

CITY OF CARLSBAD



SEWER SYSTEM MANAGEMENT PLAN (SSMP)

IN COMPLIANCE WITH
STATEWIDE GENERAL WASTE DISCHARGE
REQUIREMENTS FOR
SEWER SYSTEMS

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- Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 5 - Standard Drawings
- City of Carlsbad, Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 6 - Construction Specifications which includes Technical Provisions of the City of Carlsbad's Standard Specifications and Standard Drawings for Water and Sewer Facilities

SEWER SYSTEM MANAGEMENT PLAN

IN COMPLIANCE WITH STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS
FOR SEWER SYSTEMS

ABBREVIATIONS & ACRONYMS

BMP	Best Management Practice
CIP	Capital Improvement Program
CMMS	Computerized Maintenance Management System
CMOM	Capacity, Management, Operations and Maintenance
CWEA	California Water Environment Association
EDU	Equivalent Dwelling Unit
EWA	Encina Wastewater Authority
FOG	Fats, Oils, Grease
GIS	Geographical Information System
I/I	Inflow/Infiltration
MRP	Monitoring and Reporting Plan
NPDES	National Pollution Discharge Elimination System
OERP	Overflow Emergency Response Plan
PM	Preventative Maintenance
PVC	Polyvinyl Chloride Pipe
VCP	Vitrified Clay Pipe
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow / Sewer Overflow
SWRCB	State of California Water Resources Control Board
WDR	Waste Discharge Requirements

INTRODUCTION

On May 2, 2006, the State Water Resources Control Board adopted Statewide General Waste Discharge Requirements for Sewer Systems. The intent of the Order is to regulate all collections systems in the State in an effort to reduce or eliminate the number of Sewer Overflows (SSOs) which, by their nature, pollute the environment. The Order is applicable for all publicly owned sewage collection systems with more than one mile of sewer pipe. The City of Carlsbad has more than 1 mile of sewer pipe and therefore, is subject to this Order.

In response to the 2006 WDR Order, the City of Carlsbad submitted an application for permit coverage with the State Water Resources Control Board and was issued Agency WDID # 9SSO11209. The City of Carlsbad is required to comply with all conditions of the Order, and is subject to enforcement action for any noncompliance therewith.

Order No. 2006-003-DWQ prohibits any SSO that results in a discharge of untreated or partially treated wastewater to waters of the United States or that results in a discharge of untreated or partially treated wastewater that creates a nuisance as defined in California Water Code Section 13050(m).

The California Water Code provides various enforcement options, including civil monetary remedies, for violations of Order No. 2006-0003-DWQ.

A sewer overflow (SSO) is any overflow, spill, release, discharge or diversion of wastewater from a sewer system. SSOs include:

- overflows or releases of wastewater that reach waters of the United States;
- overflows or releases of wastewater that do not reach waters of the United States; and
- wastewater backups into buildings and on private property that are caused by blockages or flow conditions in a sewer, other than a building lateral. Wastewater backups into buildings caused by a blockage or other malfunction of a building lateral that is privately owned is a SSO when sewage is discharged off a private property into streets, stormdrains, or waters of the State.

The Order requires the following:

1. In the event of a SSO, all feasible steps shall be taken to contain and mitigate the impacts of a SSO. This includes taking 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.
2. If a SSO does occur, it must be reported to the SWRCB using an online reporting system developed by the SWRCB and within the timelines prescribed in the Order. This reporting system is referred to as CIWQS – the California Integrated Water Quality System.
3. A Sewer System Management Plan (SSMP) must be developed and address specific milestones. The milestones in the Order are:
 - a. SSMP Development Plan and Schedule
 - b. Goals and Organizational Structure

- c. Overflow Emergency Response Program
 - d. Legal Authority
 - e. Wastewater Program
 - f. Grease Control Program
 - g. Design and Performance Provisions
 - h. System Evaluation and Capacity Assurance Plan
 - i. Monitoring, Measurement, and Program Modifications
 - j. SSMP Program Audits
 - k. Communication Program
 - l. Final SSMP, incorporating all of the SSMP requirements
4. The SSMP and the City's program to implement the SSMP must be certified by the City and must be presented to the City Council for approval at a public meeting. The City also is required to certify that the milestones have been completed within the time frames identified in the Order.

In order to complete the certification, the City's authorized representative must complete the certification portion in the Online SSO Database Questionnaire by checking the appropriate milestone box and submitting the form electronically to the State Water Resources Control Board. This is the California Integrated Water Quality System (CIWQS) survey that is updated annually.

The two year City of Carlsbad internal audit was conducted on July 11, 2011, by a representative of the Construction Management & Inspection Department, acting as a third party to insure that the system was not flawed or swayed by an internal source from the Wastewater Team.

The SSMP must be updated every five (5) years and must include significant program changes, if any. Re-certification by the City Council is required when significant updates to the SSMP are made. To complete the re-certification process, the City must enter the data in the Online SSO Database and mail the form to the State Water Resources Control Board.

SSMP DEVELOPMENT PLAN AND SCHEDULE

The City of Carlsbad's Development Plan and Schedule addresses those mandatory SSMP provisions outlined in the Order. These milestones for the City of Carlsbad were completed as listed below and certified by the LRO on the dates indicated in parentheses:

- a. SSMP Development Plan and Schedule (May 2, 2007)
- b. Goals and Organizational Structure (May 2, 2007)
- c. Overflow Emergency Response Program (November 2, 2008)

- d. Legal Authority (November 2, 2008)
- e. Wastewater Program (November 2, 2008)
- f. Grease Control Program (November 2, 2008)
- g. Design and Performance Provisions (August 2, 2009)
- h. System Evaluation and Capacity Assurance Plan (August 2, 2009)
- i. Monitoring, Measurement, and Program Modifications (August 2, 2009)
- j. SSMP Program Audits (August 2, 2009)
- k. Communication Program (August 2, 2009)
- l. Final SSMP, incorporating all of the SSMP requirements (August 2, 2009)

A more detailed Development Plan and Schedule can be found in the Appendix. Details on each of the milestones follow in the subsequent sections of this Sewer System Management Plan.

GOALS

The City of Carlsbad's Goals addresses those mandatory SSMP provisions outlined in Section D, 13 (i) Goals and (ii) Organization of SWRCB Order No. 2006-0003.

The goal of this SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the City of Carlsbad's sewer system. The SSMP must also prevent and minimize sewer overflows and mitigate SSOs that do occur. Specific goals are as follows:

- To clean all gravity mains (12" and smaller) within the City's wastewater collection system on a three year rotation.
- To clean all gravity mains (larger than 12") every 5 years.
- To perform routine sewer lift station checks 3 days/week for larger stations (>50,000 gallons) and 2 days/week for smaller stations (<50,000 gallons), and preventive maintenance according to manufacturer's standards.
- To perform routine closed circuit televising inspections of the gravity sewer system on a 3-5 year cycle.
- To respond to service requests in an orderly and timely fashion.
- To perform sewer mark outs as received by Dig-Alert within 2 business days for routine markouts and immediately for emergency markouts.
- To maintain easements to assure access for maintenance activities.
- To maintain an ongoing inventory of routine maintenance parts and critical parts. Located on SSMP Shelf.
- To maintain records of the Division's activities.
- To provide updated information for sewer mapping.
- To maintain a Computerized Maintenance Management System for improved information sharing and operations.

- To complete routine reports of the Division’s activities.
- To maintain an updated emergency contact list to include employees, emergency outside assistance and vendors.
- To provide training to assure a safe work environment and safe work practices.
- To provide timely repairs to known structural deficiencies.
- To provide adequate capacity to convey peak flows.

ORGANIZATION

The organization structure identifies the name of the responsible or authorized representative of the City, as described in Section J of SWRCB Order No. 2006-0003. It identifies the administrative and maintenance positions responsible for implementing specific measures in the SSMP with up-to-date descriptions, responsibilities of personnel, and authority for each position. The organization structure includes a chain of communication for reporting SSOs and lines of authority with contact information.

The City of Carlsbad’s Organizational Structure encompasses the following components:

- (1) The name of the responsible or authorized representative as described in Section J of SWRCB Order No. 2006-0003.
- (2) 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 narrative explanation; and
- (3) 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 the State Office of Emergency Services).

COMPLIANCE SUMMARY

As shown in the Appendix, the City of Carlsbad maintains an organizational chart which illustrates the lines of authority and employee titles. Additionally, the City of Carlsbad provides sufficient staffing information to properly manage, operate, and maintain all parts of the city’s sewer system. *The City of Carlsbad Overflow Emergency Response Plan* describes the chain of communication for reporting and responding to SSOs.

In summary, the City of Carlsbad’s Utilities Wastewater Division maintains an Organizational Structure which meets the requirements of Section D (ii) Organization of SWRCB Order No. 2006-0003.

- (1) Section 9 (Regulatory Notification & Reporting) of the Overflow Emergency Response Plan identifies the Utilities Director or the Utilities Wastewater Superintendent as the responsible or authorized representatives of the City, as described in Section J of SWRCB Order No. 2006-0003.
- (2) The City of Carlsbad maintains an organizational chart with the titles for all management, administrative, and maintenance positions. The chart clearly identifies the lines of authority for these positions. A separate, confidential listing is maintained in the original document on file in the Utilities Wastewater Administrative Offices with names, titles and contact information and is found in the Sewer Overflow Emergency Response Plan Appendix.
- (3) The City of Carlsbad's Sewer Overflow Plan describes the chain of communication for reporting and responding to SSOs, with Section 9 identifying the persons responsible for reporting SSOs to the State and Regional Water Board, as well as other applicable agencies.

COMPLIANCE DOCUMENTS

The following documents allow the City to comply with the goals and organizational structure requirements of the WDR, and are attached as appendices.

- *City of Carlsbad Utilities Organizational Chart.*
- *The City of Carlsbad's Sewer Overflow Emergency Response Plan*

The Utilities organizational chart represents those individuals tasked with implementing, managing and updating the SSMP. A summary for key positions, including the personnel responsible for responding to and reporting SSOs, is presented below.

- City Manager - responsible for establishing and communicating high level policy relating to the outcomes of the SSMP.
- Public Works Director – work as liaison between Carlsbad senior management and Utilities.
- Utilities Director - responsible for establishing and communicating high level policy relating to the outcomes of the SSMP.
- Utilities Manager -responsible for the development and implementation of the SSMP as well as planning, organizing and directing the activities of the work units through the Superintendents and Supervisors.

- Supervisors – Notifies the Sanitation System Operator I-III, Utility Worker I-III or Wastewater Duty Operator when alerted to a potential SSO. During working hours, oversees reporting and notification of SSOs, manages field operations and maintenance activities, provides relevant information to agency management, prepares and implements contingency plans, leads emergency response, investigates and reports SSO, and trains field crews.
- Sanitation System Operator I-III and Utility Worker I-III (may also be the Wastewater Duty Operator) - responsible for the day-to-day work activities to clean and maintain the collections system. If after hours, notifies the Supervisor and Superintendent when alerted to a potential SSO.
- Management Analyst – has an understanding of the City's services, policies and procedures, and in multiple areas of federal, state and local laws, codes and regulations affecting multiple, complex areas. Knowledge of principles of organization, administration, budgeting and human resources management.

During an emergency incident such as a major spill, force main rupture or pump station failure, the National Incident Management System structure will be instituted comprising the five major functional areas of command, operations, planning, logistics, and finance/administration as outlines in the Spill Response Plan.

California Water Resources Control Board (RWQB), Region 9 requires notification of all sewer overflows (SSOs) regardless of quantity or ownership. All SSOs must be reported through the California Integrated Water Quality System (CIWQS) online database. Spills are categorized into two areas: Category 1 and Category 2 spill types.

Category 1 Spills

A Category 1 spill is any spill:

- that results in a discharge to a drainage channel
- that discharges to surface water or discharges to a storm drainpipe that was not fully captured and returned to the sewer system.
- of 1000 gallons or more.

Spills that result in a discharge to a drainage channel and/or surface water require notification as soon as possible, but not later than two (2) hours after becoming aware of the discharge. Notifications shall be made to:

- The California Emergency Management Agency (Cal EMA, was OES) (1-800-852-7550 and through the CIWQS); and
- The local Health Officer or Directors of Environmental Health with jurisdiction over affected water bodies – San Diego County Environmental Health (Ewan Moffitt, 1-619-338-2386, cell 1-619-253-4983 and through the CIWQS); and
- The Regional Water Quality Control Board (Eric Becker, 1-858-467-2952 and Mark Alpert, 858-336-2313 or through the CIWQS)

A draft report through the California Integrated Water Quality System (CIWQS) online is required as soon as possible but no later than twenty-four (24) hours after becoming aware of the discharge to a drainage channel or surface water, and a copy faxed to County of San Diego Environmental Health. If the online system is not available, the report can be e-mailed to: rb9sso@waterboards.ca.gov or sent by fax to 858-571-6972.

Spills of 1000 gallons or more must be reported as soon as the City has knowledge of the discharge, reporting is possible and reporting can be provided without substantially impeding cleanup or other emergency measures.

Category 2 Spills

Category 2 spills include all other discharges of sewage resulting from a failure in the City of Carlsbad's sewer system.

Category 2 spills must be reported through CIWQS within 30 days after the end of the calendar month in which the SSO occurs. Full documentation of all responses shall be maintained for a minimum of one year. Any month without spills will be certified as a no spill month.

Any SSO that affects any surface water requires an immediate call to the California Department of Health Services. This notification is done through The California Emergency Management Agency (Cal EMA, was OES).

Private Lateral Spills

All private lateral sewage discharges will be reported through the CIWQS database. The online report must identify the sewage discharge as occurring and caused by a private lateral. The responsible private party should also be identified, if known.

LEGAL AUTHORITY

The City's Legal Authority addresses those mandatory SSMP provisions outlined in Section D, 13(iii) Legal Authority of SWRCB Order No. 2006-0003. The City's Legal Authority is documented through sewer system use ordinances, service agreements, and other legally binding procedures to ensure it has the necessary legal authority to meet the provisions of Section D, 13 (iii) (a-e) as exhibited below.

(a) The City prevents illicit discharges into its sewer system (examples may include I/I, stormwater, chemical dumping, unauthorized debris and cut roots, etc.) through the *City of Carlsbad, Municipal Code, Chapter 13 (Sewers) and the Encina Wastewater Authority Pretreatment Ordinance*.

(b) The City requires that sewers and connections be properly designed and constructed through the *City of Carlsbad, Volume 1, Chapter 6 – Design Criteria for Gravity Sewer Lines and Appurtenances (6/30/2008)*.

(c) The City ensures responsibility and access for maintenance, inspection, or repairs of all public sewer mains dedicated to and accepted by the city through the *City of Carlsbad, Municipal Code, and Chapter 13.04.045*.

(d) The City limits the discharge of fats, oils, and grease and other debris that may cause blockages through the *City of Carlsbad, Municipal Code, Chapter 13.06 (Discharge of Fats, Oils and Grease)*.

(e) The City enforces any violation of its sewer ordinances through the *City of Carlsbad, Municipal Code, Chapter 13 Sewers, Section 13.14.080 Violations of chapter, and Chapter 1.10 Administrative Code Enforcement Remedies and through the Encina Wastewater Authority Enforcement Response Plan, Chapter 2.0 General, Sections 2.7 and 2.13*.

DOCUMENT DESCRIPTIONS

Each of the following documents are contained in the Appendix and provide a portion of the City's Legal Authority, as required in Section D, 13 (iii) Legal Authority of SWRCB Order No. 2006-0003.

City of Carlsbad, Municipal Code, Chapter 13 (Sewers)

This Municipal Code sets conditions and limitations on the use of the City's sewer system and outlines provisions for enforcement for noncompliance with the City's Municipal Code. The provisions of the Municipal Code apply to sewer construction, use, maintenance, discharge, deposit, or disposal of wastewater into and through the City's collection systems and the issuance of fees, fines and penalties thereof. This Chapter of

the Municipal Code applies to all users of the City's sewer system and specifies herein that all users of the City's sewer system are subject to regulation and enforcement.

Encina Wastewater Authority Pretreatment Ordinance.

The EWA Pretreatment Ordinance, adopted by the Encina Wastewater Authority Board of Directors, sets forth uniform requirements for Discharges into the Encina Sewerage System and enable the Encina Wastewater Authority ("EWA") to comply with all applicable State and federal laws, including the Clean Water Act, 33 U.S.C. Section 1251 *et seq.*, as amended, and regulations promulgated thereunder. The primary objectives of the Ordinance are:

1. To prevent the introduction of Pollutants from industries into the Carlsbad Sewerage System which would interfere with the operation of the components of the Encina sewerage system treatment processes or contaminate the resulting Biosolids;
2. To prevent the introduction of Pollutants into the Encina Sewerage System which would pass-through into receiving waters or the atmosphere;
3. To protect and preserve the well-being of the community, EWA and Member Agency personnel;
4. To promote and protect the ability to reuse, recycle and reclaim Wastewater, Biosolids and Wastewater byproducts; and
5. To provide for collection of the cost of the EWA Pretreatment Program incurred for the regulation of users of the Encina Sewerage System.

The Ordinance provides for the regulation of Discharge to the Encina Sewerage System through the issuance of Discharge Permits to certain non-Domestic Users and through enforcement of general requirements for other non-Domestic Users; authorizes monitoring and enforcement activities; requires User reporting; and provides for the setting of fees, fines, costs and deposits.

The Ordinance shall apply to EWA, the Member Agencies and to Persons outside the Member Agencies who are, by contract or agreement with the Member Agency, Users of the Encina Sewerage System.

Encina Wastewater Authority Enforcement Response Plan.

The Encina Wastewater Authority's (EWA) Enforcement Response Plan (ERP) has been developed pursuant to the requirements set forth in 40 CFR 403.58(f)(5) and in accordance with EWA's Pretreatment Ordinance, as amended from time to time. The ERP is intended to support EWA's responsibility to enforce all applicable pretreatment requirements in a consistent, fair, and timely manner for all Users. Included in the plan

are: the procedures utilized for identifying violations; the types of escalating enforcement mechanisms available to EWA; the staff members responsible for initiating each level of enforcement; and guidance in the application of those measures relative to the nature and severity of the violation cited. Maximum monetary fines are recommended at each enforcement level that are intended to recover the cost of enforcement, as well as address the economic benefit derived from the act (s) constituting the violation(s).

City of Carlsbad, Volume 1, Chapter 6 – Design Criteria for Gravity Sewer Lines and Appurtenances (6/30/2008).

The City has a comprehensive set of standards and design criteria to ensure quality and uniformity of the public improvements constructed in Carlsbad. All public improvements constructed within the City are required to comply with these City Standards. The Standards contained within Volume 1, Chapter 6 address the design criteria for gravity sewer lines and appurtenances.

UTILITIES WASTEWATER PROGRAM

The City of Carlsbad's Utilities Wastewater Program addresses those mandatory SSMP provisions outlined in Section D, 13 (iv) Operation and Maintenance Program of SWRCB Order No. 2006-0003.

The City of Carlsbad's Utilities Wastewater Program encompasses the following components:

1. An up-to-date map of the sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable storm water conveyance facilities.
2. Routine preventive operation and maintenance activities by staff, including a system for scheduling regular maintenance and cleaning of the sewer system with more frequent cleaning and maintenance targeted at known high priority areas. The Preventative Maintenance (PM) program includes a system to document scheduled and conducted activities, such as work orders.
3. 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 will include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Crews tasked with daily cleaning activities will also perform visual inspections of each manhole in their perspective work area and document deficiencies. Rehabilitation and replacement focuses 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 includes a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan includes a time schedule for implementing the short and long-term plans. The Wastewater Team will be coordinating this work with the Utilities Asset Manager.

4. The City of Carlsbad staff performs sewer lift station checks three days per week for larger lift stations (>50,000) and two days per week for smaller lift stations (<50,000) visually, physically or by using the existing SCADA System. The visual inspections include a survey of the station area, log hours and/or flow meter reads. The physical inspections include check and hand operates pumps, check alarms, ventilation, and odor chemicals and scrubbers.
5. Training on a regular basis for staff in sewer system operations and maintenance and operational safety as required.
6. Equipment and replacement part inventories, including identification of critical replacement parts.

COMPLIANCE SUMMARY

The City of Carlsbad routinely cleans its entire gravity mains 12" and smaller on a three year rotation. The City of Carlsbad cleans high priority area gravity mains quarterly or semi-annually and all wet wells on an as needed basis. The City of Carlsbad's Utilities Wastewater Program includes an up-to-date map of the sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, as well as a map of all gravity main problem areas.

The City of Carlsbad maintains a log of all cleaning activities by its 40 cleaning zones in its work management system. The current work management system interfaces with the GIS attributes and details the size, material and location of each pipe cleaned, as well as the equipment utilized, and any relevant remarks observed during the cleaning. The City of Carlsbad system maps also contains pertinent storm system information to help expedite environmental protection in the event of a sewer overflow. The City of Carlsbad utilizes Hansen 8 software for preventative maintenance and work orders.

The City of Carlsbad began a system-wide video inspection of the gravity main sewer system in 2008. Additionally, the City of Carlsbad field staff observes and inspects all gravity mains and manholes during routine cleaning, and TV crew may conduct localized video inspections when the cleaning crews' observations warrant such further investigation. The City maintains a log of this continued video inspection in a Video Inspection Report Log. Issues found during localized televising are evaluated and solutions developed on a case-by-case basis. The City of Carlsbad's Capital Improvement Program uses replacement funding, which is set aside annually, to fund

Capital Improvement and Replacement Programs.

The City of Carlsbad staff currently participates in the California Water Environment Association (CWEA) certification program for Collection System Maintenance and for Mechanical Technologist. The City provides on-going in house technical, job skills and safety training for its staff and participates in local and regional training events. The City of Carlsbad has been and continues to conduct training of Waste Discharge Requirements (WDR) awareness including an SSO Response Training, internal training programs for sewer line cleaning, combination truck operations, sewer grit removal and dumping, station valve repair and pump replacement operations and maintenance, and other related tasks.

The City of Carlsbad maintains a rental pump plan for each sewer lift station and maintains a portable generator for its sewer lift stations that do not have fixed emergency generators.

In summary, the City of Carlsbad maintains a Utilities Wastewater Program which meets the requirements of Section D, 13 (iv) Operation and Maintenance Program of SWRCB Order No. 2006-0003.

COMPLIANCE DOCUMENTS

The following documents, attached as appendices, support the City of Carlsbad's Utilities Wastewater Program, thereby allowing the City of Carlsbad to comply with the Operation and Maintenance Program requirements of the WDR:

A Map of the City of Carlsbad's sewer system, including all gravity line segments and manholes, pumping facilities, pressure pipes and valves.

A Map of the City of Carlsbad's high priority area gravity mains.

A sample of the City of Carlsbad's Sewer Cleaning Report.

A sample of the City of Carlsbad's Video Inspection Log.

Engineering Standards, Volume 1 –Chapter 2, GIS Mapping

A sample of the City of Carlsbad's Annual Capital Replacement Program.

The City of Carlsbad's Long-Range Capital Financing Plan.

DOCUMENT DESCRIPTIONS

Each of the following documents are contained in the Appendix and provide a portion of the City's Operations & Maintenance Provisions, as required in Section D, 13 (iv)

Operation and Maintenance Program of SWRCB Order No. 2006-0003. A description for each compliance document listed above is described below:

Map of Existing Wastewater Facilities

The City of Carlsbad maintains an up-to-date Geographic Information System (GIS) database of its sewer system, including all gravity line segments and manholes, pumping facilities, pressure pipes and valves. This database was utilized to create the map of the City's wastewater facilities.

Map of Sewer System High Priority Areas

The City of Carlsbad also maintains a map illustrating the location of the City of Carlsbad's sewer system high priority areas for Fats, Oils and Grease and/or Heavy Grit and/or Root Intrusion.

Sewer Cleaning Report- Sample

The City of Carlsbad routinely cleans its entire gravity mains 12" and smaller on a three year rotation. The City of Carlsbad cleans high priority area gravity mains quarterly or semi-annually and all wet wells on an as needed basis. City of Carlsbad's Utilities Wastewater Program includes an up-to-date map of the sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, as well as a map of all gravity main problem areas.

Video Inspection Log-Sample

The City of Carlsbad field staff observes all gravity mains and pipes during routine cleaning and conduct localized video inspections when their observations warrant such further investigation. The results of these video inspections are recorded in the Video Inspection Log.

Engineering Standards, Volume 1 –Chapter 2, GIS Mapping

The City of Carlsbad also maintains to up-to-date storm system maps over-laid onto sewer system maps to help expedite environmental protection in the event of a sewer overflow.

Annual Capital Replacement Program

Developed annually by the City of Carlsbad, the program includes rehabilitation and replacement projects, as wells as repair projects developed by a collaboration of the collection system operator's ad their data collected and other City of Carlsbad staff, in order to maintain a high degree of system integrity.

Long-Range Capital Financing

Developed by the City of Carlsbad, this document describes how the City of Carlsbad proposes to continue to pay for the Capital Replacement and Improvement Programs, by noting fund balances, funding sources and fund uses, and encompasses both collection and treatment system costs.

DESIGN & PERFORMANCE PROVISIONS

The City of Carlsbad's Design and Performance Provisions addresses those mandatory SSMP provisions outlined in Section D, 13 (v) Design and Performance Provisions of SWRCB Order No. 20060003.

The City of Carlsbad's Design and Performance Provisions encompass the following components:

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

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

COMPLIANCE SUMMARY

The City of Carlsbad requires that all new sewer systems, pump stations and other appurtenances, as well as the rehabilitation and repair of existing sewer facilities, be designed and constructed in accordance with the City of Carlsbad's Sewer System Standard Drawings. The Sewer System Facility Requirements and Design Guidelines also clearly outline the procedures for construction drawing preparation and approval.

Engineering Standards, Volume 1– Chapter 6, Design Criteria for Gravity Sewer Lines and Appurtenances.

Procedures and standards for inspecting and testing the installation of new sewers, pumps and other appurtenances and for rehabilitation and repair projects are outlined in the City of Carlsbad's Standard Specifications and Standard Drawings for Water and Sewer Facilities.

Engineering Standards, Volume 1– Chapter 6, Design Criteria for Gravity Sewer Lines and Appurtenances and Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 6 – Construction Specifications.

The City of Carlsbad maintains Design and Performance Provisions which meet the

requirements of Section D, 13 (v) Design and Performance Provisions of SWRCB Order No. 2006-0003:

- (1) The City of Carlsbad's Sewer System Facility Requirements and Design Guidelines, Sewer System Standard Drawings of Technical Provisions of the City of Carlsbad's Standard Specifications and Standard Drawings for Water and Sewer Facilities contain design and construction standards and specifications for the installation of new sewer systems, pump stations and other appurtenances, and for the rehabilitation and repair of existing sewer infrastructure.

Engineering Standards, Volume 1– Chapter 6, Design Criteria for Gravity Sewer Lines and Appurtenances and Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 6 – Construction Specifications.

The Sewer System Facility Requirements and Design Guidelines also outline the procedures for construction drawing preparation and approval. The City of Carlsbad will review all drawings, and may revise, modify, or require redesign of any concepts, drawings, or details submitted. All concepts and drawings must be approved by the City of Carlsbad's Development Engineering Manager.

- (2) The City of Carlsbad's Technical Provisions of the City of Carlsbad's Standard Specifications and Standard Drawings for Water and Sewer Facilities contains procedures and standards for inspecting and testing the installation of new sewers, pumps and other appurtenances and for rehabilitation and repair projects.

Engineering Standards, Volume 1– Chapter 6, Design Criteria for Gravity Sewer Lines and Appurtenances and Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 6 – Construction Specifications.

COMPLIANCE DOCUMENTS

The following documents, attached as appendices, support the City of Carlsbad's Design and Performance Provisions, thereby allowing the District to comply with the Design and Performance Provisions requirements of the WDR:

Sewer System Facility Requirements and Design Guidelines, City of Carlsbad

Engineering Standards, Volume 3 - Standard Drawings and Specifications, 2004 Edition, Table of Contents

Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 3 – Standard Title Sheets

Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 5 – Standard Drawings

Sewer System Standard Drawings, City of Carlsbad. Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 6 – Construction Specifications

Technical Provisions of the City of Carlsbad's Standard Specifications and Standard Drawings for Water and Sewer Facilities

Engineering Standards, Volume 1– Chapter 6 Design Criteria for Gravity Sewer Lines and Appurtenances

Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 6 – Construction Specifications

DOCUMENT DESCRIPTIONS

A description for each compliance document listed above is described below:

Sewer System Facility Requirements and Design Guidelines

The City of Carlsbad's Sewer System Facility Requirements and Design Guidelines:

Procedures for Construction Drawing Approval

Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 3 – Standard Title Sheets and Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 5 – Standard Drawings

Design Criteria. Engineering Standards, Volume 1– Chapter 6, Design Criteria for Gravity Sewer Lines and Appurtenances

Construction Drawing Preparation

Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 3 – Standard Title Sheets and Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 5 – Standard Drawings

Procedures for Sewer System Facility Construction. Engineering Standards, Volume 3 - Standard Drawings and Specifications, Chapter 6 – Construction Specifications

The City of Carlsbad requires that sewers and connections be properly designed and constructed, respectively. The City of Carlsbad will review all drawings, and may revise, modify, or require redesign of any concepts, drawings, or details submitted. All concepts and drawings must be approved by the City of Carlsbad's Development Engineering Manager.

Sewer System Standard Drawings

These drawings include the District's Sewer System Standard Drawings for:

Pipe Zone Bedding and Trench Backfill
Concrete Caps and Encasement
Sewer Connection at Concrete Encasement
Sewer Lateral Normal Cut
Sewer Lateral Deep Cut
Sewer Lateral V.C.P. Saddle Connection
Sewer Lateral Plastic Pipe Saddle Connection
Connecting Dissimilar Sewer Pipes
Residential Cleanout
Sewer Chimney Lateral
Sewer Tree Laterals & Cleanouts
Pre-Case Reinforced Eccentric Concrete Manhole
Terminus Manhole with House Laterals
Manhole Cover & Frame
36" – 2 Piece Manhole Cover & Frame Standard & Watertight
Paving Detail around Manholes
Manhole Cover and Frame – Locking Type –
Sewer Clean-Out
36" LD. Sampling Manhole
Drop Manhole
Typical Metering Manhole
Metering M.H. Telemetry
Pipe Casing Sewer Main
Sewer Main Crossing Existing Water
Sand/Oil Separator
Sample Box #1 (Industrial)
Sample Box #2 (Commercial)
Grease Interceptor
Sampling Wye
Sewage Backflow Assembly

City of Carlsbad of Technical Provisions of the City of Carlsbad's Standard Specifications and Standard Drawings for Water and Sewer Facilities

The City of Carlsbad's Technical Provisions of the City of Carlsbad's Standard Specifications and Standard Drawings for Water and Sewer Facilities requires contractors to perform all operations necessary to construct sewer mains and appurtenances as specified within the provisions, and as shown on the City of Carlsbad's Sewer System Standard Drawings. Specific sewer specifications are outlined in the following sections:

Scope
Excavation

Bedding
Bedding and Backfill
Vitrified Clay Pipe (VCP) Sewer Pipe
High Density Polyethylene (HDPE) Sewer Pipe
Ductile Iron, D.I.
Cast Iron, C.I.
Installation
Manholes and Appurtenances
Laterals
Force Mains
Testing Sewer for Leakage and Visual Inspection
Inspection and Pipeline Interior
Pipe Repair and Replacement
Conductor Casings and Carrier Pipes
Polyvinyl Chloride (PVC) Sewer Pipe
Special Rules and Regulations Applicable for Certain Sewer Connections

The City of Carlsbad (Testing Sewer for Leakage and Visual Inspection) includes general testing procedures, as well as specific guidance in performing leakage, water exfiltration, air pressure tests and deflection (Mandrel) tests.

OVERFLOW EMERGENCY RESPONSE PLAN

The City's Overflow Emergency Response Plan addresses those mandatory SSMP provisions outlined in Section D,12(vi) Overflow Emergency Response Plan of SWRCB Order No. 2006-0003.

The City has developed and implemented an overflow emergency response plan that identifies measures to protect public health and the environment, thereby satisfying Section D, 12 (vi) Overflow Emergency Response Plan of SWRCB Order No. 2006-0003 by including:

- (1) Proper notification procedures so that primary responders and regulatory agencies are informed of all SSOs in a timely manner;
- (2) A program to ensure an appropriate response to all overflows;
- (3) 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;

- (4) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Overflow Emergency Response Plan and are appropriately trained;
- (5) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and
- (6) 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.

The City's Overflow Emergency Response Plan contains the following sections:

- (1) Purpose.** This section states that the Sewer Overflow Response Plan has been developed to ensure an appropriate standardized response in the event of a sewer overflow. The Plan also ensures that the City of Carlsbad is adequately prepared to respond to SSO events by:
 - (a) Reducing or eliminating public health hazards,
 - (b) Preventing unnecessary property damage,
 - (c) Ensuring thorough recovery and cleanup efforts,
 - (d) Properly documenting, notifying and reporting overflow spill events,
 - (e) Minimizing the inconvenience of service interruptions, and
 - (f) Ensuring staff and contracted personnel are properly trained to respond to such events.
- (2) General.** The General Section of the Plan describes the Orders and permits from the Regional Board, Carlsbad's obligation to comply, the relationship between the City of Carlsbad and the Encina Wastewater Authority, prohibitions, civil and monetary penalties for enforcement and the definition of a sewer overflow.
- (3) Overflow Detection and Initial Response.** Describes the methods in which overflows may be discovered or detected as well as the responsibilities of the City of Carlsbad personnel to respond to overflows, what a preliminary assessment and response might consist of, how to respond to overflows in the collection system, at lift stations and on private property. This section also describes the SEMS/Incident Command structure.
- (4) Mitigation.** Mitigation describes the concept of reducing spill severity and the sensitivity of the coastal waters and the environment to SSOs.
- (5) Public Access and Warning.** This section describes procedures to protect the public from a public nuisance by posting signage.

- (6) Recovery and Cleanup.** The Recovery and Cleanup section of the Plan describes procedures to be followed for clean-up of spills into concrete lined storm drains, catch basins, under sidewalk drains, streets, curbs, gutters and other storm water conveyance structures. The section also describes procedures to be followed for clean-up of spills into waterways, into lawns or landscaping, into natural vegetation or environmentally sensitive areas, indoors or from private lateral spills.

The City of Carlsbad (City) is currently preparing a Sanitary Sewer Overflow (SSO) Remediation Protocol that can be implemented for SSOs of 1,000-gallons or more spilled to surface waters in order to meet the requirements of a recent legal agreement. For the purposes of the SSO Remediation Plan, an SSO is defined as any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs can contain suspended solids, pathogenic organisms, nutrients and other pollutants that may impact surface and ground waters, threaten public health, or adversely affect aquatic life. The SSO Remediation Protocol will integrate the City's sanitary sewer infrastructure, Sanitary Sewer Management Plan (SSMP) overflow emergency response plan(s), adjacent watershed configuration and water quality monitoring information, sewage spill remediation techniques and other relevant information specific to SSO response procedures. The SSO Remediation Protocol will include reference to existing initial response strategies, an SSO evaluation and adaptive monitoring remediation approach and identify a suite of potential SSO remediation actions applicable to potential SSO scenarios.

- (7) Water Quality Monitoring and Sampling Procedures.** This section describes procedures to be followed for sampling after a SSO has occurred. Water quality sampling and testing will take place when SSO's of 50 gallons or more enter receiving waters. These waters include; Buena Vista Creek/Lagoon, Agua Hedionda Creek/Lagoon, San Marcos Creek and Batiquitos Lagoon.

Tests will be the following; Ammonia, Fecal Coliform, E. Coli, Total Coliform, Dissolved Oxygen, Copper, Zinc and Biochemical Oxygen Demand or BOD.

- (8) Investigation and Overflow Estimation.** Ensures that overflow quantification is accurate and lists several means of quantifying overflow. The section also describes what is contained in an overflow events record and describes an after action report.

- (9) Regulatory Notification and Reporting.** Describes the different category of spills and the reporting protocol for the various spill types.

- (10) Equipment.** Includes a description of vehicles and equipment to support the daily

needs, routine maintenance and emergency situation for the wastewater division.

(11) Safety. Stresses the criticality of resolving a spill incident safely and competently. Describes typical safety procedures that personnel may be required to implement during spill responses including; lockout/tagout of equipment for repairs, confined space entry procedures, traffic and crowd control procedures at site, equipment and/or vehicle operation, use of personnel protective equipment. This section also outlines safety training goals.

(12) Training. The Training section outlines reviewing and amending the Overflow Emergency Response Plan as well as an annual training schedule.

(13) Contact Information. Lists contact numbers for personnel, outside Districts and Utilities, outside agencies, lagoon contacts, emergency contractors, general contractors, welding contractors, electrical contractors, and various suppliers and specialty contracting services.

COMPLIANCE DOCUMENTS

The following document allows the City to comply with the overflow and emergency response plan requirements of the WDR, and are attached as appendices.

- The City of Carlsbad Overflow Emergency Response Plan.

FATS, OILS & GREASE CONTROL PROGRAM

The City's Fats, Oils and Grease Control Program addresses those mandatory SSMP provisions outlined in Section D, 13 (vii) FOG Control Program of SWRCB Order No. 2006-0003.

The City's FOG Control Program helps reduce the amounts of Fats, Oils and Grease discharged to the sewer system, by including:

1. A plan and schedule for the disposal of FOG generated within the sewer system service area and a list of acceptable disposal facilities.
2. Legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG.
3. Requirements to install grease removal devices, design standards for the removal devices, maintenance requirement, BMP requirements, record keeping and reporting requirements.

4. Authority to inspect grease producing facilities, enforcement authorities, and sufficient staff to inspect and enforce the FOG ordinance.
5. Identification of sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section.
6. Development and implementation of source control measures for all sources of FOG discharged to the system for each section identified.
7. Implementation of a plan and schedule for a public education outreach program that promotes proper disposal of FOG.

COMPLIANCE SUMMARY

To reduce the amount of Fats, Oils and Grease discharged to the City's sewer system, the City has developed a FOG Control Program. The City identifies all food preparation and service locations within its service area. Facilities are provided with a FOG binder consisting of an educational video, posters and other materials educating them on proper FOG disposal. These customers must undergo annual GBMP inspection (Grease Best Management Practices) by the City's contractor responsible for inspections where the following is evaluated: exhaust hoods, documentation, existing FOG fixtures, and review of best management practices in the food preparation area. A second inspection, called a Grease Control Device Inspection (GCDI) is also performed annually by the City's contractor to ensure that interceptors are routinely serviced to minimize FOG discharges to the sewer system. Food preparation and service locations must keep annual records of maintenance of grease control device(s). Customers with a history of contributing FOG to the sewer system are sent a letter of correction. The City maintains an active listing of all food preparation and service locations and permits are not required at this time.

All interceptors and other grease control devices are inspected annually with more frequent inspections of those facilities experiencing inconsistent maintenance practices. The City maintains standard drawings for grease interceptors and there are several independent vendors which will collect and dispose of accumulated FOG.

The City has identified the sections of the sewer system subject to higher levels of FOG and has developed a quarterly cleaning program for those sections. As sewer lines are cleaned, the severity of the FOG accumulation is documented in the Hansen work management system and the quarterly cleaning program is updated on an annual basis based on the most recent data collected by field staff. In summary, the City maintains a FOG Control program which meets the requirements of Section D, 13(vii) FOG Control Program of SWRCB Order No. 2006-0003.

- (1) The City maintains a plan and schedule for the disposal of FOG generated within their service area in the City's *Source Control Program; Food*

Service Facility Grease Best Management Inspections and the Source Control Program: Food Service Facility Grease Control Device Inspections Log. The City distributes a FOG BMP binder to all affected facilities. The binder provides a list of independent vendors which can provide collection and disposal services in the service area.

- (2) The City possesses the legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG through the *City of Carlsbad, Municipal Code, Chapter 13 (Sewers), Section 13.06.020 FOG Prohibitions*
- (3) The City has the authority to inspect grease producing facilities through *City of Carlsbad, Municipal Code, Chapter 13 (Sewers), Section 13.06.160 Right of Entry,* and enforces any violation of its sewer ordinances in accordance with *Section 13.04.080 Violations of Chapter.* The City works in conjunction with contract staff to provide inspections of each grease removal device in the service area a minimum of one time per year.
- (4) The City's requirements to install grease removal devices are discussed in *City of Carlsbad, Municipal Code, Chapter 13 (Sewers), Section 13.06.040 FOG pretreatment required, Section 13.06.090 Grease interceptor requirements, and Section 13.06.100 Grease trap requirements.* The City has a standard drawing for the grease interceptor. The maintenance requirements, BMP requirements, record keeping and reporting requirements are found in *Section 13.06.130 Grease interceptor maintenance requirements, Section 13.06.030 Best management practices required, Section 13.06.130 Grease interceptor maintenance requirement, and Section 13.06.140 Monitoring and reporting conditions .*
- (5) The City has identified sections of the sewer system subject to high levels of FOG in their Quarterly Cleaning Area. The City's Utilities Wastewater Division cleans these areas quarterly.
- (6) The City has developed and implemented source control measures for all sources of FOG discharged to the sewer system by implementing annual Grease Best Management Practices Inspections.
- (7) City staff from the Utilities Wastewater Division, as well as citizen volunteers, met with each interceptor owner to distribute the FOG binder. The binder contains an information video on proper FOG disposal, a poster and other related materials. The City also held a series of workshops focused on FOG disposal, interceptor requirements and implementation of Best Management Practices. Additional literature available to businesses has been posted on the City's website.

COMPLIANCE DOCUMENTS

The following documents, attached as appendices, support the City's FOG Control Program.

City of Carlsbad, Municipal Code, Chapter 13.06 (Discharge of Fats, Oils and Grease).

FOG PROGRAM ENFORCEMENT

Enforcement measures of the FOG Program are limited to written notifications with time limits for satisfactory correction under City of Carlsbad Municipal Code Chapter 13 Sewers, Section 13.04.080 Violations of chapter; and administrative enforcement actions under City of Carlsbad Municipal Code Chapter 1, Section 1.10 Administrative Code Enforcement Remedies. The City has yet to establish adequate legal authority to administer penalties and fines, and for FOG Program cost recovery.

SYSTEM EVALUATION & CAPACITY ASSURANCE PLAN

The City's System Evaluation and Capacity Assurance Plan addresses those mandatory SSMP provisions outlined in Section D, 13 (viii) System Evaluation and Capacity Assurance Plan of SWRCB Order No. 2006-0003.

Carlsbad has prepared and implemented a Capital Improvement Program (CIP) that will provide hydraulic capacity of key sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. The City's System Evaluation and Capacity Assurance Plan encompass the following components:

- (1) Evaluation – Actions needed to evaluate those portions of the sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation provides estimates of peak flows 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.
- (2) Design Criteria – The City's sewer system design criteria is located in Chapter 6 of Volume 1 of the City's Engineering Standard. Where design criteria do not exist or are deficient, undertake the evaluation identified in (1) above to establish appropriate design criteria.
- (3) 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.

- (4) Schedule – Carlsbad Utilities Engineering has developed a schedule of completion dates for all portions of the CIP developed in (1)-(3) above. This schedule (Funding Matrix for Sewer Collection System Projects) shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D page 15.

COMPLIANCE SUMMARY

The City maintains a System Evaluation and Capacity Assurance Plan which meet the requirements of Section D, 13 (vii) System Evaluation and Capacity Assurance Plan of SWRCB.

The 2012 Sewer Master Plan Final Report includes tasks to document existing facilities, conduct wet weather monitoring, perform an infiltration and inflow analysis, update unit sewer flows, project ultimate wastewater flows, and develop a computer model of the entire collection system to perform capacity analyses of the existing and ultimate collections systems. The outcome of these analyses is a recommended long-term Capital Improvement Program (CIP) for improvement of existing wastewater collection and treatment facilities. An analysis of the sewer connection fee is also included to finance the recommended facilities.

The *City's Engineering Standards*, updated in 2008, outlines the appropriate design criteria necessary to ensure sufficient capacity in the sewer system, as well as preserve the estimated life-cycle of wastewater infrastructure.

The City prepares an *annual Capital Improvement Program*. The current CIP is based on the results of the 2012 Sewer Master Plan Final Report, and includes projected cost estimates, alternatives analysis and project prioritization for the next upcoming years. Annually, the City updates the CIP project list with projects identified through the operation and maintenance of the system and on-going condition assessment effort by staff. The City's CIP describes how the City proposes to pay for sewer projects by noting fund balances, funding sources and fund uses.

The 2012 Sewer Master Plan Final Report is finalized and adopted by City Council. The 2012 Sewer Master Plan Final Report includes the results from wet weather flow monitoring, an expanded sewer system model and updated growth projection data.

In 2015, Carlsbad Wastewater hired a consultant to conduct smoke testing. This will be an ongoing activity to follow the temporary flow monitoring to identify location that have inflow and infiltration.

COMPLIANCE DOCUMENTS

The following documents, attached as appendices, support the City's System Evaluation and Capacity Assurance Plan, thereby allowing the City to comply with the System Evaluation and Capacity Assurance Plan requirements of the WDR:

Design Criteria for Gravity Sewer Lines and Appurtenances, City of Carlsbad Engineering Standards, Volume 1 – Chapter 6, last update June 2008.

Additionally, the following documents also support the City's System Evaluation and Capacity Assurance Plan, and are available from the City's Engineering Division. Due to the size of these documents, they have not been attached as appendices.

- *2012 Sewer Master Plan Final Report, April 2012*

DOCUMENT DESCRIPTIONS

A description for each compliance document listed above is described below:

Design Criteria for Gravity Sewer Lines and Appurtenances

The City's Design Criteria for Gravity Sewer Lines and Appurtenances, last revised June 2008, details:

- Sewer Main Size & Location
 - Allowable Pipeline Material
 - Pipeline Sizing Criteria
 - Flowrate Generation Criteria
 - Guidelines for the Design of Sewer Lift Stations and Force Mains
-
- *2012 Sewer Master Plan Final Report, April 2012*

This report represents an update of the City of Carlsbad Sewer master Plan for the planning period between 2009 and buildout of the City's service area, which is projected to occur by 2035. The scope includes tasks to document existing facilities, conduct wet weather monitoring, perform an infiltration and inflow analysis, update unit sewer flows, project ultimate wastewater flows, and develop a computer model of the entire collection system to perform capacity analyses of the existing and ultimate collections systems. The outcome of these analyses is a recommended long-term Capital Improvement Program (CIP) for improvement of existing wastewater collection and treatment facilities. An analysis of the sewer connection fee is also included to finance the recommended facilities.

Preparation of the 2012 Carlsbad Sewer Master Plan was authorized by the Carlsbad City Council on December 11, 2008 in the form of a contract for engineering services

entitled “Agreement for Engineering Services to Update the Carlsbad Sewer Master Plan, Project No. 5511”.

MONITORING, MEASUREMENT & PLAN MODIFICATIONS

The City’s Monitoring, Measurement, and Program Modifications addresses those mandatory SSMP provisions outlined in Section D, 13 (ix) Monitoring, Measurement, and Program Modifications of SWRCB Order No. 2006-0003. The section of the SSMP encompasses the following components:

- (1) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;
- (2) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;
- (3) Assess the success of the preventative maintenance program;
- (4) Update program elements, as appropriate, based on monitoring or performance evaluations; and
- (5) Identify and illustrate SSO trends, including; frequency, location, and volume.

COMPLIANCE SUMMARY

The City tracks the location and cause of all SSO, blockages, and gravity main hot-spots. The City maintains a log of all cleaning activity within each of its 40 cleaning zones. Each of these zones represents a separate drainage basin for the City. The City maintains records of the staff that cleaned the line, the equipment used, the size and length of the pipe, the amount of debris gathered, the manhole condition assessments on the line, and any relevant remarks observed during the cleaning. The City uses the Hansen work order management system for preventive maintenance work orders.

In the fall of 2008, the City began a system-wide video inspection of the sewer mains sized 12” and under. The video inspection work is scheduled to be completed system-wide every four years. Additionally, City staff observes all gravity mains during routine cleaning and conduct localized video inspections when their observations in the field warrant further investigation. The City maintains a log of this continued video

inspection in its Video Inspection Log. During the localized video inspection and the manhole inspection, each asset is given a ranking based on the observed overall condition and defect (if any). These rankings, as well as the observed condition of each pipeline, allow the City to identify gravity mains that are at risk of collapse or prone to more frequent blockages due to pipe defects.

In order to monitor the implementation and measure the effectiveness of the SSMP, Carlsbad Wastewater Division tracks several performance indicators, including:

Reactionary Efforts

- Location of all overflows;
- Amount of overflow recaptured and/or released to the environment;
- Cause of the overflows as revealed through CCTV investigation;
- Average response time of staff to arrive at an overflow location;

It is anticipated that performance measures will be compared over time and an effort made towards lowering or eliminating each adverse result.

Proactive Efforts

- Volume of sewage spills per mile of sewer mains;
- Station Facility Maintenance: Percentage of planned work activities completed during the fiscal year based on standards established in the Maintenance Assessment Program;
- City of Carlsbad Public Opinion Survey on Wastewater Operations (90% of customers rate sewer services as “good or excellent.”);
- Sewer Main Cleaning: Percentage of planned work activities completed during the fiscal year based on standards established in the Maintenance Assessment Program;
- Record and track total mileage of gravity sewer system cleaned annually;
- Evaluation of the “High Priority” areas to evaluate whether to add or delete sections of the system from the accelerated cleaning schedule;
- Percentage of total gravity sewer system cleaned annually;
- Number of manholes inspected annually;
- Number of Interceptors inspected and/or cleaned annually;
- Percentage of wet wells cleaned annually.
- Coordinate with Asset Manager for CIP projects.

Some of these performance measures are tracked in the City-wide State of Effectiveness Report, an annual report analyzing Carlsbad’s performance against established measures. The Carlsbad Wastewater Division is committed to gathering and evaluating

the data collected on an annual basis and more frequently if the situation arises. Staff will evaluate each section of the SSMP and will recommend changes if warranted.

In conclusion, Carlsbad Wastewater Division maintains a Monitoring, Measurement, and Program Modifications which meet the requirements of Section D, 13, Monitoring, Measurement and Program Modifications in SWRCB Order No. 2006-003.

- (1) The City tracks the location and cause of all SSOs, blockages, and gravity main hot-spots. The City maintains a log of all cleaning activity by zone, which details the size, material and location of each pipe cleaned. The City maintains a Computerized Maintenance Management System, which utilizes Hansen software for preventative maintenance and work orders, as well as a log of continued video inspection efforts in the Video Inspection Log. The City identifies all food preparation and service locations within its service area as part of the monitoring and surveillance program. A list of all customers is maintained by the City. All interceptors on the *Source Control Program: Food Service Facility Grease Control Device Inspections Log* are inspected at a minimum on once annually by City staff or a consultant;
- (2) The City monitors the implementation of the SSMP, and measures the effectiveness of each element of the SSMP by developing and tracking performance indicators on an annual basis;
- (3) By tracking performance indicators, the City is able to assess the success of its preventative maintenance program;
- (4) The City has assigned a team from the Wastewater Division to review the SSMP annually, in order to update all program elements as appropriate. In addition to tracking the above performance indicators, the staff member will review all sections of the SSMP for effectiveness and timeliness. Collection system personnel will also be consulted annually to review the effectiveness of the SSMP, and help identify potential areas for improvement.
- (5) The City tracks the frequency, location and volume of all SSOs.

COMPLIANCE DOCUMENTS

- (1) Video Inspection Log
- (2) Source Control Program: Food Service Facility Grease Control Inspection Log

SSMP PROGRAM AUDITS

The City's SSMP Program Audits addresses the mandatory SSMP provision outlined in Section D, 13 (x) SSMP Program Audits of SWRCB Order No. 2006-0003.

As a part of the SSMP, the City of Carlsbad's Wastewater Department is required to conduct a periodic internal audit, appropriate to the size of the system and number of SSO's. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. The audit needs to focus on evaluating the effectiveness of the SSMP and the City of Carlsbad's compliance with the SSMP requirements of subsection (D.13), including identification of any deficiencies and the steps to correct them. **City of Carlsbad conducted the two-year audit and certified the revised SSMP on July 11, 2011.**

COMPLIANCE SUMMARY

The City of Carlsbad has a current internal audit program that has been expanded to cover the WDR program and its elements. An internal audit covering both compliance and conformance was conducted prior to the submittal of the final SSMP to ensure that it meets all requirements of the Order.

The City of Carlsbad's Utilities Wastewater Department management team will assign the appropriate staff to conduct department wide audits as the WDR is implemented and utilized. Strategies to correct deficiencies, if identified, will be developed by the responsible division within the department with assistance from Utilities Management.

The City of Carlsbad will meet with other neighboring agencies in the wastewater industry to discuss collaborative auditing approaches, pending the availability of resources. Each agency will be at different stages of their SSMP Plan, therefore it will depend on the agency's progress to determine if they can participate with this effort.

The City of Carlsbad internal audits are to be conducted using the criteria below. A sister agency such as a neighboring Department of Public Works or Wastewater Agency will be asked to conduct the audits, acting as a third party to insure that the system is not flawed or swayed by an internal source from the Wastewater Team.

Deficiencies identified as a result of the audit will be brought to the attention of each responsible City of Carlsbad Division. Deficiencies and corrective actions will be identified, verified, and documented by the Wastewater Management Team.

The audit will include, but not limited to, the following;

- Any significant changes to the components of the SSMP, including but not limited to, Legal Authority, FOG Control Program or Sewer Overflow Response Plan,
- SSMP implementation efforts over the past years,
- A description of additions and improvements made to the sewer collections system over the past two years,
- A description of additions and improvements planned for the upcoming two years, with estimated schedule for implementation, and
- Strategies to correct deficiencies, if identified, will be developed by the responsible City of Carlsbad staff.

COMMUNICATION PROGRAM

The City of Carlsbad's Communication Program addresses the mandatory SSMP provision outlined in Section D, 13 (xi) Communication Program of SWRCB Order No. 2003-0003. The provision requires the City of Carlsbad to communicate regularly with and allow input from interested parties on the development, implementation, and performance of its SSMP.

COMPLIANCE SUMMARY

The City of Carlsbad has communicated with interested parties on the implementation and performance of this SSMP. The communication program allowed interested parties to provide input as the program is developed and implemented.

The City of Carlsbad has complied with this requirement through hosting numerous meetings, presentations, workshops, and utilizing the City of Carlsbad website as a resource for disseminating information. Public Education has been accomplished by: 1) distributing door hangers which offered tips for the customers to utilize to assist the Utilities Wastewater staff with eliminating unwanted debris from the sewer system. 2) Along with the FOG Program, a FOG Binder was distributed to each Food Service Facility to assist them with compliance with the updated Ordinance.

The City of Carlsbad staff and any interested member of the public will meet on a semi-annual basis to evaluate pertinent issues/topics that affect the status of the sewer system and the community as a whole.

The City has no systems tributary and/or satellite to Carlsbad's sewer system.

COMPLIANCE DOCUMENTS

Information regarding the City's WDR/SSMP can be found at the following website address: www.carlsbadca.gov, Search Key Word: SSMP.

Written requests for WDR and SSMP information can be made to:

City of Carlsbad
Utilities Wastewater
5950 El Camino Real
Carlsbad, CA, 92008

or by phone at 760-438-2722