IMPACT

The planning and operational activities being undertaken by way of the proposed SSMP are funded through the City's Sewer Maintenance assessment and were incorporated within the previously approved rate schedule approved by the City Council. Accordingly, they will not have a negative fiscal impact upon the City.

BACKGROUND

On May 2, 2006, the State Water Resources Control Board (SWRCB) adopted a Statewide General Waste Discharge Requirements (WDR) and Monitoring and Reporting Program by issuing Order No. 2006-003-DWQ (the Order) entitled, "Statewide General Waste Discharge Requirements (WDR's) for Sanitary Sewer Systems." The regulations in the Order were born out of growing concern about the water quality impacts of sanitary sewer overflows (SSO's), particularly those that cause beach closures, adverse effects to other bodies of water, or pose serious health and safety or nuisance problems. Two major components of the WDR are:

- The requirement that owners and operators of publicly owned collection sewer systems a mile long or greater apply for coverage under the WDR; and
- The owners/operators develop and implement a system-specific Sewer System Management Plan (SSMP)

The City's SSMP has been prepared in compliance with the Order. The plan sets forth goals and actions to be followed and guidelines for various activities involved in managing, operating, maintaining, repairing, replacing and expanding the City's sanitary sewer system. Specific chapters of the SSMP address such issues as responding to an SSO occurrence in the community, including reporting obligations; legal authorities for managing the system; and ministerial actions required in monitoring, auditing, reporting and communicating with the public and regulators relative to the system's operation and maintenance. Additionally, the SSMP requires

on-going monitoring and modification, as necessary to meet the following operational requirements of the Order:

- The City’s initial SSMP is to be approved and certified by August 2, 2009
- The SSMP is to be monitored and updated no less frequent than every five years
- The SSMP must be periodically audited for effectiveness, a report compiled and kept on file and such audits must occur no less frequent than every two years
- There are reporting timeframes for both emergency and routine reporting events
- The adoption of and any revision to the SSMP must be accomplished utilizing public notification and public hearing procedures as identified in the SSMP and Order
- Copies of the approved plan must be available for public review, and when requested by the State or Local regulatory agencies copies are to be provided, including any audit reports

EXHIBITS

A. Sewer System Management Plan

REVIEW TEAM ONLY	
City Attorney: _____ _____	Finance Director:
City Manager: _____	Other:

SEWER SYSTEM MANAGEMENT PLAN

For The
City of Covina



in

Los Angeles County, California

FINAL DRAFT

July 2009

SEWER SYSTEM MANAGEMENT PLAN

for the

City of Covina

in

Los Angeles County, California

Prepared under the supervision of
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July 8, 2009

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ABBREVIATIONS / ACRONYMS

APWA	American Public Works Association
BAT	Best Available Technology
BMP	Best Management Practice
CADD	Computer Aided Design Drafting
CAL-OSHA	California Occupation, Safety and Health Administration.
CCTV	Closed - Circuit Television
CIP	Capital Improvement Plan or Program
CMC	Covina Municipal Code
CSD	County Sanitation Districts
DPW	Department of Public Works
FOG	Fats, Oil, and Grease
FSE	Food Service Establishment
GIS	Geographical Information System
I/I	Infiltration / Inflow
PC	Plumbing Code
MMS	Maintenance Management System
OES	Office of Emergency Services
RWQCB	Regional Water Quality Control Board
SMZ	Sewer Maintenance Zone
SO&M	Sewer Operations & Maintenance
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board
WDR	“Waste Discharge Requirements” -Statewide General

DEFINITIONS

Blockage or Stoppage - A build up of debris in the main sewer line or lateral, which obstructs the flow of wastewater and allows the waste flow to back up behind the blockage, sometimes causing an overflow.

Geographical Information System (GIS) – A computerized database linked with mapping, which includes various layers of information used for asset management purposes. A GIS typically contains base information such as streets and parcels. Examples of information contained in sewer system GIS files can include: a sewer main map, sewer features such as pipe location, diameter, material, condition, age, last date cleaned or repaired, and links to pictures or video inspections.

Infiltration/Inflow (I/I) -- Infiltration is generally extraneous subsurface water that enters the sewer system over long periods of time, such as groundwater seepage through joints, cracks and manhole structures. Inflow is generally extraneous surface waters that enter the system during a storm or flooding event, such as through manholes or defects in the sewer. While it is impossible to control all I/I, it is highly desirable to reduce I/I when cost-effective.

Lateral (House Connection Sewer) - The portion of sewer that connects a structure (residence or business) with the main sewer line in the street, alley or easement.

Wastewater Collection System -- All pipelines, pump stations, and other related facilities, upstream of the headworks of the wastewater treatment plant, that convey wastewater from its sources to the wastewater treatment plant.

Waters of the United States (paraphrased from 33 CFR Part 328) – All waters which are used, were used or may be used in interstate or foreign commerce; including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), adjacent wetlands, impoundments of water, etc., the use, degradation or destruction of which could affect interstate or foreign commerce; tributaries of waters so identified; and the territorial seas.

SEWER SYSTEM MANAGEMENT PLAN FOR THE CITY OF COVINA

INTRODUCTION

On May 2, 2006 the State Water Resources Control Board (SWRCB) adopted a Statewide General Waste Discharge Requirements (WDR) and Monitoring and Reporting Program by issuing Order No. 2006-003 (see Appendices A, B & C). The regulations in the Order were born out of growing concern about the water quality impacts of Sanitary Sewer Overflows (SSO), particularly those that cause beach closures, adverse effects to other bodies of water or pose serious health and safety or nuisance problems.

Two major components of the WDR are:

- (1) the requirement that owners and operators of publicly owned collection sewer systems, a mile long or greater, apply for coverage under the WDR; and,
- (2) the owners/operators develop and implement a system specific Sewer System Management Plan (SSMP).

In compliance with the first component, the City did file its application form (see Appendix D) with the SWRCB on October 30, 2006. As a result, the City received its Username and Password for accessing the California Integrated Water Quality System (CIWQS) database. Within the database reporting program, the City completed its “collection system questionnaire” and will file all subsequent updates and all required SSO reporting.

In compliance with the second component, this document has been prepared to meet the objectives contained in the WDR Order. The document is divided into 11 chapters, which closely align with the respective provisions contained in the WDR. Every section or subsection of each chapter addresses one of the key elements of the SSMP directive.

This document, with other existing agency programs referenced herein constitute the SSMP for the City of Covina. By implementing the procedures contained in this SSMP, the occurrence of SSO should decrease or possibly be avoided throughout the City’s sanitary sewer collection system.

GOALS and ACTIONS

The **goals** of this SSMP are:

1. City sanitary sewer collection system facilities are properly operated, maintained and managed to reduce frequency and severity of sanitary sewer overflows (SSO) and their potential impacts on public health, safety, and on the environment; and,
2. When a SSO occurs, prompt action is taken to identify, contain, remove the cause and then to promptly report the event to appropriate regulatory authorities and that the public is adequately and timely notified; and,
3. All SSO and system deficiencies and remedial actions taken are well documented; and,
4. City sewer system operators, employees, contractors, responders, or other agents are adequately trained and equipped to address an SSO event; and,
5. City sewer system is properly designed, constructed and funded to provide sufficient capacity to convey base flows and peak flows while meeting or exceeding applicable regulations, laws and generally acceptable practices relative to sanitary sewer system operations and maintenance.

The **actions** to be taken under the SSMP are:

1. Conduct planned and scheduled maintenance and training programs to minimize risk and the occurrence of SSO, in support of the SSMP goals.
2. When SSO's do occur, respond to the reported site in a timely manner and undertake feasible remedial actions to contain overflow impacts, including stopping the flow from reaching the storm drain or water course, if possible; and,
3. Stop the overflow as soon as possible and limit public access into the overflow area to prevent public contact with any wastewater contamination; and,
4. Completely recover the overflow and return it to the sewer system, and clean up the contaminated area; and,
5. Gather and compile all pertinent information regarding the overflow event, investigate as necessary to determine probable cause, document findings, report to the appropriate regulatory agencies in a timely manner, and file the completed report; and,
6. Condition all development and capital projects to evaluate, design and construct sewer facilities to the city approved standards and criteria.

DESCRIPTION OF THE ORGANIZATION

2.1 Management

The City was incorporated August 1901, is currently 7.0 square miles in area and serves a population of approximately 49,600 people. The City's sanitary sewer collection system is managed by the City's Public Works Department, with the FY 2007-08 budget for system operation, maintenance and administration of approximately \$1,286,000. The collection system consists of about 106.4 miles of gravity sewer lines and one (1) pump station. About 98-percent of flows from these local sewers discharge into the County Sanitation Districts (CSD) trunk sewers, throughout the community, for transmission, treatment and disposal. The remaining sewage generated within City is discharged into the adjacent City of West Covina sewer system and subsequently discharges into CSD trunk sewers for transmission, treatment and disposal.

The City has fifteen (15) budgeted positions involved with the management and operations of the sanitary sewer system. Distribution of the City's personnel is depicted in the organization chart presented in section 2.3 of this plan. These personnel provide engineering evaluation of proposed and existing sewer facilities, administer the City's sewer service charge ordinance, review and permit new service connections or development projects, maintain facility record plans and administer preventive maintenance and sewer construction programs.

2.2 Authorized Representative

The City's Director of Public Works is the authorized representative who is responsible for the execution of compliance actions required under the WDR. This includes, but is not limited to, signing and certification of all reports and correspondence as required under this order.

2.3 City's Responsibilities

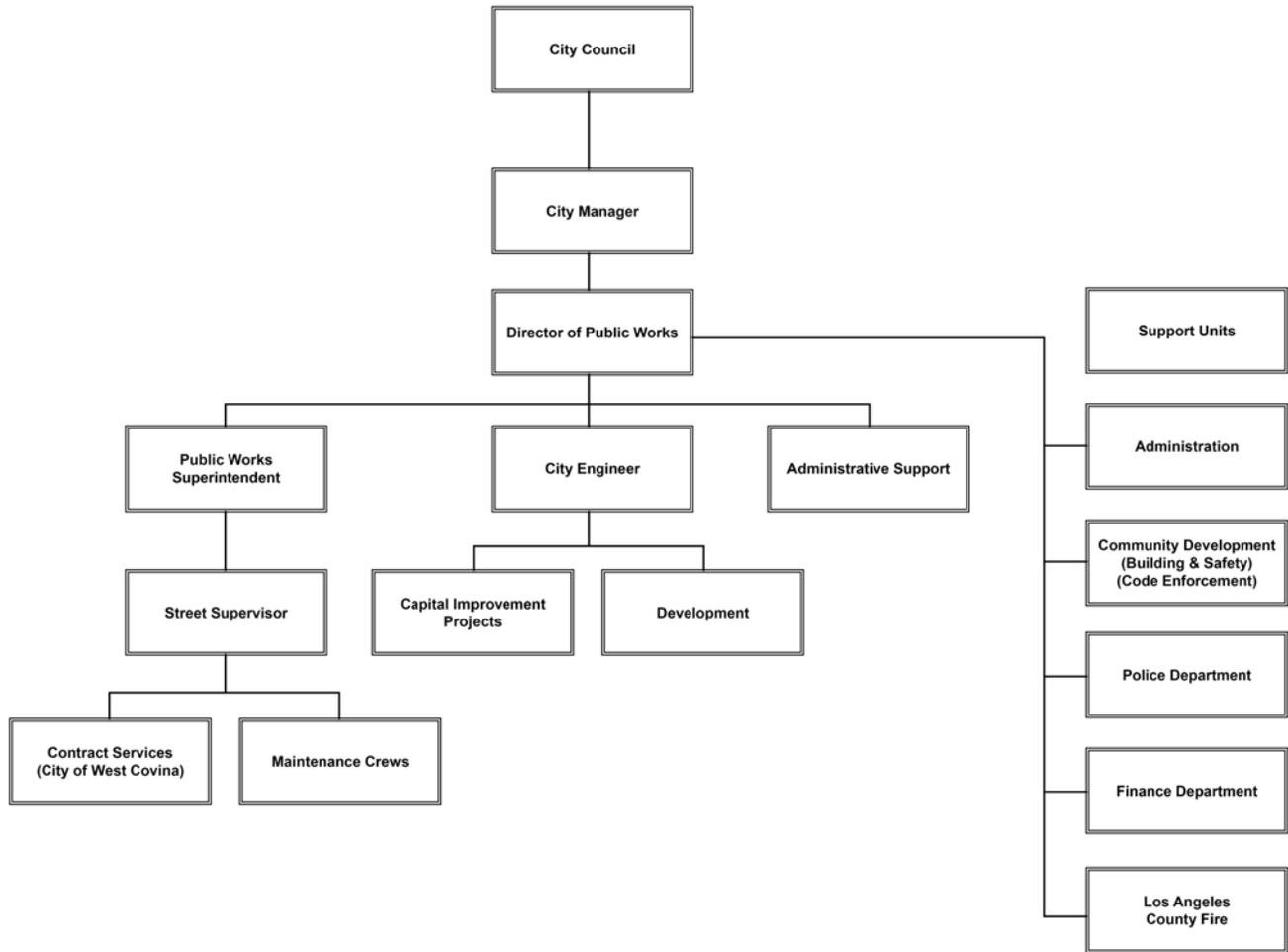
City shall apply for coverage under the WDR for facilities it owns. City shall prepare a comprehensive SSMP, and if it has not yet fully adopted applicable codes, local ordinances or resolutions governing the performance of items stipulated in the WDR, it will promptly undertake actions to adopt the legal means to do so.

City Department's will play significant roles, jointly and separately, towards attaining the goals of the WDR. The degree of these collaborative efforts will vary from department to department depending on the degree of SSO related services the DPW is providing under various agreements.

2.4 Organization Chart and Responsibilities

The organization chart showing the structure and relationships of the City's administrative, management and field positions relative to sewer operations and maintenance (SO&M) is presented in Section 2.4.1 and the descriptions of responsibilities and support are presented in Sections 2.4.2 and 2.4.3

2.4.1 Organization Chart for the City’s Sewer System Management Plan



2.4.2 Description of Responsibilities

The description of responsibilities or roles of each position especially as related to SSOs are as follows:

- City Council - Responsible for establishing new and amending existing ordinances and policies governing the municipal operations, and the operations of the city’s sanitary sewer system including the approving of all SO&M contracts and agreements within the community’s interest.
- City Manager – Responsible for the overall management and application of all legal and policy directives that relate to the city’s activities, including the operation and maintenance of the city’s sanitary sewer system.
- Director of Public Works – Directs the accomplishment of statutory and policy criteria, within the scope of the City Council’s policy and legal requirements. Directs its execution, and evaluates work accomplished within his areas of responsibility,

including the SO&M program. Also directs the planning, budgeting, design and construction of new and rehabilitation of existing sewage collection systems, and assists with claims and litigations against the City relative to public infrastructure.

- City Engineer – Directs engineering and management activities relating to studies, design, investigations, and the preparation of reports, budget and contractual agreements with private firms for technical services projects. Performs special studies, investigations and reports concerning the sewer infrastructure. Reports to the Director of Public Works.
- Public Works Superintendent - Has oversight of clerical and field operation and maintenance staff. Responsible for the day-to-day management and operation of the public works field and maintenance functions, including the sewer collection system operation and maintenance activities and pump station. Directs emergency sewer repair activities and assists in the formulation of operating policies and procedures. Reports to the Director of Public Works.
- Street Maintenance Supervisor - Responsible for the oversight, organizing, scheduling and coordination of the street, storm drains, and sewer field maintenance personnel including the contract services through outside providers as relates to sewer system operation and maintenance, including pump stations operation and maintenance activity. Reports to the Public Works Superintendent.
- Field Crews - These include the Public Works Street Maintenance Workers who are responsible for maintenance activities for public streets, right-of-ways, storm drains and the sanitary sewer collection system including response to SSO. They also perform other activities as needed. Reports to a Crew Leader / Supervisor.
- Office Administrative and Clerical Assistants - Assist in the preparation of the SO&M budgets and accounting, Council and other required reports, and other correspondence. Reports to the Director of Public Works.

2.4.3 Key Support Units

Other Divisions or Departments within the City, and specific contracted services, are currently and will continue to be responsible for carrying out some of the compliance actions called for by the WDR for the City. The key support units and their responsibilities are described below:

- Administrative Services Department - Responsible for procuring equipment and as needed contract services for emergency sewer repair projects, printing and mailing of public education outreach program materials, and for procuring material and supplies needed for the day to day operation and maintenance activities. Staffing the SO&M function and training of personnel. Also responsible for investigating SSO related claims and litigations against the City.
- Finance Department – Responsible for receiving and recording sewage related fees and charges, tracking expenses attributable to the sewer system, evaluating the relationship

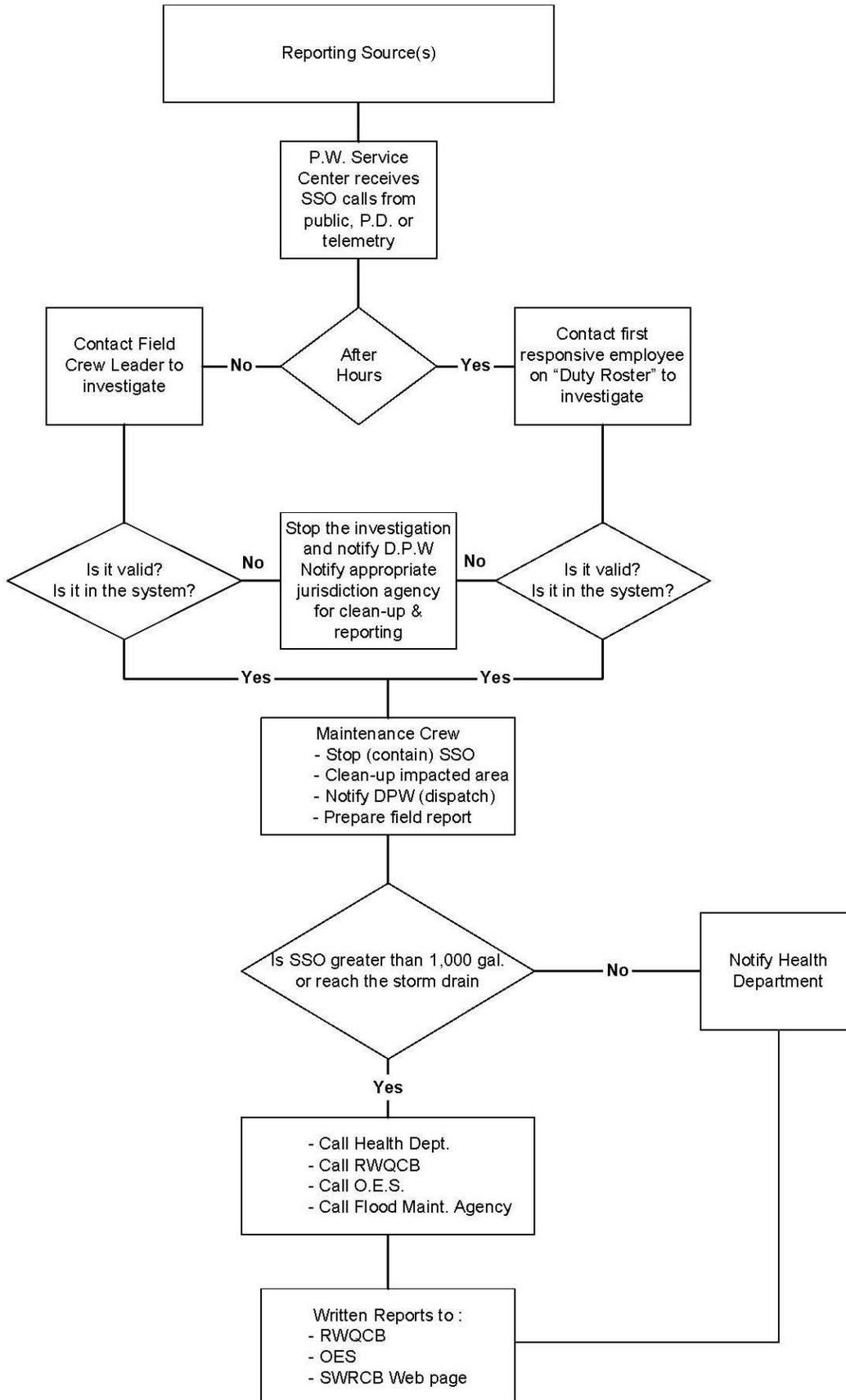
of revenues vs expenses for the sewer system, facilitating and tracking any emergency related expenses incurred and participating in the annual audit of the sewer system operations and maintenance functions.

- Building and Safety Division - Responsible for reviewing various building permit applications, their relationship to public easements and facilities, and issuing permits for sewer connections and laterals.
- Code Enforcement Division – Responsible for the enforcement of the Health and Safety Codes regarding waste disposal such as the FOG program, point source control inspection of industrial and commercial waste and grease generating facilities, and investigation of cases of illicit discharge of chemicals, debris, etc. into the public sewer system. Also enforcement of the Plumbing Codes involving proper connection and discharge into the public sewer system and the maintenance of sewer laterals between the structure served and the public sewer collection main.
- Engineering Division - Responsible for preparing plans and specifications for sewer construction and rehabilitation projects, and the administration of contracts for accomplishing such projects and emergency sewer repair projects. Also responsible for subdivision or development project plan checks to ensure compliance with the City’s standards for construction of new sewer collection systems. Plan checks sewer capacity studies to size proposed sewer lines and sets requirements to ensure adequate capacity in existing systems. Prepares easement documents or identifies and procures access rights for public sewer facilities located within private properties.
- L.A. County Fire Department – Responsible for assisting with protecting the public during an SSO event that expands into high use public travel ways and/or those that reach storm drains or water courses and spread the public risk to health and safety impacts.
- Police Department - Responsible for operating the Emergency Operation Center for the entire City including handling after-hours service calls reporting SSO’s, and pump station malfunction calls and forwarding those reports to the DPW.
- City of West Covina – Currently responsible, under agreement dated July 1982, for performing routine specified sewer maintenance functions (e.g. collection line cleaning, manhole inspections and pump station inspection and maintenance and for emergency service to remove collection line blockages and emergency repairs to the mainlines, manholes and lift stations.

2.4.4 Chain of Communication for SSO Reporting

The chain of communication for reporting SSO, from receipt of a complaint or other reliable information source to reporting to appropriate regulatory agencies, is presented in section 2.4.5 below. The city’s contact directory for communicating with both internal and external parties involved in responding and reporting an SSO event is in section 2.4.6. The SSO emergency response plan will be discussed in detail in Chapter 6 of this document.

2.4.5 SSO Reporting Procedures Flow Chart



2.4.6 City's Contact Directory for SSO Responding and Reporting

<u>Responsible Party's</u>	<u>Name</u>	<u>Telephone</u>	<u>After Hrs. or Cell Phone</u>
City Manager	Daryl Parrish	1-626-858-7212	1-626-838-4413
Director of Public Works	Steve Henley	1-626=858-7294	1-626-858-4413
City Engineer	Leo Tolentino	1-626-858-7206	1-626-858-4413
Building Official	Kyle Randall	1-626-858-7236	1-626-858-4413
Public Works Supt.	Paul Hertz	1-626-858-7294	1-626-858-4413
Street/Sewer Maint. Supvr.	Augustine Martinez	1-626-858-7294	1-626-858-4413
Duty Person (After hours)	'See Duty Roster'		1-626-858-4413
Public Works Services Yard	Receptionist	1-626-858-7294	1-626-858-4413
Police Department	Watch Commander	1-626-858-4413	1-626-858-4413
Fire Department	Battalion Commander	1-626-974-8331	1-626-974-8331
Co. Health Department		1-323-881-4147	1-323-974-1234
Co. Flood Control		1-626-445-7630	1-800-675-4357
R.W.Q.C.B. (Region 4)		1-213-576-6600	
State O.E.S.		1-800-852-7550	
City of West Covina		1-626-919-8458	1-626-939-8500

LEGAL AUTHORITY

3.1 Statutory Authority

Pursuant to the California Government Code, Sections 37100 and 54350, the City Council, as the local legislative body, may by ordinances and resolutions make and enforce all rules and regulations necessary for the administration of the city's SO&M plan. Such actions include, but are not limited to, the design, construction, cleaning, repair, reconstruction, rehabilitation, replacement, operation, maintenance, discharges into, blockage of, access to, and violation enforcement pertaining to the sanitary sewers within the City's System. Consistent with the law, several ordinances have been established by the City Council to govern all aspects of the SO&M plan. The legal authorities for the specific areas stipulated in the WDR are discussed below.

CMC, Section 14.10.010 entitled "California Plumbing Code adoption by reference" adopted the California Plumbing Code, edition 2007, as the Plumbing Code of the City of Covina.

3.1.1 Authority to prohibit illicit discharges into the sewer system

CMC, Section 13.50.010 entitled "Adoption of the sanitary sewer and industrial waste code of the county of Los Angeles" incorporates by reference the "Prohibited discharges" in Title 20, Chapter 20.36 regarding the various illicit discharges to the public sewer system of the city, including storm water, surface drainage, chemicals, flammables, corrosive substances, oil, grease, solids, debris, etc., that might cause damage, clog, obstruct, necessitate or require excessive repair or cleaning of the sanitary sewer system. Similar restrictions are also contained in the Plumbing Code, Chapters 7 and 11.

3.1.2 Authority to require sewers and connections be properly designed and constructed

CMC, Section 13.50.010 entitled "Adoption of the sanitary sewer and industrial waste code of the county of Los Angeles", and CMC, Section 13.50.160 entitled "Materials and construction – Conformity with standards", incorporate by reference the Title 20 provisions that constitute the criteria for design and construction of sanitary sewers within the City. The construction of a sewer facilities requires a permit that must conform to Title 20, Chapter 20.36, Part I.

3.1.3 Authority to ensure access for maintenance, inspection, or repairs

CMC, Section 13.50.010 entitled "Adoption of the sanitary sewer and industrial waste code of the county of Los Angeles" incorporates by reference the "Access provisions" of Title 20, Chapter 20.24 requiring access for inspection and maintenance to the public sewer system.

CMC, Section 13.50.040 entitled "Maintenance of sewers and laterals" requires that all house laterals, industrial connection sewers, septic tank outlet connections to STEP system, and appurtenances thereto shall be maintained by the owner of the property served in a safe and sanitary condition, and all devices or safeguards which are required by this chapter for the operation thereof shall be maintained in good working order. Similar requirements are in the

adopted Plumbing Code.

CMC, Chapter 1.08, entitled “Right of Entry for Inspection”, provides for the entrance on to property or into a building for the purpose of a reasonable and necessary inspection pursuant to this Section and other applicable city codes.

3.1.4 Authority limiting discharge of FOG and other debris that may cause blockage

Chapter 10 of the Plumbing Code provides the Building Official (or other Authorized Authority) with legal authority to require installation of interceptors (clarifiers) where waste flow conditions necessitate the proper handling of the liquid waste stream flow to protect the sewer system and the public (commonly at food service establishments, processing facilities, industrial facilities, etc., that generate grease, oil, grit, acids, alkaline or flammable wastes). This authority would apply at any facility that generates FOG in an amount that will damage or otherwise increase the maintenance costs of the wastewater collection system. See Section 3.1.1 above for related prohibitions on discharges to the wastewater collection system

3.1.5 Legal Authority to Enforce any Violation of Sewer Ordinances

CMC Sections 1.16.010 and 1.16.015, entitled “General Penalty-Violations”, provides for a statutory proceeding for misdemeanor action filing. CMC Sections 1.20.020, entitled “Authority to arrest and issue citations; Section 1.26.030, entitled “Authority”; and Section 1.28.010, entitled “Enforcement” define the authority to both issue notifications to correct, as well as enforce provisions of the City Code, including any violations of the codes pertaining to the City’s wastewater collection system.

3.1.6 Legal Authority to Fund the operations & maintenance of the sewer system

CMC Sections 13.50.070, 13.50.140, 13.50.250 and 13.50.260 relative to connection charges, charges for sewer maintenance, basis for levy of charge, and levy of annual service charge amount establishes the basis for a financial plan to ensure operations and maintenance or the capital replacement or rehabilitation of the community sewer system.

The Codes, standard plans, specifications and other materials cited in this chapter are filed at the office of the City Clerk and the office of the Director of Public Works.

OPERATION AND MAINTENANCE PROGRAM

4.1 Preventive Maintenance Program

The City's preventive maintenance program consists of scheduled inspections of the sewer system manholes and pipes, pump station, pipeline cleaning, identifying problem indicators, needed repairs, and recording of maintenance activity. This program is designed and carried out to detect and correct potential problems before they develop into major problems. These activities are accomplished by city personnel in concert with the adjacent City of West Covina who performs specified services under an agreement approved in March 1982. A copy of the agreement follows the inventory listing in Appendix E.

The SO&M services are provided from a central maintenance service yard within the City, which is located at 534 North Barranca Avenue. Additional support services are provided through contract from the City of West Covina field services yard located at 825 South Sunset Avenue. From both locations efficient maintenance activities, including timely response to an SSO or other emergency situation, are resourced and managed. The City's central office and each maintenance crew vehicle is radio equipped and crew leaders, supervisors and managers also carry cell phones for timely communications. Other equipment resources include: moderate and light construction equipment, pumps, generators, trucks and trailer mounted equipment and supplies and various types of safety equipment. A complete inventory of the SO&M equipment is presented in Appendix E.

The following is a summary of the key preventive maintenance activities and where applicable, frequencies for these services have been included:

- 4.1.1 SO&M Mapping System – The City maintains “as-built” plans of the sewer facilities. Data on these plans, such as location, alignment, pipe material, size, etc. are stored in the drawing file system at City Hall. Overall sewer system information (generated in a CADD file) has been printed to map sheets. These maps have been distributed to the City's DPW and its street and sewer field crew, for reference, work scheduling, for responding to emergencies and to other assisting agencies as needed. Periodic updates of these maps are scheduled and requested by the DPW when it is necessary to reflect changes in the system.

On its planning horizon, the DPW plans to convert current CADD mapping files to a Geographical Information System (GIS). This will result in a sewer mapping system that includes features and attributes such as: pipe location, diameter, material, condition, last date cleaned or repaired, flow direction, etc. The system typically contains base information such as streets and parcels. This data base linked with mapping can include various layers of information such as the storm drain system, trunk sewer lines, video inspection data, water system etc. for use by the DPW and other departments.

A map showing the SO&M yard location, flow monitoring sites and sewage

delivery points, to non-city systems (CSD trunks or other agencies), is presented in Appendix ‘F’. An inventory of wastewater collection system facilities, listed by total number, total length and point of discharge within each SMZ is presented in Appendix ‘G’.

- 4.1.2 Sewer Line, Manhole and Pump Station Inspection – On an as need basis sewer lines can be mirrored to assess a potential problem. However, a more thorough inspection using CCTV methods has been scheduled to be accomplished over a ten-year cycle, with defined lengths and areas to be inspected every year as shown in the following table and depicted on the “10-year video” map contained in Appendix ‘J’:

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Miles	13.2	10	8.4	7.2	11.9	12.1	11.5	12.2	9.8	10.1

Today’s CCTV technology and tools digitize analog video output from the inspection camera on the fly while being recorded and displayed on a computer monitor used by the inspecting camera crew. While the video is being captured, a crew member views and logs events such as defects and observations using standard Pipeline Assessment and Certification Program (PACP) event codes. The digital video inspections files are transferred to a external hard drive and/or DVD disks for storage and subsequent reference use.

The inspection of manholes, interior and lid area, are performed on a scheduled cycle to identify any structural defects, sewage flow condition, presence of vermin or rodents, deleterious industrial waste, odors and any signs of unusual settlement around the manholes and along joining sewer alignments. The existing pump station is equipped with an alarm system and is inspected frequently. Pumps and motors are lubricated, control mechanisms and valves are checked and adjusted as necessary, and equipment is repaired or modified as needs indicate.

- 4.1.3 Drop Manholes, Gas Trap Manholes and Siphons – Where these facilities exist, they are inspected and cleared of stoppages and flow restrictions on variable frequencies based on prior inspection records, but no less frequent than monthly.
- 4.1.4 Sewer Line Cleaning -- Sewer lines are typically cleaned by hydro jet or mechanical root cutting (rodding). The frequency of cleaning and inspection is based on inspection records and/or call-outs on reported complaints, but system cleaning is accomplished on a 10-year cycle. Sewer lines known to accumulate FOG, garbage grinds or other grit or have root intrusions are labeled maintenance “Hot Spots” (See Appendix ‘H’) and are put on a quarterly or monthly cleaning schedule. Pipe segments prone to root growth are periodically cleared using a chemical herbicide or root cutter. Those prone to accumulate FOG are periodically cleaned using caustics, surfactants, enzymes, microbes or high pressure jetting.
- 4.1.5 Vermin and Rodent Control -- Sewers infested by insects are chemically treated. Those infested by rodents are baited.
- 4.1.6 Work Scheduling and Documentation - Most work orders are generated and tracked

manually. Maintenance activities (by city or contractor) are recorded in various forms such as service requests, cleaning reports, sewer maintenance daily reports, manhole adjustments, overflow report forms etc. and are filed at the Public Works Services Center offices located at 534 No. Barranca Avenue.

- 4.1.3 Operating Revenues – Key to supporting a sound preventative maintenance program are the receipt of funds sufficient to support scheduled maintenance activities as described above. Shown in Appendix ‘I’ are the recent and projected fiscal years revenues generated within the city service area based on current sewer service charge rates and total number of sewage units.

4.2 Rehabilitation and Replacement Plan

Sewer facilities assessment and rehabilitation are an integral part of the city’s SO&M program. A summary of recent years background of city capital improvement activities, a plan to identify and prioritize system deficiencies (condition assessment), and the programming of short-term and long-term rehabilitation projects and related funding development for those capital improvement projects are discussed below.

- 4.2.1 Recent Years CIP Activities - In February 2002, the city received an updated sewer master plan. Of the 106.4 miles of sewer modeled, 9.3 miles (8.7%) of the system was identified as being capacity deficient. The fourteen (14) deficient segments were ranked using age and maintenance records. Then the ranked projects, to overcome the deficiencies, were recommended at an estimated funding need of \$5,572,000.

During July and August of 2004, the initial CCTV inspection and evaluation was accomplished for 8.5 miles of sewer line. The CCTV inspection revealed that 12.7 % (5,704 LF) of inspected pipe segments have maintenance problems and/or structural defects that warranted priority repairs based on the severity of the deficiency and the need for timely action. As the initial inspection evaluation was concluding, another phase of CCTV inspection work was undertaken during January and February of 2005. This phase included an additional 10 miles of sewer line for which the CCTV inspection revealed that 13.1 % (6,934 LF) of inspected pipe segments have maintenance problems and/or structural defects that warranted priority repairs.

During FY 2006/2007 the city accomplished construction of capacity relief line No. 1, identified in the sewer master plan, and rehabilitation of 5,375 LF of existing VCP with CIPP liner material based upon the two described CCTV inspection evaluations.

- 4.2.2 Identification and Prioritization of System Deficiencies – All sewer pipelines within the City are made of vitrified clay and range in diameter from 8-inches to 12-inches. Sewer pipes in the original township area were probably constructed in the 1930’s with the majority of the city’s sewers being installed between the 1940’s and 1980’s. This results in a current sewer system age ranging from 20 years to 75 years old. As the sewer collection system continues to age, the risk of failure also increases. The types of failure or risk include: deterioration collapse, blockage, overflow, excessive inflow and infiltration, and other potential service disruptions.

In an effort to manage these challenges and to improve reliability of the City's sewer infrastructure, the DPW implemented a new Condition Assessment Program. This program involves a digital recording and structural rating of the community's entire sewer system over a ten-year time period. The assessment system comprises of two parts: 1) a CCTV recording team gathers digital and video data for each pipe segment and manhole within the city's system; and, 2) engineers in the office generate reports and manage a database with the gathered information which can be incorporated with a mapping and reporting system for regular use in managing the sewer system.

Within the City's SSMP, the CCTV work has been prioritized to focus on those sewers thought to have the most urgent repair needs. Maintenance history, past overflow records, sewer locations, and age will be some of the factors used to prioritize the CCTV work schedule.

- 4.2.3 Short and Long Term Rehabilitation Action Plans – In 1983, the City Council established Chapter 13.69 of the CMC wherein the sanitary sewer service charge for services and facilities is described. Clearly a portion of that charge could be used for Capital Improvement Projects (CIP) to finance sewer rehabilitation within the city system.

As previously described, the programmed CCTV inspection and evaluation activity will be a key factor in the scheduling of any rehabilitation project. Those sewer segments previously inspected and evaluated will be scheduled for corrective action as funding is made available in the budget to perform the work.

Since 2005, 2.13 miles of sewer pipelines have been rehabilitated by lining or reconstruction. Rehabilitation of remaining deficient pipe segments and manholes are or will be scheduled as identified and can be completed within the next 10 to 20 years as need and available funding allow. Current and future CIP projects are identified in Appendix I.

In addition, as deteriorated lines are discovered during preventive maintenance activities, these locations are either immediately repaired by force account, use of emergency contractors or added into the list of future CIP projects.

4.3 Equipment Maintenance and Replacement Policy

The City has a comprehensive equipment maintenance program. Equipment is regularly checked, adjusted, repaired or replaced as necessary. Those major fixed assets are replaced when they meet or exceed the City's established fixed assets replacement criteria based on age, mileage, hours of use, repair history, safety, etc. Replacement of or additions to the major assets are done through the annual budget process of the City.

4.4 Training for Field Operations Personnel and Contractors

The SO&M personnel and the public works inspectors attend structured collection system

training classes or seminars given by other agencies including: California Occupational, Safety and Health Administration (CALOSHA), California Water Environment Association (CWEA), County Sanitation Districts' (CSD), etc. This is to keep them abreast with the latest information in the industry on how to safely and efficiently carry out their tasks. The City also utilizes informal training approaches, such as tailgate meetings, monthly safety meetings and apprenticeship training program from higher level staff

Additionally, only companies with well trained and experienced personnel are considered for emergency SSO mitigation or sewer construction and rehabilitation work.

DESIGN AND PERFORMANCE PROVISION

5.1 Design and construction standards and specification

The City utilizes the County of Los Angeles, Department of Public Works, Sewer Division standards plans and specifications along with other referenced Standard Plans and Specifications for the construction of sanitary sewers and appurtenances to ensure that sewer lines and connections are properly designed and constructed. The city's project specifications usually incorporate by reference the Standard Plans and Specifications for Public Works Construction plus written Special Provisions and Technical Provisions. In addition, the City has other publications such as the LACDPW Private Contract Sanitary Sewer Procedural Manual and the Guidelines for the Design of Pump Stations etc. to ensure consistency in the design of wastewater collection systems within the City. To further assure that sewer facilities are properly designed and constructed, City requires that plans be designed by licensed engineers and provides thorough review of plans prior to approval for construction and inspection activities.

5.2 Procedures and standards for inspection and testing

The City provides inspection for the installation of new and rehabilitation of deteriorated public sewer facilities within the City's jurisdiction. Inspectors are well trained in pipeline and pumping station construction, they attend training classes and educational seminars to stay familiar with advancements in the industry. The inspectors are also provided with adequate tools and materials to perform their jobs, including the project specific Construction Plans and Specifications, the Standard Specifications and Standard Plans for Public Works Construction and the Public Works Inspector's Manual and reporting forms. The City also requires the preparation and submittal of "Record Drawings" of each as-constructed and completed project prior to final approval and acceptance of the project as public infrastructure.

The SO&M policy also requires that all new or rehabilitated pumping stations be inspected by experienced electro-mechanical inspectors prior to acceptance for maintenance by the City. Also, required for all new and rehabilitated sewer lines, that they be video camera inspected and the video record reviewed by City's personnel prior to acceptance of a completed project.

OVERFLOW EMERGENCY RESPONSE PLAN

6.1 Overflow Response Procedure

The City provides 24-hour emergency services to investigate and act upon reports or complaints related to problems in the sewer system. Personnel are available 24-hours each day of the year to receive and act on any calls or automated alarms related to problems such as SSO's. During business hours, emergency calls are received by the operator, who will call and dispatch the nearest sewer maintenance crew to the problem site. For after hour emergencies, the Police Department dispatcher will contact the 'On-call' sewer maintenance worker, in the order listed on the emergency home telephone list. The on-call worker who receives the emergency call will investigate the complaints and take appropriate action, including immediate dispatch of a standby crew with necessary equipment to take care of the problem, or refer the call to other agencies if the problem is found to be under another's jurisdiction. These overflow reporting procedures are presented in a flow chart in Chapter 2.

As prescribed by the City's BMP's and contained in the SO&M overflow response instruction manual (Appendix K), the crew responding to an overflow emergency is required to stop the overflow, contain it as much as possible, limit access to the contaminated area, and ensure that the facility or area is cleaned up and returned to normal operation. Residents or businesses in the immediate vicinity of the overflow are to be informed of the cause of the problem and the remedial action taken.

The County Health Department is notified of all overflows and if the overflow exceeds 1,000 gallons and or reaches the storm drain system, the Regional Water Quality Control Board and the State Office of Emergency Services are notified. The Flood Maintenance District (FMD) is notified of all overflows that discharge into the storm drain system. The role of FMD is to assist in tracing and capturing the spill as much as possible before it reaches the Waters of the United States. The agencies to be notified, method and time frame for notification, the phone/fax numbers of the agencies are presented in Section 6.1.1. The relevant data about the overflow such as location, volume, agencies notified, etc. is recorded in field report forms (see section 6.1.2) and later stored in the computer. All field personnel are trained to be conversant with these procedures and to accurately report of SSO incidents.

The SO&M time goal on responding to emergencies, such as SSO, floodouts, or serious stoppages/blockages, is **30** to **60** minutes.

6.1.1 Regulatory Agencies Notification and Time Frame

SSO Category	Type or Description	Agencies to be Notified	Type of notification and time frame	
			Telephone/Fax <i>ASAP, but no later than 2 hours after spill awareness</i>	Written Report/*Online Database
1	A discharge that equals or exceeds 1,000 gallons, or discharges into a drain, channel, surface water and was not captured.	County Health Department Flood Maintenance Division State Office of Emergency Services Regional Water Quality Control Board State Water Resources Control Board	626-430-5420-Bus. Hrs 213-974-1234-Aftr Hrs 562-861-0316-Bus. Hrs 800-852-7550 [24/7] 213-576-6600-Bus. Hrs 213-576-6650-Aftr Hrs N/A	N/A N/A N/A N/A Certify notification is made ASAP, but no later than 24 hrs. On-Line Database-ASAP, but no later than 3 business days after spill awareness. Final report per the WDR schedule.
2	A discharge that is less than 1,000 gallons, did not discharge into a drain, channel, surface water and was captured.	County Health Department State Water Resources Control Board	626-430-5420-Bus. Hrs 213-974-1234-Aftr Hrs N/A	N/A N/A On-Line Database-ASAP, but no later than 3 business days after spill awareness
3	Not applicable at this time.			
Private Lateral Spill	A discharge from a privately owned lateral.	County Health Department State Water Resources Control Board	626-430-5420-Bus. Hrs 213-974-1234-Aftr Hrs N/A	On-Line Database at enrollee's discretion.
N/A	No SSO in a calendar month	State Water Resources Control Board	N/A	Online Database Certified – Within 30 days after a calendar month end, file statement that no SSO occurred.

24/7 = 24 hours per day & 7 days per week

6.1.2 Field Response, Report Protocol and Forms

Appendix 'K', the SSO Emergency Response Plan, describes the procedures and reporting activity to be accomplished during an actual overflow event in the physical setting in which it occurs. Corrective actions and reporting guides are described and an investigation and reporting format are included for reference use.

6.1.3 Procedure to ensure that staff and contractors are aware of and are appropriately trained to follow Emergency Response Plan

The SO&M Emergency Response Plan is available to key personnel who are responsible for managing or responding to SSO's. Copies of the City's instruction manuals are available to field crews and engineers at the office who manage or have the role of preparing SSO reports to regulatory agencies. The experience of the Contractors' emergency response team plays a very important part in the selection process during the selection of the City's as needed Emergency Contractors.

6.1.4 Procedures to address emergency operations such as traffic and crowd control and other necessary response activities.

The SO&M field personnel and employees of the emergency response contractors who are retained for SSO responses are well trained in traffic and crowd control. The City's vehicles are well equipped with traffic and crowd control tools, including orange traffic control cones, yellow tape, flashing lights, orange uniforms, first-aid supplies, etc.

6.1.5 Program to eliminate or minimize discharge of SSO into Waters of the United States

The SO&M personnel and emergency contractors' crews are properly trained on methods and procedures to prevent or limit the amount of SSO into Waters of the United States and how to mitigate their impacts. Some of the methods include the use of sand bags to contain SSO's, absorbent tube socks to prevent SSO discharge into storm drain catch basins, and the use of vacuum trucks to suck up contained spills and dump effluent back into the collection system at other safe locations. SO&M personnel have the reduction of response time for SSO as one of the major goals. Reducing response time would significantly limit the amount of SSO that reaches the Waters of the United States.

6.1.6 SSO flow estimation tables and photographs

Example SSO flow estimation templates (guides) follow:

[Courtesy of the California Water Environment Association]

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Attachment D - Sample Templates for SSO Volume Estimation

TABLE 'A'
ESTIMATED SSO FLOW OUT OF M/H WITH COVER IN PLACE

24" COVER

Height of spout above M/H rim H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/4	1	0.001	6"
1/2	3	0.004	
3/4	6	0.008	
1	9	0.013	
1 1/4	12	0.018	
1 1/2	16	0.024	
1 3/4	21	0.030	
2	25	0.037	
2 1/4	31	0.045	
2 1/2	38	0.054	
2 3/4	45	0.065	
3	54	0.077	
3 1/4	64	0.092	
3 1/2	75	0.107	
3 3/4	87	0.125	
4	100	0.145	
4 1/4	115	0.166	
4 1/2	131	0.189	
4 3/4	148	0.214	
5	166	0.240	
5 1/4	185	0.266	
5 1/2	204	0.294	
5 3/4	224	0.322	
6	244	0.352	
6 1/4	265	0.382	
6 1/2	286	0.412	
6 3/4	308	0.444	
7	331	0.476	
7 1/4	354	0.509	
7 1/2	377	0.543	
7 3/4	401	0.578	
8	426	0.613	
8 1/4	451	0.649	
8 1/2	476	0.686	
8 3/4	502	0.723	
9	529	0.761	

36" COVER

Height of spout above M/H rim H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/4	1	0.002	6"
1/2	4	0.006	
3/4	8	0.012	
1	13	0.019	
1 1/4	18	0.026	
1 1/2	24	0.035	
1 3/4	31	0.044	
2	37	0.054	
2 1/4	45	0.065	
2 1/2	55	0.079	
2 3/4	66	0.095	
3	78	0.113	
3 1/4	93	0.134	
3 1/2	109	0.157	
3 3/4	127	0.183	
4	147	0.211	
4 1/4	169	0.243	
4 1/2	192	0.276	
4 3/4	217	0.312	
5	243	0.350	
5 1/4	270	0.389	
5 1/2	299	0.430	
5 3/4	327	0.471	
6	357	0.514	
6 1/4	387	0.558	
6 1/2	419	0.603	
6 3/4	451	0.649	
7	483	0.696	
7 1/4	517	0.744	
7 1/2	551	0.794	
7 3/4	587	0.845	
8	622	0.896	
8 1/4	659	0.949	
8 1/2	697	1.003	
8 3/4	734	1.057	
9	773	1.113	

Disclaimer:

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

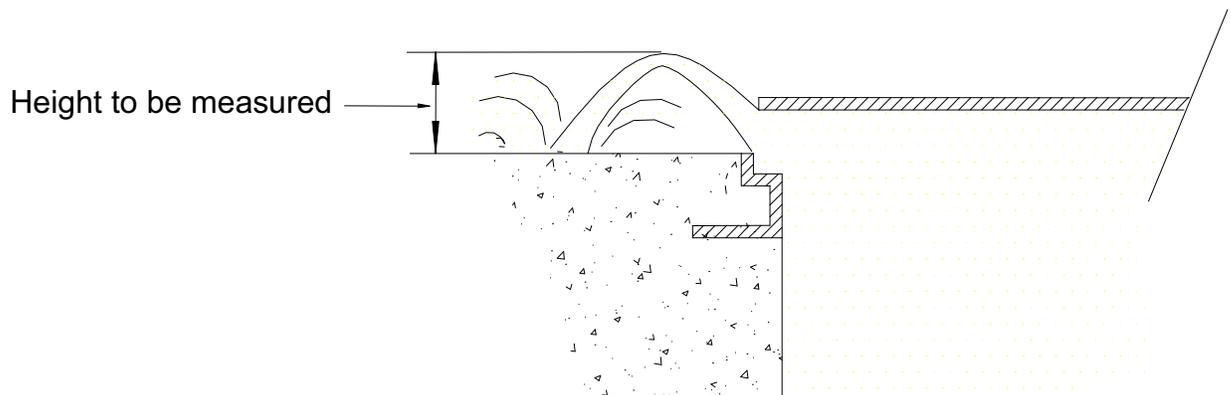
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The formula used to develop Table A measures the maximum height of the water coming out of the maintenance hole above the rim. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

Example Overflow Estimation:

The maintenance hole cover is unseated and slightly elevated on a 24" casting. The maximum height of the discharge above the rim is 5 ¼ inches. According to Table A, these conditions would yield an SSO of 185 gallons per minute.

FLOW OUT OF M/H WITH COVER IN PLACE



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

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TABLE 'B'
ESTIMATED SSO FLOW OUT OF M/H WITH COVER REMOVED

24" FRAME

Water Height above M/H frame H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/8	28	0.04	
1/4	62	0.09	
3/8	111	0.16	
1/2	160	0.23	
5/8	215	0.31	6"
3/4	354	0.51	8"
7/8	569	0.82	10"
1	799	1.15	12"
1 1/8	1,035	1.49	
1 1/4	1,340	1.93	15"
1 3/8	1,660	2.39	
1 1/2	1,986	2.86	
1 5/8	2,396	3.45	18"
1 3/4	2,799	4.03	
1 7/8	3,132	4.51	
2	3,444	4.96	21"
2 1/8	3,750	5.4	
2 1/4	3,986	5.74	
2 3/8	4,215	6.07	
2 1/2	4,437	6.39	
2 5/8	4,569	6.58	24"
2 3/4	4,687	6.75	
2 7/8	4,799	6.91	
3	4,910	7.07	

36" FRAME

Water Height above M/H frame H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/8	49	0.07	
1/4	111	0.16	
3/8	187	0.27	6"
1/2	271	0.39	
5/8	361	0.52	8"
3/4	458	0.66	
7/8	556	0.8	10"
1	660	0.95	12"
1 1/8	1,035	1.49	
1 1/4	1,486	2.14	15"
1 3/8	1,951	2.81	
1 1/2	2,424	3.49	18"
1 5/8	2,903	4.18	
1 3/4	3,382	4.87	
1 7/8	3,917	5.64	21"
2	4,458	6.42	
2 1/8	5,000	7.2	24"
2 1/4	5,556	8	
2 3/8	6,118	8.81	
2 1/2	6,764	9.74	
2 5/8	7,403	10.66	
2 3/4	7,972	11.48	30"
2 7/8	8,521	12.27	
3	9,062	13.05	
3 1/8	9,604	13.83	
3 1/4	10,139	14.6	
3 3/8	10,625	15.3	36"
3 1/2	11,097	15.98	
3 5/8	11,569	16.66	
3 3/4	12,035	17.33	
3 7/8	12,486	17.98	
4	12,861	18.52	
4 1/8	13,076	18.83	
4 1/4	13,285	19.13	
4 3/8	13,486	19.42	

Disclaimer:

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

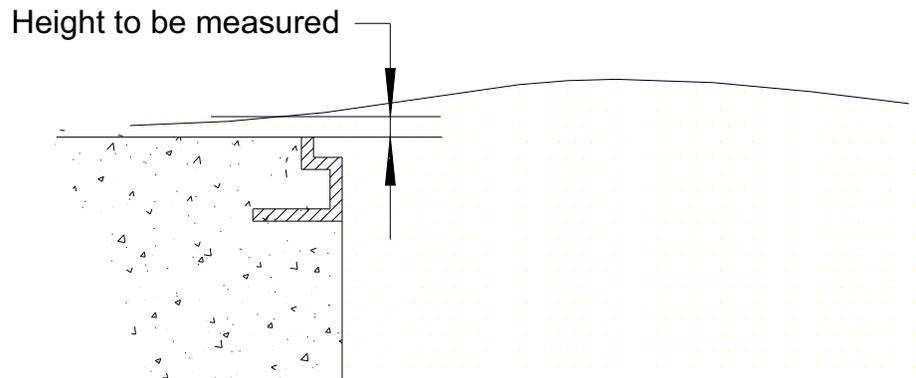
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The formula used to develop Table B for estimating SSO's out of maintenance holes without covers is based on discharge over curved weir -- bell mouth spillways for 2" to 12" diameter pipes. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

Example Overflow Estimation:

The maintenance hole cover is off and the flow coming out of a 36" frame maintenance hole at one inch (1") height will be approximately 660 gallons per minute.

FLOW OUT OF M/H WITH COVER REMOVED (TABLE "B")



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

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**TABLE 'C'
ESTIMATED SSO FLOW OUT OF M/H PICK HOLE**

Height of spout above M/H cover <u>H in inches</u>	SSO FLOW <u>Q</u> <u>in gpm</u>	Height of spout above M/H cover <u>H in inches</u>	SSO FLOW <u>Q</u> <u>in gpm</u>
1/8	1.0	5 1/8	6.2
1/4	1.4	5 1/4	6.3
3/8	1.7	5 3/8	6.3
1/2	1.9	5 1/2	6.4
5/8	2.2	5 5/8	6.5
3/4	2.4	5 3/4	6.6
7/8	2.6	5 7/8	6.6
1	2.7	6	6.7
1 1/8	2.9	6 1/8	6.8
1 1/4	3.1	6 1/4	6.8
1 3/8	3.2	6 3/8	6.9
1 1/2	3.4	6 1/2	7.0
1 5/8	3.5	6 5/8	7.0
1 3/4	3.6	6 3/4	7.1
1 7/8	3.7	6 7/8	7.2
2	3.9	7	7.2
2 1/8	4.0	7 1/8	7.3
2 1/4	4.1	7 1/4	7.4
2 3/8	4.2	7 3/8	7.4
2 1/2	4.3	7 1/2	7.5
2 5/8	4.4	7 5/8	7.6
2 3/4	4.5	7 3/4	7.6
2 7/8	4.6	7 7/8	7.7
3	4.7	8	7.7
3 1/8	4.8	8 1/8	7.8
3 1/4	4.9	8 1/4	7.9
3 3/8	5.0	8 3/8	7.9
3 1/2	5.1	8 1/2	8.0
3 5/8	5.2	8 5/8	8.0
3 3/4	5.3	8 3/4	8.1
3 7/8	5.4	8 7/8	8.1
4	5.5	9	8.2
4 1/8	5.6	9 1/8	8.3
4 1/4	5.6	9 1/4	8.3
4 3/8	5.7	9 3/8	8.4
4 1/2	5.8	9 1/2	8.4
4 5/8	5.9	9 5/8	8.5
4 3/4	6.0	9 3/4	8.5
4 7/8	6.0	9 7/8	8.6
5	6.1	10	8.7

Unrestrained
M/H cover will
start to lift

Note: This chart is based on a 7/8 inch diameter pick hole

Disclaimer: This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

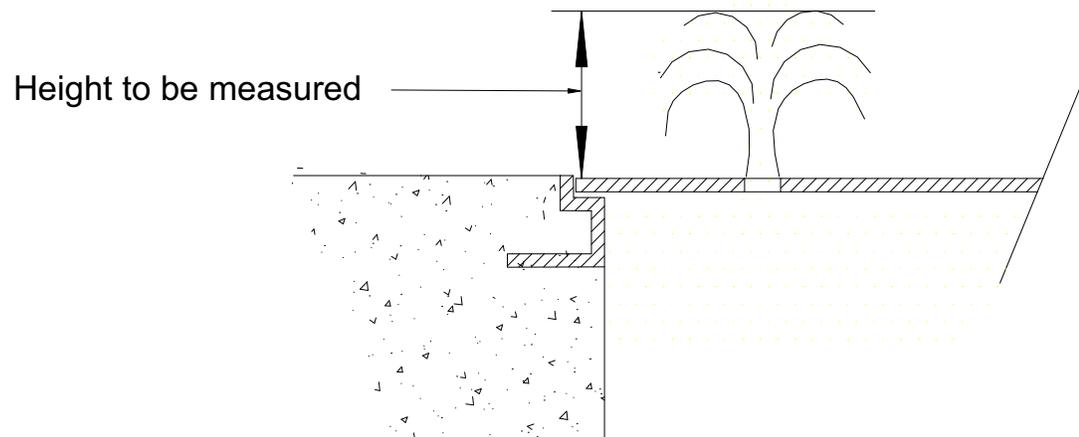
Collection System Collaborative Benchmarking Group Best Practices for Sanitary Sewer Overflow (SSO) Prevention and Response Plan

The formula used to develop Table C is $Q=CcVA$, where Q is equal to the quantity of the flow in gallons per minute, Cc is equal to the coefficient of contraction (.63), V is equal to the velocity of the overflow, and A is equal to the area of the pick hole.² If all units are in feet, the quantity will be calculated in cubic feet per second, which when multiplied by 448.8 will give the answer in gallons per minute. (One cubic foot per second is equal to 448.8 gallons per minute, hence this conversion method).

Example Overflow Estimation:

The maintenance hole cover is in place and the height of water coming out of the pick hole seven-eighths of an inch in diameter (7/8") is 3 inches (3"). This will produce an SSO flow of approximately 4.7 gallons per minute.

FLOW OUT OF VENT OR PICK HOLE (TABLE "C")



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

² Velocity for the purposes of this formula is calculated by using the formula $h = v^2 / 2G$, where h is equal to the height of the overflow, v is equal to velocity, and G is equal to the acceleration of gravity.

Collection System Collaborative Benchmarking Group Best Practices for Sanitary Sewer Overflow (SSO) Prevention and Response Plan



Wastewater Collection Division
(619) 654-4160

Flow Estimation Pictures

Reference Sheet for Estimating Sewer Spills from Overflowing Sewer Manholes

All estimates are calculated in gallons per minute (gpm)

City of San Diego
Metropolitan Wastewater Department



50 gpm



200 gpm



275 gpm



25 gpm



150 gpm



250 gpm



5 gpm



100 gpm



225 gpm

rev. 4/99

All photos were taken during a demonstration using metered water from a hydrant in cooperation with the City of San Diego's Water Department.

FOG SOURCE CONTROL PROGRAM

7.1 Public education and outreach program

City proactively reaches out to users of its sewer system regarding the community's FOG source control program. Information on proper disposal of FOG and other SSO prevention measures, including installation of grease traps, backwater valves, sewer lateral maintenance, etc. is disseminated through publication of quarterly articles in newsletters, and notices with business license renewals, on a usual schedule. These notifications provide descriptions of grease control efforts that can be undertaken by homeowners and businesses alike.

Additionally, the DPW utilizes personal contacts with home and business owners, by its field crews and the code enforcement inspectors, as conditions warrant. These methods are usually effective in relaying information on proper disposal of FOG and other SSO prevention methods to the community.

Additionally, other effective ways to communicate with the public are being considered. Such as expanded use of the City's home web page, use of announcements over radio and local cablevision and other aggressive means. Exchanges of outreach information between agencies is another meaningful tool. The bilingual posters developed by the California Restaurant Association (CRA) and CSD for direct distribution to FSE is an available BMP tool for training and reminding those who work with FOG producing products. The CSD has also developed a training program available to agency personnel on methods to control grease discharges in order to prevent SSO's. For CSD's FOG Training available to local cities contact (562) 699-7411 x 2907, and information, documents and guidelines are available on the Cal FOG website <http://calfog.org>.

FOG in the local sewer system can be a prime contributor to an SSO and its corresponding health and safety impacts. Related health and safety issues can also result from the discharge of pharmaceuticals and pesticides into the sanitary sewer system. Although not usually a causative factor in sewer overflows, these chemicals can be toxic and have disruptive environmental and biological effects. Discharges of such chemical compounds into the sewers should also be avoided and addressed in the education and outreach program. "*No drugs or household pesticides down the drain*", is a compatible health and safety advisory.

7.2 Disposal method and schedule for FOG generated within the system service area

Solidified FOG, found in the public sewer system during regular scheduled cleaning operations or clearing of a blockage, is trapped, collected and taken to an available local rendering company, qualifying dump bin (site) or to the Joint Water Pollution Control Plant (JWPCP), in the City of Carson, operated by CSD. All solid debris (FOG, roots, grit, etc.) collected from the system are taken to permitted FOG disposal facilities such as a land fill or the JWPCP. FOG in liquid form is flushed down by hydro jetting to designated treatment facilities for disposal.

7.3 The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG.

The legal authority to prohibit illicit discharges (eg. FOG, etc.) into the sewer system is discussed in Chapter 3 of this document. Requiring grease interceptors at FSE to prevent the discharge of grease to the public sewer system and educating the public on proper disposal methods for FOG are also discussed in this chapter. Discharges from industrial classification facilities are usually controlled under the terms of an industrial wastewater discharge permit, which is issued and monitored by the local sewerage agency.

7.4 Requirements to install grease removal devices, design standards, maintenance, BMP's, record keeping and reporting requirements.

The City Building Official and/or City Health Officer is authorized to monitor and enforce the terms of the Plumbing Code and the Public Health Code, respectively. This includes domestic waste disposal from residential and commercial facilities. The City Code prohibits the discharge of "any material which may create a public nuisance, or menace to the public health or safety, or which may pollute underground or surface waters, or which may cause damage to any storm-drain channel or public or private property."

The DPW is charged with reviewing, permitting and inspecting the existing twenty-two (22) industrial waste facilities that discharge into the City's wastewater collection system. Pretreatment devices are required for industrial waste generating facilities, including restaurants and other FSE. Grease removal devices are required to be designed per the PC, Chapter 10, approved, installed and operated in a manner to control discharges of FOG into the sanitary sewer system. Such devices are also to ensure that connected facilities do not create nuisances or menaces to the public peace, health or safety hazards, or adverse impacts on the public sewerage system, soil, underground and/or surface waters. If there is a FOG related problem associated with an industrial waste permit, City will take enforcement action against the permittee.

If during inspection of the sanitary sewer system, SO&M personnel determine that a FOG related problem exists and is traceable to a domestic sewage source of such character that is not satisfactory, under the City Code, pretreatment could be required or the discharge required to be eliminated. Domestic waste containing FOG can lead to SSO which are public nuisances, and California Health and Safety Code Division 5, Part 3, Chapter 6, Article 2 can also be used to impose appropriate domestic sewage discharge requirements.

The effectiveness of any grease removal devices are dependent upon their routine maintenance and monitoring/inspection for conformance with its intended purpose. Regular inspection and maintenance activity logging with quarterly reporting are required.

7.5 Authority to inspect grease producing facilities, to enforcement, and evidence of adequate staffing to inspect and enforce the FOG ordinance.

As discussed in chapter 3 of this document, the City has legal authority to inspect and enforce the local FOG ordinances. City has adequate staff to conduct inspections of the few pre-treatment facilities at the permitted FSE connected into the city sewer system. The funding mechanism now in place allows for increases in permit and other services charges if necessary

to hire additional staff.

7.6 Cleaning schedule for identified FOG prone sewer segments

Experience has shown that FOG contributes to about 50% of the total SSO events that occur in a community sewer system. The remaining 50% is usually attributable to root intrusion into the system and other structural causes. As indicated in Chapter 4 of this document, FOG prone sections of City's collection system, otherwise called "hot spots," are identified during routine maintenance operations and investigation of stoppages resulting in a SSO event. These "hot spots" are typically cleaned by hydro jetting and rodding or cutting if roots are encountered. Those portions of the system found to have persistent FOG problems are inspected and cleaned more frequently, depending on the magnitude of the problem. Furthermore, segments of the collection system with persistent FOG problems are referred to the DPW for additional evaluation and corrective actions.

7.7 Source control measures developed and implemented for "hot spots"

Each "hot spot" cause and condition is not the same. For each identified problem location, the means of effective maintenance is noted on the respective "hot spots" list for review and regular follow-up action by the sewer maintenance crews. The activities can be amended as needed.

7.8 Some BMP's for Fats, Oils and Grease

Examples of BMP's for local application are on the following pages.

Some Best Management Practice (BMP) for Fats, Oils, and Grease

Residual fats, oils and grease (FOG) are by-products that food preparation and food service establishments and automotive service facilities and machine shops must constantly manage. Typically, FOG enters a facility's plumbing from wash sinks and floor drains during daily operations. Sanitary sewer systems are not designed or equipped to handle accumulating FOG on the interior of sewer collection system pipes due to unmanaged – unmaintained discharges. Keeping FOG materials out of the plumbing system, by reasonable methods, is an important factor. The following are suggestions for proper FOG management:

Bulk or Dry Clean-Up

- Practice bulk and dry materials clean-up before using wet methods that use water.
- Remove bulk or other solid food and grease laden substances into a suitable container before rinsing or washing the initial containers or surfaces that will drain into the plumbing system.
- Keep drain screens in place and fully serviceable to avoid clogging drains or accumulating FOG or grit on the interiors of pipes.
- Do not pour grease, fats, or oils down the drain nor place food scraps in the drain.
- Use food grade paper to soak up oils and grease and dispose of appropriately.
- Use paper towels to wipe down surfaces and work areas. Cloth towels require washing and thereby introducing FOG back into the drains.
- Success of bulk or dry clean-up is dependent upon the behavior of individuals and their access to tools and materials for use in removing bulk and dry materials before washing.
- Preventing spills reduces the amount of waste that will require clean-up.
- A dry surface work place is safer for everyone in avoiding slips, trips and falls.
- Capture bulk or dryer materials and place them into an appropriate container.
- Empty containers before they are full to avoid spills.
- Cover any FOG container before transporting to the rendering storage container.
- Provide employees with proper tools to transport materials without spilling.

Maintenance

- Whatever method(s) are being used to collect, filter and store FOG, ensure that equipment is regularly maintained.
- Employees should be aware of and trained to perform correct and scheduled cleaning procedures.
- A daily and weekly maintenance schedule is highly recommended.
- Contract with a responsible service company to regularly and thoroughly clean larger components and spaces requiring specialized equipment and skills (e.g. large hood filters, hot

Spill Prevention

- tanks, floor drain pipes, specialty tools).
- Smaller and less complex elements can be cleaned by hand by the user (e.g. small hood filters, counter/bench tops, sinks, storage areas, daily tools).
 - Skim/filter fryer grease daily and test the oil to determine when change is necessary. Build-up of carbon deposits on the bottom of the fryer acts as an insulator that forces the fryer to heat longer, thus causing the oil to break down sooner. This extends the life of both the fryer and the oil.
 - Avoid discharging fryer oil into a drain or grease trap, but dispose into a rendering container for transport to a rendering company.
 - Cleaning intervals depend upon the type of product being prepared and the typical deposition of materials experienced. The larger the volume produced and deposits incurred, the more frequent the cleaning. This may warrant setting up a system of high use, high deposition work to be done in certain equipment that is cleaned more frequently than others to confine maintenance efforts.

Grease Traps and Interceptors

- For grease traps and interceptors to be effective, the units must be properly sized, constructed and installed in a location to provide an adequate retention time for settling and accumulation of the FOG.
- For information on properly locating, constructing and sizing grease traps and interceptors, contact the local governmental agency and examine EPA guidance documents and UPC criteria.

- Ensure all grease-bearing drains discharge to the grease trap/interceptor.
- No toilet or shower waste should be plumbed to the trap/interceptor

Oil and Grease Collection/Recycling and Food Donations

- FOG consists of commodities that if handled properly can be treated as a valuable resource.
- Some rendering companies will offer services free-of-charge and other will give a rebate on the materials collected. Contact local rendering representative for specific information and details.
- Use only covered rendering barrels and make sure all drain screens are installed.
- Use a 3-compartment sink for ware washing. Begin with a hot pre-wash, then a scouring detergent wash, then a hot rinse. Each step should be trapped to capture non-emulsified FOG.
- Donations can reduce disposal costs. Ensure that edible food is not washed or flushed down the drain. Edible food waste may be donated to a local food bank. Inedible food waste can be collected by a garbage feeder that will use discards for feeding livestock.

SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

8.1 System Evaluation

To assess the adequacy of the existing sewer system, a hydraulic evaluation of the entire city sewer system was performed in 2002. The resulting report and recommended improvements are contained in Appendix 'L' along with various funding alternatives.

8.2 Design Criteria

CMC Chapter 13.50 forms the foundation upon which the DPW is given the legal responsibility for ensuring sound, logical and functional design of the public sewer infrastructure. The Code defines terms, establishes fees, sets out provisions for enforcement and maintenance, and sets the basis of design standards for sewers. For specifics on design and performance provisions, refer to Chapter 5.

8.3 Adequate Capacity

City's Engineering Division is the first line of defense in ensuring that the public sewer infrastructure is adequately planned, sized, correctly designed and easily maintainable. DPW legal authority to perform this important task is set forth in the multiple documents discussed in Chapter 3 and as detailed below.

For any new or expanded sewage discharges, the city requires completion of a sewer capacity study, by a registered engineer, prior to giving approval for projects that can affect the capacity of the public sewer system. The completed study will analyze the capacity in the existing system and will set forth mitigation requirements for the applicant to ensure adequate capacity. The study will also justify the sizing of proposed lines to accommodate the peak flows from all areas tributary to the mainline sewer under consideration or pumping station, now and in the future. The approved capacity study is referenced directly by the city's plan checker when design plans for the new infrastructure are submitted to assure adequate capacity. All proposals for new connection to existing sewer must also comply with the DPW's policies for managing available sewer capacity (Appendix 'M').

8.4 CIP Schedule

The scheduling of both Operating and Capital projects is contained in Appendix 'I'.

MONITORING, MEASUREMENT, MODIFICATION PROGRAM

9.1 Monitoring

Relevant data on all work done in the implementation and execution of the SSMP program shall be documented and maintained in the DPW filing system and used in preparing the monthly Summary of Maintenance of Productivity. These data files are used in the evaluation of the effectiveness of the overall program.

9.2 Program Effectiveness Evaluation

The effectiveness of the program shall be monitored and tracked through the City Performance Measure Indicators (See Appendix 'O') of key activities to minimize sewer overflows. These include:

- total number of overflows
- total number equal to or greater than 1000 gallons discharged or reaching the Waters of the United States
- overflow response time
- reduction in repeated incidents of overflow at the same location
- reduction in number of overflows caused by flows exceeding the capacity of the collection system.

9.3 Program Modifications

Based on the above monitoring or performance evaluations, the SSMP program elements will be updated or modified as necessary.

9.4 SSO Location Mapping and Trends

9.4.1 Location Map

The locations of SSO occurrences are plotted annually on a citywide map (Appendix 'F'). The causes of the SSO are also recorded. These maps are used for establishing SSO patterns, identifying hot spots as indicated by clusters on the maps, and for scheduling work assignments and providing information on SSO activities.

9.4.2 Mapping of SSO Frequencies

The monthly numbers of SSO's are also depicted in charts and graphs (Appendix 'P'). The charts are used to identify SSO trends and as an indicator of infiltration/inflow problems that need to be corrected. The graphs are used to identify SSO trends and to evaluate overall SSMP program success especially by comparing the graphs to different years and with results from other sewerage agencies.

SSMP PROGRAM AUDIT AND CERTIFICATION

10.1 SSMP Program Audit

The City will conduct periodic internal audits and prepare a report, at a minimum of every two years. The audit will focus on evaluating the operational and cost effectiveness of the SSMP as well as the City's compliance with all elements of the SSMP. This will include:

- Identification of any deficiencies in the SSMP
- Steps taken to correct any identified deficiencies
- Notes of interviews with key responding personnel and any contractors utilized
- Notes of operational observations, especially of each SSO event
- Notes on related equipment inspections
- Findings of all reviews of related records

The most recent report of the audit must be kept on file in the Office of the City Clerk, the DPW office and at the field maintenance yard site.

10.2 SSMP Certification

The SSMP shall be presented to the City Council and noticed public at a public hearing. Subsequent SSMP approval must also be considered and acted upon at a public meeting. Once it is approved, the Director of Public Works must certify its approval in compliance with the WDR requirements, including completion of the certification portion in the Online SSO Database Questionnaire by checking the appropriate milestone box, printing and signing the automated form and sending the signed form to:

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

10.3 SSMP Modification and Re-certification

The SSMP must be updated every five years to keep it current. When significant amendments are made to any portion or portions of the SSMP, it must be noticed and resubmitted to the City Council for approval and re-certification. The re-certification shall be in accordance with the certification process described in section 10.2 above.

COMMUNICATION AND SSMP AVAILABILITY

11.1 Communication

The City will provide all stakeholders and interested parties, the general public and other agencies, with status updates on the development and implementation of the SSMP and consider comments received from them. The City will utilize media such as quarterly newsletter, billing insert, special brochures, annual reports, notices in newspapers, and the City's home web page for conveying this information.

11.2 SSMP Availability

Copies of the SSMP will be maintained in the City offices of the Library, City Clerk, the City Engineer and the Director of Public Works and at each SO&M field yard sites, with applicable summaries, reports and notices posted on the City's home web page. The adopted document shall also be made readily available to the Regional Water Quality Control Board (Region No. 4) representatives upon request and to the operators of any collection system or treatment facility downstream of the City's sanitary sewer system.

APPENDICES

Appendix A	Waste Discharge Requirements (Order No. 2006-0003-DWQ)
Appendix B	Monitoring and Reporting Program (No. 2006-0003) ‘Amended’
Appendix C	WDR ‘Fact Sheet’
Appendix D	Agency WDR Application (NOI)
Appendix E	Inventory of Sewer Maintenance Equipment
Appendix F	Location Map / Maintenance Yards, Pump Sta., Flow Monitoring Sites, SSO Locations & Delivery Points
Appendix G	Inventory of Sewer Collection Facilities by SMZ’s
Appendix H	Sewer Line “Hot Spots” (Maintenance & Structural), City Maintenance Records & Industrial Waste Discharge Permits
Appendix I	Operating and Capital Outlay Projects
Appendix J	CCTV Inspection Report w/Conditions Assessment & Schedule
Appendix K	Sanitary Sewer Overflow Response Instruction Manual
Appendix L	Sewer System Capacity Evaluation & Flow Monitoring Results
Appendix M	Policies for Managing Available Sewer Capacity
Appendix N	Summary of Maintenance Productivity - Template
Appendix O	Performance Measure Indicators - Template
Appendix P	SSO Bar Charts & Graphs

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

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

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

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

SEWER SYSTEM MANAGEMENT PLANS

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

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

REGULATORY CONSIDERATIONS

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

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

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

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

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

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

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

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

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

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

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

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

A. DEFINITIONS

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

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

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

B. APPLICATION REQUIREMENTS

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

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

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

C. PROHIBITIONS

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

D. PROVISIONS

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

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

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

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

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

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

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

Sewer System Management Plan (SSMP)

- (i) **Goal:** The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.
- (ii) **Organization:** The SSMP must identify:
- (a) The name of the responsible or authorized representative as described in Section J of this Order.
 - (b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and
 - (c) The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).
- (iii) **Legal Authority:** Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:
- (a) Prevent illicit discharges into its sanitary sewer system (examples may include I/I, stormwater, chemical dumping, unauthorized debris and cut roots, etc.);

- (b) Require that sewers and connections be properly designed and constructed;
 - (c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;
 - (d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and
 - (e) Enforce any violation of its sewer ordinances.
- (iv) **Operation and Maintenance Program.** The SSMP must include those elements listed below that are appropriate and applicable to the Enrollee's system:
- (a) Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities;
 - (b) Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;
 - (c) Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan;
 - (d) Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and

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

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

(a) Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and

(b) Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

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

(a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;

(b) A program to ensure an appropriate response to all overflows;

(c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, Regional Water Boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the MRP. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The SSMP should identify the officials who will receive immediate notification;

(d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;

(e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and

(f) A program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

- (vii) **FOG Control Program:** Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan shall include the following as appropriate:
- (a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;
 - (b) A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;
 - (c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;
 - (d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;
 - (e) Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;
 - (f) An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section; and
 - (g) Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified in (f) above.
- (viii) **System Evaluation and Capacity Assurance Plan:** The Enrollee shall prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. At a minimum, the plan must include:
- (a) **Evaluation:** Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs

that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events;

- (b) **Design Criteria:** Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria; and
 - (c) **Capacity Enhancement Measures:** The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.
 - (d) **Schedule:** The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D. 14.
- (ix) **Monitoring, Measurement, and Program Modifications:** The Enrollee shall:
- (a) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;
 - (b) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;
 - (c) Assess the success of the preventative maintenance program;
 - (d) Update program elements, as appropriate, based on monitoring or performance evaluations; and
 - (e) Identify and illustrate SSO trends, including: frequency, location, and volume.
- (x) **SSMP Program Audits** - As part of the SSMP, the Enrollee shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the

Enrollee's compliance with the SSMP requirements identified in this subsection (D.13), including identification of any deficiencies in the SSMP and steps to correct them.

- (xi) **Communication Program** – The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the Enrollee as the program is developed and implemented.

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

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

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

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

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

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

Sewer System Management Plan Time Schedule

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

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

Reporting Program Section G	
Regional Boards 4, 8, and 9	8 months after WDRs Adoption
Regional Boards 1, 2, and 3	12 months after WDRs Adoption
Regional Boards 5, 6, and 7	16 months after WDRs Adoption

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

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

E. WDRs and SSMP AVAILABILITY

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

F. ENTRY AND INSPECTION

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

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

G. GENERAL MONITORING AND REPORTING REQUIREMENTS

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

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

H. CHANGE IN OWNERSHIP

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

I. INCOMPLETE REPORTS

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

J. REPORT DECLARATION

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

K. CIVIL MONETARY REMEDIES FOR DISCHARGE VIOLATIONS

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

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

L. SEVERABILITY

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

CERTIFICATION

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

AYE: Tam M. Doduc
Gerald D. Secundy

NO: Arthur G. Baggett

ABSENT: None

ABSTAIN: None



Song Her
Clerk to the Board

STATE WATER RESOURCES CONTROL BOARD

MONITORING AND REPORTING PROGRAM NO. 2006-0003-DWQ STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER SYSTEMS

This Monitoring and Reporting Program (MRP) establishes monitoring, record keeping, reporting and public notification requirements for Order No. 2006-2003-DWQ, "Statewide General Waste Discharge Requirements for Sanitary Sewer Systems." Revisions to this MRP may be made at any time by the Executive Director, and may include a reduction or increase in the monitoring and reporting.

A. SANITARY SEWER OVERFLOW REPORTING

SSO Categories

1. Category 1 - All discharges of sewage resulting from a failure in the Enrollee's sanitary sewer system that:
 - A. Equal or exceed 1000 gallons, or
 - B. Result in a discharge to a drainage channel and/or surface water; or
 - C. Discharge to a storm drainpipe that was not fully captured and returned to the sanitary sewer system.
2. Category 2 – All other discharges of sewage resulting from a failure in the Enrollee's sanitary sewer system.
3. Private Lateral Sewage Discharges – Sewage discharges that are caused by blockages or other problems within a privately owned lateral.

SSO Reporting Timeframes

4. Category 1 SSOs – All SSOs that meet the above criteria for Category 1 SSOs must be reported as soon as: (1) the Enrollee has knowledge of the discharge, (2) reporting is possible, and (3) reporting can be provided without substantially impeding cleanup or other emergency measures. Initial reporting of Category 1 SSOs must be reported to the Online SSO System as soon as possible but no later than 3 business days after the Enrollee is made aware of the SSO. Minimum information that must be contained in the 3-day report must include all information identified in section 9 below, except for item 9.K. A final certified report must be completed through the Online SSO System, within 15 calendar days of the conclusion of SSO response and remediation. Additional information may be added to the certified report, in the form of an attachment, at any time.

The above reporting requirements do not preclude other emergency notification requirements and timeframes mandated by other regulatory agencies (local

County Health Officers, local Director of Environmental Health, Regional Water Boards, or Office of Emergency Services (OES)) or State law.

5. Category 2 SSOs – All SSOs that meet the above criteria for Category 2 SSOs must be reported to the Online SSO Database within 30 days after the end of the calendar month in which the SSO occurs (e.g. all SSOs occurring in the month of January must be entered into the database by March 1st).
6. Private Lateral Sewage Discharges – All sewage discharges that meet the above criteria for Private Lateral sewage discharges may be reported to the Online SSO Database based upon the Enrollee’s discretion. If a Private Lateral sewage discharge is recorded in the SSO Database, the Enrollee must identify the sewage discharge as occurring and caused by a private lateral, and a responsible party (other than the Enrollee) should be identified, if known.
7. If there are no SSOs during the calendar month, the Enrollee will provide, within 30 days after the end of each calendar month, a statement through the Online SSO Database certifying that there were no SSOs for the designated month.
8. In the event that the SSO Online Database is not available, the enrollee must fax all required information to the appropriate Regional Water Board office in accordance with the time schedules identified above. In such event, the Enrollee must also enter all required information into the Online SSO Database as soon as practical.

Mandatory Information to be Included in SSO Online Reporting

All Enrollees must obtain SSO Database accounts and receive a “Username” and “Password” by registering through the California Integrated Water Quality System (CIWQS). These accounts will allow controlled and secure entry into the SSO Database. Additionally, within thirty (30) days of receiving an account and prior to recording SSOs into the SSO Database, all Enrollees must complete the “Collection System Questionnaire”, which collects pertinent information regarding an Enrollee’s collection system. The “Collection System Questionnaire” must be updated at least every 12 months.

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

9. Category 2 SSOs:
 - A. Location of SSO by entering GPS coordinates;
 - B. Applicable Regional Water Board, i.e. identify the region in which the SSO occurred;
 - C. County where SSO occurred;
 - D. Whether or not the SSO entered a drainage channel and/or surface water;
 - E. Whether or not the SSO was discharged to a storm drain pipe that was not fully captured and returned to the sanitary sewer system;

- F. Estimated SSO volume in gallons;
- G. SSO source (manhole, cleanout, etc.);
- H. SSO cause (mainline blockage, roots, etc.);
- I. Time of SSO notification or discovery;
- J. Estimated operator arrival time;
- K. SSO destination;
- L. Estimated SSO end time; and
- M. SSO Certification. Upon SSO Certification, the SSO Database will issue a Final SSO Identification (ID) Number.

10. Private Lateral Sewage Discharges:

- A. All information listed above (if applicable and known), as well as;
- B. Identification of sewage discharge as a private lateral sewage discharge; and
- C. Responsible party contact information (if known).

11. Category 1 SSOs:

- A. All information listed for Category 2 SSOs, as well as;
- B. Estimated SSO volume that reached surface water, drainage channel, or not recovered from a storm drain;
- C. Estimated SSO amount recovered;
- D. Response and corrective action taken;
- E. If samples were taken, identify which regulatory agencies received sample results (if applicable). If no samples were taken, NA must be selected.
- F. Parameters that samples were analyzed for (if applicable);
- G. Identification of whether or not health warnings were posted;
- H. Beaches impacted (if applicable). If no beach was impacted, NA must be selected;
- I. Whether or not there is an ongoing investigation;
- J. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;
- K. OES control number (if applicable);
- L. Date OES was called (if applicable);
- M. Time OES was called (if applicable);
- N. Identification of whether or not County Health Officers were called;
- O. Date County Health Officer was called (if applicable); and
- P. Time County Health Officer was called (if applicable).

Reporting to Other Regulatory Agencies

These reporting requirements do not preclude an Enrollee from reporting SSOs to other regulatory agencies pursuant to California state law. These reporting requirements do not replace other Regional Water Board telephone reporting requirements for SSOs.

1. The Enrollee shall report SSOs to OES, in accordance with California Water Code Section 13271.

Office of Emergency Services
Phone (800) 852-7550

2. The Enrollee shall report SSOs to County Health officials in accordance with California Health and Safety Code Section 5410 et seq.
3. The SSO database will automatically generate an e-mail notification with customized information about the SSO upon initial reporting of the SSO and final certification for all Category 1 SSOs. E-mails will be sent to the appropriate County Health Officer and/or Environmental Health Department if the county desires this information, and the appropriate Regional Water Board.

B. Record Keeping

1. Individual SSO records shall be maintained by the Enrollee for a minimum of five years from the date of the SSO. This period may be extended when requested by a Regional Water Board Executive Officer.
3. All records shall be made available for review upon State or Regional Water Board staff's request.
4. All monitoring instruments and devices that are used by the Enrollee to fulfill the prescribed monitoring and reporting program shall be properly maintained and calibrated as necessary to ensure their continued accuracy;
5. The Enrollee shall retain records of all SSOs, such as, but not limited to and when applicable:
 - a. Record of Certified report, as submitted to the online SSO database;
 - b. All original recordings for continuous monitoring instrumentation;
 - c. Service call records and complaint logs of calls received by the Enrollee;
 - d. SSO calls;
 - e. SSO records;
 - f. Steps that have been and will be taken to prevent the SSO from recurring and a schedule to implement those steps.
 - g. Work orders, work completed, and any other maintenance records from the previous 5 years which are associated with responses and investigations of system problems related to SSOs;
 - h. A list and description of complaints from customers or others from the previous 5 years; and
 - i. Documentation of performance and implementation measures for the previous 5 years.
6. If water quality samples are required by an environmental or health regulatory agency or State law, or if voluntary monitoring is conducted by the Enrollee or its agent(s), as a result of any SSO, records of monitoring information shall include:

- a. The date, exact place, and time of sampling or measurements;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical technique or method used; and,
- f. The results of such analyses.

C. Certification

1. All final reports must be certified by an authorized person as required by Provision J of the Order.
2. Registration of authorized individuals, who may certify reports, will be in accordance with the CIWQS' protocols for reporting.

Monitoring and Reporting Program No. 2006-0003 will become effective on the date of adoption by the State Water Board.

CERTIFICATION

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



Song Her
Clerk to the Board

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER NO. WQ 2008-0002-EXEC

**ADOPTING AMENDED MONITORING AND REPORTING REQUIREMENTS FOR
STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER
SYSTEMS**

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

1. The State Water Board is authorized to prescribe statewide general waste discharge requirements for categories of discharges that involve the same or similar operations and the same or similar types of waste pursuant to Water Code 13263, subdivision (i).
2. The State Water Board on May 2, 2006, adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Order No. 2006-0003-DWQ, pursuant to that authority.
3. The State Water Board on May 2, 2006, adopted Monitoring and Reporting Requirements to implement the General Waste Discharge Requirements for Sanitary Sewer Systems.
4. State Water Board Order No. 2006-0003-DWQ, paragraph G.2., and the Monitoring and Reporting Requirements, both provide that the Executive Director may modify the terms of the Monitoring and Reporting Requirements at any time.
5. The time allowed in those Monitoring and Reporting Requirements for the filing of the initial report of an overflow is too long to adequately protect the public health and safety or the beneficial uses of the waters of the state when there is a sewage collection system spill. An additional notification requirement is necessary and appropriate to ensure the Office of Emergency Services, local public health officials, and the applicable regional water quality control board are apprised of a spill that reaches a drainage channel or surface water.
6. Further, the burden of providing a notification as soon as possible is de minimis and will allow response agencies to take action as soon as possible to protect public health and safety and beneficial uses of the waters of the state.

IT IS HEREBY ORDERED THAT:

Pursuant to the authority delegated by Resolution No. 2002-0104 and Order No. 2006-0003-DWQ, the Monitoring and Reporting Requirements for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems No. 2006-0003-DWQ is hereby amended as shown in Attachment A, with new text indicated by double-underline.

Dated:

February 20, 2008

Dorothy Rice

Dorothy Rice
Executive Director

ATTACHMENT A

**STATE WATER RESOURCES CONTROL BOARD
MONITORING AND REPORTING PROGRAM NO. 2006-0003-DWQ
(AS REVISED BY ORDER NO. WQ 2008-0002-EXEC)**

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

This Monitoring and Reporting Program (MRP) establishes monitoring, record keeping, reporting and public notification requirements for Order No. 2006-2003-DWQ, "Statewide General Waste Discharge Requirements for Sanitary Sewer Systems." Revisions to this MRP may be made at any time by the Executive Director, and may include a reduction or increase in the monitoring and reporting.

NOTIFICATION

Although State and Regional Water Board staff do not have duties as first responders, this Monitoring and Reporting Program is an appropriate mechanism to ensure that the agencies that do have first responder duties are notified in a timely manner in order to protect public health and beneficial uses.

1. For any discharges of sewage that results in a discharge to a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the State Office of Emergency Services, the local health officer or directors of environmental health with jurisdiction over affected water bodies, and the appropriate Regional Water Quality Control Board.
2. As soon as possible, but no later than twenty-four (24) hours after becoming aware of a discharge to a drainage channel or a surface water, the Discharger shall submit to the appropriate Regional Water Quality Control Board a certification that the State Office of Emergency Services and the local health officer or directors of environmental health with jurisdiction over the affected water bodies have been notified of the discharge.

A. SANITARY SEWER OVERFLOW REPORTING**SSO Categories**

1. Category 1 - All discharges of sewage resulting from a failure in the Enrollee's sanitary sewer system that:
 - A. Equal or exceed 1000 gallons, or
 - B. Result in a discharge to a drainage channel and/or surface water; or
 - C. Discharge to a storm drainpipe that was not fully captured and returned to the sanitary sewer system.

2. Category 2 – All other discharges of sewage resulting from a failure in the Enrollee's sanitary sewer system.
3. Private Lateral Sewage Discharges – Sewage discharges that are caused by blockages or other problems within a privately owned lateral.

SSO Reporting Timeframes

4. Category 1 SSOs – Except as provided above, all SSOs that meet the above criteria for Category 1 SSOs must be reported as soon as: (1) the Enrollee has knowledge of the discharge, (2) reporting is possible, and (3) reporting can be provided without substantially impeding cleanup or other emergency measures. Initial reporting of Category 1 SSOs must be reported to the Online SSO System as soon as possible but no later than 3 business days after the Enrollee is made aware of the SSO. Minimum information that must be contained in the 3-day report must include all information identified in section 9 below, except for item 9.K. A final certified report must be completed through the Online SSO System, within 15 calendar days of the conclusion of SSO response and remediation. Additional information may be added to the certified report, in the form of an attachment, at any time.

The above reporting requirements are in addition to do not preclude other emergency notification requirements and timeframes mandated by other regulatory agencies (local County Health Officers, local Director of Environmental Health, Regional Water Boards, or Office of Emergency Services (OES)) or State law.

5. Category 2 SSOs – All SSOs that meet the above criteria for Category 2 SSOs must be reported to the Online SSO Database within 30 days after the end of the calendar month in which the SSO occurs (e.g. all SSOs occurring in the month of January must be entered into the database by March 1st).
6. Private Lateral Sewage Discharges – All sewage discharges that meet the above criteria for Private Lateral sewage discharges may be reported to the Online SSO Database based upon the Enrollee's discretion. If a Private Lateral sewage discharge is recorded in the SSO Database, the Enrollee must identify the sewage discharge as occurring and caused by a private lateral, and a responsible party (other than the Enrollee) should be identified, if known.
7. If there are no SSOs during the calendar month, the Enrollee will provide, within 30 days after the end of each calendar month, a statement through the Online SSO Database certifying that there were no SSOs for the designated month.
8. In the event that the SSO Online Database is not available, the enrollee must fax all required information to the appropriate Regional Water Board office in

accordance with the time schedules identified above. In such event, the Enrollee must also enter all required information into the Online SSO Database as soon as practical.

Mandatory Information to be Included in SSO Online Reporting

All Enrollees must obtain SSO Database accounts and receive a "Username" and "Password" by registering through the California Integrated Water Quality System (CIWQS). These accounts will allow controlled and secure entry into the SSO Database. Additionally, within thirty (30) days of receiving an account and prior to recording SSOs into the SSO Database, all Enrollees must complete the "Collection System Questionnaire", which collects pertinent information regarding an Enrollee's collection system. The "Collection System Questionnaire" must be updated at least every 12 months.

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

9. Category 2 SSOs:

- A. Location of SSO by entering GPS coordinates;
- B. Applicable Regional Water Board, i.e. identify the region in which the SSO occurred;
- C. County where SSO occurred;
- D. Whether or not the SSO entered a drainage channel and/or surface water;
- E. Whether or not the SSO was discharged to a storm drain pipe that was not fully captured and returned to the sanitary sewer system;
- F. Estimated SSO volume in gallons;
- G. SSO source (manhole, cleanout, etc.);
- H. SSO cause (mainline blockage, roots, etc.);
- I. Time of SSO notification or discovery;
- J. Estimated operator arrival time;
- K. SSO destination;
- L. Estimated SSO end time; and
- M. SSO Certification. Upon SSO Certification, the SSO Database will issue a Final SSO Identification (ID) Number.

10. Private Lateral Sewage Discharges:

- A. All information listed above (if applicable and known), as well as;
- B. Identification of sewage discharge as a private lateral sewage discharge; and
- C. Responsible party contact information (if known).

11. Category 1 SSOs:

- A. All information listed for Category 2 SSOs, as well as;
- B. Estimated SSO volume that reached surface water, drainage channel, or not recovered from a storm drain;
- C. Estimated SSO amount recovered;
- D. Response and corrective action taken;
- E. If samples were taken, identify which regulatory agencies received sample results (if applicable). If no samples were taken, NA must be selected.
- F. Parameters that samples were analyzed for (if applicable);
- G. Identification of whether or not health warnings were posted;
- H. Beaches impacted (if applicable). If no beach was impacted, NA must be selected;
- I. Whether or not there is an ongoing investigation;
- J. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;
- K. OES control number (if applicable);
- L. Date OES was called (if applicable);
- M. Time OES was called (if applicable);
- N. Identification of whether or not County Health Officers were called;
- O. Date County Health Officer was called (if applicable); and
- P. Time County Health Officer was called (if applicable).

Reporting to Other Regulatory Agencies

These reporting requirements do not preclude an Enrollee from reporting SSOs to other regulatory agencies pursuant California state law. These reporting requirements do not replace other Regional Water Board telephone reporting requirements for SSOs.

1. The Enrollee shall report SSOs to OES, in accordance with California Water Code Section 13271.

Office of Emergency Services
Phone (800) 852-7550

2. The Enrollee shall report SSOs to County Health officials in accordance with California Health and Safety Code Section 5410 et seq.
3. The SSO database will automatically generate an e-mail notification with customized information about the SSO upon initial reporting of the SSO and final certification for all Category 1 SSOs. E-mails will be sent to the appropriate County Health Officer and/or Environmental Health Department if the county desires this information, and the appropriate Regional Water Board.

B. Record Keeping

1. Individual SSO records shall be maintained by the Enrollee for a minimum of five years from the date of the SSO. This period may be extended when requested by a Regional Water Board Executive Officer.

[2. Omitted.]

3. All records shall be made available for review upon State or Regional Water Board staff's request.
4. All monitoring instruments and devices that are used by the Enrollee to fulfill the prescribed monitoring and reporting program shall be properly maintained and calibrated as necessary to ensure their continued accuracy;
5. The Enrollee shall retain records of all SSOs, such as, but not limited to and when applicable:
 - a. Record of Certified report, as submitted to the online SSO database;
 - b. All original recordings for continuous monitoring instrumentation;
 - c. Service call records and complaint logs of calls received by the Enrollee;
 - d. SSO calls;
 - e. SSO records;
 - f. Steps that have been and will be taken to prevent the SSO from recurring and a schedule to implement those steps.
 - g. Work orders, work completed, and any other maintenance records from the previous 5 years which are associated with responses and investigations of system problems related to SSOs;
 - h. A list and description of complaints from customers or others from the previous 5 years; and
 - i. Documentation of performance and implementation measures for the previous 5 years.
6. If water quality samples are required by an environmental or health regulatory agency or State law, or if voluntary monitoring is conducted by the Enrollee or its agent(s), as a result of any SSO, records of monitoring information shall include:
 - a. The date, exact place, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) analyses were performed;
 - d. The individual(s) who performed the analyses;
 - e. The analytical technique or method used; and,
 - f. The results of such analyses.

C. Certification

1. All final reports must be certified by an authorized person as required by Provision J of the Order.
2. Registration of authorized individuals, who may certify reports, will be in accordance with the CIWQS' protocols for reporting.

Monitoring and Reporting Program No. 2006-0003 will become effective on the date of adoption by the State Water Board. The notification requirements added by Order No. WQ 2008-0002-EXEC will become effective upon issuance by the Executive Director.

CERTIFICATION

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



Jeanne Townsend
Clerk to the Board

FACT SHEET

STATE WATER RESOURCES CONTROL BOARD

ORDER NO. 2006-0003

STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER SYSTEMS

The State Water Resources Control Board (State Water Board) adopted Resolution 2004-80 in November 2004, requiring staff to work with a diverse group of stakeholders (known as the SSO Guidance Committee) to develop a regulatory mechanism to provide a consistent statewide approach for reducing Sanitary Sewer Overflows (SSOs). Over the past 14 months, State Water Board staff in collaboration with the SSO Guidance Committee, developed draft statewide general waste discharge requirements (WDRs) and a reporting program. The WDRs and reporting program reflect numerous ideas, opinions, and comments provided by the SSO Guidance Committee.

The SSO Guidance Committee consists of representatives from the State Water Board's Office of Chief Counsel, several Regional Water Quality Control Boards (Regional Water Boards), United States Environmental Protection Agency (USEPA), Region IX, non-governmental environmental organizations, as well as publicly-owned sanitary sewer collection system agencies. The draft WDRs, reporting program, and associated documents result from a collaborative attempt to create a robust and rigorous program, which will serve as the basis for consistent and appropriate management and operation of sanitary sewer systems.

During the collaborative process, several key issues regarding the draft WDRs were identified. These include:

- Is there a need for statewide collection system requirements?
- Should these systems be regulated under a National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to the Federal Clean Water Act or under WDRs issued pursuant to the California Water Code (the Porter-Cologne Water Quality Control Act or Porter-Cologne)?
- Should the regulatory mechanism include a prohibition of discharge and, if so, should the prohibition encompass only SSOs that reach surface waters, ground water, or should all SSOs be prohibited?
- Should a regulatory mechanism include a permitted discharge, an affirmative defense, or explicit enforcement discretion?
- Should the regulated facilities include publicly-owned facilities, privately owned facilities, satellite systems (public and private), and/or private laterals?

- Should all SSOs be reported, and if not, what should the reporting thresholds be; and what should the reporting timeframes be?
- How will existing permits and reporting requirements incorporate these new WDRs?
- How much will compliance with these new WDRs cost?

The WDRs and Reporting Program considered the comments of all stakeholders and others who commented on the two drafts circulated to the public. These documents also incorporate legal requirements and other revisions to improve the effectiveness and management of the regulatory program. Following is a discussion of the above issues, comments received on the drafts and an explanation of how issues were resolved.

The Need

As California's wastewater collection system infrastructure begins to age, the need to proactively manage this valuable asset becomes increasingly important. The first step in this process is to have a reliable reporting system for SSOs. Although there are some data systems to record spills and various spill-reporting requirements have been developed, inconsistent requirements and enforcement have led to poor data quality. A few Regional Water Boards have comprehensively tracked SSOs over the last three to five years, and from this information we have been able to determine that the majority of collection systems surveyed have had SSOs within this time period.

Both the San Diego and Santa Ana Regional Water Boards have issued WDRs over the last several years to begin regulating wastewater collection systems in an attempt to quantify and reduce SSOs. In fact, 44 out of 46 collection system agencies regulated by the San Diego Regional Water Board have reported spills over the last four and a half years, resulting in 1467 reported SSOs. Twenty-five out of 27 collection system agencies subject to the Santa Ana Regional Water Board's general WDRs reported SSOs between the years of 1999-2004. During this time period, 1012 SSOs were reported.

The 2004 Annual Ocean and Bay Water Quality Report issued by the Orange County Environmental Health Care Agency shows the number of SSOs increasing from 245 in 1999 to 399 in 2003. While this number indicates a concerning trend, the total annual spill volume from these SSOs has actually decreased dramatically, as has the number of beach closures due to SSOs. It is likely, therefore, that the rise in number of SSOs reflects better reporting, and not an actual increase in the number of SSOs.

This information also suggests that the Santa Ana Regional Water Board's WDRs, which contain sanitary sewer management plan (SSMP) requirements similar to those in the proposed statewide general WDRs, have been effective in

not only increasing the number of spills that are reported but also in mitigating the impacts of SSOs that do occur.

Data supports the conclusion that virtually all collection systems have SSOs and that implementation of a regulatory measure requiring SSO reporting and collection system management, along with required measures to limit SSOs, will greatly benefit California water quality. Implementation of these requirements will also greatly benefit and prolong the useful life of the sanitary sewer system, one of California's most valuable infrastructure items.

NPDES vs. WDRs

Porter-Cologne subjects a broader range of waste discharges to regulation than the Federal Clean Water Act. In general, the Clean Water Act prohibits the discharge of pollutants from point sources to surface waters of the United States unless authorized under an NPDES permit. (33 U.S.C. §§1311, 1342). Since not all SSOs result in a discharge to surface water, however, not all SSOs violate the Clean Water Act's NPDES permitting requirements. Porter-Cologne, on the other hand, covers all existing and proposed waste discharges that could affect the quality of state waters, including both surface waters and groundwater. (Wat. Code §§13050(e), 13260). Hence, under Porter-Cologne, a greater SSO universe is potentially subject to regulation under WDRs. In addition, WDRs under Porter-Cologne can address both protection of water quality as well as the prevention of public nuisance associated with waste disposal. (*Id.* §13263).

Some commenters contend that because all collection systems have the potential to overflow to surface waters the systems should be regulated under an NPDES permit. A recent decision by the United States Court of Appeals for the 2nd Circuit, however, has called into question the states' and USEPA's ability to regulate discharges that are only "potential" under an NPDES permit. In *Waterkeeper Alliance v. United States Environmental Protection Agency* (2005) 399 F.3d 486, 504-506, the appellate court held that USEPA can only require permits for animal feedlots with "an actual addition" of pollutants to surface waters. While this decision may not be widely followed, especially in the area of SSOs, these are clearly within the jurisdiction of the California Water Code.

USEPA defines a publicly owned treatment works (POTW) as both the wastewater treatment facility and its associated sanitary sewer system (40 C.F.R. §403.3(o)¹). Historically, only the portion of the sanitary sewer system that is owned by the same agency that owns the permitted wastewater treatment facility has been subject to NPDES permit requirements. Satellite sewer collection systems (i.e. systems not owned or operated by the POTW) have not been

¹ The regulation provides that a POTW include sewers, pipes, and other conveyances only if they convey wastewater to a POTW.

typically regulated as part of the POTW and, therefore, have not generally been subject to NPDES permit requirements.

Comments were received that argued every collection system leading to a POTW that is subject to an NPDES permit should also be permitted based upon the USEPA definition of POTW. Under this theory, all current POTW NPDES permits could be expanded to include all satellite sewer collection systems, or alternatively, the satellite system owners or operators could be permitted separately. However, this interpretation is not widely accepted and USEPA has no official guidance to this fact.

There are also many wastewater treatment facilities within California that do not have discharges to surface water, but instead use percolation ponds, spray irrigation, wastewater reclamation, or other means to dispose of the treated effluent. These facilities, and their satellite systems, are not subject to the NPDES permitting process and could not be subject to a statewide general NPDES permit. POTWs that fall into this category, though, can be regulated under Porter-Cologne and do have WDRs.

In light of these factors, the State Water Board has determined that the best approach is to propose statewide general WDRs at this time.

Prohibition of Discharge

The Clean Water Act prohibits the discharge of wastewater to surface waters except as authorized under an NPDES permit. POTWs must achieve secondary treatment, at a minimum, and any more stringent limitations that are necessary to achieve water quality standards. (33 U.S.C. §1311(b)(1)(B) and (C)). Thus, an SSO that results in the discharge of raw sewage to surface waters is prohibited under the Clean Water Act.

Additionally, California Water Code section 13263 requires the State Water Board to, after any necessary hearing, prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge. The requirements shall, among other things, take into consideration the need to prevent nuisance.

California Water Code section 13050 (m), defines nuisance as anything which meets all of the following requirements:

- a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
- b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

- c. Occurs during, or as a result of, the treatment or disposal of wastes.

Some SSOs do create a nuisance as defined in state law. Therefore, based upon these statutory requirements, the WDRs include prohibitions in Section C. of the WDRs. Section C. states:

C. PROHIBITIONS

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

Furthermore, the State Water Board acknowledges the potential for more stringent water quality standards that may exist pursuant to a Regional Water Board requirement. Language included in Section D.2 of the WDRs allows for these more stringent instances.

D. PROVISIONS

2. It is the intent of the State Water Board that sanitary sewer systems be regulated in a manner consistent with the general WDRs. Nothing in the general WDRs shall be:
 - (i) Interpreted or applied in a manner inconsistent with the Federal Clean Water Act, or supersede a more specific or more stringent state or federal requirement in an existing permit, regulation, or administrative/judicial order or Consent Decree;
 - (ii) Interpreted or applied to authorize an SSO that is illegal under either the Clean Water Act, an applicable Basin Plan prohibition or water quality standard, or the California Water Code;
 - (iii) Interpreted or applied to prohibit a Regional Water Board from issuing an individual NPDES permit or WDRs, superseding the general WDRs, for a sanitary sewer system, authorized under the Clean Water Act or California Water Code; or
 - (iv) Interpreted or applied to supersede any more specific or more stringent WDRs or enforcement order issued by a Regional Water Board.

Permitted Discharge, Affirmative Defense, and Enforcement Discretion

Commenters from the discharger community have requested inclusion of an affirmative defense to an SSO on the grounds that certain SSO events are unforeseen and unavoidable, such as SSOs due to extreme wet weather events. An affirmative defense is a mechanism whereby conduct that otherwise violates WDRs or a permit will be excused, and not subject to an enforcement action, under certain circumstances. Since many collection system industry experts believe that not all SSOs may be prevented, given certain circumstances (such as unforeseen vandalism, extreme wet weather, or other acts of God), many

collection system owner representatives believe this should formally be recognized by including an affirmative defense for these unavoidable SSOs.

Previous informal drafts of the general WDRs included affirmative defense language, which was contingent upon appropriate development and implementation of sanitary sewer management plan (SSMP) requirements, as well as a demonstration that the SSO was exceptional and unavoidable. Other stakeholders, including USEPA and the environmental groups opposed the concept of an affirmative defense for SSOs. They argued that its inclusion in the WDRs would undermine the Clean Water Act and inappropriately limit both Regional Water Board and third party enforcement.

After considering input from all stakeholders, and consulting with USEPA, staff is not recommending inclusion of an affirmative defense. Rather, the draft WDRs incorporate the concept of enforcement discretion, and explicitly identify what factors must be considered during any civil enforcement proceeding. The enforcement discretion portion of the WDRs is contained within Sections D. 6 and 7, and is consistent with enforcement discretion provisions within the California Water Code.

Facilities Subject to WDRs

Collection systems consist of pipelines and their appurtenances, which are intended to transport untreated wastewater to both publicly-owned and private wastewater treatment facilities. While wastewater treatment facilities are owned by a wide variety of public and private entities, public agencies (state and federal agencies, cities, counties, and special districts) own the vast majority of this infrastructure.

Collection systems that transport wastewater to POTWs could be grouped into four different categories:

1. Publicly-owned treatment works – pipelines and appurtenances that are owned by a public agency that also owns a wastewater treatment facility;
2. Publicly-owned satellites – pipelines and appurtenances that are owned by a public agency that does not own a wastewater treatment facility; and
3. Private laterals - pipelines and appurtenances that are not owned by a public agency, but rather discharge into one of the above types of facilities.
4. Privately owned treatment works – pipelines and appurtenances that are owned by a private entity, which also owns a wastewater treatment facility (often a septic tank and leach field).

The WDRs require all public agencies, which own wastewater collection systems (category 1 and 2 above) to enroll in the WDRs. Privately owned systems (categories 3 and 4) are not subject to the WDRs; however, a Regional Water

Board may at its discretion issue WDRs to these facilities on a case-by-case or region wide basis.

Collection systems discharging into POTWs (categories 1, 2, and 3) represent, by far, the greatest amount of collection system infrastructure within California. Since regulating private entities (categories 3 and 4) on a statewide basis would be unmanageable and impractical (because of the extremely large number and lack of contact information and other associated records), staff believes focusing on the public sector is the best option for meaningful and consistent outcomes. The legal authority and reporting provisions contained in the WDR do require limited oversight of private laterals (category 3) by public entities. Given this limited responsibility of oversight, public entities are not responsible or liable for private laterals.

State Water Board staff will notify all known public agencies that own wastewater collection systems, regarding their obligation to enroll under these WDRs. However, because of data inaccuracies, State Water Board staff may inadvertently not contact an agency that should enroll in the WDRs or erroneously contact a public agency that does not own a collection system. Staff will make every effort to accurately identify public agencies. In the event that a public agency is overlooked or omitted, however, it is the agency's responsibility to contact the State Water Board for information on the application process. An agency can find the appropriate contact by visiting the State Water Board's SSO homepage at www.waterboards.ca.gov/ss0.

SSO Reporting

SSOs can be distinguished between those that impact water quality and/or create a nuisance, and those that are indicators of collection system performance. Additionally, SSO liability is attributed to either private entities (homeowners, businesses, private communities, etc...) or public entities. Although all types of SSOs are important to track, the reporting time frames and the type of information that need to be conveyed differ.

The Reporting Program and Online SSO Database clearly distinguish the type of spill (major or minor) and the type of entity that owns the portion of the collection system that experienced the SSO (public or private entity). The reason to require SSO reporting for SSOs that do not necessarily impact public health or the environment is because these types of SSOs are indicators of collection system performance and management program effectiveness, and may serve as a sign of larger and more serious problems that should be addressed. Although these types of spills are important and must be regulated by collection system owners, the information that should be tracked and the time required to get them into the online reporting system are not as stringent.

Obviously, SSOs that are large in nature, affect public health, or affect the environment must be reported as soon as practicable and information associated with both the spill and efforts to mitigate the spill must be detailed. Since the Online SSO Database is a web based application requiring computer connection to the internet and is typically not as available as telephone communication would be, the Online Database will not replace emergency notification, which may be required by a Regional Water Board, Office of Emergency Services, or a County Health or Environmental Health Agency.

Incorporating Existing Permits

It is the State Water Board's intent to have one statewide regulatory mechanism that lays out the foundation for consistent collection system management requirements and SSO reporting. While there are a significant number of collection systems that are not actively regulated by the State or Regional Water Boards, some efforts have been made to regulate these agencies on a facility-by-facility or region-by-region basis. General WDRs, individual WDRs, NPDES permits, and enforcement orders that specifically include collections systems are mechanisms that have been used to regulate collection system overflows.

However, because of these varying levels of regulatory oversight, confusion exists among collection system owners as to regulatory expectations on a consistent and uniform basis (especially with reporting spills). Currently, there are a myriad of different SSO reporting thresholds and a number of different spill report repositories. Because of the varying levels of reporting thresholds and the lack of a common database to capture this information, an accurate picture of SSOs throughout California is unobtainable.

In order to provide a consistent and effective SSO prevention program, as well as to develop reasonable expectations for collection system management, these General WDRs should be the primary regulatory mechanism to regulate public collection systems. The draft WDRs detail requirements associated with SSMP development and implementation and SSO reporting.

All NPDES permits for POTWs currently include federally required standard conditions, three of which apply to collection systems. NPDES permits must clarify that the following three conditions apply to that part of the collection system that is owned or operated by the POTW owner or operator. These conditions are:

- Duty to mitigate discharges (40 CFR 122.41(d))
- Requirement to properly operate and maintain facilities (40 CFR 122.41(e))
- Requirement to report non-compliance (40 CFR 122.41(l)(6) and (7))

Understandably, revising existing regulatory measures will not occur immediately. However, as time allows and, at a minimum, upon readopting existing WDRs or WDRs that serve as NPDES permits, the Regional Water Boards should rescind redundant or inconsistent collection system requirements. In addition, the Regional Water Boards must ensure that existing NPDES permits clarify that the three standard permit provisions discussed above apply to the permittee's collection system.

Although it is the State Water Board's intent that this Order be the primary regulatory mechanism for sanitary sewer systems statewide, there will be some instances when Regional Water Boards will need to impose more stringent or prescriptive requirements. In those cases, more specific or more stringent WDRs or an NPDES permit issued by a Regional Water Board will supersede this Order. Finding number 11, in the WDRs states:

11. Some Regional Water Boards have issued WDRs or WDRs that serve as National Pollution Discharge Elimination System (NPDES) permits to sanitary sewer system owners/operators within their jurisdictions. This Order establishes minimum requirements to prevent SSOs. Although it is the State Water Board's intent that this Order be the primary regulatory mechanism for sanitary sewer systems statewide, Regional Water Boards may issue more stringent or more prescriptive WDRs for sanitary sewer systems. Upon issuance or reissuance of a Regional Water Board's WDRs for a system subject to this Order, the Regional Water Board shall coordinate its requirements with stated requirements within this Order, to identify requirements that are more stringent, to remove requirements that are less stringent than this Order, and to provide consistency in reporting.

Cost of Compliance

While the proposed WDRs contain requirements for systems and programs that should be in place to effectively manage collection systems, many communities have not implemented various elements of a good management plan. Some agencies are doing an excellent job managing their collection systems and will incur very little additional costs. Other agencies will need to develop and implement additional programs and will incur greater costs. However, any additional costs that a public agency may incur in order to comply with these General WDRs are costs that an agency would necessarily incur to effectively manage and preserve its infrastructure assets, protect public health and prevent nuisance conditions. These General WDRs prescribe minimum management requirements that should be present in all well managed collection system agencies.

In order to estimate the compliance costs associated with the proposed WDRs, staff analyzed costs associated with implementing the Santa Ana Regional Water Board's general WDRs. Twenty-one agencies, which discharge to Orange County Sanitation District, submitted financial summaries for the last five years, representing both pre- and post-WDRs adoption. Operation and maintenance costs, program development costs, as well as capital improvement costs were

considered and fairly accurately represent what can be expected statewide with the adoption of the General WDRs.

After extrapolating the sample to yield a statewide cost perspective, the projected annual cost of implementing the statewide WDRs is approximately \$870 million. This total represents \$345.6 million in O&M costs and \$524.5 for capital improvement projects.

While this sum is substantial, presenting the costs on a per capita or per household basis puts the figure in perspective. Department of Finance estimated the total population for Californians that may be subject to the WDRs to be 30.3 million persons (1/1/05). Dividing the population by the approximate average household size of 2.5 yields 12 million households. The average household in California is assumed to be 2.5 persons. The increased average annual cost (in order to comply with these WDRs) per person is estimated to be \$28.74 and \$71.86 per household (or \$5.99 per month per household)

Given these average costs there will be some communities that realize higher costs on a per household basis and some that realize less cost. Furthermore, larger communities will probably also realize an economy of scale, which is dependent upon a community's size. While larger communities may see lower costs associated with compliance, smaller communities will probably see a higher cost associated with compliance. Costs for compliance in small communities may be as high as \$40 per month per household.

Ray Wellington

From: Paul Hertz [phertz@ci.covina.ca.us]
Sent: Monday, October 30, 2006 4:54 PM
To: Steve Henley
Subject: FW: SSO NOI Receipt Confirmation

-----Original Message-----

From: CIWQS CIWQS [mailto:CIWQS@waterboards.ca.gov]
Sent: Monday, September 11, 2006 3:35 PM
To: CIWQS@waterboards.ca.gov
Subject: SSO NOI Receipt Confirmation

Thank you for submitting your agency's Notice of Intent to apply for coverage under the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, WQO No. 2006-0003 (Sanitary Sewer Order). The State Water Resources Control Board has processed your Notice of Intent and this email message is confirmation of your agency's enrollment for coverage under the Sanitary Sewer Order.

You, as the Legally Responsible Official, will receive your California Integrated Water Quality System (CIWQS) user ID and password, via email message, to access the online SSO database according to the schedule below:

Regional Water Quality Control Board	User ID/password receipt date
Regions 4,8,9	December 1, 2006
Regions 1,2,3	March 30, 2007
Regions 5,6,7	August 1, 2007

Access to the SSO database will allow you to complete the collection system questionnaire and submit SSO reports for your agency as required by the Sanitary Sewer Order. The Sanitary Sewer Order requires you to complete the collection system questionnaire within 30 calendar days of receiving your CIWQS user ID and password. Additionally, the Sanitary Sewer Order requires you to begin submitting SSO reports according to the following schedule:

Regional Water Quality Control Board	Date begin reporting all SSOs
Regions 4,8,9	January 2, 2007
Regions 1,2,3	May 2, 2007
Regions 5,6,7	September 2, 2007

Training on the use of the SSO database and requirements of the Sanitary Sewer Order will be offered by California Water Environment Association (CWEA) through a partnership with the State Water Resources Control Board outlined in a memorandum of agreement signed by both organizations. The training course roll out will be by region and correspond to

the SSO reporting compliance schedule above. For training course availability, please visit CWEA's web site at http://www.cwea.org/et_ssowdr.shtml.

If you have any questions regarding the contents of this email, please contact the CIWQS Help Center at 866-792-4977.

John R. Ginn

CIWQS Help Center
State Water Resources Control Board
Office of Information Technology
866-79-CIWQS (24977)
Submit a Question: http://www.waterboards.ca.gov/ciwqs/ciwqs_tracking.html
CIWQS Website: <http://www.waterboards.ca.gov/ciwqs>
How are we doing?: <http://www.calepa.ca.gov/Customer/CSForm.asp>

INVENTORY OF SEWER MAINTENANCE EQUIPMENT

A. Equipment Owned by the City

- 1 – Vactor / Rodder truck (currently under procurement)
- 2 – Case backhoes
- 1 – Backhoe trailer
- 1 – Dump truck
- 2 – Flat bed trucks
- 3 – Pick up trucks
- 2 – Utility trailers
- 1 – Bobcat and trailer
- 1 – Water truck (100 gallons)
 - Sand and bags
 - Absorbent materials
 - Hazardous materials drums
 - Disinfectant material

B. Equipment owned by the maintenance service provider (West Covina)

[Agencies maintenance services agreement follows this page]

- 1 - Vactor / Rodder truck
- 1 – Vactor truck
- 1 – Jetter trailer
- 1 – Camera van with camera
- 1 – Case Backhoe and trailer
- 3 – Pick-up trucks
- 2 – Dump trucks
- 1 – Flat bed truck
- 1 – Utility truck
- 1 – Sewer pump and trailer

Inventory of Sewer Collection Facilities by SMZ

SUMMARY:

1. The total number of sewer manholes in the system is **2,666**

2. Total lineal feet of sewer is as follows:

a. 6-inch Sewer in the System =	1,458	feet
b. 8-inch Sewer in the System =	590,032	feet
c. 10-inch Sewer in the System =	33,008	feet
d. 12-inch Sewer in the System =	8,579	feet
e. 15-inch Sewer in the System =	1,532	feet
f. 18-inch Sewer in the System =	661	feet
g. 21-inch Sewer in the System =	1,113	feet
Total:	636,383	feet

120.5	Miles
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3. The total number of lift station in the system is ~ **1**

4. The total number of siphons in the system is ~

INVENTORY BY SMZ FOLLOWS:

SMZ	MH's	Pipe Length (FT)	Siphons	Lift Stations	Discharges To
1	246	65,288.79	0	0	LA County Sanitation District
2	147	37,857.63	0	0	Receives from Azusa & Delivers to LACSD
3	327	77,650.52	0	0	Unincorporated County Area
4	3	846.87	0	0	LA County Sanitation District
5	4	1,099.78	0	0	LA County Sanitation District
6	3	581.59	0	0	LA County Sanitation District
7	6	1,523.67	0	0	LA County Sanitation District
8	3	976.35	0	0	LA County Sanitation District
9	Not Used				
10	Not Used				
11	Not Used				
12	Not Used				
13	26	5,829.33	0	0	Unincorporated County Area
14	8	2,507.20	0	0	Unincorporated County Area
15	27	6,114.13	0	0	West Covina
16	1	196.27	0	0	LA County Sanitation District
17	10	2,156.98	0	0	LA County Sanitation District
18	94	23193.377	0	0	LA County Sanitation District
19	6	1260.001	0	0	LA County Sanitation District
20	9	2203.347	0	0	LA County Sanitation District
21	12	1979.661	0	0	LA County Sanitation District
22	3	661.073	0	0	LA County Sanitation District
23	46	9266.247	0	0	LA County Sanitation District
24	93	23228.114	0	0	West Covina
25	Not Used				
26	Not Used				
27	Not Used				
28	5	1168.836	0	0	LA County Sanitation District
29	5	1148.536	0	0	LA County Sanitation District
30	19	3088.321	0	0	LA County Sanitation District
31	Not Used				
32	Not Used				
33	4	1246.291	0	0	LA County Sanitation District
34	4	1176	0	0	LA County Sanitation District
35	55	14431.48	0	0	LA County Sanitation District
36	102	25676.344	0	0	LA County Sanitation District
37	Not Used				
38	55	13364.68	0	0	LA County Sanitation District
39	5	951.826	0	0	LA County Sanitation District
40	4	733	0	0	LA County Sanitation District
41	3	835.845	0	0	LA County Sanitation District
42	3	853.657	0	0	LA County Sanitation District
43	4	1212.624	0	0	LA County Sanitation District
44	11	2127.069	0	0	LA County Sanitation District
45	8	1775.697	0	0	LA County Sanitation District
46	2	575.218	0	0	LA County Sanitation District
47	2	600.038	0	0	LA County Sanitation District
48	2	377.876	0	0	LA County Sanitation District
49	1	382.546	0	0	LA County Sanitation District

SMZ	MH's	Pipe Length (FT)	Siphons	Lift Stations	Discharges To
50	21	4561.264	0	0	LA County Sanitation District
51	6	931.936	0	0	LA County Sanitation District
52	2	620.96	0	0	LA County Sanitation District
53	11	2574.464	0	0	LA County Sanitation District
54	10	2021.623	0	0	LA County Sanitation District
55	1	150.45	0	0	LA County Sanitation District
56	4	1009.791	0	0	LA County Sanitation District
57	17	4767.976	0	0	Receives from Glendora & Delivers to LACSD
58	Not Used				
59	2	585.787	0	0	LA County Sanitation District
60	2	516.716	0	0	LA County Sanitation District
61	8	1813.644	0	0	LA County Sanitation District
62	2	530	0	0	LA County Sanitation District
63	182	41911.077	0	0	Receives from Unincorp. Co. Area & Delivers to LACSD
64	3	419.751	0	0	LA County Sanitation District
65	3	419.751	0	0	LA County Sanitation District
66	2	439.85	0	0	LA County Sanitation District
67	2	457.492	0	0	LA County Sanitation District
68	79	18206.122	0	0	LA County Sanitation District
69	7	1123.136	0	0	LA County Sanitation District
70	104	25959.738	0	0	LA County Sanitation District
71	4	826.671	0	0	LA County Sanitation District
72	4	744.593	0	0	LA County Sanitation District
73	14	3651.591	0	0	LA County Sanitation District
74	22	4764.885	0	0	LA County Sanitation District
75	193	46385.742	0	0	LA County Sanitation District
76	13	3362.888	0	0	LA County Sanitation District
77	5	1146.794	0	0	LA County Sanitation District
78	13	3604.83	0	0	LA County Sanitation District
79	36	7070.012	0	0	LA County Sanitation District
80	79	19217.472	0	0	LA County Sanitation District
81	2	663.986	0	0	LA County Sanitation District
82	12	2626.14	0	0	LA County Sanitation District
83	25	4939.294	0	0	LA County Sanitation District
84	Not Used				
85	3	590.889	0	0	LA County Sanitation District
86	12	2972.466	0	0	LA County Sanitation District
87	53	12559.054	0	0	LA County Sanitation District
88	40	10187.734	0	0	LA County Sanitation District
89	6	1104.143	0	0	LA County Sanitation District
90	16	4065.976	0	0	LA County Sanitation District
91	100	22510.724	0	0	LA County Sanitation District
92	10	2721.899	0	0	LA County Sanitation District
93	3	602.69	0	0	LA County Sanitation District
94	3	350	0	0	LA County Sanitation District
95	33	7183.848	0	0	LA County Sanitation District
96	Combined with SMZ 95				
97	11	1671.591	0	0	LA County Sanitation District
98	1	178.182	0	0	LA County Sanitation District

SMZ	MH's	Pipe Length (FT)	Siphons	Lift Stations	Discharges To
99	15	2807.712	0	0	LA County Sanitation District
100	.2	241.414	0	0	LA County Sanitation District
101	.3	416.249	0	0	LA County Sanitation District
102	18	3646.4	0	0	LA County Sanitation District
103	Not Used				LA County Sanitation District
104	10	2477.087	0	0	West Covina
105	70	16093.62	0	1	LA County Sanitation District
	2,666	636,379.92	0	1	
	Miles=	120.5			

City of Covina

SEWER "HOT SPOTS" LOG						
Location / Street	From	To	Dn Stream of MH No.	Cause	Corrective Action	Date of Last Action
216 N. Azusa Ave (Popeye's)	Badillo Ave	Northerly 600'		Grease		
Azusa Ave. (Northwoods)	Glentana	600' East & 300' Siuth		Grease		
Azusa Ave. (f/o Michael's)	Arrow Hwy.	300' North & 50' South 4"				
Azusa Ave. (f/o Pet Mart)	Arrow Hwy	300' North				
Azusa Ave. (Buffet)	Arrow Hwy	200' West & 450' East				
Cornwell Ave.	Covina Blvd	300' North				
Hollenbeck n/b	Arrow Hwy s/o	Gragmont				
Citrus Ave.	Benbow	600' North, 150' East & 200' South				
524 Ivescrest (north)	Wingate	300' North				
Wanamaker	Dodsworth	600' North & 175' South				
Grand Ave. s/b	Navilla Pl.	145' North				
739 E. San Bernardino Rd.	Barranca	600' East				
315 E. San Bernardino Rd. In Alley	Sutton Plumb	200' North & 240' South				
San Bernardino Rd (Bud;s)	2nd Ave.	400' Alley		Grease		
222 San Bernardino Rd Behind in alley		215' North & 100' East				
119 San Jose	Badillo	600' North & 600' East				

City of Covina

SEWER "HOT SPOTS" LOG						
Location / Street	From	To	Dn Stream of MH No.	Cause	Corrective Action	Date of Last Action
130 N. First Ave.	Badillo	200' North & 600' East				
315 N. 3rd Ave. (f/o Hospital)	San Bernardino Rd.	500' East				
San Bernardino Rd	Cedar	600' East				
409 N. Cedar	Palm	200'				
San Bernardino Rd.	Rimsdale	345' East to 1st MH				
688 Rimsdale	corner	50' North & 600' East				
688 Rimsdale	entrance	600' East				
576 Lark Ellen	San Bernardino Rd	600' North & 600' East				
Shoppers Ln. (alley) all MH's	Citrus	600' North & 600' East				
Alley btw Dextel & Center	w/o Citrus	Hollenbeck ~ 2,400 '				
E. Ruddock	N. Westridge	600' East				
100 Blk E. College (31 Flavors) In alley		1,200' East				
200 Blk N. Citrus (Casa Moreno) In alley	College	120' North		Grease		
1055 N. Azusa Ave (Tepeyec)						
I/S Center & 2nd	200'					
I/S Badillo & 2nd	200'					

APPENDIX 'H-1'

**City Sewer Maintenance Records
&
Industrial Waste Discharge Permits**

*Copies of these records may be placed here or a clear
reference provided as to where they are located*

CITY OF COVINA
Sanitary Sewer and Storm Drain Operations and Capital Outlay Budgeting

	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
<u>Revenues</u>							
Charges for Services & Facilities	32,518	0	25,000	25,000	25,000	25,000	25,000
Special Assessments	137,228	137,451	555,303	1,160,593	1,636,318	2,121,441	
Investment Earnings	137,228	0	10612	13289	13942	14626	
Total Revenues	306,974	137,451	590,915	1,198,882	1,675,260	2,161,067	
<u>Expenditures</u>							
Salaries & Benefits							
Transmission & Treatment							
Professional & Technical	6,120	233,360	78,360	115,000	120,750	126,788	
Interdepartmental Services	35,190	35,710	174,850	271,100	279,233	287,610	
Property Services	37,620	37,620	37,620	80,300	84,315	88,531	
Other Services & Costs	400	400	400	108,400	108,400	108,400	
Capital Outlay	0	0	0	0	1,363,213	312,544	
Total Expenditures	79,330	307,090	291,230	574,800	1,955,911	923,873	

City of Covina CCTV INSPECTION REPORT FY 2004-05

Introduction and History

The City owns and operates its local sanitary sewer system consisting of approximately 120.5 miles of gravity flow sewer pipelines ranging in size from 6-inch to 21-inch (of which 93% are 8-inch pipes), and 2,666 manholes. The existing sewer system consists completely of local collector sewers that discharge to trunk sewers that pass through the City and are owned and operated by the County Sanitation Districts of Los Angeles County. In addition there are three SMZ's that receive flow from abutting jurisdictions and there are six SMZ's that discharge flow into adjacent agencies. These locations are identified on Appendix 'G'.

In 2002, upon completion of the City's Sewer Master Plan, a Ten-year (10-Yr.) plan was established for CCTV inspection of the 106.4 miles of sewer pipeline in the City. Phase 1 of the CCTV plan was performed in 2004 and included 8.5 miles of the deficient sewer pipes and maintenance "Hot Spots" as identified in the 2002 Sewer Master Plan. Then in 2005 an additional 10 miles of sewer pipeline was inspected. The combined 2004/2005 CCTV Inspection Report was prepared and submitted in July of 2005. That report formed the basis for priority pipe repairs and replacements that were accomplished in 2006/2007, along with replacement of the priority-one reach of capacity deficient pipe in the old downtown area.

The purpose of this report is two fold: 1) To document and synthesize the two initial CCTV inspection results and 2) To describe the basis for subsequent years CCTV inspection efforts and the standardized rating and evaluation criteria. Those efforts are to identify remaining structural and maintenance defects in the mainline sewers in order to preserve the City's infrastructure investment, maintain service, prevent failures and limit inflow, infiltration and SSO potential.

The initial schedule for CCTV inspection work was established as follows:

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Miles	13.2	10	8.4	7.2	11.9	12.1	11.5	12.2	9.8	10.1

All subsequent CCTV inspection work will be budgeted and scheduled by the DPW, and identified structural or maintenance problems will be addressed as conditions warrant and funding is available.

Analysis of CCTV Inspection

Analysis of CCTV inspection consists of reviewing the digital video inspection log and evaluation summary, and the digital videos as necessary. Identified defects were ranked by the severity of the defect based on deficiency criteria listed below. The length of sewer to be

repaired or replaced was based on the type or extent of repair that is needed. The types of repair considered consisted of:

1. Spot Repair (Remove and replace a segment or several segments of mainline pipe)
2. Remove and replace the reach between manholes.
3. Sewer pipe lining with Cured in Place Pipe (CIPP).

Pipeline Grading System

The Pipeline Assessment and Certification Program (PACP), developed by The National Association of Sewer Service Companies (NASSCO), provides a uniform mechanism for creating reliable descriptions of pipe conditions. NASSCO has also developed a system based on the PACP codes to assign a condition rating to pipelines. Requirements of the grading system are as follows:

1. The grading system should be direct and objective.
2. The system should provide the ability to quantitatively measure the difference in pipe condition, between one inspection and subsequent inspections, and to prioritize among different pipe segments.

Many other approaches to sewer pipe grading have been used in the United States as well as in other parts of the World. These approaches generally use some type of defect grading that is then used to calculate an overall pipe rating. It is problematic to develop a single pipe segment rating that fully describes all of the important aspects of a pipe. Therefore the PACP Condition Grading System uses more than one method of rating pipe segment condition including a rating that considers the number of total defects within the pipe segment and a rating that considers the most severe types of defects within the pipe segment.

The PACP Condition Grading System only considers internal pipe conditions obtained from TV inspection. While other factors such as pipe material, depth, soils, and surface conditions also affect pipe survivability, those factors are expected to be added as PACP further develops the Condition Grading System over time. The system currently provides ratings for Structural Defects and Maintenance Defects as observed during the inspection process.

APPROACH - Using the PACP Code Matrix, (see Appendix 'J-1') in which each defect code is assigned a condition grade of from 1 to 5; grades are assigned based on potential for further deterioration or pipe failure. Pipe failure is defined as when the pipe can no longer convey the pipe design capacity.

Grades are assigned for two categories, Structural, and Maintenance defects, as follows:

5 - Immediate Attention	Defects requiring immediate attention
4 - Poor	Severe defects that will become Grade 5 defects within the foreseeable future
3 - Fair	Moderate defects that will continue to deteriorate over time

2 - Good	Defects that have not begun to deteriorate
1 -Excellent	Minor defects

The mechanisms and rates of pipeline deterioration are highly dependent on local conditions. However the following general guidelines are provided to estimate the amount of time before the defect causes complete line failure. These guidelines should be verified by actual research under prevailing local conditions.

- 5 - Pipe has failed or will likely fail within the next five years. Missing materials with large voids and soil is visible.
- 4 - Pipe will probably fail in 5 to 10 years or will become category 5 in foreseeable future.
- 3 - Pipe may fail in 10 to 20 years and should be monitored for further deterioration and replaced as the conditions warrant.
- 2 - Pipe unlikely to fail for at least 20 years
- 1 - Failure unlikely in the foreseeable future

CONTINUOUS DEFECTS - The number of "repeated continuous" (joint) defect grades is calculated by dividing the length of the continuous defect by the joint length. For example, a 15 ft long repeating continuous defect, 3-foot joints, and a grade 2 defect, would equate to 5 grade 2 defects.

The number of "truly continuous" defects is calculated by dividing the length of the continuous defect by 5. Example, a 20-foot long continuous defect, grade 3, should equate to four Grade 3 defects. Fractions are rounded to the nearest whole number.

PIPE RATINGS - The pipe rating is based on the number of occurrences for each condition grade. Ratings are calculated separately for Structural and Maintenance Defects. Several ways of expressing pipe segment condition are used by the PACP Condition Grading System as follows:

Segment Grade Scores - Each pipe segment will have a Segment Grade Score for each of the five grades. The number of occurrences of each pipe grade is multiplied by the pipe grade to calculate the segment grade score. Example, six Grade 5 defects would be 6 times 5 and equates to a Segment Grade 5 Score of 30. If a pipe segment had no defects of a particular grade, then the Segment Grade Score for that grade would be 0.

Overall Pipe Rating -The five Segment Grade Scores are added together to calculate the Overall Pipe Rating. Structural Pipe Ratings are calculated using only Structural Defect grades, while O&M Pipe Ratings are calculated using only O&M Defect grades.

PACP Quick Rating -The PACP Quick Rating is a shorthand way of expressing the number of occurrences for the two highest severity grades. The PACP Quick Rating is a four character score as follows:

1. The first character is the highest severity grade occurring along the pipe length.

2. The second character is the total number of occurrences of the highest severity grade. If the total number exceeds 9, then alphabetic characters are used as follows - '0 to 14 - A; 15 to 19 - B; 20 to 24 - C; etc.
3. The third character is the next highest severity grade occurring along the pipe length.
4. The fourth character is the total number of the second highest severity grade occurrences, derived as in item 2 above.

Example

A segment of pipe with a PACP rating 4B27

This immediately shows that no grade 5 defects or grade 3 defects, however 15 to 19 grade 4 defects and seven grade 2 defects were found.

Another Example

A segment of pipe with a PACP rating 3224

Two grade 3 defects and four grade 2 defects, however no grade 5 or grade 4 defects were found.

The PACP Quick Rating provides the ability to summarize the number and severity of defects found within a pipe segment, as with the Pipe Rating, Quick Structural Ratings are calculated using only Structural Defect Grades, and Quick O&M Ratings are calculated using only O&M Defect Grades.

Pipe Ratings Index -This is an indicator of the distribution of defect severity. The Pipe Ratings Index is calculated by dividing the Pipe Rating by the number of defects. For example, the Structural Pipe Ratings Index would be the Structural Pipe Rating divided by the number of structural defects. Pipe Ratings Indexes are calculated for Structural, O&M, and Overall.

Summary

The following procedures are used to calculate pipe segment ratings using the PACP Condition Grading System:

1. Determine the number of occurrences for each condition grade within the pipe segment. Calculate separately for Structural Defect Grades and O&M Defect Grades.
2. Calculate the Segment Grade Score by multiplying the number of occurrences by the respective grade 1 through 5. Calculate the Structural Segment Grade Score and the O&M Segment Grade Score separately, and then add together for the Overall Segment Grade Score.
3. Calculate the Pipe Rating for the pipe segment by adding the Segment Grade Scores. Add all five Structural Segment Grade Scores for the Structural Pipe Rating, and add all five O&M Segment Grade Scores for the O&M Pipe Rating. Add all five Overall Segment Grade Scores for the Overall Pipe Rating.

4. Determine the PACP Quick Rating by calculating the number of occurrences of the two highest severity grades.
5. Calculate the Pipe Ratings Index by dividing the Pipe Rating by the number of defects.

Identified Structural Defects Correction Projects

General Repair Methods

Repairs to existing sewers can be separated into two categories, traditional removal and replacement of the damaged pipe (i.e. point repairs) with standard open trench operation or trenchless method using Cured in Place Pipe (CIPP) typically called a sewer-lining repair. Each method has advantages and disadvantages. The most cost effective repair of the sewer is a combination of the two methods since there may be only 8-10 foot length of sewer mainline that is in disrepair, but the remaining mainline contains cracks that can be repaired by lining the sewer with CIPP. The advantages and disadvantages and recommended uses for each method are listed below:

Traditional sewer replacement advantages are:

1. The sewer is replaced with a new VCP of the same diameter and will have a design life of over 50-years.
2. Only the section of pipe that is damaged needs to be replaced. (Listed as point repair in estimates) The remaining line is not replaced or disturbed.
3. Common trench construction method employed.
4. Best choice if the line to be repaired also needs to be upsized.

Disadvantages:

1. Sewer line must be taken out of service for the duration of the repair and a temporary sewer by-pass system must be used.
2. If sewer is located within a street, traffic must be rerouted or detoured around trench or construction operation.
3. Sewer is located in an easement, access, and working space may be a practical factor.

Trenchless (CIPP) sewer rehabilitation advantages:

1. Minimal traffic interruptions.
2. Can repair sewer defects under existing improvements, i.e. signs, fencing, etc.
3. Faster installation. Typically can install 300'-600' per day.
4. Sewer line is typically out of sewer less than 3 hours.
5. Can repair multiple defects in a sewer line.

Disadvantages:

1. Must have approximately 3000 to 4000-feet of lining to be economical due to higher mobilization and equipment costs.
2. Cannot be used to upsize deficient pipe.
3. Depending on pipe flow, may require temporary sewer by-pass system.

Recommended Sewer System Improvements

Criteria for recommending and prioritizing relief facilities are as follows:

1. Sewers with critical structural defects, ranked as category 5's, are recommended for prompt correction measures due to risk of blockage or failure.
2. Sewers with structural defects, ranked as category 4's, are recommended for correction measures as funding is scheduled over the next 3-7 years. Sewers meeting these criteria should be monitored for signs of further deterioration since they can become category 5 in the near future.
3. Sewers with structural defects, ranked as category 3's, are recommended for correction measures as change in conditions warrant. Sewers meeting these criteria should be periodically monitored for signs of further deterioration.

Please note that recommended sewer system improvements are general in nature and should not be considered as absolutes for final design. Rather, they should be considered more as a planning guide.

Recommended Sewer System Improvement Projects

These were presented in the 2004/2005 inspection reports as described above.

Sewer System Improvements Costs

These also were presented in the 2004/2005 inspection reports as described above.

Identified Maintenance Defect Locations

Maintenance conditions are also ranked like the structural (i.e. category 5, 4 and 3 defects) and should receive like timely action in order to avoid increased risk of SSO or greater damage to the system.

General Maintenance Methods

Maintenance is performed using rodders and/or high pressure cleaners (hereinafter referred to as HPCs). A rodder is preferably used to deal with root intrusion (though a rodder may be used to remove grease also). A rodder consists of a saw/blade attached to rod (metal cables) which is contained within a cage. The saw/blades and rods are fed out of the cage while spinning. The resulting motion cuts and dislodges roots and grease allowing the intrusions to move down the sewer line to be caught and removed at a downstream manhole. An HPC is preferably used to remove coagulated grease and grit (particulate matter) from the sewer lines. The HPC pumps water at a high pressure through the sewer lines. This water displaces the grease and grit. In some areas, workers may find it helpful to use a foaming chemical root treatment. This foam is pumped into selected sewer mains to kill existing roots and to inhibit their re-growth.

APPENDIX 'J-1'

NASSCO PACP Condition Grading System Code Matrix

NASSCO PACP Conduion Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade
Structural	Crack (C)	Circumferential (C)		CC	1	
		Longitudinal (L)		CL	2	
		Multiple (M)		CM	3	
		Spiral (S)		CS	2	
Structural	Fracture (F)	Circumferential (C)		FC	2	
		Longitudinal (L)		FL	3	
		Multiple (M)		FM	4	
		Spiral (S)		FS	3	
Structural	Pipe Failures (Silent)	Broken (B)		B	1 clock pos - 3, 2 clock pos - 4, >=3 clock pos - 5	
		Broken (B)	Soil Visible (SV)	BSV	5	
		Broken (B)	Void Visible (V V)	BVV	5	
				H		1 clock pos - 3, 2 clock pos - 4, >= 3 clock pos - 5
Structural	Collapse (X)	Hole (H)		H		
		Hole (H)	Soil Visible (SV)	HSV	5	
		Hole (H)	Void Visible (V V)	HVV	5	
		Pipe (P)		XP	5	
Structural	Deformed (D)	Brick (B)		XB	5	
		(Pipe) (P)		D	<=10% - 4, >10% - 5	
		Brick (B)	Horizontally (H)	DH	5	
		Brick (B)	Vertically (V)	DV	5	
Structural	Joint (J)	Offset (displaced) (O)	Med (M)	JOM	1	
		Separated (open) (S)	Large (L)	JOL	2	
			Med (M)	JSM	1	
			Large (L)	JSL	2	
Structural	Surface Damage Chemical (S)	Angular (A)	Med (M)	JAM	1	
			Large (L)	JAL	2	
		Roughness Increased (RI)	C	SRIC	1	
		Surface Spalling (SS)	C	SSSC	2	
Structural	Surface Damage Mechanical (M)	Aggregate Visible (AV)	C	SAVC	3	
		Aggregate Projecting (AP)	C	SAPC	3	
		Aggregate Missing (AM)	C	SAMC	4	
		Reinforcement Visible (RV)	C	SRVC	5	
Structural	Surface Damage Mechanical (M)	Reinforcement Corroded (RC)	C	SRCC	5	
		Missing Wall (MW)	C	SMWC	5	
		Other (Z)	C	SZC		
		Roughness Increased (RI)	M	SRIM	1	
Structural	Surface Damage Mechanical (M)	Surface Spalling (SS)	M	SSSM	2	
		Aggregate Visible (AV)	M	SAMM	3	
		Aggregate Projecting (AP)	M	SAPM	3	
			M			

NASSCO PACP Condition Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade
		Aggregate Missing (AM)	M	SAMM	4	
		Reinforcement Visible (RV)	M	SRVM	5	
		Reinforcement Corroded (RC)	M	SRCM	5	
		Missing Wall (MW)	M	SMWM	5	
		Other (Z)	M	SZM	N/A	
	Surface Damage Not Evident (Z)	Roughness Increased (RI)	Z	SRIZ	1	
		Surface Spalling (SS)	Z	SSSZ	2	
		Aggregate Visible (AV)	Z	SAVZ	3	
		Aggregate Projecting (AP)	Z	SAPZ	3	
		Aggregate Missing (AM)	Z	SAMZ	4	
		Reinforcement Visible (RV)	Z	SRVZ	5	
		Reinforcement Corroded (RC)	Z	SRCZ	5	
		Missing Wall (MW)	Z	SMWZ	5	
		Other (Z)	Z	SZZ	N/A	
	Surface Damage (Metal Pipes)	Corrosion (CP)		SCP	3	
Structural	Lining Failure (LF)	Detached (D)		LFD	3	
		Defective End (DE)		LFDE	3	
		Blistered (B)		LFB	3	
		Service Cut Shifted (CS)		LFCS	3	
		Abandoned Connection (AC)		LFAC	3	
		Overcut Service (OC)		LFOC	3	
		Undercut Service (UC)		LFUC	3	
		Buckled (BK)		LFBK	3	
		Wrinkled (W)		LFW	3	
		Other (Z)		LFZ	3	
Structural	Weld Failure (WF)	Circumferential (C)		WFC	2	
		Longitudinal (L)		WFL	2	
		Multiple (M)		WFM	3	
		Spiral (S)		WFS	2	
Structural	Point Repair (RP)	Localized Lining (L)		RPL		
		Localized Lining (L)		RPLD	4	
		Patch Repair (P)	Defective (D)	RPP		
		Patch Repair (P)	Defective (D)	RPPD	4	
		Pipe Replaced (R)		RPR		
		Pipe Replaced (R)	Defective (D)	RPRD	4	
		Other (Z)		RPRZ		
		Other (Z)		RPRZD		
Structural	Brickwork (Silent)	Displaced (DB)		DB	3	
		Missing (MB)		MB	4	
		Dropped Invert (DI)		DI	5	
		Missing Mortar	Slight	MMS	2	
			Medium	MMM	3	
			Large	MML	3	

NASSCO PACP Condition Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade	
O&M	Deposits Attached (DA)	Encrustation (E)		DAE		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5	
		Grease (G)		DAGS		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5	
		Ragging (R)		DAR		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5	
		Other (Z)		DAZ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5	
		Deposits Settled (DS)	Hard/Compacted (C)		DSC		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Fine (F)		DSF		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
	Deposits Ingress (DN)	Gravel (G)		DSGV		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5	
		Other (Z)		DSZ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5	
		Fines silt/sand (F)		DNF		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5	
		Gravel (GV)		DNGV		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5	
		Other (Z)		DNZ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5	
O&M	Roots (R)	Fine (F)	Barrel (B) Lateral (L)	RFB RFL		2 1	
		Roots (R) at a Joint	Connection (C)	RFC		1	
			N/A	RF		1	
	Roots (R) at a Joint	Tap (T)	Barrel (B) Lateral (L)	RTB RTL		3 2	
		Roots (R) at a Joint	Connection (C)	RTC		2	
			N/A	RT		2	
	Roots (R) at a Joint	Medium (M)	Barrel (B) Lateral (L)	RMB RML		4 3	
			Connection (C)	RMC		3	
			N/A	RM		3	
	Roots (R) at a Joint	Ball (B)	Barrel (B) Lateral (L)	RBB RBL		5 4	

NASSCO PACP Condition Grading System Code Matrix

Family	Group	Descriptor	Modifier Connection (C)	Code	Structural Grade	O&M Grade
O&M	Roots (R) at a Joint Infiltration (I)		Connection (C)	RBC		4
		Weeper (W)	N/A	RB		4
		Dripper (D)		IW		2
		Runner (R)		ID		3
		Gusher (G)		IR		4
				IG		5
O&M	Obstacles/Obstructions (OB)	Brick or Masonry (B)		OBB		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Pipe Material in Invert (M)		OBM		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Object Protruding Thru Wall (I)		OBI		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Object Wedged in Joint (J)		OBJ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Object Thru Connection (C)		OBC		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		External Pipe or Cable In Sewer (P)		OBP		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Built Into Structure (S)		OBS		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Construction Debris (N)		OBN		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Rocks (R)		OBR		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Other Objects (Z)		OBZ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Rat (R)		VR		2
		Cockroach (C)		VC		1
Other (Z)		VZ		1		
Construction Features	Tap (T)	Factory Made (F)		TF		
			Capped (C)	TFC		
			Defective (D)	TFD		2
			Intruding (I)	TFI		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Active (A)	TFA		
	Break-In/Hammer (B)	TB				

NASSCO PACP Conduion Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade
			Capped (C)	TBC		2
			Defective (D)	TBD		3
			Intruding (I)	TBI		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Active (A)	TBA		
		Saddle (S)		TS		
			Capped (C)	TSC		
			Defective (D)	TSD		2
			Intruding (I)	TSI		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Active (A)	TSA		
Construction Features	Intruding Seal Material (IS)			IS		
		Sealing Ring (SR)		ISSR		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Hanging	ISSRH		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Broken	ISSRB		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Grout (GT)		ISGT		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Other (Z)		ISZ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
Construction Features	Line (L)					
		Left (L)		LL		<=10 Deg - 1, <=20 Deg - 2, >20 Deg - 4
		Left/UP (LU)		LLU		<=10 Deg - 1, <=20 Deg - 2, >20 Deg - 4
		Left/Down (LD)		LLD		<=10 Deg - 1, <=20 Deg - 2, >20 Deg - 4
		Right (R)		LR		<=10 Deg - 1, <=20 Deg - 2, >20 Deg - 4
		Right/Up (RU)		LRU		<=10 Deg - 1, <=20 Deg - 2, >20 Deg - 4
		Right/Down (RD)		LRD		<=10 Deg - 1, <=20 Deg - 2, >20 Deg - 4

NASSCO PACP Condition Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade
		Up (U)		LU		<=10 Deg - 1, <=20 Deg 2, >20 Deg - 4
		Down (D)		LD		<=10 Deg - 1, <=20 Deg 2, >20 Deg - 4
Construction	Access Points (A)	Cleanout (CO)		ACO		
			Mainline (M)	ACOM		
			Property (P)	ACOP		
			House (H)	ACOH		
		Discharge Point (DP)		ADP		
		Junction Box (JB)		AJB		
		Meter (M)		AM		
		Manhole (MH)		AMH		
		Other Special Chamber (OC)		AOC		
		Tee Connection (TC)		ATC		
		WW Access Device (WA)		AWA		
		Wet Well (WW)		AWW		
Other	Miscellaneous (M)	Camera Underwater (CU)		MCU		4
		Dimension/Diam/Shape Change (SC)		MSC		
		General Observation (GO)		MGO		
		General Photograph (GP)		MGP		
		Material Change (MC)		MMC		
		Lining Change (LC)		MLC		
		Joint Length Change (JL)		MJL		
		Survey Abandoned (SA)		MSA		
		Water Level (WL)		MWL		
		Water Level (WL)	(S)	MWLS		<=30% - 2, <=50% - 3, >50% - 4
		Water Mark (WM)		MWM		>=50% 4, >=75% 5
		Dye Test (Y)	Visible (V)	MY		
			Not Visible (N)	MYV		5
				MYN		3

APPENDIX 'J-2'

Exhibit Map

10-Year Video Inspection Locations

SANITARY SEWER OVERFLOW RESPONSE PLAN {SSORP}

INTRODUCTION

City of Covina provides wastewater disposal needs of approximately 49,500 people within the eastern San Gabriel Valley area of Los Angeles County. The community sewers receive and convey approximately 10.3 mgd (million gallons per day) of wastewater. This waste flow goes to the regional trunk sewers and wastewater treatment plant. The city service area covers 7.0 square miles and its wastewater collection system consists of 106.4 miles of community sewer facilities, with 14.3 miles of regional trunk sewers (owned and operated by CSD of Los Angeles County) also located within the city area.

The primary goal of the City's sewer maintenance program has been and remains the protection of public health, safety and the environment. As a matter of State and Federal regulations, SSO's are prohibited, and moreover, are inconsistent with the City's goal of providing the highest level of sewer service to the public. The City places high priority on capacity assurance, repair and replacement, and proper operation and maintenance of its sewerage system. While the City desires to completely eliminate sanitary sewer overflows, it is also understood that manmade systems do fail. Regardless of the level of scrutiny and control provided, overflows will, on occasion, occur.

Therefore, when an SSO event does occur, this response plan encompasses measures necessary to minimize public health and environmental impacts. To accomplish this, the City operates a two-pronged response to SSO's that directs efforts to stop the overflow simultaneously with efforts to contain and then recover the wastewater discharged. Quick response to emergency situations can prevent overflows of wastewater from reaching the water of the United States.

The City is responsible for response to, and reporting of, all SSO's caused by problems within the City's sanitary sewer system. Under certain emergency circumstances, the City may also provide assistance to the CSD and sewerage entities within the surrounding area during an overflow response situation.

OVERFLOW RESPONSE GOALS

1. The City's goals and actions regarding overflow response are stated in Chapter 1 of the SSMP.

NOTIFICATION, INVESTIGATION AND MOBILIZATION

1. The City's chain of communication and reporting are stated in Chapter 2 of the SSMP.

2. The following occurs upon receiving notification of an overflow:
 - The notification is logged on a form (See Attachment K-1) and assigned for follow-up actions.
 - Dispatch of Personnel to Investigate - For overflows reported during the workday, a supervisor or other trained representative is immediately dispatched to investigate; during non-working hours, an on-duty employee or supervisor is dispatched.
 - Dispatch of Staff and Equipment - When the initial investigation report indicates that a wastewater overflow has occurred from the City's sewer system, both equipment and personnel are mobilized and dispatched immediately to the overflow site. During non-workday hours, staff members are contacted and directed to report to their mobilization site for instructions.
 - Notification for Outside Support – When the initial investigation determines that additional 'Outside Support' resources will be necessary to accomplish the containment and clean-up, the DPW is notified and informed of the situation and the perceived needs.
 - Notification of Sewer Agencies - When the initial investigation indicates that an overflow has occurred from another agency's sewer or may have resulted from blockage in another agency's sewer, the potentially responsible agency is immediately notified. If the additional on-site investigation indicates that the overflow is the responsibility of the other agency, then the response efforts are turned over to that agency, with assistance from the City, if necessary and requested. Regardless of cause, once the overflow response has occurred, the primary objective is to minimize the risk to human health and to the environment (i.e Waters of the United States).
 - 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 overflow response is directed in the field by supervisors and/or managers who are trained and experienced in responding to SSO's, with additional operations, maintenance, engineering and agency support staff available as needed for public notification, protection, resource supply, expense authorization and tracking, and coordination of available support resources.

The individual steps involved in responding to a wastewater overflow event include:

1. Corrective Action and Site Control

2. Containment and Recovery
3. Cleanup
4. Sampling
5. Notification and Reporting
6. Post-Cleanup Activities

1. Corrective Action and Site Control

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

- Prevent Public Access - Access to the immediate area of the overflow is restricted to minimize potential impacts to public health by redirecting pedestrian and automobile traffic away from the overflow through the use of traffic cones, plastic tape, barricades, and/or local law enforcement.

The extent of the overflow and its potential impacts to the public health are assessed by City personnel. This process involves determining if any private property owners/residents may be exposed to raw sewage, making direct contact with those parties who have been or may be directly affected by the overflow, advising those individuals 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/area, to prevent contact with the overflow.

Simultaneous efforts include determining the path and final destination of the sewage spill and potential exposure to the public. If wastewater from the overflow is ponding in a location that can be isolated, then set up barricades to prevent public access. Traffic control is set up to prevent vehicles from entering locations where the overflow has contaminated public or private travel ways. City personnel are instructed to direct pedestrians and automobile traffic away from the spill path and final destination of the overflow. All involved persons must cooperate with local law enforcement and public works officials to ensure that public exposure to the overflow is minimized and to ensure spill site security.

- Prevent Wastewater Entry to Storm Drain System - When possible, contain and recover the overflow in the immediate vicinity of the overflow before it enters a storm drain catch basin. Measures to effect such containment include damming the overflow path with sandbags in the street gutter and recovering the impounded water with a vacuum truck or jet vactor, or using sandbags to divert the overflow back into a nearby sewer manhole.
- Stop Overflow - The cause of the overflow is identified and necessary corrective action is taken to stop the overflow and/or correct the condition that caused the overflow if the overflow has already stopped.

Typical corrective actions to stop a sewer overflow include:

- o clearing a pipe blockage with a jet vector or rodding machine,
- o removing debris from a manhole,
- o upstream flow diversion,
- o bypass of wastewater around the blockage using vacuum trucks or pumps
- o bypass and repair of a damaged force main.

Bypass pumping is typically accomplished by the use of portable pumps and hoses to convey flow around the blocked or damaged sewer, the inoperative pumping plant or the damaged force main. The SO&M team maintains an Overflow Response Trailer, which is equipped with portable pumps and hoses of various sizes (designed to bypass flows of up to 450 gallons per minute), sandbags, fittings, and tools to facilitate pumped bypass. When possible, diversions are used to redirect a portion or all of the wastewater around the affected area in the system. Maintaining accurate and complete sewerage system maps is essential to expeditiously accomplish wastewater diversion during an emergency response.

- Pumping Plants - Emergency Procedure Operating Manuals for pumping plants (Lift Stations) are available in the DPW as references for operations, maintenance, engineering, supervisory, and management staff. The manuals provide comprehensive information on the proper response to all types of pumping plant failures, potential overflows and force main leaks and failures. Available information includes proper response to power failure, high wet well level, telemetry system failure, control system failure, procedures to bypass the plant, and emergency overflow information including low manhole location, storage time in the tributary sewer system, containment location and estimated travel time to the containment location.

2. Containment and Recovery

Containment and recovery of an overflow should occur as close as possible to the site of the overflow, preferably in the street curb and gutter, to minimize the length of the storm drain system affected by the wastewater. When a storm drain system is nearby, the overflow may enter the storm drain system prior to arrival of the first responding personnel. In these cases, engineering, supervisory and/or management staff identify the most practical containment location in the storm drain system downstream of the overflow. In selecting the best containment location, staff must consider many factors, including:

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

Access and safety considerations generally require establishment of containment in open storm drain channels. Containment in buried storm drains pipes upstream of any open

channels is preferable when possible. However, the physical difficulty of deploying personnel and materials through a manhole into a buried storm drain pipe to construct a containment dam, the dimensions of the storm drain itself, and/or the safety procedures and authorization needed to enter confined space generally preclude rapid and practical establishment of containment within a buried storm drain pipe. City staff can usually and safely enter the storm drain system to establish containment during dry weather conditions only. A containment location close to the overflow location is only possible when a containment dam can be deployed very quickly after the start of an overflow.

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

- deploys a sandbag containment dam or otherwise prevents the movement of the overflow and contaminated street runoff further downstream in the storm drain system, and
- deploys the vacuum trucks or portable pumps and piping necessary to return the contained wastewater, dry weather runoff, and clean up water back to the sewer system.

3. Cleanup

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

- Recover Locally Impounded Wastewater - All locally impounded wastewater is recovered with a vacuum truck or jet vactor and returned to the sewer system
- Collect Wastewater Debris - All visible debris of wastewater origin from the overflow location(s), street(s), curb and gutters, and the overflow runoff path is physically removed.
- Flush Affected Area - Overflow location(s), street(s), curb and gutters, and the runoff path are flushed with lightly chlorinated potable water, typically delivered by a vacuum truck or water truck. The flush water is also recovered and returned to the sewer system.
- Flush Storm Drain and Conduct Dye Study - Additional potable water is used to flush the overflow 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.
- Complete Cleanup - All sandbags and other containment are removed to complete the cleanup in the storm drain system. If spilled wastewater reaches natural watercourses or other areas accessible to the public, input is solicited from the responsible jurisdiction regarding additional measures which may be necessary or appropriate for a complete cleanup. Additional cleanup measures are completed as directed.

Private properties impacted by overflows or backups from problems within the City's sewer system should be cleaned up by a professional restoration company dispatched by the City. The City may offer residents meals, lodging, and reasonable expenses when they are temporarily displaced by private property restoration operations. Claims for property damage are handled by the City's Claims and Insurance Coordinator.

4. Receiving Water Sampling

Bacterial test samples of SSO's should be collected by the first responder, whenever possible. If it is probable that an overflow may reach receiving waters, samples should also be taken of the receiving waters to evaluate the potential impact on the receiving water quality. Samples should be drawn from the location(s) most likely to be impacted by the overflow and also from a receiving waters location or locations that can be used to establish background water quality. Advance coordination with a certified laboratory for pre-arrangement of sampling supplies, notification protocol for urgent services, and training as may be required, will facilitate emergency sample delivery so that bacterial testing can begin immediately when needed. Delivered samples are analyzed for total coliform, fecal coliform, and enterococcus and other constituents that may be appropriate based on the nature of the receiving water and the spilled wastewater. 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 overflow can be confirmed. If sample results indicate elevated bacterial levels in receiving waters, sampling is continued until results indicate a return to background levels.

5. Notification and Reporting

Sewering entities are required to report to various regulatory agencies, including the appropriate Regional Water Quality Control Board, the County Department of Health Services, and the State Office of Emergency Services, any wastewater overflows greater than 1,000 gallons and, in some cases, overflows less than 1,000 gallons. The reporting requirements vary according to location of the overflow and the amount of wastewater spilled. The City's guideline for *Notification and Reporting Procedures for SSO's*, (included as Attachment K-2), contains an outlined notification and reporting procedures for the two categories of overflows. Chapter 2 of the SSMP contains a flow chart which is used to determine the notification and reporting procedures that apply to a given overflow incident. The SSMP also contains all of the appropriate contacts for reporting. A City's manager, typically the Sewerage System Manager, makes the notifications. When required, telephone notification should be made as soon as possible without substantially impeding response activities and always within 24 hours of the incident occurrence. The following information shall be provided, if available, when reporting an overflow by telephone:

- name of person reporting,
- name of agency,
- location of overflow,
- whether the overflow has entered or will enter receiving waters (rivers, lakes, storm

- drains, or ocean) of the State or the United States,
- date and time overflow began and ended,
 - estimated volume of overflow,
 - cause of overflow,
 - corrective actions taken,
 - estimated time of repair, and
 - agencies involved in repair and clean-up.

All overflows, regardless of quantity, which reach receiving waters, impact groundwater, or endanger public health or the environment require immediate telephone notification of the County Department of Health Services, which is responsible for beach postings and closures and other forms of public notification deemed necessary to protect the public health.

Written notification of the overflow, when required, must be submitted within the required time period to the Regional Water Quality Control Board (RWQCB), typically within 30-days of an overflow and within 3 days if the incident has or may endangered public health or the environment. Written reports should be submitted to the local RWQCB for overflows occurring within their jurisdiction. To satisfy this requirement, the City may chose to submit a brief written confirmation of the reported overflow to the appropriate RWQCB within the time frame required. A follow-up, detailed written report, pursuant to the guideline as contained in Attachment K-2, will meet the statutory provisions of the State Water Code. This detailed report usually requires three to four weeks to complete. Copies of the detailed report is sent to those agencies which were initially noticed, unless otherwise notified.

6. Post-Cleanup Activities

Once clean up of an overflow is complete, the incident must be reviewed and any appropriate measures to prevent recurrence must be implemented. Follow-up CCTV inspection is performed when an overflow was caused by a blockage to verify complete removal of the material causing the blockage. If the overflow 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 an overflow to occur, while source control efforts are reviewed. If the overflow was caused by factors generally outside the City's control, such as vandalism, steps are still taken to minimize recurrence such as strengthening security by locking down manhole covers, increasing area surveillance, and requesting neighborhood assistance in reporting vandalism and unauthorized dumping.

Regardless of the size or type of overflow, all overflows are investigated thoroughly. Following the investigation, the information as noted on Attachment K-2 is documented and included as part of the City's internal spill records.

Policies and procedures are upgraded as appropriate to prevent recurrence of accidental spills due to procedural errors by City's staff and contractors. As part of their training, all involved employee's must thoroughly familiarize themselves with these emergency procedures. City's personnel administering contract sewer repair, rehabilitation and replacement projects must rigidly enforce contract provisions. Especially important is enforcing contractors' approved *Emergency Spill Response Plan* requirements (see Attachment K-3 for guidelines) intended to prevent and limit the impact of accidental spills.

An approved *Overflow Action Plan*, which is activated if an overflow from a contract activity enters a storm drain, should be incorporated into the contract documents of all sewer repair, rehabilitation, or replacement contracts involving sewage bypass operations. When successful execution of an *Overflow Action Plan* requires pre-deployment of containment or pumping equipment, City's personnel administering the contract must ensure the necessary pre-deployment measures are taken. Guidelines for the preparation of an *Emergency Spill Response Plan* and an *Overflow Response Plan* are included as Attachment K-3.

EMERGENCY RESPONSE PERSONNEL AND EQUIPMENT

Personnel

The City has *the necessary* personnel to respond to *almost any* local emergency, including *power failure, mechanical and electrical equipment breakdown, sewer blockage, pipe failure, and vandalism*. The urgency and seriousness of any wastewater overflow results in the full commitment and availability of all staff in the PWD to respond. Additional City's personnel are utilized for specialized assistance as needed. Contractors with emergency response capabilities are also used to assist in emergencies as needed.

An emergency contact list is maintained which includes the home phone number of all employees in the PWD. All supervisors and managers in the PWD are assigned cell phones and/or pagers and are accessible 24-hours a day. A table of organization for the SSO responses and each supporting unit or group are included in Chapter 2 of the SSMP.

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 by the CMC Section 2.20.080, entitled "Bidding-Required-Exceptions", and Section 2.40.060, entitled "Emergency services director and assistant director-Powers and duties". This emergency authority is granted for each qualifying incident and is described in the CMC.

Emergency Equipment

In addition to the normal compliment of equipment utilized by the PWD for maintenance and repair of the sewerage system, specific items are maintained for use during emergency

conditions. Such equipment includes:

- jet vactor and rodding machines 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 crane 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-coupling piping in various sizes for use in bypass pumping
- pipe repair clamps, inflatable sewer plugs, and other miscellaneous pipe repair parts
- water trucks and bottled chlorine solution for use in clean up operations
- portable lights, air compressors, centrifugal blowers, and other miscellaneous equipment
- Protective clothing and supplies for safe use by personnel

A current listing of emergency equipment available from the Sewerage System maintenance yards is included as Appendix E.

TRAINING

Training of City personnel in the goals and procedures of this SSORP is accomplished in annual emergency response classroom training. A checklist used by staff to check off and record information regarding the various procedures completed during a spill response is utilized during the training process. The checklist is included as Attachment K-4. Secondly, on-the-job training is administered to subordinate staff, by experienced supervisors and lead workers, during and following actual overflow events to further reinforce the annual training and to analyze event specific issues.

NOTIFICATION REPORTING FORM

Time: _____ a.m./p.m. Date: _____ Report taken by: _____

Location of Problem: _____

(Repeat for clear understanding)

Nature and Details of Problem: _____

(Repeat for clear understanding)

Reporting Party: _____ Telephone No. _____

Address: _____

Assigned to: _____ Assigned by: _____ Time assigned: _____

Field Report (for responder use)

Time arrived at site: _____ Time overflow stopped: _____

Duration of overflow: _____ Estimate of overflow volume: _____

U/S MH # _____ D/S MH # _____ Pipe size/length: _____

Findings: _____

Samples taken by: _____ Location of samples taken: _____

Describe cause of overflow: _____

Describe cleanup method(s): _____

Describe receiving water affected & location: _____

Were photographs taken? _____ Yes _____ No

Describe any property damaged and affected area:

Signs posted? _____ Yes _____ No Barricaded? _____ Yes _____ No

Neighbors notified:

Individuals and Regulators Notified & Times:

Follow-up measures:

Detailed sketch of affected area:

My signature indicates responsibility for content and accuracy of above information: _____

NOTIFICATION and REPORTING PROCEDURES for SSO'S

Category 1 - 1,000 Gallons or greater and/or impacting Waters of the State or the United States:

- Initial notifications ASAP per agency procedure described in this chapter (verbal, phone, fax or E-mail)

Letter Reports with attachments

- Confirmation letter of initial notification(s) including recovery results and status of any ongoing investigation report and expected date of completion.
- Final investigation report, including:
 1. Summary
 2. Event Date / Time / Duration:
 3. Description of affected sewer(s)
 4. Events during the Overflow
 5. Cause of the Overflow (specifically)
 6. Overflow quantity and how determined
 7. Discharge route, Containment and Clean-up
 8. Response and Corrective Action(s) taken
 9. Impact(s) of the Overflow
 10. Did overflow result in a beach closure?
 11. Sewerage Management Program in effect
 12. Measures to Prevent Recurrence
 13. Name, Address, Telephone of reporting system owner and specific contact name
 - Cc: to other required reporting agencies
 - System map of offending area, with relevant photographs
 - Overflow route and Containment site, with relevant photographs
 - Containment site and Sampling Locations, with laboratory results
 - Analysis tools and records used in impact evaluation
 - Maintenance management records

Category 2 - Less than 1,000 Gallons to be reported within 30 days of SSO identification:

- Initial notifications per agency procedures in this chapter (verbal, phone, fax or E-mail)

Memorandum report format

- Event Date / Time / Duration:
- Event Location:
- Involved Sewer Data: (include: size, material, year constructed, date last inspected, etc.)
- Estimated Overflow Quantity:
- Cause of Overflow:
- Affected Area:
- Action(s) taken:
- Preparing party signature and date

Private Lateral Sewage Discharge:

Enrollee's discretion in reporting to the Online Data Base. Min. required information for reporting:

- Identify discharge as occurring and caused by a private lateral
- Identify responsible party for the private lateral

EMERGENCY SPILL RESPONSE PLAN and OVERFLOW ACTION PLAN

Outline for a Contractor's Emergency Spill Response Plan:

- Identification of Project, Sewer owner, Contractor and Location of affected sewer(s)
- Description of Installation criteria, procedures, layout (with diagrams) and operations.
- Description of Spill prevention and protection measures/actions.
- Spill control (discharge) actions/measures, to minimize impacts.
- Remediation (Clean-up) measures.
- Emergency Materials and Equipment Onsite
- Emergency Equipment specifications that meet the potential spill risk
- Emergency Phone Numbers

Outline for a Overflow Action Plan [Where receiving waters are or will be affected]:

- Identification of Project, Sewer owner, Contractor and Location of affected sewer(s)
- Identification of affected drainage course/piping owner, proximity and emergency contacts
- Map of drainage path, access and containment points, with relevant photographs
- Identification of closest sewer to the containment point(s)
- Travel time to the containment point
- Emergency support resources and contacts
- Equipment and Materials necessary for containment and for Clean-up
- Require notification contacts

SSO RESPONSE CHECKLIST

SSO RESPONSE CHECKLIST				
General Information				
Sewer location:				
Date & time of report:		Caller:		Phone:
Person receiving report			Phone:	
Time overflow started:		Where:		Noticed:
SSO response checklist completed by:				
Initial Response	Yes	No	N/A	Comments:
A. Initial on-scene response within 60 min.:(time)				
B. Sanitation District's responsible?				
C. Responsible agency contacted: (name/time)				
D. Manhole still overflowing (approx. flow rate)				
E. Containment to prevent SSO into storm drain				
F. Public excluded from affected area				
Gravity Sewer	Yes	No	N/A	Comments
A. Cause				
B. Corrective action to stop overflow				
Used jetter to remove blockage				
Removed blockage by man entry				
Removed wastewater with vac.trk.(loads)				
Set up pumped bypass system				
C. Time overflow stopped				
Pump STA./Force Main Overflows	Yes	No	N/A	Comments
A. Cause				
B. Corrective action to stop overflow				
Utility power restored (time)				
Portable generator to respond				
Portable/on-site generator operating (time)				
Bypass pumps installed				

SSO RESPONSE CHECKLIST				
Force main bypassed				
C. Time overflow stopped				
Containment	Yes	No	N/A	Comments
A. Containment established in stormdrain				
Location				
Time				
B. Pumping start time				
C. Pumping stop time				
D. Spill contained				
Clean-up	Yes	No	N/A	Comments
A. Area washed down & debris removed				
B. Wash water recovered				
C. Restoration company contacted				
D. Stormdrain flushed				
Time				
Volume of water used				
Dye used				
Sampling	Yes	No	N/A	Comments
A. Overflow sample				
B. U/S D/S receiving water samples				
C. Samples analyzed				
D. Receiving water locations resampled				
Reporting	Yes	No	N/A	Comments
A. Department head notified				
B. Appropriate regulatory agencies notified				

City of Covina SEWER SYSTEM CAPACITY EVALUATION 2002

Introduction and Summary

The City owns and operates its local wastewater collection system consisting of approximately 120.5 miles of gravity flow sewer pipelines ranging in size from 6-inches to 21-inches in diameter, and 2,666 manholes. The existing sewer system discharges to trunk sewers within the community that are owned and operated by the County Sanitation Districts of Los Angeles County and to adjacent unincorporated area and City of West Covina sewer systems.

A purpose of the 2002 Master Plan evaluation was to identify deficiencies in the existing sewer mainline system, recommend alternatives to eliminate the deficiencies, prioritize the deficient reaches, and provide the City with a basis on which to build a future infrastructure management system.

Following adoption of the 2002 City Sewer System Master Plan, the identified sewer system deficiencies were prioritized, then in 2004/2005 a partial CCTV investigation of select areas were performed for further identification of work needs as described in Appendix 'J'. Then in FY 2006/2007 the first priority capital pipeline replacement project and rehabilitation of structurally deficient identified pipelines were accomplished. In July 2009 a revenue bond program was approved in order to fund the engineering and construction of the remaining capital replacement projects identified previously. This work is to be completed by June 2012 or earlier. As the City proceeds with its CCTV investigation phases, further identified deficiencies will be addressed using acceptable engineering solutions for the given deficiency conditions.

In the event of any land use changes to the General Plan, upon which this study has been based, the hydraulic model should be updated to reflect the consequences of such changes. The model should also be updated to reflect the construction of new relief facilities and/or the construction of new sewer lines within the system.

Also, attached for reference is the deficient pipe segments map (Appendix 'L-1'), developed for the 2002 Sewer Master Plan report, and as Appendix 'J-2' a copy of the 2002 Sewer Master Plan report.

Financing of Improvements

General

Funding considerations are often the deciding factor in scoping and implementation of a project. There are, of course, numerous methods or mix of methods, which could be used to

finance the implementation of a sewer system capital improvement plan (CIP), and the ongoing operations and maintenance activities. Among these methods are:

1. Pay-as-You-Go Financing (rates, fees and charges based)
2. Redevelopment Agency Funding
3. State Assistance Programs
4. Municipal Securities
5. Improvement Districts
6. Federal Assistance Programs

In discussion that follows, the above funding options are briefly described and their adaptability to specific circumstances of a sewer system CIP are noted. In evaluating specific funding programs, services of financial and legal experts in such issues are recommended.

Methods of Financing

1. Pay-as-You-Go Financing:

Development of cash reserves or capital improvement funds, from an agency's revenue base, is often referred to as "pay-as-you-go" funding. This method avoids interest payments on other types of debt financing. Under this form of financing, the initial capital cost of a project must be accumulated in advance of construction, which can cause a delay in project implementation. If delay is not a crucial factor, this is a cost effective method due to the absence of debt financing costs. This method has sometimes been used together with various forms of short-term financing to construct needed sewer infrastructure.

2. Redevelopment Agency Funding:

Funds generated from property tax increment revenue, received by the City's redevelopment agency (RDA), is a possible source for sewer system capital improvements, within or beneficial to the RDA. A sewer system improvement project would have to compete with other agency planned projects, prioritized and an agency funding decision.

3. State Assistance Programs:

Under the rules and regulations of the Federal Water Pollution Control Act (Clean Water Act or CWA) and the Federal Safe Drinking Water Act (SDWA), the State has enacted the Clean Water State Revolving Fund (CWSRF) and the Drinking Water Revolving Fund (DWSRF), respectively. These programs are funded by Federal grants, State funds and Revenue bonds. The CWSRF Loan Program provides low-interest loan funding for construction of publicly-owned wastewater treatment facilities, sewers, sewer

Appendix 'L'

interceptors, water recycling facilities, as well as implementation of non-point source (NPS) projects or programs. There are different types of funding assistance available under these programs.

www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/

The Department of Water Resources administers the State bond law programs for Water supply/Water quality, Water conservation, Flood management and Regional water management. www.grantsloans.water.ca.gov

The State Water Resources Control Board administers the State revolving fund loans, Water recycling grants & loans, Small community grants, Agricultural drainage loans, Agricultural drainage management loans, Clean beaches initiative grants, Agricultural water quality grants, Areas of special biological significance (ASBS) grants, Storm water grants, and Santa Monica bay restoration commission grants. www.waterboards.ca.gov

The State Department of Public Health administers the DWSRF, Proposition 84 funding for public water systems, and Proposition 50 for the water security, clean drinking water, coastal and beach protection act of 2002 loans. www.cdph.ca.gov

Various types of infrastructure improvement/construction loans can be arranged through the California Infrastructure and Economic Development Bank (IBank)

www.ibank.ca.gov

Limited amounts of public works grant funds have been available to agencies from the State Office of Economic Development. Use of such grant funds must result in the creation of new, permanent jobs in the private sector. In order to ensure that the funds are ultimately assisting those in most need, projects eligible for consideration must be those in areas designated eligible for HUD Urban Development Action Grants (UDAG), EDA Sudden or Long-term Economic Deterioration, or EDA Designated Special Impact Area.

4. Municipal Securities:

Historically, general obligation bonds (GOB's) had been a prevalent method of financing various public works improvements. They are secured by an agency's total assets and payable from ad valorem taxes levied on all taxable properties within the agency's boundary. However, the Jarvis-Gann Amendment (Proposition 13 of 1978) prohibits the levying of ad valorem property taxes beyond pre-existing authorizations and levels (pre-July 1, 1978). Therefore, authorization and issuance of GOB's is not considered feasible under current law.

An option to GOB's is the issuance of a specific type note or bond form, such as a revenue anticipation note (RAN) or a tax anticipation note (TAN) or a certificate of participation (COP) or various combinations of available authorities that can be used to fund public infrastructure needs. These types of municipal securities (Munis) are generally tax-exempt and commonly used to fund public works infrastructure and

facilities. Many states also exempt their securities from their own taxes, which makes those securities particularly attractive investments for their own residents.

TAN's and RAN's are instruments backed by anticipated taxes or revenues respectively. When these types of notes are considered for funding of needed infrastructure, a specified source of tax or revenue stream is identified and pledged for repayment of the debt. For example, with sewer facilities, all or a portion of the sewer service revenue fees/charges could be used as backing for the debt instrument selected. Then other local revenue sources could be considered for ongoing operations and maintenance (O&M) or some acceptable mix and match of funds specified to secure the debt and accomplish the O&M.

COP's are another form of municipal funding instrument available. These generally require the facility improvement being funded to be named as security for the investment with a lease back of the facility by the municipality. In turn, the municipality pledges some revenue stream(s) that would be used to repay the investor held notes.

When Munis are being considered for funding of improvements, consultation with an experienced and qualified financing consultant and bond counsel are a must.

5. Improvement Districts:

In general, special assessment district procedures have been established by statute to provide for financing of construction and/or acquisition of public works improvements, such as sewer systems, and for assessing the cost of such improvements to the benefiting properties. Under all assessment proceedings, the cost of the work is assessed against properties within the benefited area. The assessments are levied in specific amounts against each individual property on the basis of the benefit each parcel receives. The property owner may pay the assessment in cash during the cash collection period of 30 days. But, if any assessments are not paid in cash during that period, bonds are usually issued to represent the unpaid assessments and the benefited properties are assessed on their annual property tax bill over a usual period of 10 to 20 years.

Commonly used assessment acts are the 1911 and 1913 Acts. The common bond acts are the 1911 and 1915 Acts. These assessment and bond acts are used in varying combinations depending on the particular circumstances for each proposed improvement district.

While an assessment district proceeding may be a reasonable and equitable means for financing sewer system improvements, further evaluation and stakeholder involvement is a usual practice to determine the viability and practicality of utilizing such financing method.

6. Federal Assistance Programs:

There are, and have been, a series of federal grant and loan programs which may be applicable to public infrastructure projects. However, the qualification criteria for such programs vary from time to time and their funding or continuation is subject to

congressional appropriations. Therefore, such programs should not be considered as a likely source of funds unless a funding commitment letter has been received.

Historically, federal programs administered by the Economic Development Administration (EDA) provide financial and technical assistance to aid the economic development of areas with high unemployment or low family income levels. Communities must make long-range plans for economic growth in order to be eligible for EDA financial assistance, in the form of grants and loans for public works and development that generates jobs and economic opportunity. Typical public works projects include construction of roads, water and sewer lines, and public facilities. To determine the status requires timely monitoring.

Under the rules and regulations of the Housing and Community Development Act of 1974, the Community Development Block Grant (CDBG) program can fund housing and community development needs. This includes part or all of improvements necessary to upgrade existing sewer facilities. Those qualifying geographic areas within the City that have the greatest overall deficiency in physical infrastructure receive the highest priority according to CDBG criteria. When the sewer system has a defined deficiency, then it is appropriate to use CDBG funds to meet health and safety standards as well as to encourage up-grading of abutting housing and physical environment.

The primary statutory objective of the CDBG program is to develop viable communities by providing decent housing and a suitable living environment and by expanding economic opportunities, principally for persons of low- and moderate-income. Communities receiving CDBG funds through the State may use the funds for many kinds of community development activities including, but not limited to:

- acquisition of property for public purposes;
- construction or reconstruction of streets, water and sewer facilities, neighborhood centers, recreation facilities, and other public works;
- demolition;
- rehabilitation of public and private buildings;
- public services;
- planning activities;
- assistance to nonprofit entities for community development activities; and
- assistance to private, for profit entities to carry out economic development activities (including assistance to micro-enterprises).

www.hcd.ca.gov/ca/cdbg/about/html

The United State Department of Agriculture Rural Development Program provides communities with population less than 50,000 a variety of direct-guaranteed-loans and /or grants. These include water and wastewater system improvement funding.

www.rurdev.usa.gov/ca

APPENDIX 'L-1'

2002 Deficient Pipeline Locations Map

APPENDIX 'L-2'

Copy of the 2002 Sewer Master Plan report

CITY OF COVINA
SEWER MASTER PLAN



Submitted to

City of Covina
125 East College Street
Covina, California 91723-2199

Submitted by

Willdan
27042 Towne Centre Drive, Suite 270
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February 2002

Plans Prepared under the Supervision of

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RCE 30514

Date

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APPENDIX A
Engineer's Estimate

APPENDIX B
Exhibits

Introduction

The City of Covina is a community of approximately 47,000 residents that contains a mixed development of residential, commercial, and industrial areas. Covina is a low-density community of which slightly over 45% of the city is housing. In recent years development within the City has intensified, creating greater demands on public facilities including the City's sewer system. The purpose of this report was to identify the capability of the City's sewer system to serve projected development, to identify system deficiencies, and to recommend necessary system improvements.

Study Approach

The preparation of the Sewer Master Plan involved various tasks. The sequence of tasks used in this study was the following:

1. Collection of data for the existing sewer system (i.e., pipe size, slope, elevations). This information was provided by the City in the form of Record drawings and sewer atlases (see Exhibit 3).
2. Determination of the land usage for the study. The City provided the Covina General Plan Moderate Growth Scenario Map (see Exhibit 5).
3. Formulation of a computer model of the complete City sewer system.
4. Analysis of the system capacity and determination of system deficiencies (see Exhibit 1).
5. Development of recommendations for system improvements to correct deficiencies.
6. Preparation of cost estimate for the recommended improvements.
7. Preparation of the Sewer Master Plan report.

Summary of Findings

Approximately 120 miles of sewer were modeled. Of the 120 miles, approximately 9.3 miles of the system was identified as being deficient. See Exhibit 1 for the deficient sites.

The overloaded sewers are scattered throughout the City, with the most severe occurring in Tributary Area No. 1, which is the Old Downtown Area. This sewer system is the oldest in the City and has seen the most redevelopment. These deficiencies also correspond with maintenance Hot Spots and damaged pipe as shown on Videotapes. See Exhibit 4 for the Hot Spots and Video locations.

The recommended deficiency correction projects are estimated to cost \$5,571,821. This cost is based on 2002 anticipated construction costs and include engineering, contract administration, inspection, survey, and contingency costs.

The City system consists of vitrified clay pipe (VCP) and was built from the 1940's to present. The oldest section of the system being the Old Downtown Area. With an anticipated life span for VCP of over 100 years, no collapse of existing lines due to age deterioration is expected for several decades. For system year of construction see Exhibit No. 2

Summary of Recommendations

Initial deficiency correction projects should be concentrated in Tributary Area No. 1. This Old Downtown Area has the oldest system and has the highest concentration of Hot Spots. As the Old Downtown Area is redeveloped and the streets are repaved or rebuilt, the City should consider examining the underlying sewer to determine whether or not it warrants replacement. The estimated cost for proposed improvements for Area No. 1 is \$1,211,267.

After major deficiencies in Tributary Area No. 1 are corrected, Areas No. 3, 63 and 70 should be corrected. These systems are overloaded.

- The estimated cost for proposed improvements for Area No. 3 is \$1,217,228.
- The estimated cost for proposed improvements for Area No. 63 is \$822,204.
- The estimated cost for proposed improvements for Area No. 70 is \$544,016.

The other remaining deficiencies are somewhat flexible in priority timing, however, should not be overlooked and could be added to any year to match City's budgets. The estimated cost for proposed improvements in the remaining areas is \$1,777,106.

In the event of significant changes to the General Plan upon which this study was based, the model should be updated to reflect the consequences of such changes. The model should also be updated to reflect the construction of new relief facilities and/or the construction of new sewer lines.

Analysis of Existing Sewer System

The existing sewers within the study area are shown in Exhibit No. 3. The existing sewer system for the City of Covina consists primarily of 8-inch vitrified clay pipe (VCP) collector sewers. The City's sewer system also includes relatively short lengths of 10- and 12-inch VCP pipes. These lines eventually discharge to a number of trunk sewers owned by Los Angeles County Sanitation District.

The sewer system network consisting of 120 miles of sewer mains was divided into 105 drainage areas for input into the computer model. The input data consisted of a numerical designation for each manhole and length of sewer between the manholes, the flow line

elevations, the slope of the line, and flow line and rim elevation of each manhole. This information was gathered from Record "As-Built" drawings provided by the City.

The oldest area of the City is the Old Downtown Area and primarily consists of 8-inch VCP. Record drawings do not exist for this area, with the only information available being the sewer atlas drawings. The sewer atlas drawings provided some invert elevation information as distance from manhole lip to sewer invert. From this information pipe slopes and manhole depths were determined. Where data was not available, pipe slopes were interpolated as needed. The assumed construction date for these sewers is prior to 1950's.

The physical condition of most of the sewer system is uncertain and warrants further analysis, which is beyond the scope of this report. The City has Video inspected some portions of the sewer system needed for locating problems and as required for development of properties. Further inspection of sewer conditions can be accomplished on a case-by-case basis as redevelopment occurs.

Computation of Wastewater Inflows

Once the schematic of the sewer system network was established, data was compiled on the tributary drainage basins, land use, and other factors that affect the volume of wastewater generated. Through analysis of the City's sewer record drawings and sewer atlases, it was possible to define the tributary drainage areas for the sewer system.

Next, it was necessary to compute the area of each type of land use; e.g., low-density residential, medium-density residential, high-density residential, commercial, industrial, etc., within each drainage boundary. The unit flow coefficients (see Table 1) were then applied to the computed area of land use within each drainage district. The unit flow coefficients, when applied to the land use areas, provide peak flow rates for each particular land use category. The wastewater inflows calculated for the various land use categories within the drainage districts were then accumulated to provide the calculated peak flow for the entire drainage district. The accumulation of estimated wastewater flow is accomplished totally within the computer program.

Table 1 Peak Flow Rates

Zone	Cu. Ft. per sec. per acre	Gallons per day per acre
R-1	0.004	2585
R-2	0.008	5170
R-3	0.012	7755
R-4	0.016	10341
C-1 – C-4	0.021	13572
M-1 – M-4	0.021	13572
Park	0.004	2585
School	0.015	9694

Flow Monitoring

MGD Technologies Inc. (MGD) provided flow data at 10 sites for a period of seven (7) days. Results of the temporary flow monitoring were submitted to the City by MGD under separate cover, December 4, 2001. See Exhibit 6 for the Flow Monitoring sites. The 10 sites were chosen based on criteria of: age of the sewer system, size of the drainage boundary, and composition of the drainage area (100% residential, majority commercial, etc.). The results of the flow data were reviewed and compared to the preliminary calculated flows that were generated by the computer program. The sites that were composed of commercial development were found to have higher flows than expected. The unit flow coefficient for commercial zones C-1 – C-4 was revised to 0.021. This is the same as zones M-1 – M-4. See Table 1 for final Peak flow rates. All other land use zones flow rates were found to meet expected flow rates.

Deficiency Criteria

The City's sewer system was modeled using Pizer Hydra Ver. 6.1. The Hydra program is designed to provide analysis of both the existing sewer system and the design of any new sewer lines.

In designing or evaluating a wastewater collection system, the engineer must establish certain criteria upon which to base his design. These include such things as available pipe sizes, minimum slope, minimum cover, friction factors, etc. Many of the design assumptions are unnecessary in the analysis of a collection system when the pipe already exists and its diameter, slope, and cover are fixed.

Design criteria are established to ensure that the wastewater collection system can operate effectively under all flow conditions. Each pipe segment must be capable of carrying the peak flows without surcharging the system.

In the analysis of an existing sewer system, the Hydra program compares the capacity of each pipe in the system with the peak wastewater flow projected for that particular link.

If the existing pipe size is surcharged, the Hydra program automatically increases the pipe diameter to the next largest standard pipe size that will carry the design flow without being surcharged. At a minimum, all pipes should be 8 inches or larger in diameter and the velocity of flow in the pipe should be greater than 2 feet per second (ft/s). This velocity will prevent deposition of solids in the sewer and help to re-suspend any materials that may have already settled in the pipe. The minimum corresponding slopes to maintain 2 ft/s for various pipe sizes are shown in Table 2

Table 2
Minimum Sewer Slopes ft/ft

Sewer Size	Slope
8"	0.0028
10"	0.0021
12"	0.0016
15"	0.0012
18"	0.0010

It is important to note that the slopes listed above assume the depth of flow in the pipe is 0.64 percent full. If there is insufficient flow to create this condition, greater slopes than those shown may be required.

The design and analysis of gravity sewer pipes is typically based upon the depth to diameter ratio (D/d). Common design criteria for proposed new sewer design is 0.50 for 8- and 10-inch diameter pipes and 0.75 for 12-inch and larger pipes. Existing wastewater systems are allowed to flow fuller (have less residual capacity) because development and redevelopment has occurred or is foreseeable in the near future, which reduces the margin of error in predicting sewage flows. This report establishes the hydraulic design criteria for existing sewer pipes by classifying "over capacity" pipes as any with a D/d greater than 0.64. This D/d ratio was arrived at by taking 75 percent of the depth to diameter ratio at a pipe maximum stable flow capacity, which is at a D/d of 0.85. The area above a D/d of 0.85 is considered hydraulically unstable. This results in approximately 35 percent of the pipe's full flow capacity being reserved for inflow and infiltration.

The extra pipeline capacity allows for the possibility that actual wastewater flows may be slightly higher than anticipated, especially during the hours when instantaneous or intermittent peaks may occur. These peaks are generally observed between the hours of 6:00 a.m. and 8:00 a.m. Monday thru Friday and between the hours of 9:00 a.m. and 11:00 a.m. Saturday and Sunday. They may also be observed during rainfall events due to inflow. Additionally, the area above the water surface helps to keep the sewage aerated, reducing the possibility of septic conditions and odors.

Exhibit 1 shows the pipes that are deficient per the 0.64 criteria and also shows the pipes that are deficient per the 0.50 criteria. Only the pipes that exceed the 0.64 criteria are recommended for correction projects.

The design capacity of a gravity pipeline is the calculated capacity of the pipeline based on the Manning formula:

$$Q = 1.486 R^{2/3} S^{1/2} / n$$

where, Q = flow in cubic feet per second
R = hydraulic radius in feet = A/ P
A = cross-sectional area of the pipe in square feet
P = wetted perimeter in feet
S = slope of the pipe in feet of rise per foot of length
n = Manning's friction factor

Sewer system capacity is established using a Manning's friction factor of 0.013 for vitrified clay pipe.

Recommended Deficiency Correction Project

General

Numerous alternatives were studied in developing the recommended schedule of deficiency correction projects. Construction of a parallel sewer facility to carry the excess sewage flow is an obvious solution to most of the deficiencies; however, this solution is not necessarily the most economical or practical approach. In some instances the construction of a single relief sewer line can be planned in such a way that it will relieve several main sewer lines thereby avoiding the construction of parallel facilities and the duplicate cost. In other instances the replacement of the existing sewer with a larger size may be the preferred alternative. The decision as to which correction alternative to construct is usually best made during the design phase.

The engineer's estimate (see Appendix A) was prepared based on the cost to remove and replace the existing sewer with a larger size, as this is the most conservative cost approach.

It is suggested that where the depth of flow exceeds the design criteria of $0.64 D/d$, but does not exceed the maximum stable flow capacity of $0.85 D/d$, that consideration be given to allowing these sewers to flow in a slightly overloaded condition in lieu of building a costly relief facility. This overloading occurs only during peak flow conditions that are short in duration. The City should monitor these sewers such that, if a problem occurs in the future, it may be corrected at that time.

Recommended Sewer System Improvements

Presented in Table 3 is a brief summary of the measures recommended to correct the deficiencies shown on Exhibit 1. The criteria for recommending and prioritizing relief facilities is as follows:

1. Sewers with critical deficiencies of $D/d > 0.85$, are recommended for correction measures. Sewers meeting these criteria are ranked highest.
2. Sewers with critical deficiencies of $0.64 < D/d < 0.85$ are recommended for correction measures. Sewers meeting these criteria are ranked lower.
3. Sewers with non-critical deficiencies of $D/d < 0.64$ are not recommended for correction measures. These sewers are not ranked.

It should be pointed out that the recommended relief facilities as presented here are general in nature and should not be considered as absolutes for final design. Rather, they should be considered more as a general concept. Further refinement and analysis will be necessary before initiation of the final design of improvements for each of the relief facilities.

Table 3
Priority Ranking of Summary of Deficiency Correction Measures

Priority Ranking	Tributary Area	Description of Correction Measures To Relieve Deficient Sewers	Cost
1	1	Replace existing 15-inch, 12-inch, 10-inch and 8-inch line with new 18-inch, 15-inch, 12-inch, and 10-inch line (Line No. 1)	\$888,813
2	3	Replace existing 12-inch, 10-inch and 8-inch line with new 15-inch, 12-inch, and 10-inch line (Line No. 3)	\$1,149,377
3	70	Replace existing 8-inch line with new 15-inch, 12-inch, and 10-inch line (Line No. 6)	\$544,016
4	63	Replace existing 10-inch and 8-inch line with new 12-inch, and 10-inch line (Line No. 5)	\$822,204
5	1	Replace existing 10-inch and 8-inch line with new 12-inch, and 10-inch line (Line No. 2)	\$322,454
6	2	Replace existing 12-inch, 10-inch and 8-inch line with new 15-inch, 12-inch, and 10-inch line (Line No10)	\$527,789
7	75	Replace existing 8-inch line with new 10-inch line (Line No13)	\$507,425
8	24	Replace existing 8-inch line with new 10-inch line (Line No 9)	\$148,959
9	38	Replace existing 8-inch line with new 12-inch, and 10-inch line (Line No 11)	\$236,439
10	36	Replace existing 10-inch line with new 12-inch line (Line No 14)	\$137,025
11	57	Replace existing 8-inch line with new 10-inch line (Line No 12)	\$147,609
12	3	Replace existing 8-inch line with new 10-inch line (Line No 4)	\$67,851
13	15	Replace existing 10-inch line with new 12-inch line (Line No 7)	\$34,898
14	13	Replace existing 8-inch line with new 10-inch line (Line No 8)	\$36,963

Sewer System Improvements Costs

The unit prices shown in the Engineer's Estimate (see Appendix A) represent the anticipated construction cost applicable for early 2002. Bid prices received on jobs of similar nature in Southern California area were one source of information used to derive the cost figure. In addition, manufacturers, suppliers of material and equipment, and local contractors were consulted on various cost items. The unit prices do not include right-of-

way acquisition or legal costs. An additional 35% of construction cost is added to cover the cost of design engineering, contract administration, inspection, survey and contingency cost.

The Engineer's Estimate does not include an adjustment for inflation. Construction costs can be expected to fluctuate as corresponding changes occur in the national or local economy. One available indicator of these changes is the Engineering News-Record Construction Cost Index for the Los Angeles metropolitan area. This index is compiled from actual construction cost data for materials and labor and is reported in Engineering News-Record magazine. It is suggested that this index be used to update the unit prices presented in the Appendix and in adjusting the estimate from the date of the initial estimates.

Financing of Improvements

General

Funding considerations are often the deciding factor in the selection and implementation of a project. There are, of course, numerous methods, which could be used to finance the implementation of the Sewer System Master Plan. Among these methods are:

1. Redevelopment Agency Funding
2. Federal Assistance Programs
3. State Assistance Programs
4. General Obligation Bonds
5. Improvement Districts
6. Pay-as-You-Go Financing

In the discussion that follows, the above funding options are briefly described and their adaptability to the specific circumstances of the Sewer System Master Plan is reviewed.

In evaluating specific funding programs, the services of legal and financial experts are recommended. It is the intention of this section to present some of the funding options available to the City and to comment on their adaptability to the specific circumstances of the Sewer System Master Plan.

Methods of Financing

Redevelopment Agency Financing:

A possible source of funding for the sewer system would be through funds generated from tax increment revenue of the City's redevelopment agency. The sewer system improvement

projects would have to compete with other projects planned to be funded by the agency, and a decision would have to be made by the agency as to the priority for funding of the various projects.

Federal Assistance Programs:

There are, and have been, a series of federal grant programs which may be applicable to portions of this proposed undertaking. However, the qualification criteria for these programs vary from time to time and the programs are subject to the whims of congressional appropriations and, as such, should not be considered as a likely source of funds.

Recently, federal programs administered by the Economic Development Administration (EDA) have been funded to spur the economy. The existing programs have already reached their funding limits. However, future acts of Congress may provide for extension of the current program or establishment of new ones.

Another possible source is the Housing and Community Development Act (HCDA) Block Grant Funding program. Under the rules and regulations of the Housing and Community Development Act of 1974, part or all of the improvements necessary to upgrade the existing sewer system may be funded from these monies. The geographic areas within the City of Covina that have the greatest overall deficiency in physical condition receive the highest priority according to the HCDA need criteria. When the sewer system that lies within this area of need also has a defined deficiency, then it is particularly appropriate to use the HCDA funds to meet health and safety standards as well as to encourage the overall up-grading of the physical environment.

State Grant Programs:

A limited amount of public works grant funds have been available to cities from the State Office of Local Economic Development. Use of such grant funds must result in the creation of new, permanent jobs in the private sector. In order to ensure that the funds are ultimately assisting those in most need, projects eligible for consideration must be those in areas designated eligible for HUD Urban Development Action Grants (UDAG), EDA Sudden or Long-term Economic Deterioration, or EDA Designated Special Impact Area.

Public works funds may be used only to supplement EDA regular program grant recipients by contributing up to 50 percent of a matching share requirement, either as a grant or loan. The maximum public works grant/loan amount is \$350,000. This method of financing is also considered an unlikely source of funds.

General Obligation Bonds:

Historically, general obligation bonds have been a prevalent method of financing various types of public works improvements. They are secured by a city's total assets and payable from ad valorem taxes levied on all taxable properties within the city's boundaries. However, because of the provision in the Jarvis-Gann Amendment, which prohibits the levying of ad valorem property taxes, except for bonds approved by the voters prior to July

1, 1978, the authorization and issuance of general obligation bonds is not presently considered feasible under current law.

Improvement Districts:

In general, special assessment district procedures are established by law to provide for financing of construction and/or acquisition of public works improvements, such as sewer systems, and for assessing the cost of such improvements to the benefiting properties; or, simply stated, it is a means of financing public improvements. Under all assessment proceedings, the cost of the work is assessed against properties within the benefited area. The assessments are levied in specific amounts against each of the individual properties on the basis of the benefit each parcel receives. The property owner may pay the assessment in cash during a so-called cash collection period of 30 days. But, if any assessments are not paid in cash during that period, bonds are usually issued to represent the unpaid assessments and the benefited properties are assessed on their annual property tax bill over a usual period of 10 to 20 years.

The commonly used assessment acts are the 1911 and 1913 Acts. The common bond acts are the 1911 and 1915 Acts. These assessment and bond acts are used in varying combinations depending on the particular circumstances for each proposed improvement district.

While an assessment district proceeding may be a reasonable means for financing certain sewer system improvements, further study and evaluation will be necessary to determine the practicality of utilizing such a financing method.

Pay-as-You-Go Financing:

The development of cash reserves or capital improvement funds from a city's general fund is often referred to as "pay-as-you-go" funding. Under this form of financing, the initial capital cost of a project must be accumulated in advance of construction. This method has sometimes been used together with various forms of short-term financing to construct sewer facilities. This method of financing is considered the likely source of funds.

Financing Conclusions and Recommendations

The City has requested a Five-year Improvement Program be presented for funding the improvement projects. A total of \$5,571,831 is needed in 2002 dollars to finance the proposed improvements projects.

The following 5-year budget plan is proposed:

First Year	\$1,211,267 (Line 1, 2)
Second Year	\$1,149,377 (Line 3)
Third Year	\$1,366,220 (Line 6, 5)
Fourth Year	\$1,035,214 (Line 10, 13)
Fifth Year	\$809,744 (Line 9, 11, 14, 12, 4, 7, 8)

APPENDIX A
Engineer's Estimate

CITY OF COVINA

SANITARY SEWER IMPROVEMENTS PRELIMINARY ENGINEER'S ESTIMATE		Date:	1/14/2002		
PROJECT: SEWER SYSTEM MASTER PLAN		Prepared by:	KRK		
		Checked by:	D.H.		
ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST
AREA 1 DOWNTOWN					
1	10" VCP SEWER MAIN	3,398	LF	\$ 70	\$ 237,860
2	12" VCP SEWER MAIN	4,247	LF	\$ 75	\$ 318,525
3	15" VCP SEWER MAIN	2,269	LF	\$ 80	\$ 181,520
4	18" VCP SEWER MAIN	698	LF	\$ 85	\$ 59,330
5	MANHOLE	40	EA	\$ 2,500	\$ 100,000
SUBTOTAL CONSTRUCTION:					\$ 897,235
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 314,032
AREA TOTAL:					\$ 1,211,267
AREA 2					
1	10" VCP SEWER MAIN	2,230	LF	\$ 70	\$ 156,100
2	12" VCP SEWER MAIN	1,745	LF	\$ 75	\$ 130,875
3	15" VCP SEWER MAIN	706	LF	\$ 80	\$ 56,480
4	MANHOLE	19	EA	\$ 2,500	\$ 47,500
SUBTOTAL CONSTRUCTION:					\$ 390,955
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 136,834
AREA TOTAL:					\$ 527,789
AREA 3					
1	10" VCP SEWER MAIN	4,416	LF	\$ 70	\$ 309,120
2	12" VCP SEWER MAIN	1,150	LF	\$ 75	\$ 86,250
3	15" VCP SEWER MAIN	4,891	LF	\$ 80	\$ 391,280
4	MANHOLE	46	EA	\$ 2,500	\$ 115,000
SUBTOTAL CONSTRUCTION:					\$ 901,650
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 315,578
AREA TOTAL:					\$ 1,217,228
AREA 13					
1	10" VCP SEWER MAIN	284	LF	\$ 70	\$ 19,880
2	MANHOLE	3	EA	\$ 2,500	\$ 7,500
SUBTOTAL CONSTRUCTION:					\$ 27,380
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 9,583
AREA TOTAL:					\$ 36,963
AREA 15					
1	12" VCP SEWER MAIN	278	LF	\$ 75	\$ 20,850
2	MANHOLE	2	EA	\$ 2,500	\$ 5,000
SUBTOTAL CONSTRUCTION:					\$ 25,850
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 9,048
AREA TOTAL:					\$ 34,898
AREA 24					
1	10" VCP SEWER MAIN	1,362	LF	\$ 70	\$ 95,340
2	MANHOLE	6	EA	\$ 2,500	\$ 15,000
SUBTOTAL CONSTRUCTION:					\$ 110,340
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 38,619
AREA TOTAL:					\$ 148,959
AREA 36					
1	12" VCP SEWER MAIN	1,120	LF	\$ 75	\$ 84,000
2	MANHOLE	7	EA	\$ 2,500	\$ 17,500
SUBTOTAL CONSTRUCTION:					\$ 101,500
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 35,525
AREA TOTAL:					\$ 137,025
AREA 38					

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST
1	10" VCP SEWER MAIN	682	LF	\$ 70	\$ 47,740
2	12" VCP SEWER MAIN	1,332	LF	\$ 75	\$ 99,900
3	MANHOLE	11	EA	\$ 2,500	\$ 27,500
SUBTOTAL CONSTRUCTION:					\$ 175,140
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 61,299
AREA TOTAL:					\$ 236,439
AREA 57					
1	10" VCP SEWER MAIN	1,312	LF	\$ 70	\$ 91,840
2	MANHOLE	7	EA	\$ 2,500	\$ 17,500
SUBTOTAL CONSTRUCTION:					\$ 109,340
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 38,269
AREA TOTAL:					\$ 147,609
AREA 63					
1	10" VCP SEWER MAIN	2,597	LF	\$ 70	\$ 181,790
2	12" VCP SEWER MAIN	4,630	LF	\$ 75	\$ 347,250
3	MANHOLE	32	EA	\$ 2,500	\$ 80,000
SUBTOTAL CONSTRUCTION:					\$ 609,040
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 213,164
AREA TOTAL:					\$ 822,204
AREA 70					
1	12" VCP SEWER MAIN	4,773	LF	\$ 75	\$ 357,975
2	MANHOLE	18	EA	\$ 2,500	\$ 45,000
SUBTOTAL CONSTRUCTION:					\$ 402,975
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 141,041
AREA TOTAL:					\$ 544,016
AREA 75					
1	10" VCP SEWER MAIN	4,691	LF	\$ 70	\$ 328,370
2	MANHOLE	19	EA	\$ 2,500	\$ 47,500
SUBTOTAL CONSTRUCTION:					\$ 375,870
ENGINEERING, CONTRACT ADMIN, INSPECTION, SURVEY, AND CONTINGENCY:					\$ 131,555
AREA TOTAL:					\$ 507,425
TOTAL:					\$ 5,571,821

Since the design professional has no control over the cost of labor, materials, equipment, or over the contractor's method of determining prices, or over competitive bidding or market conditions, his opinions of probable construction costs provided herein are to be made on the basis of his experience and qualifications. These costs opinions represent his best judgment as a design professional familiar with the construction industry. However, the design professional cannot and does not guarantee that proposals, bids, or the construction costs will not vary from opinions of probable cost prepared by him.

APPENDIX B

Exhibits

POLICIES FOR MANAGING AVAILABLE SEWER CAPACITY

INTRODUCTION

In 2008 the City serves the wastewater disposal needs of approximately 49,400 people. The community sewers receive and convey approximately 7.3 mgd (million gallons per day) of wastewater to regional CSD trunk sewers and wastewater treatment plants and some is also delivered through the adjacent City of West Covina sewer system.

The purpose of this document is to describe the policies and practices followed by the City in tracking and determining the remaining available capacity within its sanitary sewer system. Tracking (monitoring) is necessary because of the significant lead time required for accomplishing such improvements as sewer rehabilitation or facility expansion without overloading sewage facilities. The objective is to enable the City to:

- Become more aware of how the sewer facilities are performing in order to take steps necessary to avoid (prevent) a SSO or nuisance problem due to operations.
- Provide all local decision makers with information needed to make informed decisions about the capacity of the wastewater system and its ability to accommodate new or increased connections.
- Make commitments for new or upsized connections with confidence that there is adequate capacity to serve additional demand as well as existing customers.
- Determine when the issuance of additional building/connection permits must be curtailed until sewer facility improvements are completed so that facilities are maintained in compliance with discharge permit criteria.
- Have more lead time to plan and arrange financing for needed sewer system upgrades.

LEGAL MANDATE TO MANAGE WASTEWATER ALLOCATIONS

Local sewerage entities have a crucial role in providing safe and adequate wastewater systems and high quality operational performance. These local entities face many challenges to maintain and operate their systems in compliance with Federal and State laws and regulations. Cost continues to increase to keep these increasingly complex facilities operating properly, and the ability to raise rates to keep pace with costs is also regulated and challenging.

Perhaps most challenging is the need to manage the allocation of flow for new or expanding customer discharges in conformance with local land use, water and sewage plans, and the

NPDES and local permit limits. The agency responsible for issuing building/development approvals and permits must ensure adequate capacity is or will be reasonably available without impairing water quality or threatening public health and safety.

ACTIONS TO BE TAKEN TO MANAGE AVAILABLE SEWER CAPACITY

Sewering entities are expected to manage their wastewater collection system capacities responsibly and to ensure the systems function within design capacity. In order to accomplish these expectations, it is necessary to implement a planning and engineering tool used to monitor the relationship between sewer facility capacity and population/economic growth while complying with statutes and regulations relative to discharges. Such tool could be a Municipal Sewage Capacity Plan/Report (MSCP/R).

A MSCP/R would contain information on sewage system capacity including demand created by both existing and proposed development. To ensure accuracy of such report will require the City to: monitor flows, track existing capacity utilization, evaluate the need for additional capacity, identify deficiencies, take proactive corrective steps to maintain system capacity, and to undertake orderly and timely funding and planning of projects to maintain or improve the system capacity. These actions for a successful monitoring and reporting tool will be accomplished through the application of the following policies:

1. Develop a perpetual 10-year capital improvement program that:
 - a. Includes pro-active sanitary sewer system improvements to correct and prevent system failures and overflows,
 - b. Provides sewer capacity in a timely manner to accommodate system expansion, redevelopment and rehabilitation,
 - c. Incorporates monitoring, inspecting and demand findings compiled during routine operation and management of the system,
 - d. Maintains level of service standards that are desired and acceptable to the community and regulators,
 - e. Addresses current and reasonably anticipated regulatory requirements.
2. Actively manage the sanitary sewer conveyance system through a data collection and analysis process that determines wastewater usage by development type, projects future demand, and identifies inflow/infiltration deficiencies.
3. Issue development approvals based upon available capacity of the sanitary sewer system.

4. Implement work process and data management systems improvements for sewer service management, operation, and maintenance that comply with WDR regulations and result in more effective and efficient sewer service.
5. Abate storm water inflow and groundwater infiltration to maintain capacity for sewer service and minimize service costs.
6. Expand the production and annual average use of recycled water to reduce the cost and environmental risk of effluent disposal and reduce reliance upon potable water sources.
7. Implement a complete asset management program for sustaining the sewer infrastructure through optimized service levels, managed risks, and minimized life-cycle costs of asset ownership.
8. Develop and distribute program information (documents) that defines and communicates policies, procedures, responsibilities and performance measures for work process improvements and encourages all system users to respect and comply with the community wastewater collection system program.

City of Covina

SEWER MAINTENANCE ACTIVITY REPORT
Work Completed: January 1, 20xx to December 31, 20xx

Number of parcels added/annexed to system during 20xx - XX

Total length of pipe in system as of December 31, 20xx - XXX,XXX L.F.

Total number of manholes in system as of December 31, 20xx - XXX

Total number of pump stations in system as of December 31, 20xx - XX

Total number of siphons in system as of December 31, 20xx - XX

PREVENTATIVE MAINTENANCE ACTIVITIES

Sewer Pipe

- Hydro cleaned xx,xxx l.f. of pipe
- Mechanically rodded x,xxx l.f. of pipe
- CCTV inspected and recorded xx,xxx l.f. of pipe
- Chemically treated (root control) x,xxx l.f. of pipe
- Repaved xxx l.f of pipe trench due to subsidence

Manholes

- Inspected xxx manholes
- Adjusted xx manhole frames and lids

Pump Stations

- Performed xxx inspections of pump stations
- Performed xx equipment repairs/overhauls
- Responded to xx alarma/service requests

Siphons

- Performed xxx inspections of siphons
- Mechanically or hydro cleaned xx siphons, of which xx were two or more times

SERVICE REQUEST RESPONSES

- xx Blockages / Stoppages
- xx Overflows
- xx Floodouts
- xx Rodent/Insect complaints
- xx Odor complaints
- xx Others (record type)
- False alarms

CONSTRUCTION ACTIVITY

- Installed x,xxx l.f. of pipe lining material
- Removed and replaced xxx l.f. of pipe
- Service saddles / connections installed = xx

City of Covina
Sanitary Sewer Management Program
Performance Measure Indicators

Overflow Prevention / Collection System Maintenance							
Performance Indicator	2006 - 2007 Actual	2007 - 2008 Actual	2008 - 2009 Estimated	2009 - 2010 Projected	2010 - 2011 Projected		
INPUT							
Total SSO response time (receipt of notification to site arrival)							
Total person-hours spent in responding to and alleviating SSO's							
Total miles of SS in the system							
Total number of gravity sewer system maintenance personnel							
Total number of pumping plant maintenance personnel							
Total number of scheduled manhole inspections							
WORKLOAD / OUTPUT							
Total number of SSO's responded to in 12-month period							
Number of SSO's > 1,000 gallons responded to							
Number of SSO's responded to within 30-minutes of less							
Total miles of sewer line maintained							
Total number of pump stations maintained							
Total number of manhole inspections completed							
Total FOG related SSO's cleared							
Total root related SSO's cleared							
Total SSO's due to other causes (debris, vandalism,etc.)							
Total number of capacity related SSO's							
Total number of SSO's due to pump station malfunction							
Total number of stoppages							
Miles of sewer on monthly check-n-clean							
Miles of sewer on quarterly check-n-clean							
EFFICIENCY							
Number of SSO's per 100 miles of sewer line							
Number of stoppages per 100 miles of sewer line							
Number of SSO's that reached "Waters of the United States"							
Number of pump stations with one or more malfunctions							
Number of pump stations per electro-mechanic crew							
Average response time per SSO							

City of Covina
Sanitary Sewer Management Program
Performance Measure Indicators

Performance Indicator	2006 - 2007 Actual	2007 - 2008 Actual	2008 - 2008 Estimated	2009 - 2010 Projected	2010 - 2011 Projected
Percent decrease in length of sewer line on quarterly of less schedule					
EFFECTIVENESS / OUTCOME					
Percentage of SSO's > 1,000 gallons					
Percentage of SSO's due to FOG					
Percentage of SSO's due to roots					
Percentage of SSO's due to other causes					
Percentage of SSO's that reached "Waters of the United States"					
Percentage of sewer on quarterly of less frequent schedules					
Percentage of pump stations with one or more malfunctions resulting in an SSO					
Percentage of SSO's with response time less than 30-minutes					
Percentage of stoppages not resulting in SSO					
<u>OBJECTIVE: To establish baseline performance measures for effective operations and maintenance of the community sewer system</u>					
<u>EXPLANATORY NOTES:</u>					

City of Covina
SSO Bar Charts and Graphs
Covers the period from January 1, 20xx to December 31, 20xx

To complete this appendix, compile from all reported/recorded SSO's the dates, locations, and volumes of overflows that occurred in Covina over the past five years